AURA

2-pipe / 4-pipe fan coils
Vertical / horizontal cased installation

CFFC / CFFU 1-12 DC motor
CFFAC / CFFAU 1-12 AC motor

Installation and maintenance manual

en

ROMANIAN BULGARIAN SLOVENIAN HRVATSKI

16127160007802-E 05-2026

Valid from -2020 (revision E/2026)

Keep this manual together with the wiring diagram in an accessible place for the operator for future reference.

Dear Customer,

We congratulate you on choosing this product.
Clivet has been working for years to offer systems able to assure the maximum comfort for a long time with highly-reliable, efficient, high-quality and safe solutions.
The target of the company is to offer advanced systems, that assure the best comfort and reduce energy consumption as well as the installation and maintenance costs for the entire life-cycle of the system.
With this manual, we want to give you information that is useful for all phases: from reception, installation and use to disposal - so that such an advanced system can provide the best performances during installation and use.

Best regards and have a good read.

CLIVET Spa

The original instructions are written in Italian.
All other languages are translations of the original instructions.

Summary

1. General

1.1 About the manual

- The manual ensures proper installation, use and maintenance of the unit
- this manual is an integral and essential part of the product
- keep this manual together with the wiring diagram in an accessible place for the operator. It should always accompany the product, even if it is transferred to another owner or user
- recipients of the instructions in the manual are indicated in the “Recipients” chapter
- the recipient is indicated at the beginning of each section of the manual
- recipients, to the extent of their responsibility, are required to read the instructions and warnings in this manual as they provide important information on safe installation, use and maintenance.

Remember that:

- the manufacturer accepts no liability for damage to persons or property resulting from failure to observe the rules in this manual
- failure to observe the instructions in this manual will result in forfeiture of the warranty
- the manufacturer reserves the right to make changes or improvements to this documentary material and to the units without prior notice
- visit the manufacturer’s website for up-to-date details
- this manual contains proprietary information, all rights reserved, it may not be reproduced or photocopied, either in whole or in part, without the prior written consent of manufacturer.

1.1.1 Symbols

The symbols in the following chapter can be found in the manual and on the product, and provide quick and clear information for correct and safe use.

1.1.1.1 Safety symbols

Danger

This symbol indicates warnings, failure to comply may result in serious harm to health and fatal injuries.

Warning

This symbol indicates warnings, failure to comply may result in irreparable damage to the product or harm to the environment.

Prohibition

This symbol indicates operations that must never be carried out.

Note

This symbol indicates important information.

1.1.1.2 Editorial symbols

In the texts

Purpose of the action: indicates the purpose of a sequence of actions.
(it is identified by bold text followed by :)

► this symbol indicates actions that are required

○ this symbol indicates the expected result after an action

• this symbol indicates the lists

In the images

1 uniquely indicates a component

(A) indicates a group of components

1 indicates a sequence of actions

In the images, dimensions are expressed in millimetres unless otherwise indicated.

1.1.1.3 Symbols on the unit

The following symbols are used in some parts of the product:

Instructions for the User

Read the User Manual carefully before using the product.

Instructions for the User

Read the Installer Manual carefully before installing the product.

Instructions for the Technical Support Service

Read the Technical Support Service Manual carefully before carrying out any operation on the product.

1.1.2 Recipients

1.1.2.1 User

Inexperienced person who is capable of:

- operating the product safely for people, for the product and for the environment
- interpreting elementary diagnostics of faults and abnormal operating conditions
- carrying out simple adjustment, test and maintenance operations.

1.1.2.2 Installer

Experienced and qualified person able to:

- to put the product in a safe operating condition for people, for the product and for the environment
- to comply with the regulations in force in the country of destination
- to provide the user with basic information on safe use and maintenance in accordance with this manual and current national regulations
- comply with the regulations in force in the country of destination.

1.1.2.3 Technical support service

Experienced person, qualified and authorised directly by the manufacturer to:

- carry out a diagnosis of product faults and abnormal operation, possibly using information provided by the user
- rectify faults, carrying out the necessary repairs, replacements and adjustments that will restore the product's ability to function correctly and safely for the people, for the product and for the environment
- comply with the regulations in force in the country of destination.

1.1.3 Document organisation

- The manual is divided into sections, each dedicated to one or more recipients
- the recipient is indicated at the beginning of each section of the manual.

1.2 General safety warnings

⚠ Read the "About the manual" chapter carefully before proceeding with any operation.

⚠ Each chapter contains specific warnings for the operations given therein. These warnings should be read before starting any activities.

⚠ For every operation, always comply with current national regulations.

⚠ All personnel must be aware of the operations and of the hazardous situations that may arise when starting any operations on the unit.

⚠ Any contractual and non-contractual liability for damage caused to persons, animals or property by installation, adjustment or maintenance errors or improper use is excluded.

⚠ Any uses not expressly indicated in this manual are not permitted.

⚠ Do not change or tamper with the device as this can lead to hazardous situations.

⚠ Use appropriate safety clothing and equipment.

⚠ The manufacturer accepts no liability for failure to comply with current safety and accident prevention regulations.

⚠ The manufacturer reserves the right to make changes to its models at any time to improve its product, subject to the essential characteristics described in this manual.

⚠ The manufacturer is not obliged to add these changes to units previously manufactured, already delivered or being built.

⚠ The unit is suitable for use by children aged 8 years and over and by persons with reduced physical, sensory or mental capabilities or lack of experience or knowledge if they are properly supervised or have received instructions on the safe use of the device and have understood the associated hazardous situations. Children must not play with the device. Cleaning and maintenance operations must not be carried out by children without supervision.

⛔ It is forbidden to touch the device with wet or damp parts of the body.

- It is forbidden to carry out any operation before disconnecting the device from the mains power supply by turning the system's main switch to "off".
- It is forbidden to change the safety or control devices without the device manufacturer's authorisation and instructions.
- It is forbidden to pull, unplug or twist the electrical cables coming out of the device, even if it is disconnected from the mains power supply.
- It is forbidden to introduce objects and substances through the air intake and supply grills.
- It is forbidden to open the access doors to internal parts of the unit without first turning the system's main switch to "off".

2. Presentation of the product

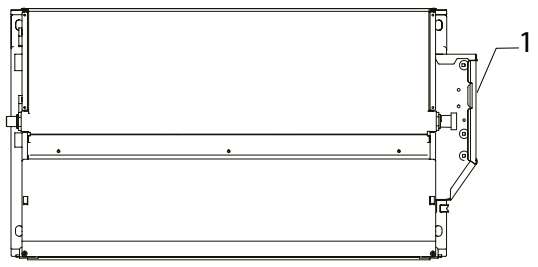
2.1 Identification

The serial number label is positioned on the unit and allows to identify all the unit features.
The matriculation plate shows the indications foreseen by the standards, in particular:

- unit type
- serial number
- year of manufacture
- wiring diagram number
- electrical data
- manufacturer logo and address

ⓘ The serial number uniquely identifies each unit and enables specific parts to be identified.

⚠ Tampering, removal, missing identification labels or anything else that does not allow the product to be safely identified, makes installation and maintenance operations difficult.



1 Serial number label

2.2 Regulatory framework

The relevant regulatory framework can be found in the declaration of conformity enclosed with this document.

2.3 Intended use

The units are designed for:

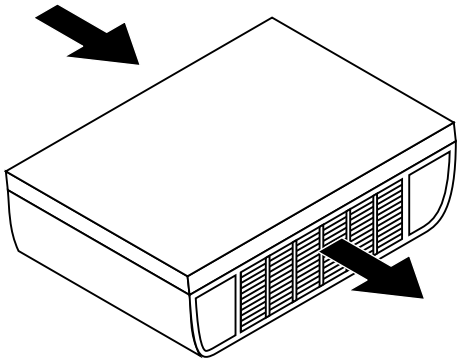
- indoor installation
- operation within the limits and with their performance characteristics set out in this document and in the bulletin.

2.4 Description

It is the fan coil for floor or ceiling installation for extreme comfort with an innovative design, in line with the standards of modern European environments, thanks to a meticulous study of the lines and materials.

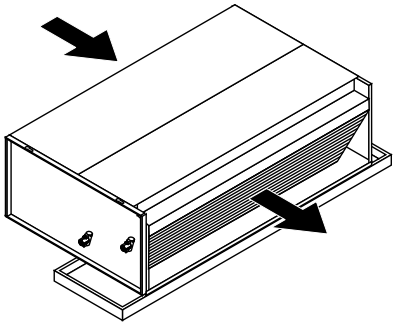
2.5 Unit versions

Horizontal cased



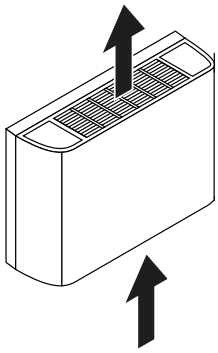
Air return from behind

Built-in horizontal



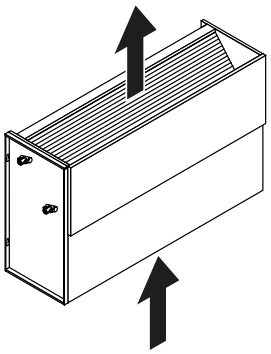
Air return from behind

Vertical cased



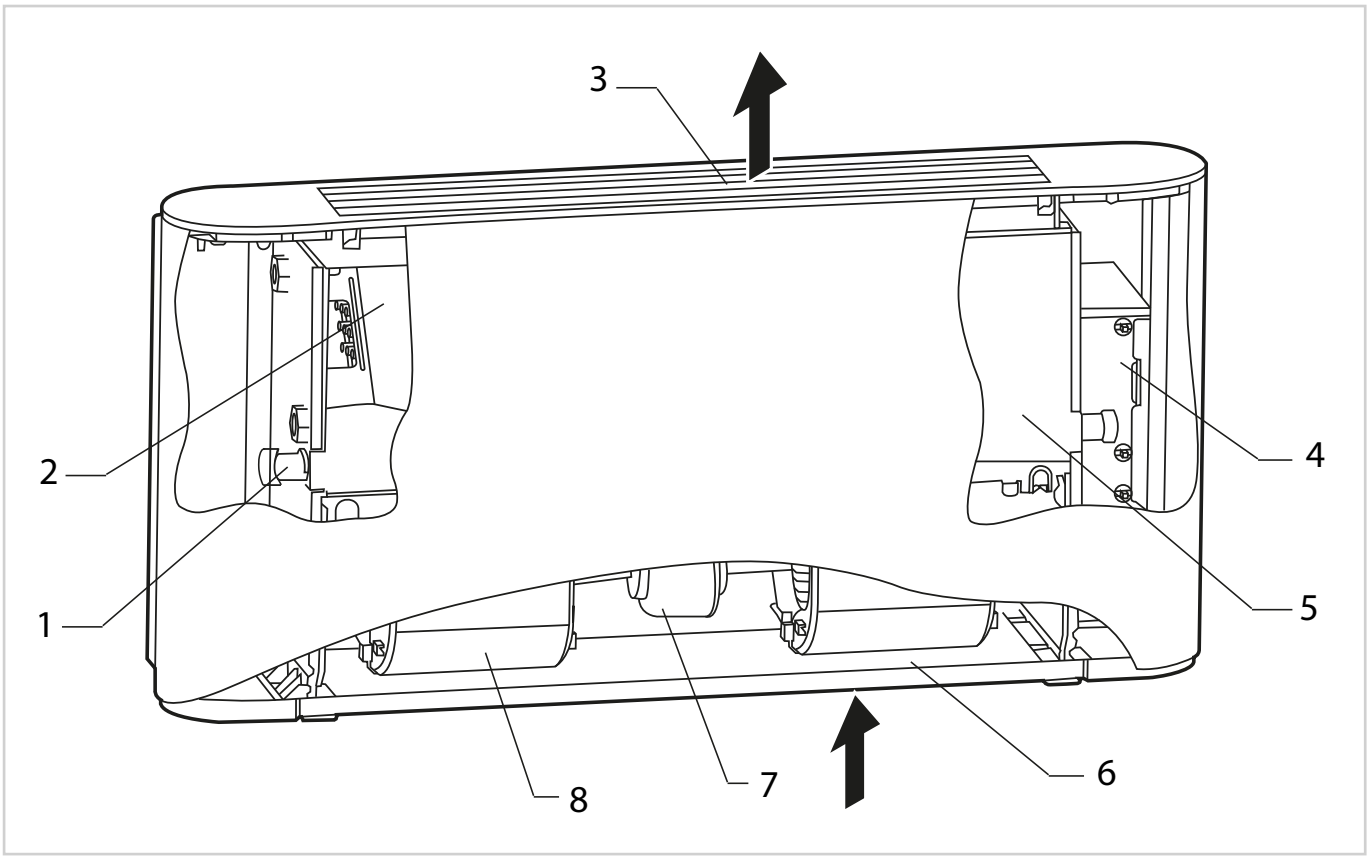
Air return from below

Built-in vertical



Air return from below

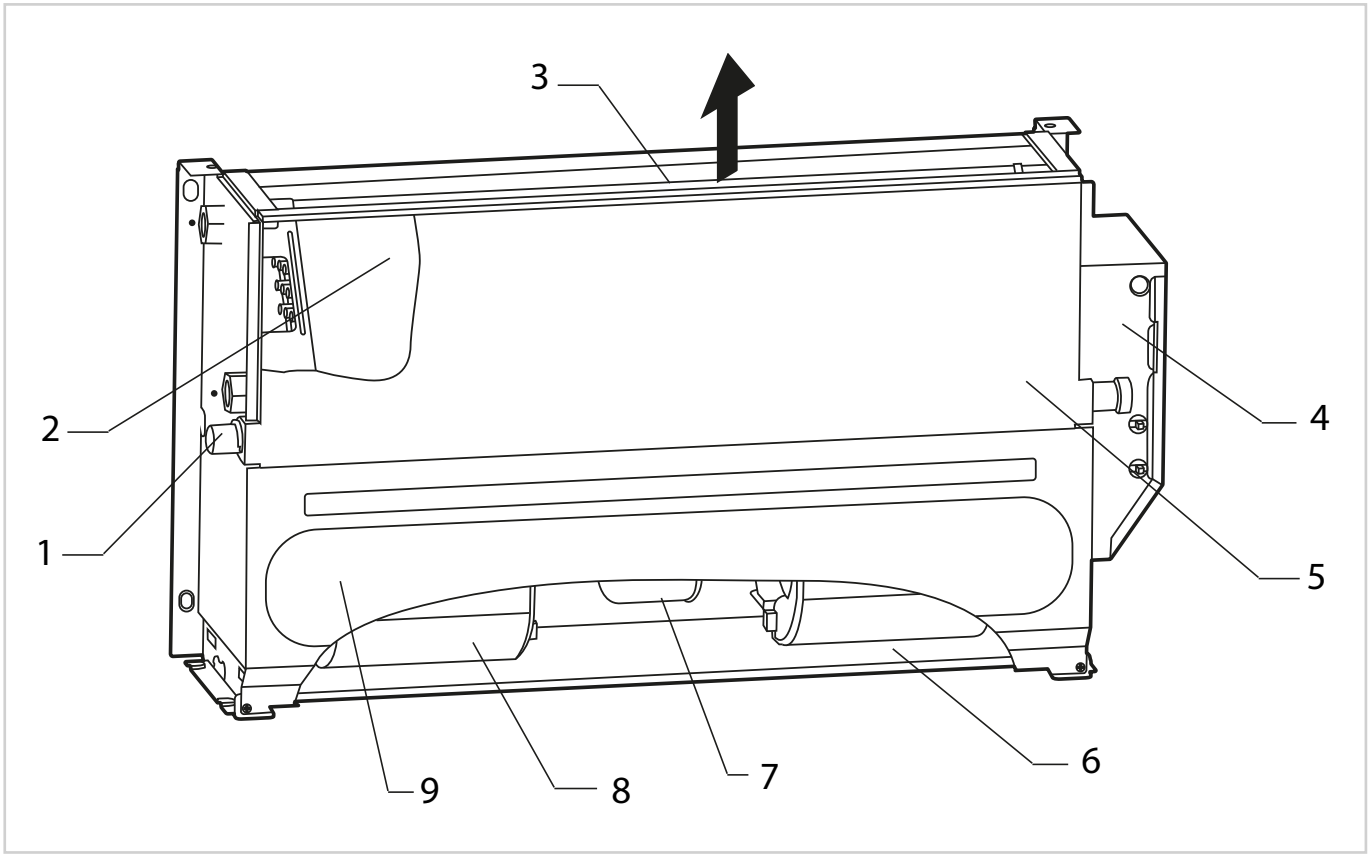
2.6 Main components



Cased version

No.	Component
1	Condensate drain
2	Exchanger
3	Grille
4	Electrical panel
5	Condensation collection basin
6	Air filter
7	Motor
8	Fan

ⓘ The images are provided for illustrative purposes only.



Uncased version

No.	Component
1	Condensate drain
2	Exchanger
3	Grille
4	Electrical panel
5	Condensation collection basin
6	Air filter
7	Motor
8	Fan
9	Air return

ⓘ The images are provided for illustrative purposes only.

2.7 Components supplied with the unit

The following components can be found in the package:

Description	Quantity
Installation and maintenance manual	1

2.8 Compatible accessories

The list of accessories can be found in the technical bulletin.

3. Before installation

3.1 Prerequisites

⚠ This section is intended exclusively for the Installer.

⚠ Refer to the Technical data chapter for details.

⚠ When handling the unit, use equipment appropriate to the weight of the unit.

⚠ Check that all handling equipment complies with local safety regulations (crane, forklifts, ropes, hooks, etc.).

⚠ During manual operations, it is mandatory to comply with the maximum weight per person as required by current legislation.

⚠ Provide personnel with personal protective equipment appropriate for the situation, such as hard hat, gloves, safety shoes, etc.

⚠ Observe all safety procedures in order to guarantee the safety of the personnel present and the material.

⚠ To avoid injury, do not touch the unit's air inlet or aluminium fins.

⚠ Do not use the fan grills handles to move the unit.

⚠ Keep the unit packed during handling.

⚠ Remove the packaging when you have reached the point of installation.

3.2 Reception

Before accepting the delivery, check:

- that the unit has not been damaged during transport
- that the materials delivered match those indicated on the transport document, comparing the data with the serial number label on the packaging.

In case of damage or anomaly:

- immediately write down the damage found on the transport document and quote this sentence: "Accepted with reservation due to evident shortages/damages during transport"
- refer to the contractual document.

ⓘ Any disputes must be made within 8 days from the date of the delivery. Complaints after this period are invalid .

3.3 Storage

Respect the indications on the outside of the pack.

In particolar:

- minimum ambient temperature -10 °C
- maximum ambient temperature +50 °C
- maximum relative humidity 95%

⚠ Exceeding these limits can cause irreversible damage to the unit.

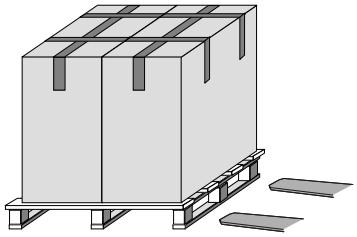
3.4 Handling

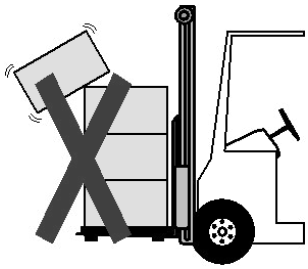
The unit can be handled:

- with a forklift truck or pallet truck.

The following examples are guidelines; the choice of means and handling modes will depend on the actual installation situation.

Lifting with a forklift truck

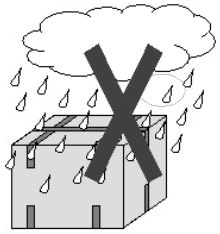




⛔ Do not leave packages loose during transport

⛔ Do not move the unit yourself

⛔ Do not step on top



⛔ Do not wet

⚠ When the load is lifted off the ground, stay clear of the area below and around it.

⚠ Identify critical points during handling (disconnected routes, flights, steps, doors).

⚠ Before starting the handling, make sure that the unit is stable.

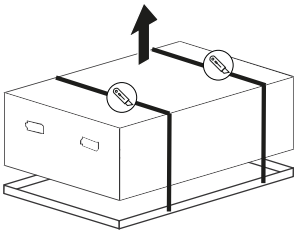
3.5 Removal of the packaging

On reaching the installation site.

Carry out the following procedure:

► cut the straps

► pull out the unit



⚠ Be careful not to damage the unit.

⚠ Keep the packaging material out of children's reach as it may be dangerous.

⚠ Recycle and dispose of the packaging material in conformity with local regulations.

4. Installation

4.1 Prerequisites

⚠ This section is intended exclusively for the Installer.

⚠ Refer to the Technical data chapter for details.

⚠ The electrical system and its components must be designed by a qualified technician who must work according to the rules of good practice and national regulations.

⚠ **Ensure that:**

- the location can be accessed safely
- the clearances are guaranteed
- there is an area free from obstacles that could affect the circulation of inlet and outlet air
- the installation wall should preferably be an external perimeter wall to allow condensation to drain outside
- with a ceiling installation, the air flow is not channelled directly towards people
- the support surface or the wall can withstand the weight of the unit
- the floor or wall section does not interfere with power lines or water piping and no load-bearing elements of the construction are compromised.

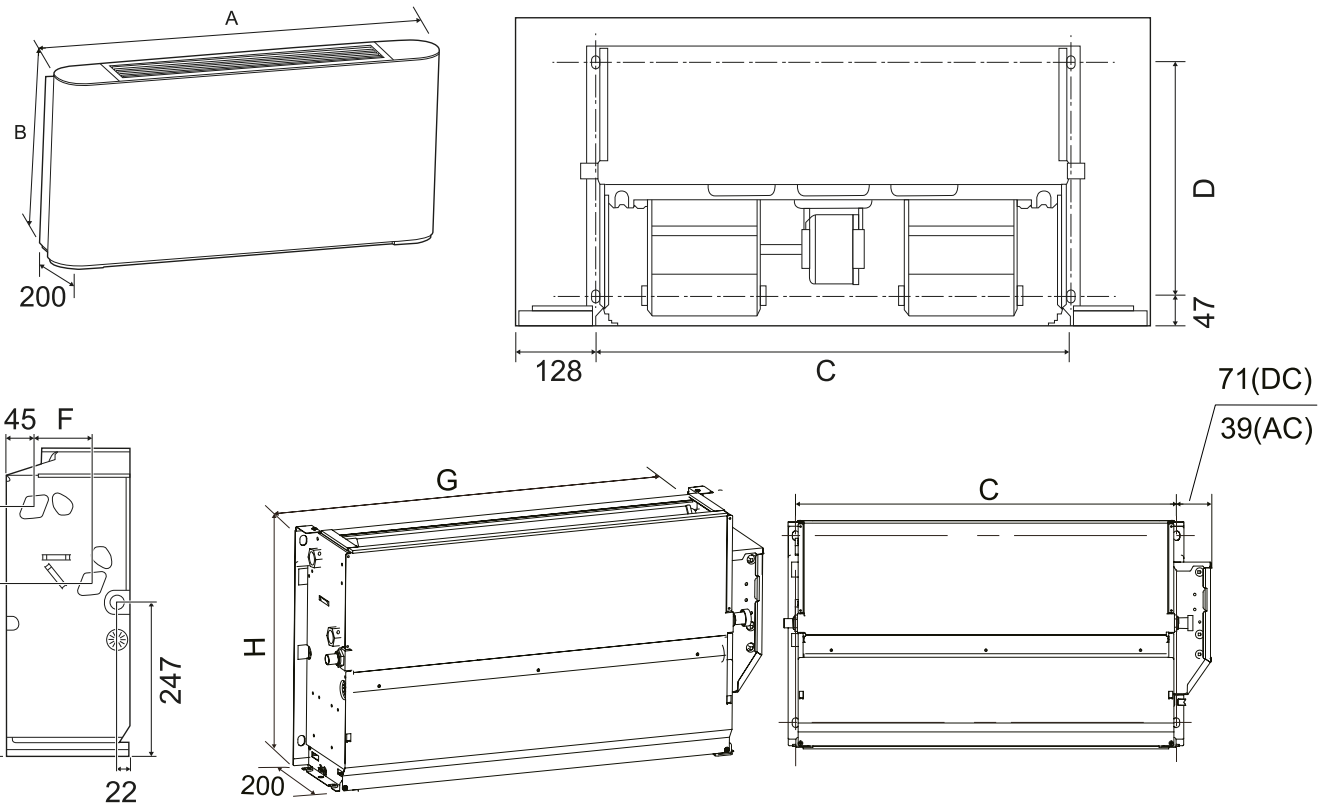
⚠ **Avoid therefore:**

- places that may be subject to flooding
- positions subject to direct exposure to sunlight
- areas near to heat sources
- damp environments and areas with probable contact with water
- in environments subjected to high frequencies.

⛔ The unit cannot be installed outdoors or in a room/compartment where the temperature can fall below 0°C.

4.2 General diagram

Dimensions / sizes for holes



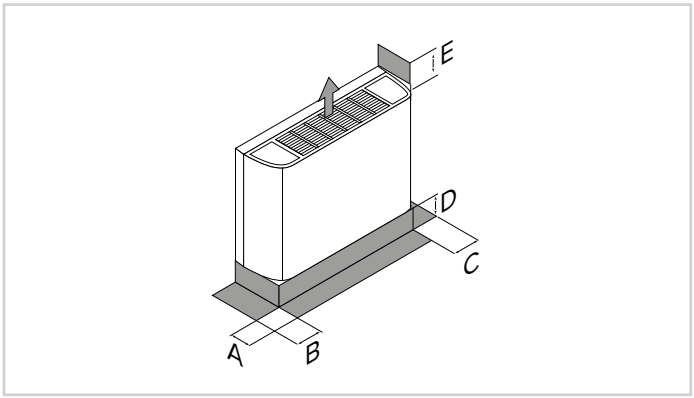
Dimensions

Size		1 - 2	3 - 4	5 - 6	7 - 8	9 - 10	11 - 12
A	mm	790	1020	1240	1240	1360	1360
B	mm	495	495	495	495	495	591
C	mm	534	764	984	984	1104	1104
D	mm	375	375	375	375	375	391
E	mm	123	123	123	123	123	219
F	mm	93	93	93	93	93	102
G	mm	628	858	1078	1078	1198	1198
H	mm	455	455	455	455	455	551

4.3 Clearances

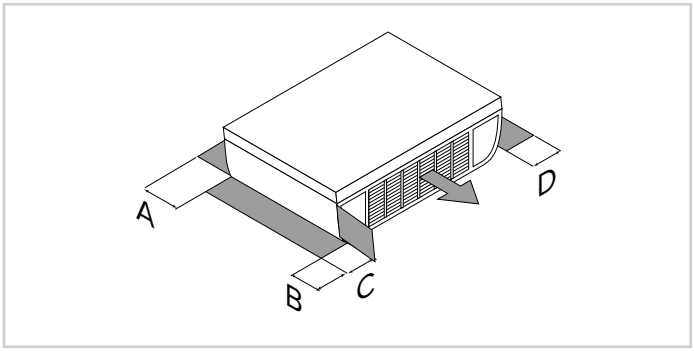
The clearances for installation and maintenance of the unit are shown in the figure.

Vertical cased



A	mm	-
B	mm	150
C	mm	150
D	mm	90 (for R3 configurations only)
E	mm	150

Horizontal cased

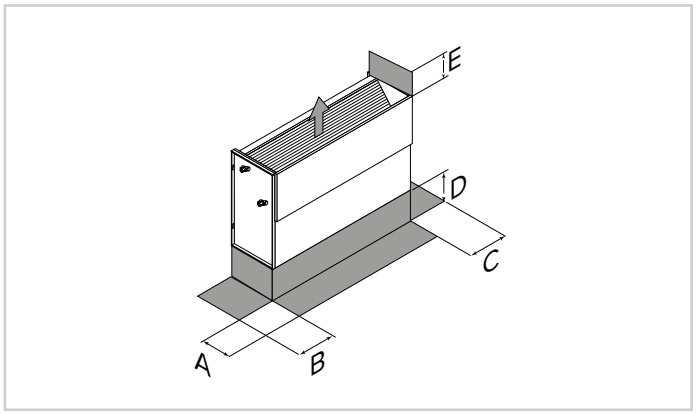


A	mm	90 (for R3 configurations only)
B	mm	150
C	mm	150
D	mm	150

⚠ Check that no condensation forms on the wall or on the object placed above the unit.

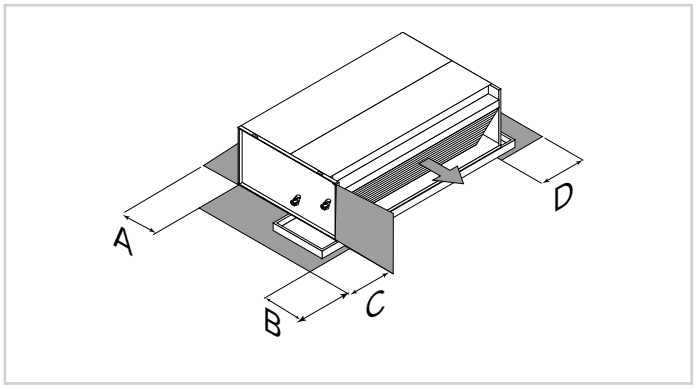
⚠ Any obstructions above the unit may reduce its performance.

Vertical uncased



A	mm	-
B	mm	150
C	mm	150
D	mm	90
E	mm	150

Horizontal uncased



A	mm	90
B	mm	150
C	mm	150
D	mm	150

⚠ Check that no condensation forms on the wall or on the object placed above the unit.

⚠ Any obstructions above the unit may reduce its performance.

⚠ Provide the openings indicated in the functional spaces in the false ceiling (or in the floor) to allow access to the unit for maintenance work.

⚠ Positioning on the ceiling: leave the floor projection of the unit and functional spaces free to allow access with ladders or other means.

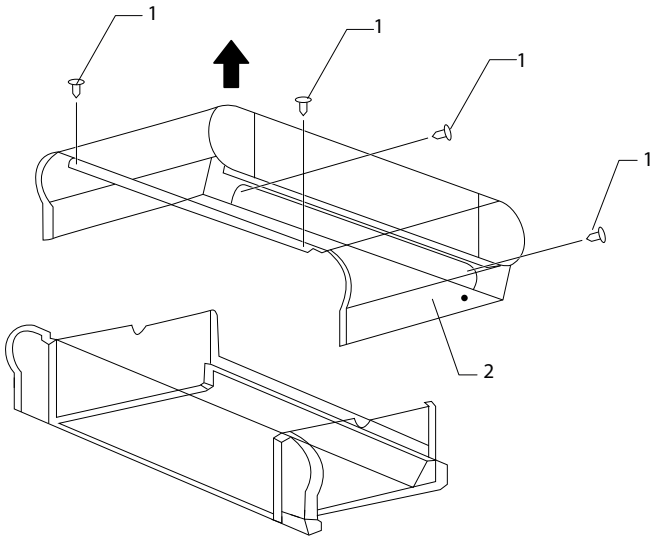
4.4 Access to internal parts

Cased version

Panel disassembly

► unscrew the fixing screws

► lift the panel



1 Fixing screws

2 Panelling

To refit:

► repeat the operations in reverse order

4.5 Wall-mounted installation

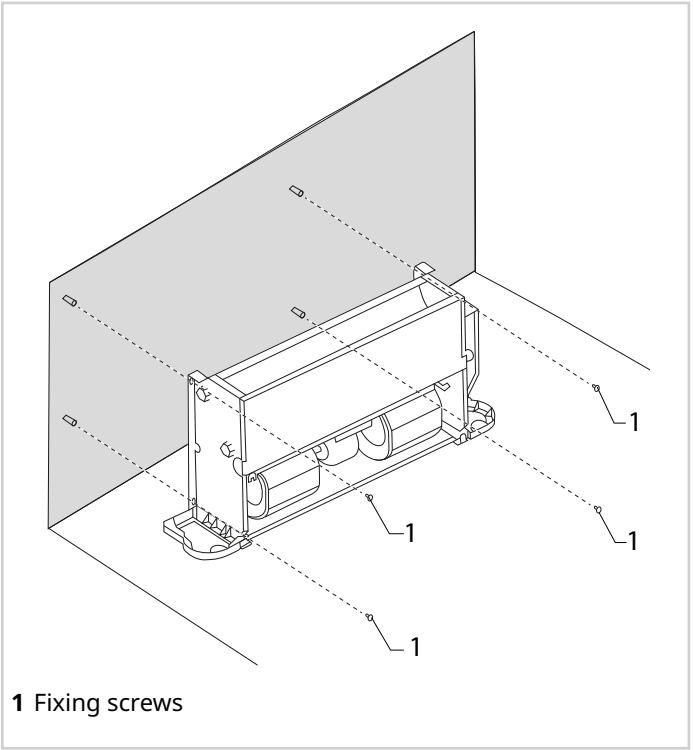
See the chapter General dimensions overview.

► mark the drilling points on the wall

► drill the holes

► insert the anchors

► secure with screws



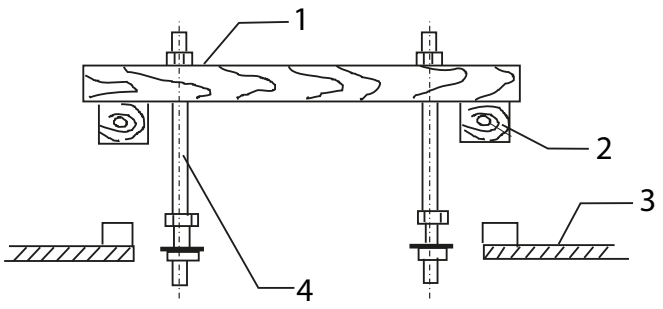
1 Fixing screws

4.6 Ceiling installation

Installation method depending on the supporting structure.

Wooden structure

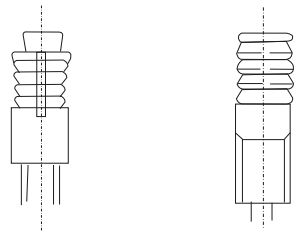
► feed the rectangular rods through the beams and fit the suspension bolts



1 Wooden structure
2 Beam
3 Ceiling
4 Screw bar

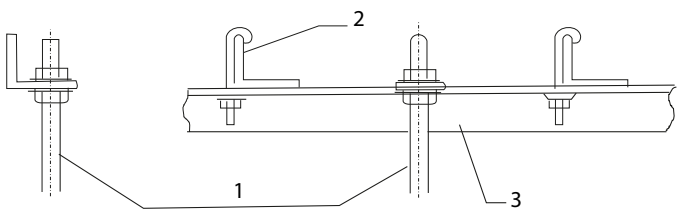
Concrete structure

► use metal wall anchors



Steel structure

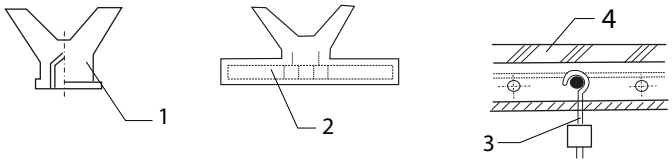
► use an L-shaped bar



1 Screw bar
2 Hook
3 L-shaped bar

New concrete structure

► use embedded/incorporated anchors



1 Anchoring bracket
2 Sliding hook
3 Embedded screw bar
4 Reinforcement bar

5. Water connections

5.1 Prerequisites

⚠ This section is intended exclusively for the Installer.

⚠ Refer to the Technical data chapter for details.

⚠ The hydraulic system and its components must be designed by a qualified technician who must work according to the rules of good practice and national regulations.

⚠ **Check that:**

- the maximum water pressure and temperature are compatible with the operating limits of the unit
- discharge shut-off valves are installed at the lowest points of the system so that the circuit can be completely drained during maintenance
- air vents are installed at the highest points of the system, in easily accessible places
- the unit is only connected to closed hydraulic circuits.

5.2 Cleaning

Before connecting the unit to the system:

- clean the system thoroughly with specific products to remove residues or impurities that could affect operation.

⚠ The warranty does not cover damage caused by limescale build-up, deposits and impurities in the water and/or failure of the hydraulic circuit cleaning system.

Existing systems

If a new unit is installed in an existing system:

- the system must be flushed thoroughly to eliminate any particles, sludge and waste.

⚠ The system must be cleaned before installing the new unit.

⚠ Dirt can be removed only with a suitable water flow rate.

⚠ Each section must be cleaned separately.

⚠ Pay particular attention to “blind spots”, where a lot of dirt can accumulate due to the reduced flow rate.

⚠ If necessary, install an additional filter sized according to the type of pollutant to be removed.

5.3 Water characteristics

The quality of the water used must be in accordance with the requirements in the following table, otherwise a treatment system must be provided.

Water component for corrosion limit on Copper	
PH (25°C)	7,5 ÷ 9,0
SO_4^{--}	< 100
HCO_3^{-} / SO_4 --	> 1
Total Hardness	8 ÷ 15 °f (4.5-8.5 dH)
Cl-	< 50 ppm
PO_4^{3-}	< 2,0 ppm
NH_3	< 0,5 ppm
Free Chlorine	< 0,5 ppm
Fe_3^{+}	< 0,5 ppm
Mn^{++}	< 0,05 ppm
CO_2	< 50 ppm
H_2S	< 50 ppm
Temperature	< 80 °C
Oxygen content	< 0,1 ppm
Sand	10 mg /L 0,1 to 0,7 mm max diameter
Ferrite hydroxide Fe3O4 (black)	Dose < 7,5 mg/L 50% of mass with diameter < 10 µm
Iron oxide Fe2O3 (red)	Dose < 7,5 mg/L - Diameter < 1 µm

5.4 Piping insulation

Isolate the entire hydraulic circuit, including all components to avoid:

- the formation of condensation during cooling
- the reduction of heating and cooling capacity

5.5 Hydraulic circuit antifreeze protection

Outdoor temperatures close to zero can cause the water in the piping and in the unit to freeze.

⚠ Frost can lead to irreversible damage to the unit.

⚠ Damage from freezing is not covered by

the warranty.

To avoid freezing problems:

- mix the water with glycol, or:
- protect the piping with heating cables laid under the insulation, or
- empty the system in the event of long downtime

⚠ If the power supply has to be disconnected water in the circuit must be drained so that the unit and piping are not damaged by freezing.

⚠ Do not reconnect the unit if there is no water in the circuit.

5.5.1 Antifreeze solutions

For the use of freezable solutions, follow the manufacturer's instructions.

ⓘ The use of unfreezable solutions causes an increase in pressure drops and a reduction in performance.

ⓘ For details, refer to the technical bulletin.

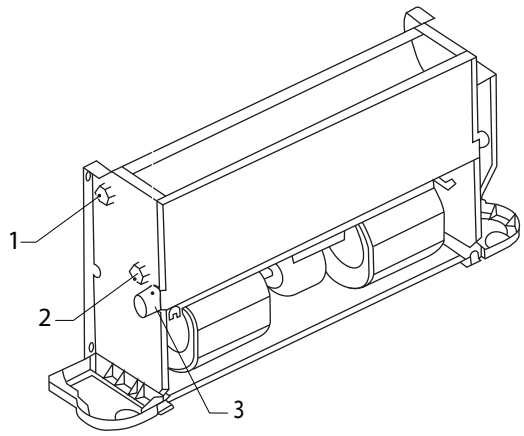
⚠ The type of glycol used must be inhibited (non-corrosive) and compatible with the hydraulic circuit components.

⛔ Do not use different glycol mixtures (e.g. ethylene with propylene).

⚠ Glycol is a toxic fluid, should not be discharged freely it must be collected and possibly reused.

5.6 Position of connections

Left-hand connections are standard.



1 Water outlet Ø 3/4" GF
2 Water inlet Ø 3/4" GF
3 Condensation drain Ø 18.5 mm

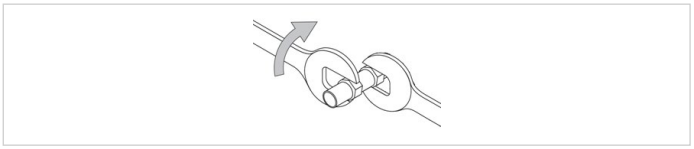
ⓘ Unit with optional valve kit; see the instructions of the accessory.

5.7 Hydraulic connection

Ensure that:

- uses supports for the hydraulic pipes weight which mustn't weigh down the unit connections
- provide drainage taps installed in the lowest points of the system to allow bleeding
- provide shut-off valves to isolate the battery from the rest of the circuit when extraordinary maintenance is carried out
- hydraulic connections must be made with larger diameter hoses (equal minimum limit) than those of the unit's hydraulic connections
- clean piping with no moisture, air, dirt or dust is used
- the end of the pipe is kept downwards when removing burrs
- the end of the pipe is covered when passing it through a wall to prevent dust and dirt from entering
- thread sealant is used to seal the connections that must withstand the pressures and temperatures of the circuit
- the two types of materials are isolated from each other to prevent galvanic corrosion when using non-copper metal piping
- the piping is not deformed by using excessive force or unsuitable tools during connection: this could cause the unit to malfunction.

⚠ Always use the wrench and counter wrench method in tightening operations.



5.8 Relief valves

Install them at all the highest points of the piping in order to vent air from the circuit.

⚠ The units are fitted with relief valves.

5.9 Water filter

Provided by the customer

⚠ Installation of the filter is mandatory.

⚠ Operation without a filter can cause irreversible damage to the unit.

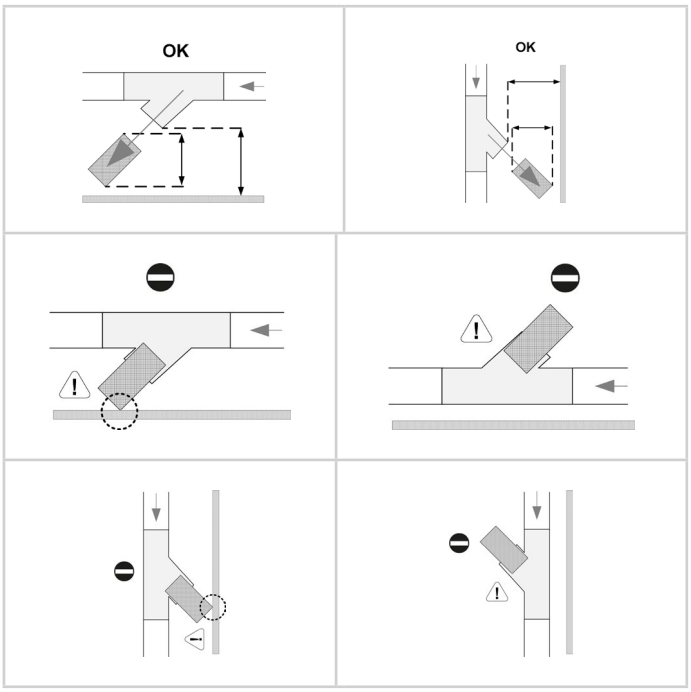
⚠ Operation without a filter will void the warranty.

Remember that the filter must be:

- installed immediately at inlet to the water supply system
- easily accessible for maintenance work

⚠ Periodically check for clogging.

⛔ The filter should never be removed.



5.10 Condensate drain

The condensate must be disposed of in order to avoid damage to people and property.

Check that:

- the piping must have a minimum slope of 3% to allow outflow
- to provide a siphon which, by eliminating the vacuum caused by the fan, prevents the intake of air from the drain piping
- to anchor the piping with a suitable number of brackets, otherwise pipe sagging and air pockets obstructing the outflow will occur
- the piping and siphon are isolated to prevent condensation drips
- the condensate drain is connected a rainwater drain network
- at the end of the work to check the regular outflow of condensation by pouring water into the basin.

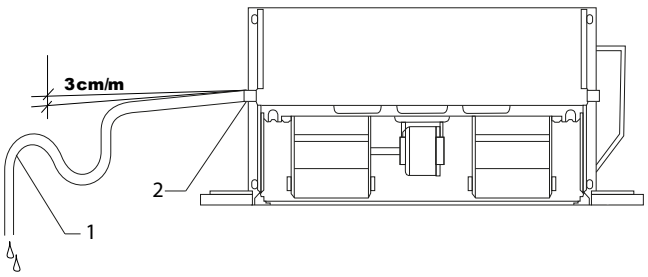
⚠ The connection must not be hermetically sealed in order to allow air to escape and prevent possible liquid backflow.

⛔ DO NOT use white or sewage water drains to avoid the possible inhaling of odours if the water in the siphon evaporates.

Condensation drain connection

► connect the pipe to the condensation drain

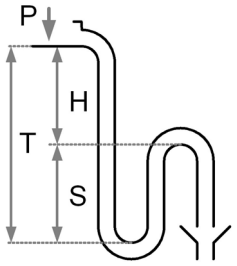
► direct the pipe towards a suitable drain



1 Condensation drain pipe Ø 18.5 mm

2 Condensate drain connection

Siphon height calculation



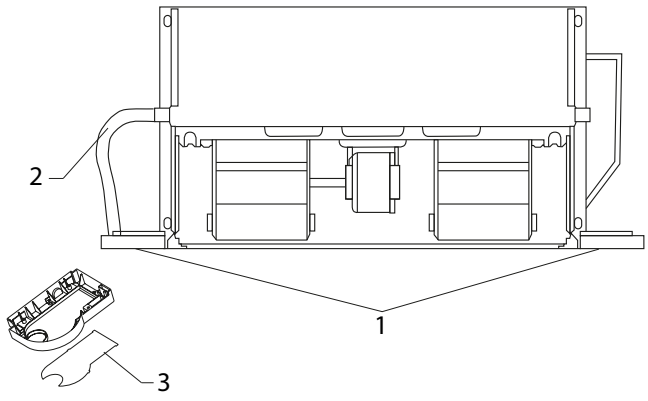
Example:
P = 300 Pa = 30 mm
T = 2P = 60 mm
S = T/2 = 30 mm

Siphon height calculation
T = 2P
S = T/2
P is the pressure determined by the fan in correspondence of the condense collection bowl (approx. 1 mm = 9.81 Pa)

Condensation drain pipe routed beneath the unit

If the installation requires it, the drain pipe may be routed underneath the unit.

- ► remove the plate
- ► connect the pipe to the condensation drain
- ► feed the pipe through the hole
- ► direct the pipe towards a suitable drain

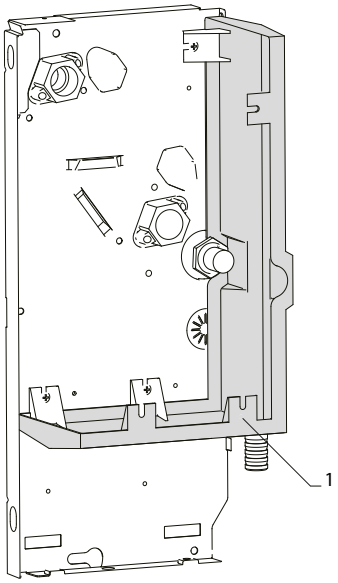


1 Unit base
2 Condensation drain pipe Ø 18.5 mm
3 Plate

5.11 Auxiliary drain pan for vertical/ horizontal installation

Accessory supplied separately

The drain pan is installed when a three-way valve kit is fitted and the water pipes come from the wall (vertical installation) or from the ceiling (horizontal installation).



1 Auxiliary pan

ⓘ The installer is responsible for the thermal insulation of the valve kit.

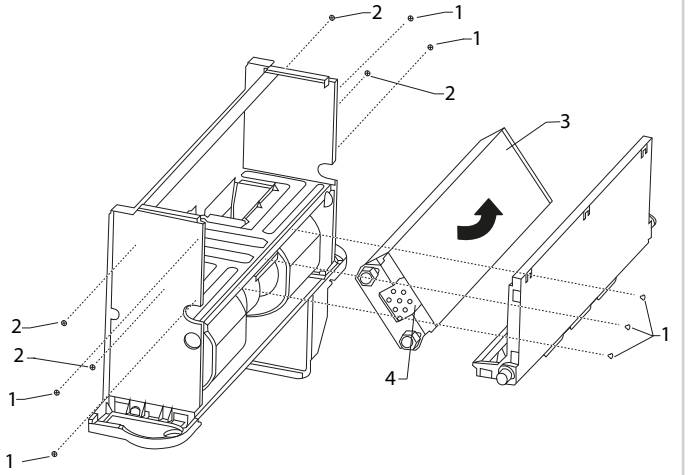
5.12 Rotation of heat exchanger for right-hand connections

ⓘ Operations to be carried out only by a qualified technician in possession of the technical-professional requirements according to the current national and local regulations in force in the territory.

The steps described and the images show how to rotate the connections from the left side to the right side.
To dismantle the panels, see the "Access to internal parts" chapter.

To rotate the heat exchanger

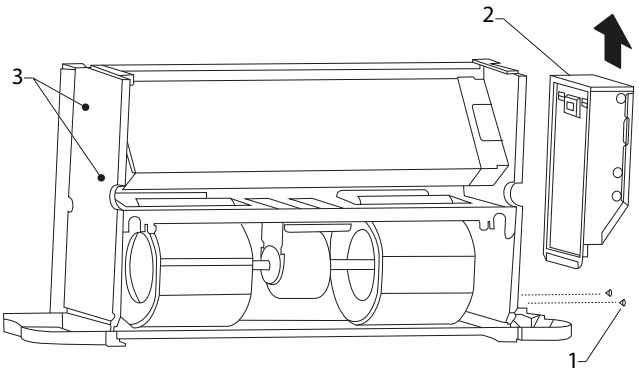
- ► Remove the screws securing the drain pan
- ► remove the drain pan
- ► remove the screws fixing the exchanger
- ► remove the exchanger
- ► disconnect the temperature probe
- ► rotate the exchanger, moving the connections to the opposite side
- ► connect the temperature probe
- ► tighten all coil fixing screws
- ► on the opposite side, remove the cap of the drain pan
- ► insert the cap on the opposite (left) side
- ► insert the drain pan;
- ► secure the drain pan with the screws



1 Drain pan fixing screws
2 Coil fixing screws
3 Heat exchanger
4 Temperature probe

To remove the electrical panel

- ► remove the screws of the electrical panel
- ► remove the electrical panel
- ► seal the outlet holes (e.g. use foam)
- ► install the control panel on the opposite side (left)
- ► secure the electrical panel with screws



1 Electrical panel fixing screws
2 Electrical panel
3 Pipe outlet holes

ⓘ The unit comes with left-hand connections as standard. The connections on the right-hand side can be reversed if necessary during installation on site.

Reference table for electrical continuity, insulation resistance and dielectric strength tests.

Fixed reference point	Test	Standard test conditions	Parameters set on the electrical safety unit	Acceptance criteria
EN 60335-1A1	PE earth continuity test	$I \geq 10$ A $V_0 \leq 12V$	$I_{NOMINAL}$ = 25 A $I_{MINIMUM}$ = 25 A R_{MAX} = 0,1 Ω $T_{TEST\ TIME}$ = 6" V_{TEST} = 12V	$R_{MIS} \leq 0,1$ Ω
EN 60204 18.2.2 Test 1		$0,2 \leq I \leq 10$ A $V_{0,MAX}$ = 24 V AC/DC		
UL 60335-1 A1		$I \geq 10$ A $V_0 \leq 12$ V		
EN 60335-1 A2	Dielectric strength test	V_{TEST} = 1500V DC Discharge will occur if I > 3mA	V_{TEST} = 1500V DC I_{MAX} = 3mA t_{test} = 1s tr = 5s (rise time)	$I_{DISCHARGE} \leq 3$mA
UL 60335-2-40 & UL 60335-1		V_{TEST} = 3040V DC	V_{TEST} = 3040V DC I_{MAX} = 3mA t_{test} = 60s tr = 5s (rise time)	
EN 60204-1 (18.3)	Insulation resistance test	V_{TEST} = 500V DC t_{TEST} = 1s $R_{SOL} \geq 1$MΩ	V_{TEST} = 500V DC R≥ 1MΩ, t=ts	R≥ 1MΩ

ⓘ Before starting the unit, check that the electrical continuity, insulation resistance and dielectric strength tests have been carried out in accordance with current regulations, and that the values specified in the table above are met.

ⓘ The manufacturer shall accept no liability for damage to property and/or harm to people, loss or costs that may arise due to incorrect installation, operation, misuse or poor maintenance.

6. Electrical connections

6.1 Prerequisites

⚠ This section is intended exclusively for the Installer.

⚠ The electrical system and its components must be designed by a qualified technician who must work according to the rules of good practice and national regulations.

⚠ All electrical operations should be performed by trained personnel having the necessary requirements by the regulations in force and being informed about the risks relevant to these activities.

⚠ Operate in compliance with safety regulations in force.

⚠ The power cables and the protection cable section must be defined in accordance with the characteristics of the protections adopted.

⚠ The protection devices of the unit power line must be able to stop the presumed short circuit current, whose value must be determined in function of system features.

⚠ Refer to the unit electrical diagram (the number of the diagram is shown on the serial number label).

⚠ verify that the network has characteristics conforming to the data shown on the serial number label.

⚠ Before starting work, verify that the sectioning device at the start of the unit power line is open, blocked and equipped with cartel warning.

⚠ The supply line must be disconnectable from the rest of the building's power mains with an all-pole magnetothermic circuit breaker with separation of contacts on all poles, to be implemented in accordance with current laws and regulations.

⚠ The protection must be sized in accordance with the electrical data declared by the manufacturer.

⚠ Disconnect the power supply before making any connection.

⚠ Do not crush cable bundles and prevent them from coming into contact with piping and any sharp edges.

⚠ Primarily you have to realize the earthing connection.

⚠ Incorrect grounding may cause electric shocks.

⚠ All external high voltage loads, if connected to a metal fitting or grounding clip, must be earthed.

⚠ The current required for each external load must be less than 0.2 A. If the current required for a single load is greater than 0,2 A, insert a contactor for control.

⚠ Install an earth leakage breaker (30 mA).

⚠ Failure to observe this precaution may result in electric shocks.

⚠ Power and signal cables should be routed as separately as possible to avoid any interference.

⚠ Keep the unit's controller wiring as far away from hot surfaces as possible. It is advisable to use cables with cross-linked polyvinyl chloride sheath.

⚠ For the electrical connection, use a cable of sufficient length to cover the entire distance without any connection work. Do not use extension cords. Do not apply other loads on the power supply.

⚠ If the power cable is damaged, it must be replaced by qualified personnel and

in accordance with current national regulations.

⚠ The manufacturer is not liable for any damage caused by failure to install a grounding system or failure to comply with the diagrams.

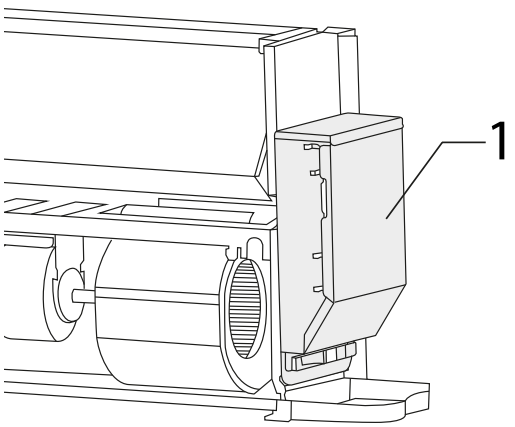
⚠ Check the voltage values which must be within the limits: 220-240V +/- 10%.

⚠ Before power the unit, make sure that all the protections that were removed during the electrical connection work have been restored.

⛔ It is forbidden to connect the earth wire to gas or water pipes, lightning rods or telephone ground.

6.2 Cable inlet

⚠ Before removing the protection panel from the electrical panel, disconnect the power supply to the indoor and outdoor units and to all the other electrically powered components.



1 Electrical panel

To access:

► remove the protection cover

⚠ Connect as shown in the wiring diagrams.

6.3 Connecting the power supply

⚠ **Ensure that:**

- no cables of different cross-sections are connected to the same power supply terminal block (loosening of the power supply wires could cause overheating)
- terminal block screws are not over-tightened
- an earth leakage breaker and a fuse or magnetothermic circuit breaker are connected to the supply line

6.3.1 **Electric cable sizes**

Refer to the tables below for power cable specifications.
Select the individual wire diameters (minimum value) for each unit based on the table.

Rated current (A)	Cable cross-section (mm^2)	
	Flexible cables	Rigid cables
≤3	0.5 and 0.75	1 and 2.5
>3 and ≤6	0.75 and 1	1 and 2.5
>6 and ≤10	1 and 1.5	1 and 2.5
>10 and ≤16	1.5 and 2.5	1.5 and 4
>16 and ≤25	2.5 and 4	2.5 and 6
>25 and ≤32	4 and 6	4 and 10
>32 and ≤50	6 and 10	6 and 16
>50 and ≤63	10 and 16	10 and 25

The maximum allowed voltage variation between phases is 2%.

ⓘ Wire the wired controller referring to its manual.

					IFM	
Version	**Power supply**	**Size**	**MCA**	**MFA**	**KW**	**FLA**
AC (CFFAC & CFFAU)	220-240V~50Hz	1-2	0,21	15	0,005	0,17
	220-240V~50Hz	3-4	0,30	15	0,008	0,24
	220-240V~50Hz	5-6	0,33	15	0,015	0,26
	220-240V~50Hz	7-8	0,55	15	0,037	0,44
	220-240V~50Hz	9-10	0,68	15	0,053	0,54
	220-240V~50Hz	11-12	0,68	15	0,053	0,54

					IFM	
Version	**Power supply**	**Size**	**MCA**	**MFA**	**KW**	**FLA**
DC (CFFAC & CFFAU)	220-240V~50Hz	1-2	0,48	15	0,03	0,38
	220-240V~50Hz	3-4	0,73	15	0,03	0,58
	220-240V~50Hz	5-6	0,73	15	0,03	0,58
	220-240V~50Hz	7-8	0,73	15	0,03	0,58
	220-240V~50Hz	9-10	1,56	15	0,06	1,25
	220-240V~50Hz	11-12	1,56	15	0,06	1,25

MCA: minimum current rating of the circuit (A)

MFA: maximum current rating – fuse (A)

IFM: fan motor

KW: rated power of the motor (kW)

FLA: Full load current at max admissible conditions (A)

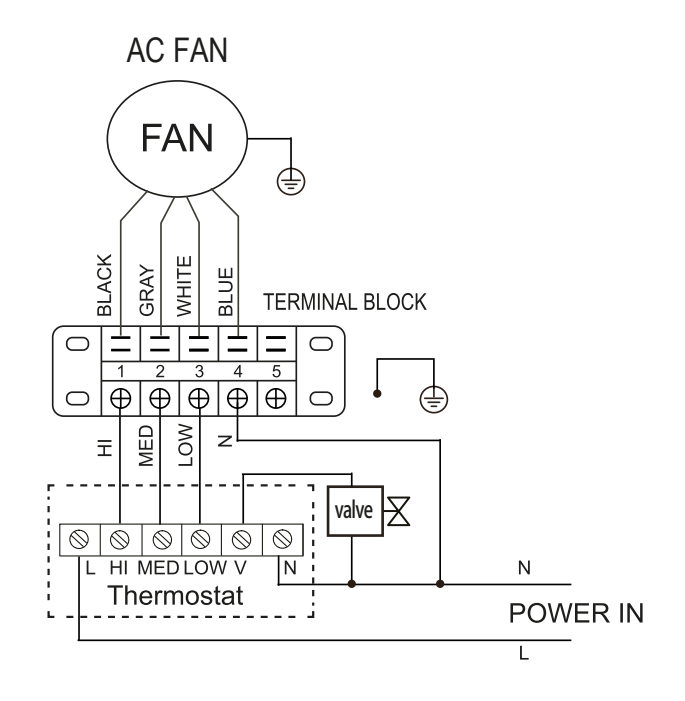
The MFA value is used to select the automatic overcurrent and differential switches.

Connection procedure:

► connect the cables to their terminals

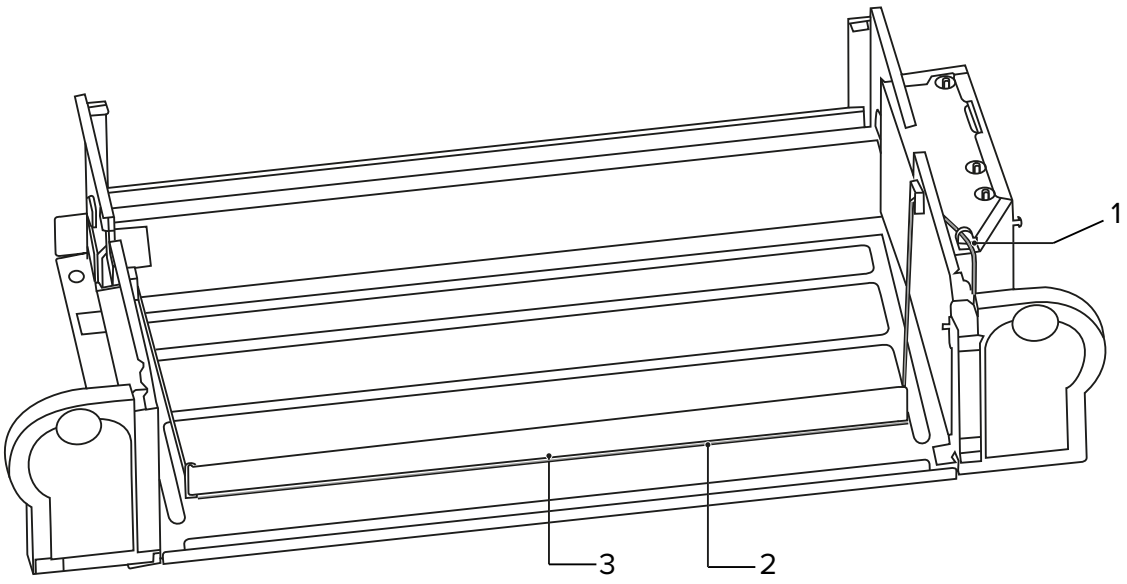
► secure the cables with cable clamps.

6.4 **Wiring diagram (AC FAN)**



The earth wire in the electrical panel must be longer than the power cable.

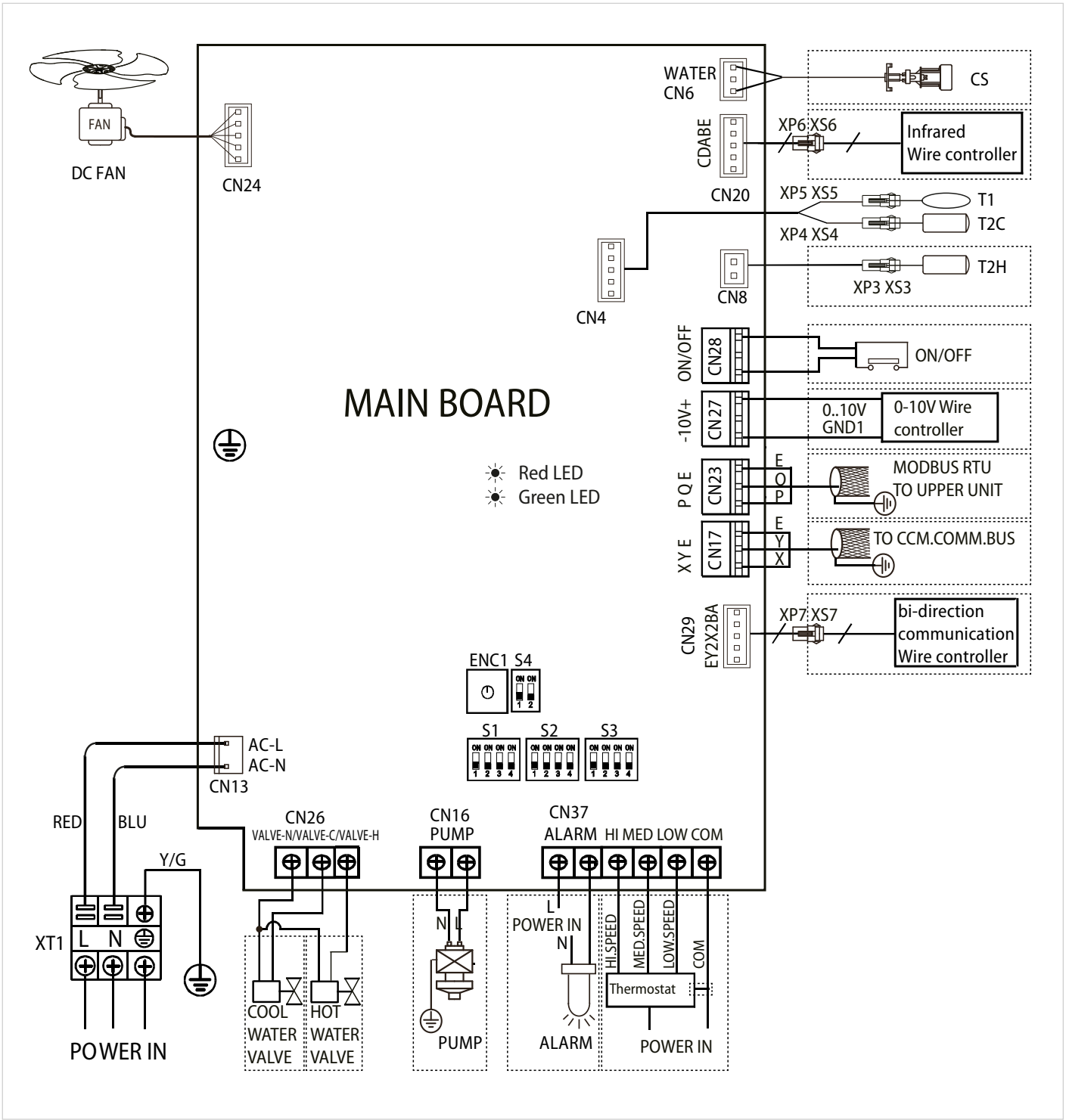
6.5 Wiring of the motor (DC)



1 Fixing clamp
2 Cable
3 Strip

6.6 Connections performer by customer

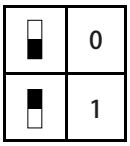
Wiring diagram (DC motor)



Dip-switch

S1	S1-1		2 pipe(default)
			4 pipe
	S1-2		Without enforcement to turn wind (default)
			With enforcement to turn wind
	S1-3		Normal anti-cold wind(default)
			High temperature anti-cold wind
	S1-4		

S2	S2-1/2		Temp.compensation value is 0℃ under cooling mode(default)
			Temp.compensation value is 1℃ under cooling mode
			Temp.compensation value is 2℃ under cooling mode
			Temp.compensation value is 3℃ under cooling mode
	S2-3/4		Temp.compensation value is 3℃ under heating mode(default)
			Temp.compensation value is 1℃ under heating mode
			Temp.compensation value is 6℃ under heating mode
			Temp.compensation value is 8℃ under heating mode

	0
	1

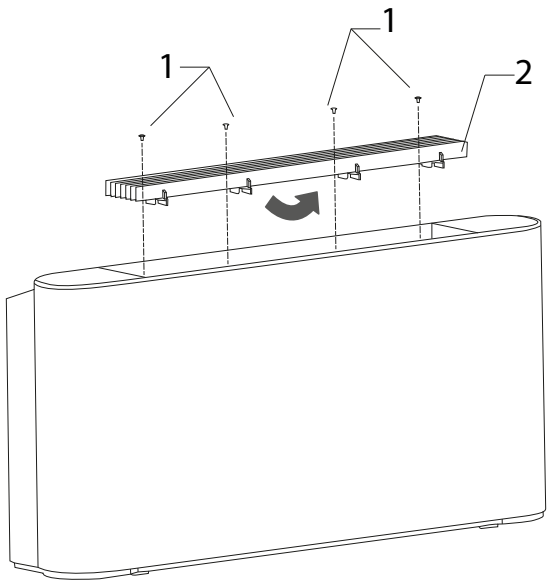
	SWITCH FOR ADDRESS SETTING			Address 01-16
ENC1 & S4	‘0-F’ of the ENC1 and ‘ON/OFF’ of the S4,the different position repre sents a different addre ss.Is be combined 64 ad ress(0-64)			Address 17-32
				Address 33-48
				Address 49-64

S3	 CFFC 1
	 CFFC 2
	 CFFC 3
	 CFFC 4
	 CFFC 5
	 CFFC 6
	 CFFC 7
	 CFFC 8
	 CFFC 9
	 CFFC 10
	 CFFC 11
	 CFFC 12

NOTE:
1.ALARM Port：strong signal when alarm output.
2.ON/OFF Port:When ON/OFF is closed,the wire controller and Centralized Controller is invalid.The machine is equivalent of shutdown.

7. Air supply adjustment

The direction of air supply can be changed manually.



1 Screws
2 Deflector

To adjust the air flow direction

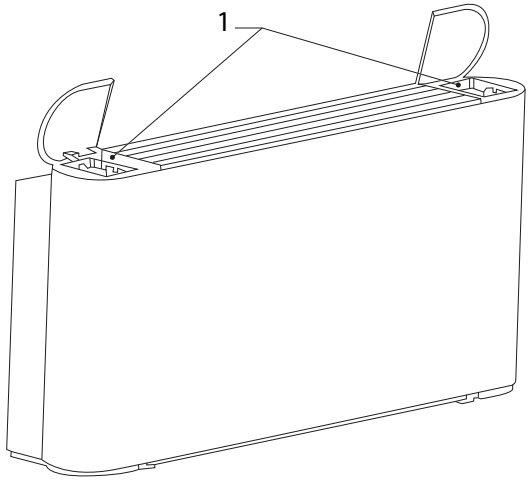
- ► remove the screws from the deflector
- ► remove the deflector by hand
- ► rotate the deflector by 180°
- ► insert it into its housing
- ► secure with screws

⛔ Do not touch the heat exchanger to avoid personal injury.

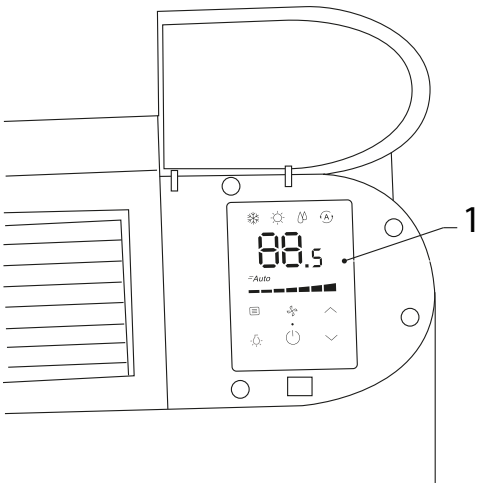
8. Control panel on the unit

8.1 Position

The control panel can be mounted on the left or right side of the unit, as required, or supplied separately for wall-mounting in a remote position.
For wall-mounted installation, please refer to the installation manual of the control panel.



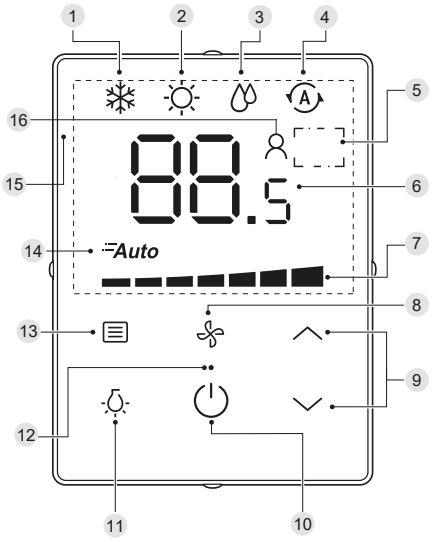
1 Position of the control



1 Control

8.2 Interface of the control panel

For DC Inverter models

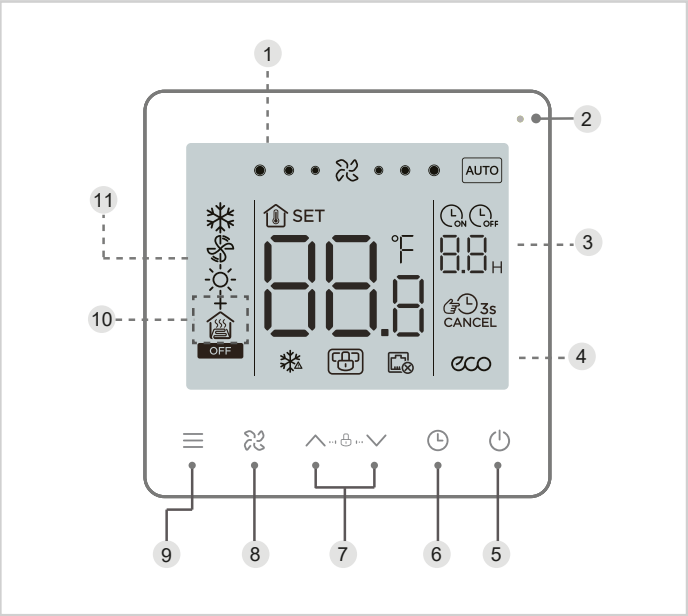


1 Cooling
2 Heating
3 Dry (dehumidification)
4 Auto
5 Remote signal reception
6 Temperature
7 Fan speed
8 Fan speed adjustment
9 temperature setting
10 switch
11 Backlight
12 Operation indicator
13 Changing mode
14 Auto fan speed
15 Display area
16 Follow Me

Main functions

- Unit on/off
- Choose from 7 fan speeds and Auto mode
- Constant temperature set within a desired range
- Choose between Heating, Cooling, Dry and Auto

For AC models



1 View fan speed
2 Operation indicator
3 Timer display
4 ECO Display
5 switch
6 Scheduling - timer
7 Control button
8 ECO / fan speed
9 Mode
10 Not supported except in network
11 Display of operating mode

Main functions

- Unit on/off
- Select the fan speed from High, Medium, Low or Auto
- Constant temperature set within a desired range.
- Choose between Heating and Cooling
- Scheduling

8.3 Fan speed adjustment

The 0–10 V control sends a DC signal to the main board to control the motor speed.

0–10 V output signal specifications table

	Signal from the control unit	Fan speed
Fan speed	0≤ voltage <1	Shutdown
	1≤ voltage <3	Low
	3≤ voltage <4	Medium-low
	4≤ voltage <5	Average
	5≤ voltage <6	Medium-high
	6≤ voltage <7	High
	7≤ voltage <8	Very high
	8≤ voltage <10	Extremely high
Auto	The speed is adjusted automatically.	

8.4 Alarms

If a centralised controller is used, error codes are displayed on the user interface.

N.	Type	Description	Operation of the LED	LED	Buzzer	Error code
1	Error	Communication error E^2PROM	On	1 flash every 3 seconds	2 beeps every 3 seconds	E7
2	Error	Room temp. sensor anomaly	On	2 flashes every 3 seconds	2 beeps every 3 seconds	E2
3	Error	Coil sensor error (T2C)	On	3 flashes every 3 seconds	2 beeps every 3 seconds	E3
4	Error	Coil sensor error (T2C)	On	3 flashes every 3 seconds	2 beeps every 3 seconds	E4
5	Error	DC motor error	On	4 flashes every 3 seconds	2 beeps every 3 seconds	E8
6	Protection	Water level	Flashing	1 flash every 3 seconds	2 beeps every 3 seconds	EE
7	Protection	Model does not exist (incorrect DIP switch configuration)	Flashing	2 flashes every 3 seconds	2 beeps every 3 seconds	PH
8	Protection	Water temperature protection	Flashing	3 flashes every 3 seconds	2 beeps every 3 seconds	P1
9	Protection	Antifreeze protection	Flashing	4 flashes every 3 seconds	2 beeps every 3 seconds	P0
10	Protection	Remote shutdown	Flashing	5 flashes every 3 seconds	2 beeps every 3 seconds	P2

⚠ Contact your installer or maintenance technician and provide them with the error code, the unit model and the serial number (you can find this information on the serial number label).

8.5 Communication bus network

The cables of the bus network (transmission line) must be laid in such a way as to avoid electromagnetic interference.

⛔ Do not lay transmission and power cables in the same conduit.

Connect the cables as follows:

- the combinations between internal and external sections must be the same in terms of the refrigeration connections and electrical connections.
- use the “in and out” type of connection even if the lines work with connection in parallel.
- in case of connection with a controller of a higher level (centraliser), a transmission line is required between each external line.
- do not connect the power cables to the terminal block of the bus network.
- do not use joints; use only solder joints with heat-shrink tubing. Observe the lengths specified in the technical manuals.
- shunt boxes are not allowed.
- correctly address the components of the system.
- the cable used must be of a type suitable for RS485 data transmission. If it is not suitable for this purpose, it may cause interference and difficulties in packet transmission.
- the insulation and voltage characteristics of the cable must be in accordance with the electrical regulations in force.
- the insulation of the cable must have flame or fire retarding characteristics, commensurate with the electrical standards of reference for the type of system used.
- the cable must be laid to standard.
- the cable must be laid separately from other cables, especially from power cables or from cables of different voltages.
- the cable must be laid far from cables or devices that can cause electromagnetic interference;
- the RS485 serial line must be configured using the In/Out bus system. No other types (star, ring, etc.) are allowed.
- the serial line must be laid by personnel trained and qualified in data communication networks.

Connecting the shield

- For the bus network, use 0.75 mm^2 3-pole shielded cables.
- Using other types of cables may result in interference or malfunctions.
- The shield of the bus cable used for serial communication must be connected to an earth free from interference.
- The shield must be earthed at one point only.
- The continuity of the shield must be ensured the entire length of the bus cable.

⚠ These requirements are generally valid. In some areas characterised by the presence of particular types of EMI coupling, a different type of connection of the shield may be required.

⚠ Make sure that the metal braiding of the cables does not touch any live points.

⚠ Use dedicated wire terminals.

Configuring the network address (MODBUS)

Each unit connected to the network has its own address that distinguishes it from the others.
The unit’s LAN address can be set using the selector switch on the network module (NIM), within a range of 0 to 64.

On/off switch		Net address
S4	ENC1	
		01~16
		17~32
		33~48
		49~64

9. Starting up the system

⚠ This section is intended only for the Technical Support Service.

⚠ The electrical and hydraulic connections and other works typical of the system are the responsibility of the Installer.

⚠ Operate in compliance with safety regulations in force.

⚠ Upon request, the service centres performing the start-up.

⚠ Agree upon in advance the star-up data with the service centre.

⚠ When installing or servicing, never leave the unit unattended after removing the service panels.

⚠ **Check that:**

- the unit should be installed properly and in conformity with this manual
- the electrical power supply line should be isolated at the beginning
- the unit isolator is open, locked and equipped with the suitable warning
- the unit is not powered.

Remember that:

- during installation, unit settings and parameters should be configured by the Installer according to the installation configuration, climatic conditions, and end-user preferences
- the relevant settings are accessible and programmable through the user interface.

ⓘ Refer to the user interface manual for operation.

9.1 Preliminary checks

ⓘ For details refer to the different manual sections.

Unit power supply: OFF

1	Clearances: • check that distances are observed
2	Unit inspection: • check integrity
3	Fans: • check that they run freely
4	Water filter: • check that it is correctly installed at the entrance to the aqueduct
5	Water line input: • check the correct connection of the water outlet and water inlet
6	Shut-off valve: • check that all shut-off valves are open
7	System: • check that it is charged • check the system pressure • check that it has been vented
8	Air filters: • check cleanliness • check the correct installation
9	Condensate drain: • check the attachment to the coupling • check the siphoning • check that the water is draining properly by pouring some water down the drain
10	Fuses, circuit breakers or protection devices: • check the size and type • ensure that no fuses or protective devices have been bypassed
11	Electrical wiring: • check that the wiring and the connections are perfectly tightened and in good condition • check that the grounding wiring is perfectly tightened and in good condition
12	Assembly: • check that hydraulic connections are properly tightened to avoid water leaks, abnormal noises and vibrations when starting the unit
13	Damaged components: • check the components and circuitry inside the unit for damage or deformation
14	Power supply voltage: • check that the power supply voltage is within the values indicated on the unit’s serial number label
15	Structure: • check all the structure of the unit is mounted correctly

Unit Power: ON

1	Voltage: • measure the off-load voltage
2	Absorptions: • measure load voltage and absorptions
3	Fans: • check the operation of the fans
4	Vibrations: • check no anomalous vibrations are present
5	Water temperature: • measure the supply and return water temperature

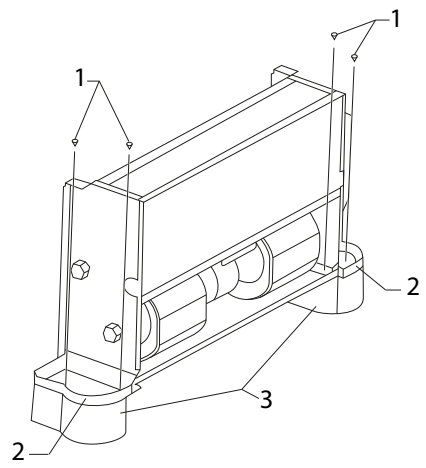
10. **Accessory**

10.1 **Set of feet**

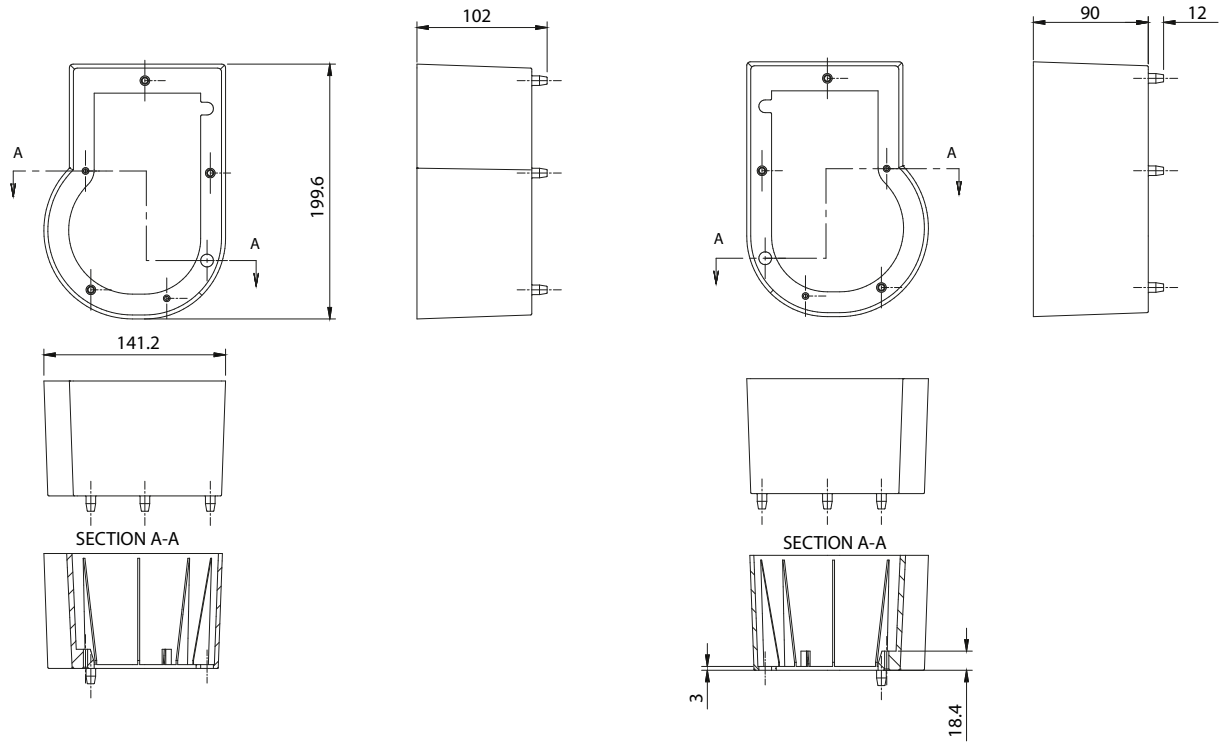
Accessory supplied separately
Pair of feet (right and left)

To fit the feet

- ► place the feet under the unit
- ► secure with screws



1 Screws
2 Unit base
3 Feet



11. **Start-up**

11.1 **Start-up report**

Identifying the operating objective conditions is useful to control the unit over time.
With the unit at steady state, i.e. in stable and close to working conditions, collect the following data:

- total voltages and absorptions with unit at full load
- absorptions of the different electric loads (compressors, fans, pumps etc)
- temperatures and flows of the different fluids (water, air) both in input and in output from the unit
- temperature and pressures on the characteristic points of the refrigerating circuit (compressor discharge, liquid, intake)

The measurements must be kept and made available during maintenance interventions.

11.2 **2014/68/UE PED directive**

DIRECTIVE 2014/68/UE PED gives instructions for installers, users and maintenance technicians as well.
Refer to local implementing regulations; briefly and for information only.
Compulsory verification of the first installation:

- only for units assembled on the installer's building site (for ex. Condensing circuit + direct expansion unit)
- Certification of setting in service:
- for all the units

Periodical verifications:

- to be executed with the frequency indicated by the Manufacturer (see the "maintenance inspections" paragraph)

12. **Maintenance**

12.1 **Prerequisites**

⚠ This section is intended only for the Technical Support Service.

⚠ All operations must be carried out by personnel who meet the requirements of current regulations and are trained in the risks related to such operations.

⚠ Operate in compliance with safety regulations in force.

The maintenance allows to:

- maintaining the unit efficient
- reduce the deterioration speed all the equipment is subject to over time
- assemble information and data to understand the unit's efficiency status and prevent possible failures.

⚠ **Check that:**

- the electrical power supply line should be isolated at the beginning
- the unit isolator is open, locked and equipped with the suitable warning
- the unit is not powered.

⚠ After turning off the power, wait at least 5 minutes before accessing to the electrical panel or any other electrical component.

⚠ Before accessing check with a multimeter that there are no residual voltage.

⚠ When installing or servicing, never leave the unit unattended after removing the service panels.

12.2 Unit booklet

It's advisable to create a unit booklet to take notes of the unit interventions.
In this way it will be easier to adequately note the various interventions and aid any troubleshooting.

Report on the booklet:

- date
- intervention description
- carried out measures etc.

12.3 Standby mode

In case of a long period of inactivity:

► turn off the power
► avoid the risk of frost (use glycol or empty the system)

12.4 Emptying the system

The units are not fitted with a drain valve, so one must be provided on a pipe connecting to the system near to the device and below it.

⚠ All operations must be carried out with the unit shut down and disconnected from the mains power supply.

Before emptying:

► check that the system water filling/refilling valve is closed

To drain the system:

► open the drain valve on the outside of the device
► open all of the system and terminal relief valves

12.5 Cleaning the outer coating

To clean:

► soapy water
► water-based detergents containing anionic and/or non-ionic surfactants

Always rinse with clean water.

⚠ Do not use solvent-based degreasing agents such as: acetone, denatured ethyl alcohol, trichloroethylene, white spirit, etc.

⚠ Do not use dilute acids in aqueous solution (Hydrochloric Acid, Nitric Acid) and products containing dilute acids.

⚠ Do not use dilute bases in aqueous solution (Caustic Soda, Sodium Hypochlorite, Ammonia).

⚠ Do not use fluorinated hydrocarbons.

⚠ Do not use mineral-based lubricating oils.

ⓘ These substances can damage the surface of the painted product.

12.6 Structure

⚠ Check the condition of the parts making up the structure.

⚠ Paint so as to eliminate or reduce oxidation at the points in the unit where this problem may occur

⚠ Check the fastening of the external paneling of the unit. Poor fastening may give rise to malfunctions and abnormal noise and vibration,

12.7 Water filter

► check and clean the water filter

In case of obstruction:

► clean the filter

12.8 Coil

The coil must allow maximum thermal exchange, therefore, the surface must be clear from dirt and scaling.

ⓘ Clean at least every six months.

To clean:

► Use a soft brush or vacuum cleaner to suck impurities from the air input side.
► use a jet of compressed air to clean the surface of the coil
► direct the air in the opposite direction of the fan air movement.
► keep the direction parallel to the flow of the flaps to avoid damages

⚠ Check that the aluminium fins are not bent or damaged, in the event of damages contact the authorised service centre which will "comb" the coil to restore optimal air flow

⚠ Accidental contact with the exchanger flaps can cause injuries from cut: use protective

gloves.

12.9 Condensation collection basin

Dirt or scale can give rise to clogging.
Also, microorganisms and mould can flourish in the bowl.

⚠ It is very important to foresee periodical cleaning with suitable detergents and, eventually, disinfect with sanitising products.

⚠ Once cleaning is completed, pour water inside the bowl to check the regular outflow.

12.10 Air filter

It is very important that the air handling coil can offer maximum heat exchange: the unit must therefore always operate with filters installed and clean.

⚠ For hygiene reasons, it is extremely important to clean and replace the filters.

⚠ Operation with clogged filters leads to a reduction in the air flow rate with malfunctionings and block, up to possible breaks in the unit.

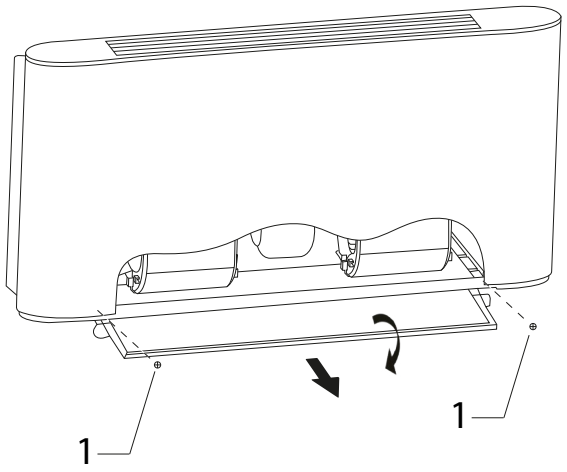
⚠ The frequency with which the filters must be checked depends on the quality of the air, the unit operation hours, the dustiness and crowding of rooms.

⚠ Frequency can indicatively vary from WEEKLY to MONTHLY.

It is advised to start with frequent checks, subsequently adjusting the frequency to the degree of dirtying.

To clean:

- ► remove the fixing screws
- ► turn the door
- ► pull the filter out
- ► wash the filtering jacket in warm water with common detergent
- ► rinse thoroughly under running water, avoiding spillage into the ambient
- ► dry the filter
- ► insert it back in its seat
- ► close the door



1 Fixing screws

13. **Anomalies and remedies**

⚠ If something unusual can be smelled (such as burning, etc.), switch off the unit immediately and disconnect the power supply.

⚠ This may be the result of damage, electric shocks or fires.

⚠ Work must be carried out by a qualified installer or a specialised service centre.

Cause	Remedy
A safety device, such as a fuse or an automatic overcurrent or differential switch, trips frequently, or the ON/OFF switch is not working properly.	• Turn off the main power switch.
The control switch is not working properly.	• Switch off the power supply
If a centralised controller is used, the number of units is displayed on the user interface, the operation indicator flashes, and an error code appears on the screen.	• Inform the installation personnel and provide the error code.

If the faults are different from those listed above, follow the steps below.

Cause	Remedy
If the system is not working at all.	• Check whether there is a power cut. • Wait for the power to be restored • If there is a power cut while the unit is still running, the system will restart automatically once the power is restored.
The system is working, but the cooling or heating is inadequate.	• Check that the air outlet is not blocked by any obstacles. • Remove the obstacles. • Check if the filter is dirty • Check the temperature setting. • Check the fan speed settings on the user interface. • Check whether the doors and windows are open. • Close the doors and windows. • Check whether there are too many people in the room when cooling mode is active. • Check whether there are too many heat sources in the room. • Check whether there is direct sunlight in the room. • Use curtains or blinds. Check that the angle of the air flow is correct.

13.1 Faults not related to the unit

Situations that do not constitute a fault with the unit:

The speed of the fan is not the same as the one set.	• In cooling mode, when the water temperature in the pipes falls outside the permitted range relative to the room temperature, the fan speed is kept to a minimum to prevent direct exposure to the flow of warm air. • In heating mode, when the water temperature in the pipes falls below a certain threshold, the fan speed is similarly kept to a minimum to prevent direct exposure to the flow of cold air.
White mist is coming out of the unit.	• This may be due to high humidity during use in cooling mode. • If there is an excessive build-up of dirt on the coil, the temperature distribution across the coil may be uneven. • The unit must be cleaned internally. • Ask your dealer for information on how to clean the unit. • The unit must be cleaned exclusively by qualified maintenance personnel.
Dust and dirt in the unit.	• Dust and dirt can enter the unit when it is inactive for a long period. • It can accumulate as a result. • Before restarting the unit after a long period of inactivity (for example, at the start of the season), it is recommended that you inspect and clean the air filters.
Smell emanating from the unit	• The unit can absorb odours from the room, furniture, cigarette smoke or other sources, and then release them back into the room. • Unpleasant odours may also occur if small animals get inside the unit.

14. **Decommissioning**

14.1 **Disconnection**

⚠ Awaiting decommissioning and disposal, the unit can also be stored outdoors, as bad weather and rapid changes in temperature do not harm the environment provided that the electric, cooling and hydraulic circuits of the unit are intact and closed.

14.1.1 **WEEE INFORMATION**

The manufacturer is registered on the EEE National Register, in compliance with implementation of Directive 2012/19/EU and relevant national regulations on waste electrical and electronic equipment.
This Directive requires electrical and electronic equipment to be disposed of properly.
Equipment bearing the crossed-out wheelie bin mark must be disposed of separately at the end of its life cycle to prevent damage to human health and to the environment.
Electrical and electronic equipment must be disposed of together with all of its parts.
To dispose of “household” electrical and electronic equipment, the manufacturer recommends you contact an authorised dealer or an authorised ecological area.
“Professional” electrical and electronic equipment must be disposed of by authorised personnel through established waste disposal authorities around the country.
In this regard, here is the definition of household WEEE and professional WEEE:
WEEE from private households: WEEE originating from private households and WEEE which comes from commercial, industrial, institutional and other sources which, because of its nature and quantity, is similar to that from private households. Subject to the nature and quantity, where the waste from EEE was likely to have been by both a private household and users of other than private households, it will be classed as private household WEEE;
Professional WEEE: all WEEE which comes from users other than private households.
This equipment may contain:

- refrigerant gas, the entire contents of which must be recovered in suitable containers by specialised personnel with the necessary qualifications;
- lubrication oil contained in compressors and in the cooling circuit to be collected;
- mixtures with antifreeze in the water circuit, the contents of which are to be collected;
- mechanical and electrical parts to be separated and disposed of as authorised.

When machine components to be replaced for maintenance purposes are removed or when the entire unit reaches the end of its life and needs to be removed from the installation, waste should be separated by its nature and disposed of by authorised personnel at existing collection centres.

15. **Residual risks**

15.1 **General**

In this section the most common situations are indicated,as these cannot be controlled by the manufacturer and could be a source of risk situations for people or things.

15.2 **Danger zone**

- This is an area in which only an authorised operator may work.
- The danger zone is the area inside the unit which is accessible only with the deliberate removal of protections or parts thereof.

15.3 **Handling**

- The handling operations, if implemented without all of the protection necesssary and without due caution, may cause the drop or the tipping of the unit with the consequent damage, even serious, to persons, things or the unit itself.
- Handle the unit following the instructions provided in the present manual regarding the packaging and in compliance with the local regulations in force.
- Should the refrigerant leak please refer to the refrigerant “Safety sheet”.

15.4 **Installation**

Remember that:

- incorrect installation of the unit can lead to water leaks, condensate accumulation, refrigerant leakage, electric shock, fire, malfunction or damage to the unit itself
- installation of the unit in a place where even infrequent flammable gas leaks are possible and the accumulation of these gases in the area around the unit can cause explosions and fires
- installation of the unit in a place that is not suitable to support its weight and/or provide adequate anchorage may cause it to fall and/or tip over, resulting in damage to property, people or the unit itself

⚠ **Check:**

- the location of the unit carefully
- that the installation is only carried out by qualified technical personnel and the instructions in this manual and current local regulations are followed
- the location of the unit carefully

⚠ Easy access to the unit by children, unauthorised persons or animals may be the source of accidents, some serious.

⚠ Install the unit in areas which are only accessible to authorised person and/or provide protection against intrusion into the danger zone.

15.4.1 **General risks**

⚠ Smell of burning, smoke or other signals of serious anomalies may indicate a situation which could cause damage to people, things or the unit itself.

In this case:

- electrically disconnect the unit
- contact the authorised service centre to identify and solve the problem causing the anomaly

⚠ Accidental contact with exchange batteries, compressors, air delivery tubes or other components may cause injuries and/or burns.

⚠ Always wear suitable clothing including protective gloves to work inside the danger zone.

⚠ Maintenance and repair operations carried out by non-qualified personnel may cause damage to persons, things or the unit itself.

⚠ Always contact the qualified assistance centre.

⚠ Failing to close the unit panels or failure to check the correct tightening of all of the panelling fixing screws may cause damage to persons, things or the unit itself.

⚠ Periodically check that all of the panels are correctly closed and fixed.

⚠ If there is a fire the temperature of the refrigerant could reach values that increase the pressure to beyond the safety valve with the consequent possible projection of the refrigerant itself or explosion of the circuit parts that remain isolated by the closure of the tap.

⚠ Do not remain in the vicinity of the safety valve and never leave the refrigerating system taps closed.

15.4.2 **Electric parts**

⚠ An incomplete attachment line to the electric network or with incorrectly sized cables and/or unsuitable protective devices can cause electric shocks, intoxication, damage to the unit or fires.

⚠ Carry out all of the work on the electric system referring to the electric layout and the present manual ensuring the use of a system thereto dedicated.

⚠ An incorrect fixing of the electric components cover may lead to the entry of dust, water etc inside and may consequently electric shocks, damage to the unit or fires.

⚠ Always fix the unit cover properly.

⚠ When the metallic mass of the unit is under voltage and is not correctly connected to the earthing system it may be a source of electric shock and electrocution.

⚠ Always pay particular attention to the implementation of the earthing system connections.

⚠ Contact with parts under voltage accessible inside the unit after the removal of the guards can cause electric shocks, burns and electrocution.

⚠ Open and padlock the general isolator prior to removing the guards and signal work in progress with the appropriate sign.

⚠ Contact with parts that could be under voltage due to the start up of the unit may cause electric shocks, burns and electrocution.

⚠ When voltage is unnecessary for the circuit open the isolator on the attachment line of the unit itself, padlock it and display the appropriate warning sign.

15.4.3 **Moving parts**

⚠ Contact with the transmissions or with the fan aspiration can cause injuries.

Remember that:

- before accessing inside the unit, open the disconnector switch on the unit connection line, padlock it and display the appropriate warning sign
- contact with fans can cause injury.
- before removing the protection grills or fans, open the disconnector switch on the unit connection line, padlock it and display the appropriate warning sign.

15.5 **Hydraulic parts**

⚠ Defects in tubing, the attachments or the removal parts may cause a leak or water projection with the consequent damages to people, things or shortcircuit the unit.

16. **Technical data**

DC CFFC - CFFU version, return underneath (vertical installation) / at back (horizontal installation), 2-pipe

SIZE			1	2	3	4	6	8	10	12
High speed										
Airflow		m3/h	255	255	400	425	595	800	1190	1300
Cooling capacity	(1)	kW	1,50	1,95	2,35	2,85	3,90	4,85	6,35	8,25
Sensible capacity	(1)	kW	1,14	1,42	1,79	2,06	2,90	3,63	4,98	6,12
Water flow-rate	(1)	l/h	260	330	400	490	670	830	1090	1430
Water pressure drops	(1)	kPa	13,9	27,2	13,3	26	37,4	54,3	32,8	71,4
Heating capacity	(2)	kW	1,57	2,05	2,60	2,95	4,00	5,25	7,05	8,70
Water flow-rate	(2)	l/h	270	350	450	510	700	910	1220	1510
Water pressure drops	(2)	kPa	15,1	25,3	14,3	24,4	36,5	53,4	37,6	62,6
Total power input		W	15	19	16	18	28	47	87	106
Medium speed										
Airflow		m3/h	170	210	315	300	450	600	875	980
Cooling capacity	(1)	kW	1,06	1,66	1,94	2,13	3,20	3,92	5,19	6,65
Sensible capacity	(1)	kW	0,77	1,19	1,44	1,51	2,35	2,85	3,98	4,82
Water flow-rate	(1)	l/h	180	280	340	370	550	670	900	1140
Water pressure drops	(1)	kPa	8,21	20,88	9,98	15,06	25,91	36,81	21,75	46,17
Heating capacity	(2)	kW	1,07	1,75	2,11	2,15	3,22	4,09	5,61	6,81
Water flow-rate	(2)	l/h	190	300	370	370	560	710	980	1180
Water pressure drops	(2)	kPa	7,63	19,65	10,33	13,65	25,34	36,54	25,47	41,06
Total power input		W	9	14	11	11	17	25	44	51
Minimum speed										
Airflow		m3/h	150	150	190	190	310	420	530	680
Cooling capacity	(1)	kW	0,92	1,21	1,19	1,41	2,43	2,93	3,62	4,84
Sensible capacity	(1)	kW	0,66	0,85	0,86	0,96	1,72	2,08	2,68	3,42
Water flow-rate	(1)	l/h	160	210	210	240	420	510	630	830
Water pressure drops	(1)	kPa	6,16	12,2	4,59	7,41	15,37	21,77	11,43	25,39
Heating capacity	(2)	kW	0,92	1,25	1,34	1,42	2,39	3,04	3,83	4,85
Water flow-rate	(2)	l/h	160	220	230	240	410	530	670	830
Water pressure drops	(2)	kPa	5,84	10,25	4,5	6,64	14,22	20,47	12,5	21,68
Total power input		W	8	9	7	8	10	13	18	22
Standard power supply		V	220-240/1/50							
Supply fan type	(3)	-	CFG							
Supply fan number		-	1	1	2	2	2	2	3	3

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.
Free outlet airflow (0 Pa head)
1. Water entering exchanger 7°C (temperature differential 5°C) - Ambient air 27°C D.B. / 19°C W.B.
2. Inlet water exchanger 45°C (temperature differential 5°C) - Ambient air 20°C
3. CFG = Centrifugal fan

Performance in heating and cooling mode when the environment and system conditions change
Refer to the selection software or to the "CFF AURA DC and AC performance tables" which can be downloaded at https://world.clivet.it/

DC CFFC version, return at front (vertical installation) / underneath (horizontal installation), 2-pipe (made to order only)

SIZE			2	4	6
High speed					
Airflow		m3/h	245	380	580
Cooling capacity	(1)	kW	1,87	2,55	3,80
Sensible capacity	(1)	kW	1,36	1,84	2,83
Water flow-rate	(1)	l/h	320	440	650
Water pressure drops	(1)	kPa	26,10	23,20	36,50
Heating capacity	(2)	kW	1,97	2,63	3,90
Water flow-rate	(2)	l/h	340	450	670
Water pressure drops	(2)	kPa	24,00	21,80	35,60
Total power input		W	20	21	30
Medium speed					
Airflow		m3/h	180	240	430
Cooling capacity	(1)	kW	1,59	1,90	3,11
Sensible capacity	(1)	kW	1,14	1,35	2,29
Water flow-rate	(1)	l/h	270	330	530
Water pressure drops	(1)	kPa	20,10	13,50	25,30
Heating capacity	(2)	kW	1,68	1,92	3,13
Water flow-rate	(2)	l/h	290	330	540
Water pressure drops	(2)	kPa	18,80	12,20	24,70
Total power input		W	16	12	18
Minimum speed					
Airflow		m3/h	130	110	300
Cooling capacity	(1)	kW	1,16	1,26	2,36
Sensible capacity	(1)	kW	0,81	0,85	1,67
Water flow-rate	(1)	l/h	200	220	400
Water pressure drops	(1)	kPa	11,80	6,60	15,00
Heating capacity	(2)	kW	1,20	1,27	2,43
Water flow-rate	(2)	l/h	210	220	400
Water pressure drops	(2)	kPa	9,90	5,90	13,90
Total power input		W	11	8	12
Standard power supply		V		220-240/1/50	
Supply fan type	(3)	-		DC centrifuge	
Supply fan number		-	1	2	2

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.
Free outlet airflow (0 Pa head)
1. Water entering exchanger 7°C (temperature differential 5°C) - Ambient air 27°C D.B. / 19°C W.B.
2. Inlet water exchanger 45°C (temperature differential 5°C) - Ambient air 20°C
3. CFG = Centrifugal fan

Performance in heating and cooling mode when the environment and system conditions change

Refer to the selection software or to the “CFF AURA DC and AC performance tables” which can be downloaded at https://world.clivet.it/

AC CFFC - CFFAU version, return underneath (vertical installation) / at back (horizontal installation), 2-pipe

SIZE			1	2	3	4	6	8	10	12
High speed										
Airflow		m3/h	255	255	400	425	595	800	1150	1300
Cooling capacity	(1)	kW	1,65	2,25	2,65	3,05	4,2	5,35	6,75	8,25
Sensible capacity	(1)	kW	1,25	1,65	2,05	2,23	3,05	3,96	5,09	6,08
Water flow-rate	(1)	l/h	283	386	454	523	720	917	1157	1414
Water pressure drops	(1)	kPa	15,75	33,19	18,03	26,71	41,15	61,48	40,26	64,72
Heating capacity	(2)	kW	1,85	2,35	3,05	3,15	4,3	5,7	7,15	8,5
Water flow-rate	(2)	l/h	317	403	523	540	740	977	1226	1457
Water pressure drops	(2)	kPa	15,13	33,19	17,56	23,31	37,2	60,89	42,16	61,96
Total power input		W	35	40	47	47	51	91	110	118
Medium speed										
Airflow		m3/h	165	192	273	284	450	574	885	1132
Cooling capacity	(1)	kW	1,22	1,85	2,02	2,26	3,38	4,25	5,8	7,52
Sensible capacity	(1)	kW	0,88	1,35	1,5	1,61	2,43	3,08	4,36	5,53
Water flow-rate	(1)	l/h	209	317	346	387	580	729	995	1289
Water pressure drops	(1)	kPa	9,33	22,37	11,18	15,66	27,07	41,44	29,2	55,03
Heating capacity	(2)	kW	1,29	1,87	2,24	2,28	3,43	4,36	5,81	7,6
Water flow-rate	(2)	l/h	222	320	384	392	590	747	996	1302
Water pressure drops	(2)	kPa	8,22	22,37	10,28	12,57	24,5	37,73	28,68	47,46
Total power input		W	17	24	26	26	32	54	89	104
Minimum speed										
Airflow		m3/h	142	139	180	184	319	404	591	836
Cooling capacity	(1)	kW	1,09	1,4	1,4	1,58	2,48	3,31	4,24	5,87
Sensible capacity	(1)	kW	0,78	1	1,02	1,08	1,73	2,34	3,12	4,21
Water flow-rate	(1)	l/h	186	241	240	272	425	567	727	1007
Water pressure drops	(1)	kPa	7,37	4,64	5,48	8,42	15,71	26,62	16,15	34,88
Heating capacity	(2)	kW	1,13	1,42	1,52	1,6	2,52	3,31	4,3	5,9
Water flow-rate	(2)	l/h	194	244	260	275	433	569	740	1015
Water pressure drops	(2)	kPa	6,64	4,64	5,43	6,11	13,75	21,79	14,66	28,84
Total power input		W	14	15	14	14	19	35	64	82
Standard power supply		V	220-240/1/50							
Supply fan type	(3)	-	CFG							
Supply fan number		-	1	1	2	2	2	2	3	3

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.
Free outlet airflow (0 Pa head)
1. Water entering exchanger 7°C (temperature differential 5°C) - Ambient air 27°C D.B. / 19°C W.B.
2. Inlet water exchanger 45°C (temperature differential 5°C) - Ambient air 20°C
3. CFG = Centrifugal fan

Performance in heating and cooling mode when the environment and system conditions change
Refer to the selection software or to the “CFF AURA DC and AC performance tables” which can be downloaded at https://world.clivet.it/

AC CFFAC version, return at front (vertical installation) / underneath (horizontal installation), 2-pipe

SIZE			2	4	6
High speed					
Airflow		m3/h	245	380	580
Cooling capacity	(1)	kW	2,16	2,72	4,09
Sensible capacity	(1)	kW	1,58	2,00	2,97
Water flow-rate	(1)	l/h	370	470	700
Water pressure drops	(1)	kPa	31,90	23,90	40,10
Heating capacity	(2)	kW	2,26	2,81	4,19
Water flow-rate	(2)	l/h	390	480	720
Water pressure drops	(2)	kPa	31,90	22,50	36,30
Total power input		W	40	47	51
Medium speed					
Airflow		m3/h	180	250	430
Cooling capacity	(1)	kW	1,78	2,02	3,29
Sensible capacity	(1)	kW	1,29	1,44	2,37
Water flow-rate	(1)	l/h	310	350	560
Water pressure drops	(1)	kPa	23,20	14,00	26,40
Heating capacity	(2)	kW	1,79	2,04	3,34
Water flow-rate	(2)	l/h	310	350	570
Water pressure drops	(2)	kPa	21,50	12,60	25,40
Total power input		W	24	26	32
Minimum speed					
Airflow		m3/h	130	160	310
Cooling capacity	(1)	kW	1,35	1,41	2,41
Sensible capacity	(1)	kW	0,96	1,02	1,68
Water flow-rate	(1)	l/h	230	240	410
Water pressure drops	(1)	kPa	14,10	7,50	15,30
Heating capacity	(2)	kW	1,36	1,43	2,45
Water flow-rate	(2)	l/h	230	250	420
Water pressure drops	(2)	kPa	14,10	6,10	14,50
Total power input		W	15	15	19
Standard power supply		V		220-240/1/50	
Supply fan type	(3)	-		AC centrifuge	
Supply fan number		-	1	2	2

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.
Free outlet airflow (0 Pa head)
1. Water entering exchanger 7°C (temperature differential 5°C) - Ambient air 27°C D.B. / 19°C W.B.
2. Inlet water exchanger 45°C (temperature differential 5°C) - Ambient air 20°C
3. CFG = Centrifugal fan

Performance in heating and cooling mode when the environment and system conditions change

Refer to the selection software or to the “CFF AURA DC and AC performance tables” which can be downloaded at https://world.clivet.it/

DC CFFC - CFFU version, return at front (vertical installation) / at back (horizontal installation), 4-pipe (made to order only)

SIZE			3	5	9
High speed					
Airflow		m3/h	425	595	1190
Cooling capacity	(1)	kW	2,70	3,80	6,05
Sensible capacity	(1)	kW	1,90	2,80	4,80
Water flow-rate	(1)	l/h	460	650	1040
Water pressure drops	(1)	kPa	16,97	39,17	53,66
Heating capacity	(2)	kW	2,30	2,88	4,60
Water flow-rate	(2)	l/h	200	250	390
Water pressure drops	(2)	kPa	28,16	55,37	132,32
Total power input		W	20	29	92
Medium speed					
Airflow		m3/h	280	461	887
Cooling capacity	(1)	kW	1,94	3,18	5,00
Sensible capacity	(1)	kW	1,30	2,30	3,88
Water flow-rate	(1)	l/h	330	550	860
Water pressure drops	(1)	kPa	9,73	28,35	36,96
Heating capacity	(2)	kW	1,78	2,49	6,95
Water flow-rate	(2)	l/h	150	210	340
Water pressure drops	(2)	kPa	18,45	43,00	104,19
Total power input		W	11	17	46
Minimum speed					
Airflow		m3/h	158	324	564
Cooling capacity	(1)	kW	1,10	2,32	3,43
Sensible capacity	(1)	kW	0,70	1,61	2,53
Water flow-rate	(1)	l/h	190	400	590
Water pressure drops	(1)	kPa	3,51	16,91	19,07
Heating capacity	(2)	kW	1,22	2,00	3,02
Water flow-rate	(2)	l/h	100	170	260
Water pressure drops	(2)	kPa	10,08	29,20	63,73
Total power input		W	8	11	19
Standard power supply		V		220-240/1/50	
Supply fan type	(3)	-		DC centrifuge	
Supply fan number		-	1	2	2

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.
Free outlet airflow (0 Pa head)
1. Water entering exchanger 7°C (temperature differential 5°C) - Ambient air 27°C D.B. / 19°C W.B.
2. Inlet water exchanger 65°C (temperature differential 10°C) - Ambient air 20°C
3. CFG = Centrifugal fan

Performance in heating and cooling mode when the environment and system conditions change
Refer to the selection software or to the “CFF AURA DC and AC performance tables” which can be downloaded at https://world.clivet.it/

AC CFFAC - CFFAU version, return at front (vertical installation) / at back (horizontal installation), 4-pipe (model with casing made to order only)

SIZE			3	5	9
High speed					
Airflow		m3/h	425	595	1150
Cooling capacity	(1)	kW	2,89	4,09	6,40
Sensible capacity	(1)	kW	2,05	2,94	4,90
Water flow-rate	(1)	l/h	500	700	1100
Water pressure drops	(1)	kPa	21,38	47,70	63,05
Heating capacity	(2)	kW	2,45	2,95	4,65
Water flow-rate	(2)	l/h	210	250	400
Water pressure drops	(2)	kPa	32	58,2	135,2
Total power input		W	47	51	110
Medium speed					
Airflow		m3/h	284	430	885
Cooling capacity	(1)	kW	2,05	3,35	5,59
Sensible capacity	(1)	kW	1,39	2,38	4,25
Water flow-rate	(1)	l/h	350	570	960
Water pressure drops	(1)	kPa	11,95	33,04	48,47
Heating capacity	(2)	kW	1,7	2,5	4,09
Water flow-rate	(2)	l/h	150	210	350
Water pressure drops	(2)	kPa	16,8	43,4	111,8
Total power input		W	26	32	89
Minimum speed					
Airflow		m3/h	184	319	591
Cooling capacity	(1)	kW	1,25	2,35	4,00
Sensible capacity	(1)	kW	0,84	1,60	2,95
Water flow-rate	(1)	l/h	210	400	690
Water pressure drops	(1)	kPa	4,99	18,22	27,23
Heating capacity	(2)	kW	1,19	2	3,19
Water flow-rate	(2)	l/h	100	170	270
Water pressure drops	(2)	kPa	9,5	29,2	70,9
Total power input		W	14	19	64
Standard power supply		V		220-240/1/50	
Supply fan type	(3)	-		AC centrifuge	
Supply fan number		-	1	2	2

The Product is compliant with the Erp (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 2016/2281, also known as Ecodesign Lot21.
Free outlet airflow (0 Pa head)
1. Water entering exchanger 7°C (temperature differential 5°C) - Ambient air 27°C D.B. / 19°C W.B.
2. Inlet water exchanger 65°C (temperature differential 10°C) - Ambient air 20°C
3. CFG = Centrifugal fan

Performance in heating and cooling mode when the environment and system conditions change
Refer to the selection software or to the “CFF AURA DC and AC performance tables” which can be downloaded at https://world.clivet.it/

Sound pressure levels

DC CFFC – CFFU version, return underneath, 2-pipe

SIZES		1	2	3	4	6	8	10	12
High speed	dB(A)	34	39	29	32	40	45	50	50
Medium speed	dB(A)	24	33	24	23	34	39	43	43
Low speed	dB(A)	21	25	18	19	30	30	31	33

DC CFFC version, return at front, 2-pipe

SIZES		2	4	6
High speed	dB(A)	39	33	39
Medium speed	dB(A)	33	26	32
Low speed	dB(A)	26	17	24

AC CFFAC – CFFAU version, return underneath, 2-pipe

SIZES		1	2	3	4	6	8	10	12
High speed	dB(A)	35	42	34	34	40	47	50	50
Medium speed	dB(A)	24	35	24	25	35	40	44	45
Low speed	dB(A)	21	27	18	19	31	31	33	37

AC CFFAC version, return at front, 2-pipe

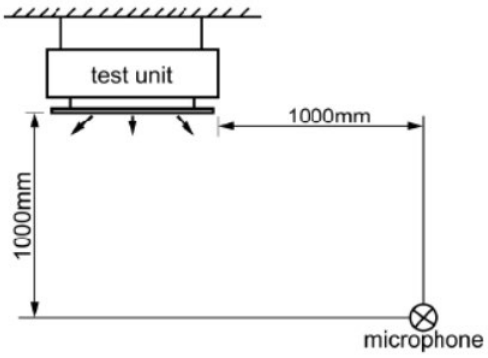
SIZES		2	4	6
High speed	dB(A)	39	35	39
Medium speed	dB(A)	34	26	32
Low speed	dB(A)	26	20	24

DC CFFC – CFFU version, return underneath, 4-pipe

SIZES		3	5	9
High speed	dB(A)	32	40	50
Medium speed	dB(A)	23	34	43
Low speed	dB(A)	19	30	31

AC CFFAC – CFFAU version, return underneath, 4-pipe

SIZES		3	5	9
High speed	dB(A)	34	40	50
Medium speed	dB(A)	25	33	44
Low speed	dB(A)	19	24	33



Sound power levels

DC CFFC – CFFU version, return underneath, 2-pipe

SIZES		1	2	3	4	6	8	10	12
High speed	dB(A)	47	52	43	46	52	59	62	63
Medium speed	dB(A)	36	46	37	37	45	51	56	57
Low speed	dB(A)	34	38	29	29	36	43	46	47

DC CFFC version, return at front, 2-pipe

SIZES		2	4	6
High speed	dB(A)	52	46	52
Medium speed	dB(A)	46	38	45
Low speed	dB(A)	39	30	37

AC CFFAC – CFFAU version, return underneath, 2-pipe

SIZES		1	2	3	4	6	8	10	12
High speed	dB(A)	47	53	46	47	52	59	62	63
Medium speed	dB(A)	35	47	37	38	45	51	56	58
Low speed	dB(A)	34	39	31	32	37	43	46	50

AC CFFAC version, return at front, 2-pipe

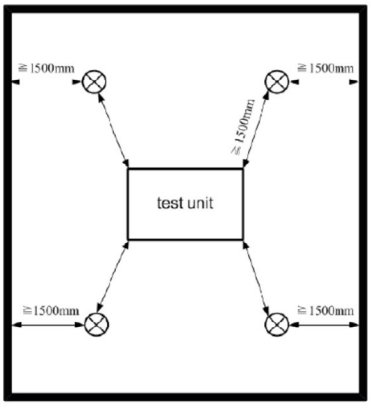
SIZES		2	4	6
High speed	dB(A)	52	48	52
Medium speed	dB(A)	47	39	45
Low speed	dB(A)	39	33	37

DC CFFC – CFFU version, return underneath, 4-pipe

SIZES		3	5	9
High speed	dB(A)	46	52	62
Medium speed	dB(A)	37	45	56
Low speed	dB(A)	29	36	46

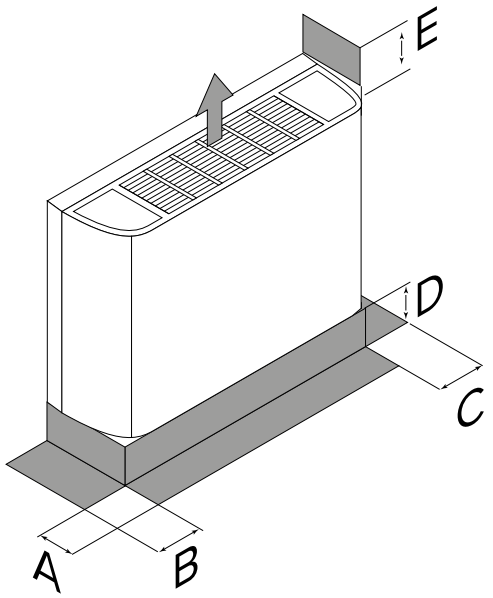
AC CFFAC – CFFAU version, return underneath, 4-pipe

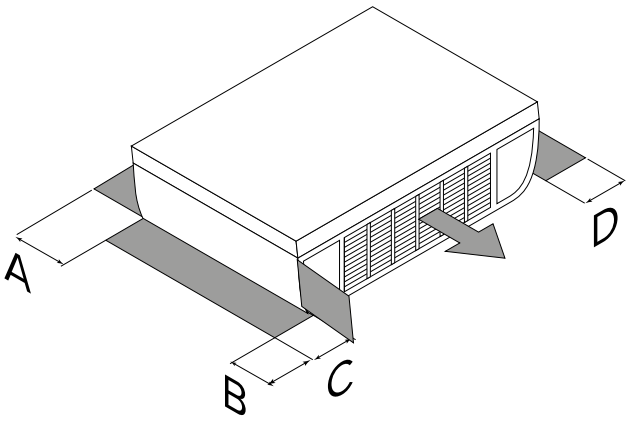
SIZES		3	5	9
High speed	dB(A)	47	52	62
Medium speed	dB(A)	38	45	56
Low speed	dB(A)	32	37	46



16.1 Dimensional

Version with casing



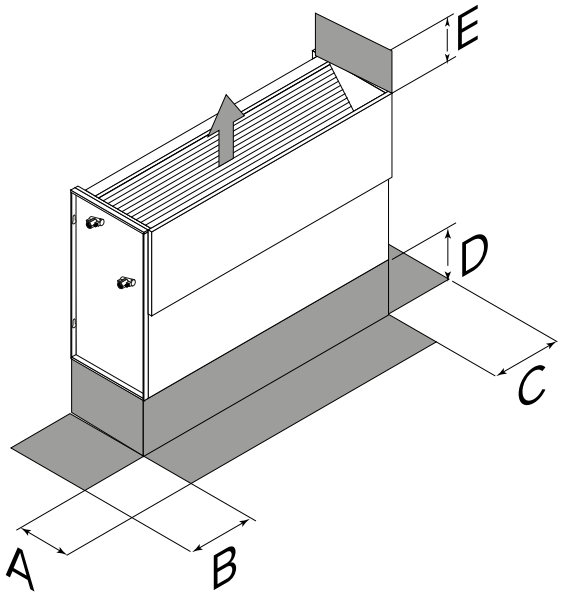


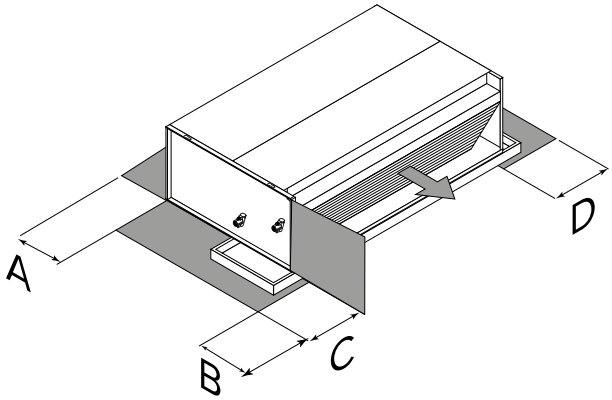
SIZES			1	2	3	4	5	6	8	9	10	12
VISIBLE DIMENSIONS	A	mm	790	790	1020	1020	1240	1240	1240	1360	1360	1360
	B	mm	200	200	200	200	200	200	200	200	200	200
	C	mm	495	495	495	495	495	495	495	495	495	591
VERTICAL INSTALLATION	A1	mm	150	150	150	150	150	150	150	150	150	150
	A2	mm	150	150	150	150	150	150	150	150	150	150
	B1	mm	-	-	-	-	-	-	-	-	-	-
	C2	mm	150	150	150	150	150	150	150	150	150	150
	C1 (for R3 configurations only)	mm	90	90	90	90	90	90	90	90	90	90
HORIZONTAL INSTALLATION	A1	mm	150	150	150	150	150	150	150	150	150	150
	A2	mm	150	150	150	150	150	150	150	150	150	150
	C1 (for R3 configurations only)	mm	90	90	90	90	90	90	90	90	90	90
	C2	mm	150	150	150	150	150	150	150	150	150	150

3/4" water connections
Condensation drain (Φ18.5 mm)

⚠ Check that no condensation forms on the wall or on the object placed above the unit.
⚠ Any obstructions above the unit may reduce its performance.

Uncased version





SIZES			1	2	3	4	5	6	8	9	10	12
VISIBLE DIMENSIONS	A	mm	628	628	858	858	1078	1078	1078	1198	1198	1198
	B	mm	200	200	200	200	200	200	200	200	200	200
	C	mm	455	455	455	455	455	455	455	455	455	551
VERTICAL INSTALLATION	A1	mm	150	150	150	150	150	150	150	150	150	150
	A2	mm	150	150	150	150	150	150	150	150	150	150
	B1	mm	-	-	-	-	-	-	-	-	-	-
	C2	mm	150	150	150	150	150	150	150	150	150	150
	C1	mm	90	90	90	90	90	90	90	90	90	90
HORIZONTAL INSTALLATION	A1	mm	150	150	150	150	150	150	150	150	150	150
	A2	mm	150	150	150	150	150	150	150	150	150	150
	C1	mm	90	90	90	90	90	90	90	90	90	90
	C2	mm	150	150	150	150	150	150	150	150	150	150

3/4" water connections
Condensation drain (Φ18.5 mm)

⚠ Check that no condensation forms on the wall or on the object placed above the unit.
⚠ Any obstructions above the unit may reduce its performance.

Weights table (net weight in kg)

Size						1	2	3	4	5	6	8	9	10	12
2 pipes	With casing	AC	Return underneath	CFFAC CC2 R3	kg	16,3	16,7	20	20,8	-	25,4	26,3	-	28,5	34
			Return at front	CFFAC CC2 RF	kg	-	16,7	-	20,8	-	25,4	-	-	28,5	-
		DC	Return underneath	CFFC CC2 R3	kg	18	18,5	21,5	22	-	26,5	26,5	-	29,5	34,5
			Return at front	CFFC CC2 RF	kg	-	18,5	21,5	22	-	-	26,5	-	-	-
	Uncased	AC	Return underneath	CFFAU CC2 R3	kg	11,6	12	13,9	14,8	17,3	18,2	18,8	20,5	21,7	25,2
		DC	Return underneath	CFFU CC2 R3	kg	11,8	12,1	13,9	14,8	-	18,2	18,2	-	20,8	24,3
4 pipes	With casing	AC	Return underneath	CFFAC CC4 R3	kg	-	-	21,3	-	25,9	-	-	29	-	-
			Return at front	CFFAC CC4 RF	kg	-	-	-	-	-	-	-	-	-	-
		DC	Return underneath	CFFC CC4 R3	kg	-	-	22,5	-	27	-	-	30	-	-
			Return at front	CFFC CC4 RF	kg	-	-	-	-	-	-	-	-	-	-
	Uncased	AC	Return underneath	CFFAC CC4 R3	kg	-	-	15,3	-	18,7	-	-	22,2	-	-
		DC	Return underneath	CFFC CC4 R3	kg	-	-	15,3	-	18,7	-	-	21,3	-	-

DECLARATION OF CONFORMITY UE

DICHIARAZIONE DI CONFORMITÀ EU
KONFORMITÄTSERKLÄRUNG UE
DECLARATION DE CONFORMITE UE
DECLARACIÓN DE CONFORMIDAD UE

WE DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE MACHINE
DICHIARIAMO SOTTO LA NOSTRA SOLA RESPONSABILITÀ CHE LA MACCHINA
WIR ERKLÄREN EIGENVERANTWORTLICH, DASS DIE MASCHINE
NOUS DÉCLARONS SOUS NOTRE SEULE RESPONSABILITÉ QUE LA MACHINE
EL FABRICANTE DECLARA BAJO SU EXCLUSIVA RESPONSABILIDAD QUE LA MÁQUINA

CATEGORY	**HYDRONIC TERMINAL UNITS - cool & heat**
CATEGORIA	**TERMINALI AD ACQUA - freddo & caldo**
KATEGORIE	**WASSERGEKÜHLTE INNENEINHEITEN - Kühlen & Heizen**
CATEGORIE	**UNITÉS TERMINALES À EAU - froid & chaud**
CATEGORIA	**TERMINALES DE AGUA - frió & calor**

TYPE / TIPO / TYP / TYPE / TIPO

MODEL	MODEL	MODEL	MODEL
CFFAC 1 CC2 R3	CFFAC 1 CC2 RF	CFFAC 1 CC4 R3	CFFAC 1 CC4 RF
CFFAC 2 CC2 R3	CFFAC 2 CC2 RF	CFFAC 3 CC2 R3	CFFAC 3 CC2 RF
CFFAC 3 CC4 R3	CFFAC 3 CC4 RF	CFFAC 4 CC2 R3	CFFAC 4 CC2 RF
CFFAC 5 CC2 R3	CFFAC 5 CC2 RF	CFFAC 5 CC4 R3	CFFAC 5 CC4 RF
CFFAC 6 CC2 R3	CFFAC 6 CC2 RF	CFFAC 7 CC2 R3	CFFAC 7 CC2 RF
CFFAC 7 CC4 R3	CFFAC 7 CC4 RF	CFFAC 8 CC2 R3	CFFAC 8 CC2 RF
CFFAC 9 CC2 R3	CFFAC 9 CC2 RF	CFFAC 9 CC4 R3	CFFAC 9 CC4 RF
CFFAC 10 CC2 R3	CFFAC 10 CC2 RF	CFFAC 11 CC2 R3	CFFAC 11 CC2 RF
CFFAC 11 CC4 R3	CFFAC 11 CC4 RF	CFFAC 12 CC2 R3	CFFAC 12 CC2 RF

- **COMPLIES WITH THE FOLLOWING EC DIRECTIVES, INCLUDING THE MOST RECENT AMENDMENTS, AND THE RELEVANT NATIONAL HARMONISATION LEGISLATION CURRENTLY IN FORCE:**
- RISULTA IN CONFORMITÀ CON QUANTO PREVISTO DALLE SEGUENTI DIRETTIVE CE, COMPRESE LE ULTIME MODIFICHE, E CON LA RELATIVA LEGISLAZIONE NAZIONALE DI RECEPIMENTO:
- DEN IN DEN FOLGENDEN EG-RICHTLINIEN VORGESEHENEN VORSCHRIFTEN, EINSCHLIEßLICH DER LETZTEN ÄNDERUNGEN, SOWIE DEN ANGEWANDTEN LANDESGESETZEN ENTSPRICHT:
- EST CONFORME AUX DIRECTIVES CE SUIVANTES, Y COMPRIS LES DERNIÈRES MODIFICATIONS, ET À LA LÉGISLATION NATIONALE D'ACCUEIL CORRESPONDANTE:
- ES CONFORME A LAS SIGUIENTES DIRECTIVAS CE, INCLUIDAS LAS ÚLTIMAS MODIFICACIONES, Y A LA RELATIVA LEGISLACIÓN NACIONAL DE RECEPCIÓN:

☒	**2006/42/EC**	**Machinery directive /** direttiva macchine / maschinenrichtlinie **/** directive sur les machines / directiva máquinas
☒	**2014/30/UE**	**Electromagnetic compatibility /** compatibilità elettromagnetica / Elektromagnetische Verträglichkeit compatibilité électromagnétique / compatibilidad electromagnética
☒	**2009/125/CE**	**Ecodesign** / Progettazione ecocompatibile / Ecodesign / Éco-conception / Ecodiseño
☒	**2011/65/UE**	**RoHs**

-Unit manufactured and tested according to the followings Standards:	EN 60335-1 :2012/A2 :2019 EN 60335-2-40 :2003/A13 :2012 EN 62233 :2008
-Unità costruita e collaudata in conformità alle seguenti Normative:	EN 55014-2 :2015 EN 55014-1 :2017 EN IEC 61000-3-2 :2019
-Unité construite et testée en conformité avec les Réglementations suivantes	EN 61000-3-3 :2013/A1 :2019
-Unidad construida y probada de acuerdo con las siguientes Normativas	EN 62321-1 :2013 EN 62321-2 :2014 EN 62321-3-1 :2014 EN 62321-4 :2014
-Gebautes und geprüftes Gerät nach folgenden Normen	EN 62321-5 :2014 EN 62321-6 :2015 EN 62321-7-1 :2015 EN 62321-7-2 :2017 EN 62321-8 :2017

-Responsible to constitute the technical file is the company n°.00708410253 and registered at the Chamber of Commerce of Belluno Italy
-Responsabile a costituire il fascicolo tecnico è la società n° 00708410253 registrata presso la Camera di Commercio di Belluno Italia
-Verantwortliche für die technischen Unterlagen zusammenstellen n°.00708410253 ist das Unternehmen bei der Handelskammer von Belluno Italien registriert
-Responsable pour compiler le dossier technique est la société n°00708410253 enregistrée à la Chambre de Commerce de Belluno en Italie-
Encargado de elaborar el expediente técnico es la empresa n º 00708410253 registrada en la Cámara de Comercio de Belluno Italia

NAME / NOME / VORNAME / PRÉNOM / NOMBRE — STEFANO
SURNAME / COGNOME / ZUNAME / NOM / APELLIDOS — BELLO
FELTRE, 22/10/2020
COMPANY POSITION / POSIZIONE / BETRIEBSPOSITION / FONCTION — LEGALE RAPPRESENTANTE

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DECLARATION OF CONFORMITY UE

DICHIARAZIONE DI CONFORMITÀ EU
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DECLARATION DE CONFORMITE UE
DECLARACIÓN DE CONFORMIDAD UE

WE DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE MACHINE
DICHIARIAMO SOTTO LA NOSTRA SOLA RESPONSABILITÀ CHE LA MACCHINA
WIR ERKLÄREN EIGENVERANTWORTLICH, DASS DIE MASCHINE
NOUS DÉCLARONS SOUS NOTRE SEULE RESPONSABILITÉ QUE LA MACHINE
EL FABRICANTE DECLARA BAJO SU EXCLUSIVA RESPONSABILIDAD QUE LA MÁQUINA

CATEGORY	**HYDRONIC TERMINAL UNITS - cool & heat**
CATEGORIA	**TERMINALI AD ACQUA - freddo & caldo**
KATEGORIE	**WASSERGEKÜHLTE INNENEINHEITEN - Kühlen & Heizen**
CATEGORIE	**UNITÉS TERMINALES À EAU - froid & chaud**
CATEGORIA	**TERMINALES DE AGUA - frió & calor**

TYPE / TIPO / TYP / TYPE / TIPO

MODEL	MODEL	MODEL	MODEL
CFFAU 1 CC2 R3	CFFAU 1 CC4 R3	CFFAU 2 CC2 R3	CFFAU 3 CC2 R3
CFFAU 3 CC4 R3	CFFAU 4 CC2 R3	CFFAU 5 CC2 R3	CFFAU 5 CC4 R3
CFFAU 6 CC2 R3	CFFAU 7 CC2 R3	CFFAU 7 CC4 R3	CFFAU 8 CC2 R3
CFFAU 9 CC2 R3	CFFAU 9 CC4 R3	CFFAU 10 CC2 R3	CFFAU 11 CC2 R3
CFFAU 11 CC4 R3	CFFAU 12 CC2 R3		

- **COMPLIES WITH THE FOLLOWING EC DIRECTIVES, INCLUDING THE MOST RECENT AMENDMENTS, AND THE RELEVANT NATIONAL HARMONISATION LEGISLATION CURRENTLY IN FORCE:**
- RISULTA IN CONFORMITÀ CON QUANTO PREVISTO DALLE SEGUENTI DIRETTIVE CE, COMPRESE LE ULTIME MODIFICHE, E CON LA RELATIVA LEGISLAZIONE NAZIONALE DI RECEPIMENTO:
- DEN IN DEN FOLGENDEN EG-RICHTLINIEN VORGESEHENEN VORSCHRIFTEN, EINSCHLIEßLICH DER LETZTEN ÄNDERUNGEN, SOWIE DEN ANGEWANDTEN LANDESGESETZEN ENTSPRICHT:
- EST CONFORME AUX DIRECTIVES CE SUIVANTES, Y COMPRIS LES DERNIÈRES MODIFICATIONS, ET À LA LÉGISLATION NATIONALE D'ACCUEIL CORRESPONDANTE:
- ES CONFORME A LAS SIGUIENTES DIRECTIVAS CE, INCLUIDAS LAS ÚLTIMAS MODIFICACIONES, Y A LA RELATIVA LEGISLACIÓN NACIONAL DE RECEPCIÓN:

☒	**2006/42/EC**	**Machinery directive /** direttiva macchine / maschinenrichtlinie directive sur les machines / directiva máquinas
☒	**2014/30/UE**	**Electromagnetic compatibility** compatibilità elettromagnetica / Elektromagnetische Verträglichkeit compatibilité électromagnétique / compatibilidad electromagnética
☒	**2009/125/CE**	**Ecodesign** / Progettazione ecocompatibile / Ecodesign / Éco-conception / Ecodiseño
☒	**2011/65/UE**	**RoHs**

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-Responsible to constitute the technical file is the company n°.00708410253 and registered at the Chamber of Commerce of Belluno Italy
-Responsabile a costituire il fascicolo tecnico è la società n° 00708410253 registrata presso la Camera di Commercio di Belluno Italia
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NAME / NOME / VORNAME / PRÉNOM / NOMBRE — STEFANO
SURNAME / COGNOME / ZUNAME / NOM / APELLIDOS — BELLO
FELTRE, 22/10/2019
COMPANY POSITION / POSIZIONE / BETRIEBSPOSITION / FONCTION — AMMINISTRATORE DELEGATO

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TYPE / TIPO / TYP / TYPE / TIPO

MODEL	MODEL	MODEL	MODEL
CFFC 1 CC2 R3	CFFC 1 CC2 RF	CFFC 1 CC4 R3	CFFC 1 CC4 RF
CFFC 2 CC2 R3	CFFC 2 CC2 RF	CFFC 3 CC2 R3	CFFC 3 CC2 RF
CFFC 3 CC4 R3	CFFC 3 CC4 RF	CFFC 4 CC2 R3	CFFC 4 CC2 RF
CFFC 5 CC2 R3	CFFC 5 CC2 RF	CFFC 5 CC4 R3	CFFC 5 CC4 RF
CFFC 6 CC2 R3	CFFC 6 CC2 RF	CFFC 7 CC2 R3	CFFC 7 CC2 RF
CFFC 7 CC4 R3	CFFC 7 CC4 RF	CFFC 8 CC2 R3	CFFC 8 CC2 RF
CFFC 9 CC2 R3	CFFC 9 CC2 RF	CFFC 9 CC4 R3	CFFC 9 CC4 RF
CFFC 10 CC2 R3	CFFC 10 CC2 RF	CFFC 11 CC2 R3	CFFC 11 CC2 RF
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