Air Handling Units

RDZ
You Feel, We Care

REFLAIR 320 - 400

Mechanical ventilation with heat recovery appliance

INSTALLATION / TECHNICAL MANUAL

Ducted controlled mechanical ventilation unit with sensible heat recovery

CE

INSTRUCTIONS FOR INSTALLATION, COMMISSIONING AND MAINTENANCE

Product range

70RFL00320 - 70RFL0100320

Mechanical ventilation units for universal installation, wall or ceiling mounted, with high-efficiency sensible heat recovery.
— Maximum flow rate 320 m³/h.

70RFL00400 - 70RFL0100400

Mechanical ventilation units for universal installation, wall or ceiling mounted, with high-efficiency sensible heat recovery.
—Maximum flow rate 400 m³/h.

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Introduction

Dear Installer, thank in advance for choosing our controlled mechanical ventilation unit, which we hope you will always be satisfied with; this product complies with the most stringent safety standards in force. To ensure personnel safety, the unit referred to in this user and maintenance manual must be handled, installed, used, maintained and dismantled/disposed of in strict compliance with the instructions in this user and maintenance manual and in accordance with applicable laws. This manual is intended for operators and specialised personnel to ensure correct use of the product.
Please note that this information is essential for the practical installation, use and maintenance of the unit itself. The document describes the status of the product at the time of publication.

General informations

Company name and address of the manufacturer:
RDZ S.p.A.
Viale Trento, 101
33077 SACILE (PN) ITALY
phone +39 0434 787511
info@rdz.it - www.rdz.it

Company name and address of the authorised representative:
RDZ S.p.A.
Viale Trento, 101
33077 SACILE (PN) ITALY
phone +39 0434 787511
info@rdz.it - www.rdz.it

SAFETY INSTRUCTION

WARNINGS

Read this booklet carefully before installing and/or using the equipment and keep it in an accessible place.
This equipment is a component that forms part of complex installations: it is the responsibility of the electrical installer to draw up the general diagram of the system and the electrical connections external to the equipment.

WARNING!
Installation and maintenance must only be carried out by qualified personnel. The plumbing and electrical systems and the rooms where the equipment is installed must comply with the safety, accident prevention and fire prevention regulations in force in the country of use.

1. It is essential to connect the equipment to an effective earthing system and include it in an equipotential system whose effectiveness must comply with current regulations.
2. Before making the electrical connection, ensure that the voltage and frequency indicated on the rating plate correspond to those of the power supply system.
3. Before carrying out any work on the unit, make sure that the power supply has been disconnected.
4. Do not alter or tamper with the safety devices.
5. Do not direct water spray onto the electrical parts or the casing of the unit.
6. This unit is not suitable for use in explosive or potentially explosive atmospheres.
7. When installing or working on the equipment, it is necessary to strictly comply with the instructions in this manual, observe the instructions on the unit and take all necessary precautions.
8. The electrical components present may create hazardous situations during installation and maintenance.
9. This equipment is not suitable for use by children or infirm persons without adequate supervision.
10. Devices that communicate via radio are subject to interference that may affect data transmission. Therefore, avoid strong electromagnetic fields in the vicinity of the devices.

GENERAL WARNINGS

1. If, after unpacking the appliance, you notice any anomalies, do not use the appliance and contact a Service Centre authorised by the Manufacturer.
2. A condensate drain must be installed from the appliance to a suitable drain.
3. The condensate drain and associated pipes must be cleared of debris before commissioning and insulated if they pass through unheated spaces or voids.
4. This appliance must not be connected to a tumble dryer or extractor hood.
5. The supply air intake must be taken from outside the property and the exhaust air must be expelled to the outside of the property.
6. For the installation of external vents and grilles, it is recommended that the positioning instructions and minimum clearance distances given later in this manual be followed.
7. Pipes must be insulated when passing through unheated or empty spaces (e.g. attics) to reduce the possibility of condensation and heat loss.
8. Only use original spare parts: failure to comply with this rule will invalidate the warranty.
9. The Manufacturer declines all responsibility and does not consider the warranty valid in the following cases:
   - Failure to comply with the warnings and safety regulations indicated above, including those in force in the countries of installation.
   - Failure to comply with the instructions given in this manual.
   - Damage to persons, animals or property resulting from incorrect installation and/or improper use of products and equipment.
10. The Manufacturer also reserves the right to discontinue production at any time and to make any changes it deems useful or necessary without prior notice. The device is not intended for use by persons (including children) with reduced mental, physical and sensory capabilities or lack of experience unless they are supervised or instructed in the use of the device by a person responsible for their safety.

PLEASE LEAVE THIS MANUAL FOR THE USER'S REFERENCE AND SERVICE

Package content

- 1 Mechanical ventilation unit
- 1 Support template for bracket installation
- 2 Brackets for mounting on ceiling or wall
- 1 Power cable without plug. Length = approx. 1.5 m
- 2 Plug kits for unused condensate drain + hose connection
- 1 Instruction manual for installation, commissioning and maintenance

Warnings for the correct disposal of the product

At the end of its useful life, the product must not be disposed of with municipal waste.
It can be delivered to the appropriate separate collection centres set up by local authorities, or to retailers who provide this service.
Disposing of electrical and electronic equipment separately prevents possible negative consequences for the environment and health resulting from improper disposal and allows the materials it is made of to be recovered, thus saving energy and resources.
To emphasise the obligation to dispose of electrical and electronic equipment separately, the product is marked with the crossed-out wheelie bin symbol.

Battery disposal

Please respect the environment. Do not dispose of batteries in household waste. Used batteries must be taken to designated collection points. Please note that only flat batteries may be disposed of in used battery collection containers. If the battery is not completely flat, appropriate measures must be taken to prevent short circuits. The crossed-out wheelie bin symbol indicates that batteries must be disposed of separately.

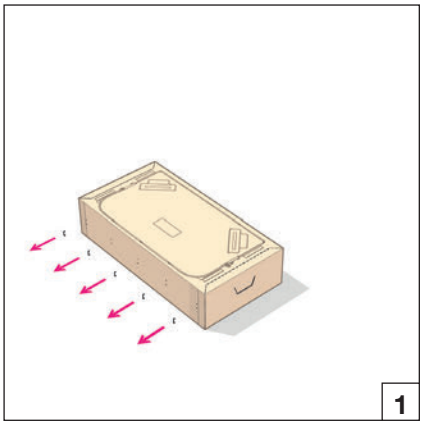
Packaging, handling and transport

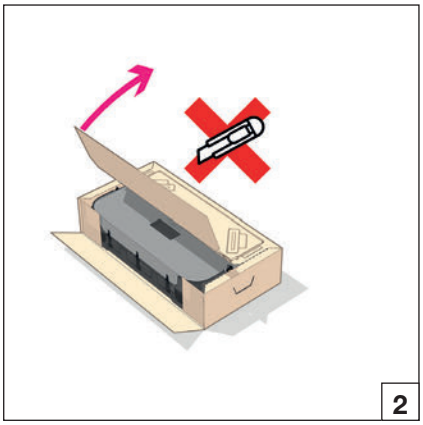
Upon receipt, immediately check the integrity of the packaging: the machine left the factory in perfect condition, any damage must be immediately reported to the carrier and noted on the Delivery Note before countersigning it. The Customer must notify the Manufacturer of the extent and type of damage within 8 days by completing a written report: always include the serial number found on the nameplate on the machine.

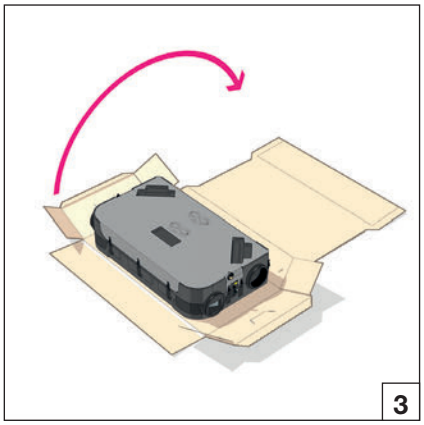
ATTENTION!

The unit's packaging must be removed with care to avoid damaging the machine. The packaging materials are of various types: wood, cardboard, nylon, etc. Store them separately and deliver them for disposal or recycling to the appropriate companies, thus reducing their environmental impact. The device weighs approximately 35 kg: it must be handled in accordance with safety regulations.

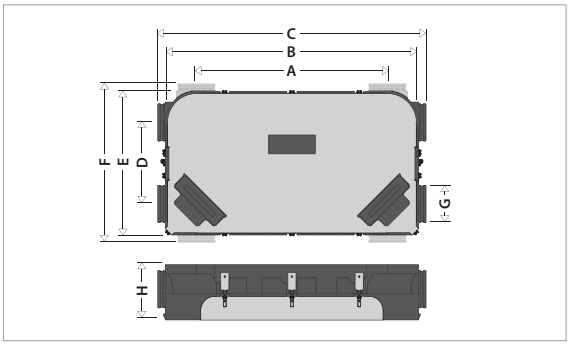
Unpack the unit as shown in figs. 1, 2, 3.







Dimensions



Code	A	B	C	D	E
70RFL00320 / 400	1015	1345	1425	433	763
70RFL0100320 / 400	F	G	H	kg	
	843	200	294	32	

Technical specifications

	70RFL00320 - 70RFL0100320			70RFL00400 - 70RFL0100400		
	Operating flow rate	Electric power	Head Min-Max	Operating flow rate	Electric power	Head Min-Max
Normal	225 m³/h	63 W (*)	50–300 Pa	280 m³/h	96 W (*)	50–300 Pa
Boost	320 m³/h	117 W (*) 300 W (max) (**)	50–300 Pa	400 m³/h	273 W (*) 378 W (max) (**)	50–300 Pa
Air duct connection diameter	200 mm			200 mm		
Sound power level	41,4 dB(A)			46,2 dB(A)		
Power supply	230 V (AC) ± 10 % 50 Hz			230 V (AC) ± 10 % 50 Hz		
Maximum current	2,9 A			3,65 A		
Temperature probes	NTC 10 kΩ			NTC 10 kΩ		
Indoor air filter	G4 (ISO Coarse 65 %)			G4 (ISO Coarse 65 %)		
Outdoor air filter	G4 (ISO Coarse 65 %)			G4 (ISO Coarse 65 %)		
Materials						
Supporting structure and connections	EPP			EPP		
Thermal and acoustic insulation	EPP			EPP		

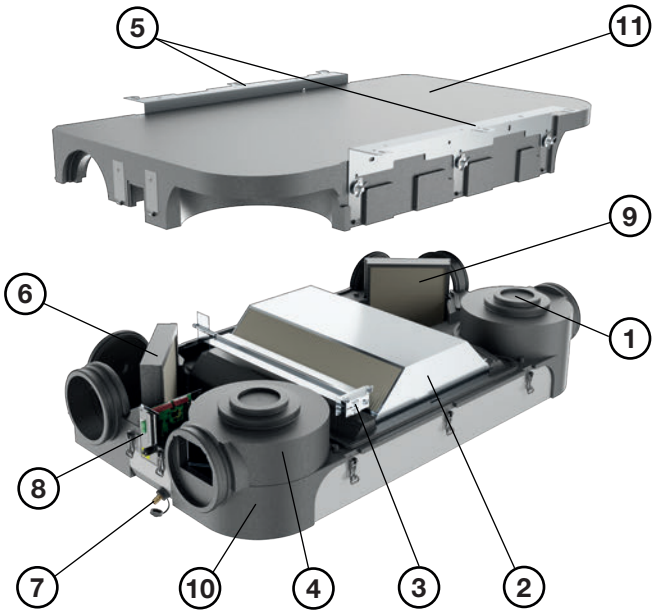
* *100 Pa residual head*
** *500 Pa residual head and Boost operating flow rate*

General description of operation

The REFLAIR series models are machines for horizontal installation in false ceilings or vertical installation on walls, and allow controlled mechanical ventilation of indoor environments in residential settings.
The unit features: a high-efficiency counterflow sensible heat recovery system; thermal and acoustic insulation provided by the entire sintered expanded polypropylene casing; two centrifugal fans, for air supply and extraction, with constant flow controlled by an EC motor with low power consumption; ISO Coarse 65% (G4) filter on the intake and exhaust ducts; motorised bypass and 4 NTC probes for air temperature detection. Available functions: renewal, economy, boost, free heating and free cooling. REFLAIR series units can be controlled via:
- CoRe AIR CONTROL touchscreen display with programmable flow rate control by time slot, code 7041477;
- CoRe AIR SPEED LED touch control with manual flow rate control, code 7041476;
- CoRe AIR 3V LED touch control with 3-speed control, code 7041478;

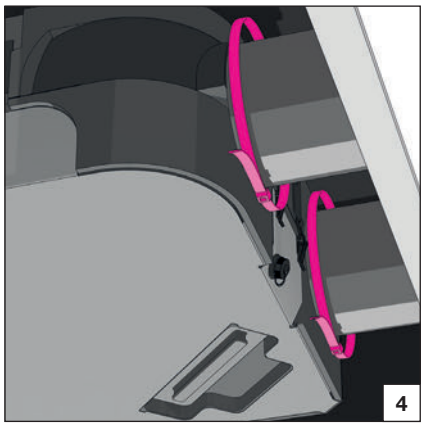
Characteristic components

1. Air inlet fan
2. Sensitive heat recovery unit
3. Fre-cooling bypass damper
4. Air exhaust fan
5. Brackets for ceiling or wall mounting
6. External air filters (G4)
7. Condensate drain
8. Electrical panel
9. Indoor air filter (G4)
10. Lower part of the supporting structure in EPP
11. Upper part of the supporting structure in EPP

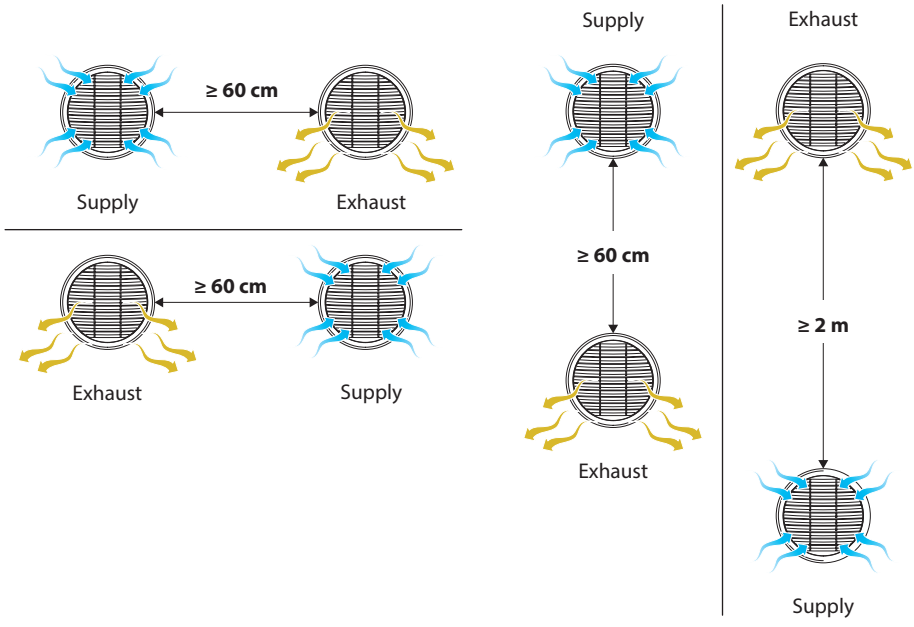


Installation of the air duct network

The primary air ducts must be secured to the unit connections using clamps as shown in fig. 4. Non-compliant installation may result in unnecessary air leaks, compromising performance. The ducting must be connected to all four connections on the machine. If the ducting passes through unheated and empty rooms (e.g. attics), it must be insulated in order to comply with building regulations. Always use insulation on the external air extraction/expulsion and ambient air intake lines when they pass through heated areas to prevent condensation from forming on the outside of the ducts. When passing through fire walls or fire compartment walls, adequate fireproof insulation must be provided in order to comply with building regulations. Install rigid piping using as few fittings as possible to minimise air flow resistance. IMPORTANT: do not reduce the size of the ducting below the connection diameter of the machine. All pipes must be as short and straight as possible to achieve maximum performance. Installation and maintenance must only be carried out by qualified personnel. During all installation procedures, ensure that the equipment is not connected to the mains. Installation must only be carried out inside buildings. Fresh air must be drawn in from outside the building. Exhaust air must be expelled outside the building. Provide protective grilles for the ducts on the outside.



Positioning guidelines for external supply and exhaust air vents:



Configuration of the MVHR unit

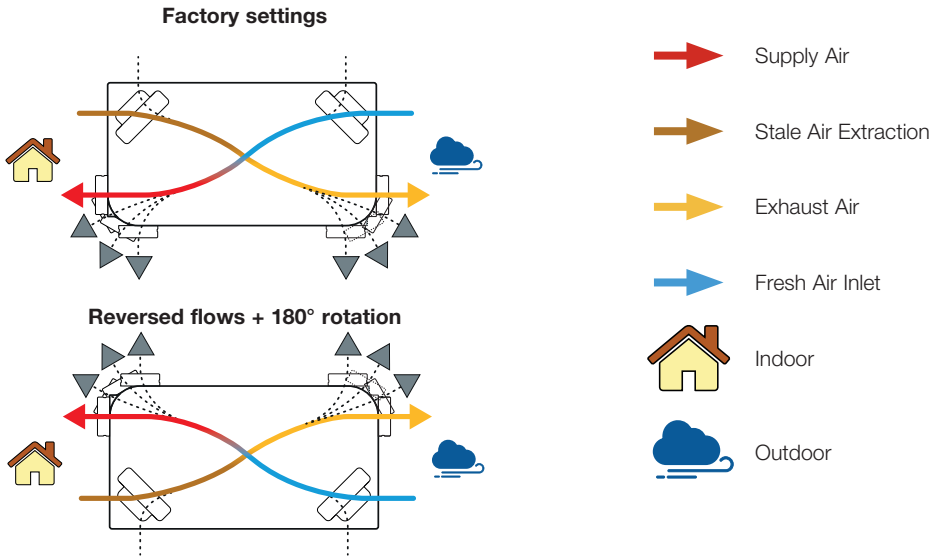
REFLAIR series MVHR units can be configured as desired according to system requirements. Configuration means:

- the reversal of supply and exhaust air flows (operation performed by reconfiguring the electronic board);
- changing the orientation of the air connections for the outlet flows from 0° to 90° using the rotatable fan units;
- the interchange between the air connections of the inlet flows with the relative closing caps.

IMPORTANT: it is recommended to carry out the configuration operations before mounting on the ceiling or wall. Place the unit on a horizontal surface that is easy to access and facing the filter holder side.

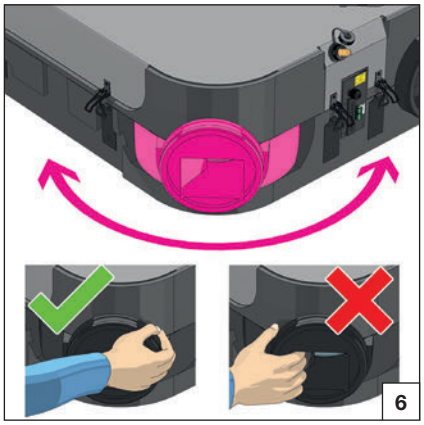
Switching the supply and extract air flows

REFLAIR series MVHR can be reconfigured to switch the supply and extract air flows to suit installation requirements. This is done by reconfiguring the electronic board (**see section Electronic board on board the MVHR, SW1 SETTING, DIP 2**).



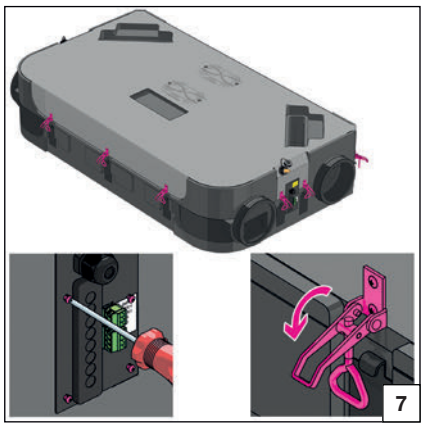
Changing the direction of the rotating fan units (outlet airflows)

a. Open the lever locks on the duct spigot to be rotated (fig. 5);
b. Hold the duct spigot from the outside with one hand and lever the unit with the other hand. IMPORTANT: do not hold the duct spigot from the inside to avoid damaging the fan impeller (fig. 6);
c. Rotate the duct spigot to the desired position;
d. Close the lever locks that were previously opened.



Interchangeable connections and corresponding plugs

a. Open all lever locks and unscrew the screws on the electronic board cover panel (fig. 7);
b. Remove the filter holders (fig. 8);
c. Slowly lift the upper shell (fig. 9);
d. Reverse the position of the connection with its closure cap (fig. 10 and 11). To remove the duct spigot or cap, lift and then pull the part outwards. Do not pull the part out of its seat without lifting it first (fig. 12)
CAUTION: respect the orientation of the closure cap (fig. 13);
e. Close the upper shell until it clicks into place, taking care to position the electronic board cover panel correctly (fig. 14);
f. Close all the lever closures that were previously opened (fig. 15);
g. Reassemble the filter drawers (fig. 16).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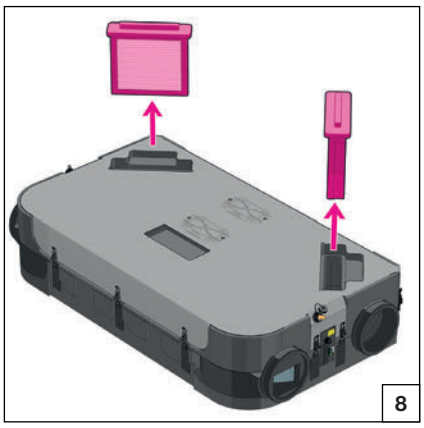
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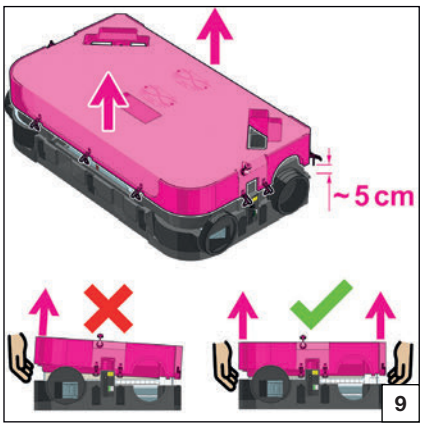
~5 cm
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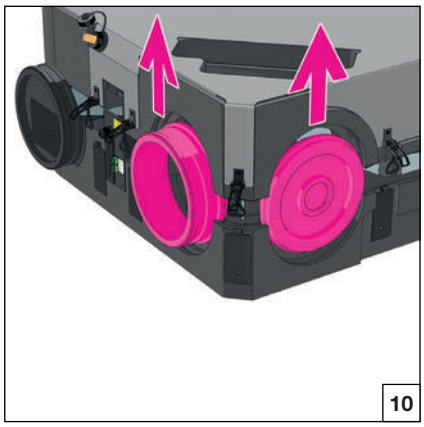
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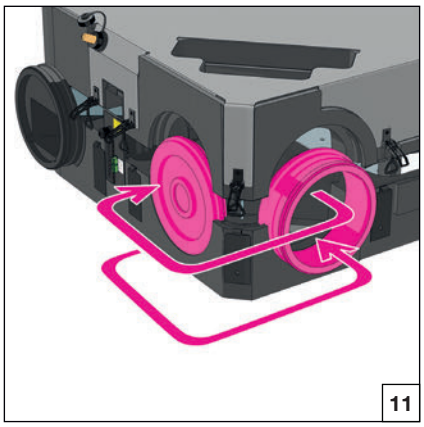
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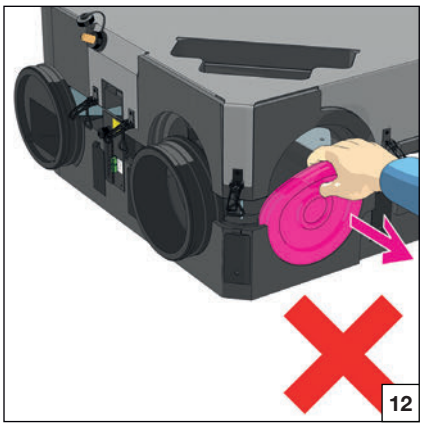
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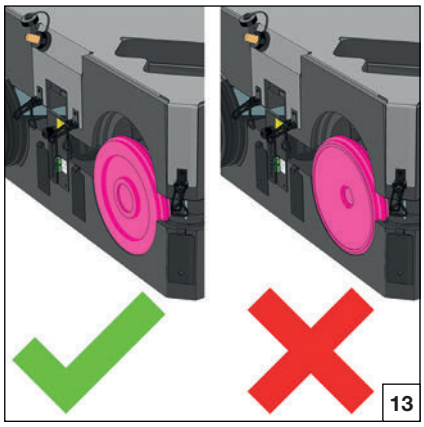
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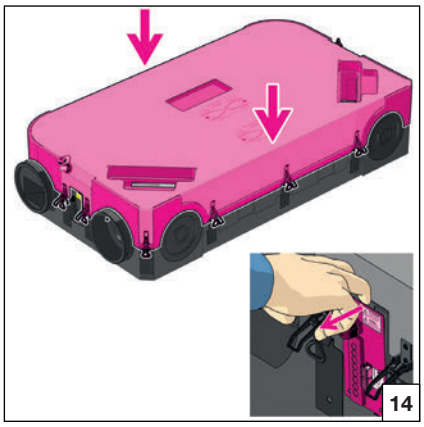
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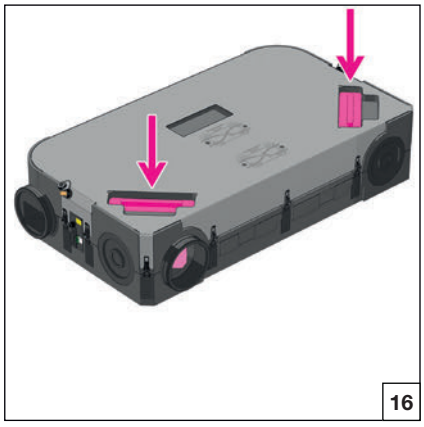
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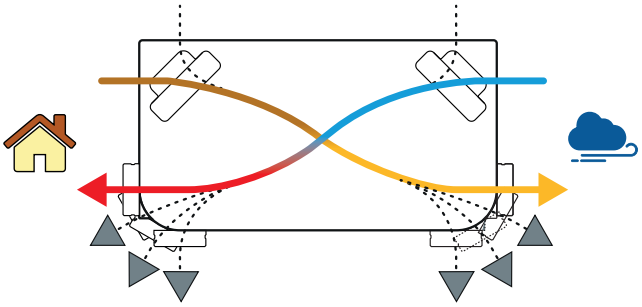
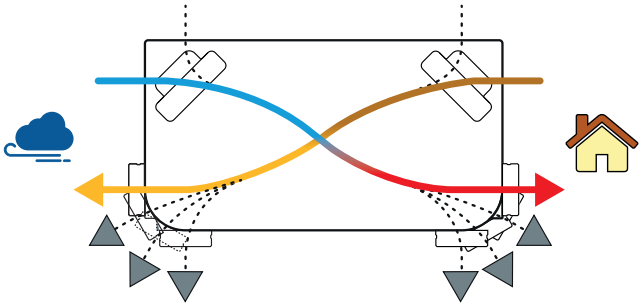
Air flow reversibility

The units MVHR of the Reflair serie can be reconfigured to reverse supply and extract air flows to suit installation requirements.

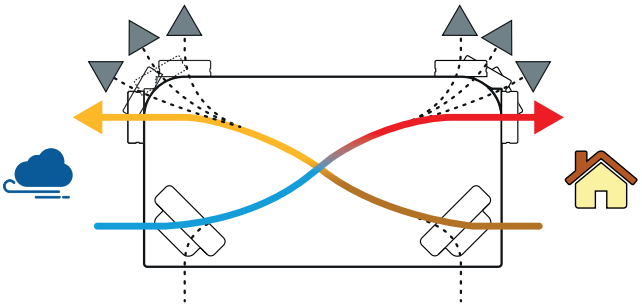
Horizontal installation on ceiling *Unit viewed from below*



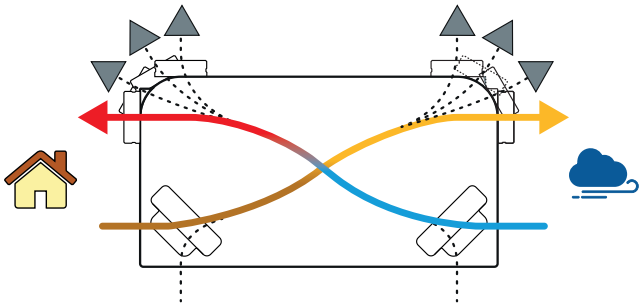
Air flows in standard position
(factory configuration)



Inverted airflows
(via electronic management)

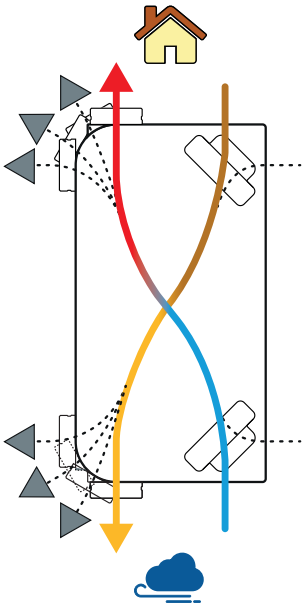


Standard air flows + rotation 180°
(factory configuration)

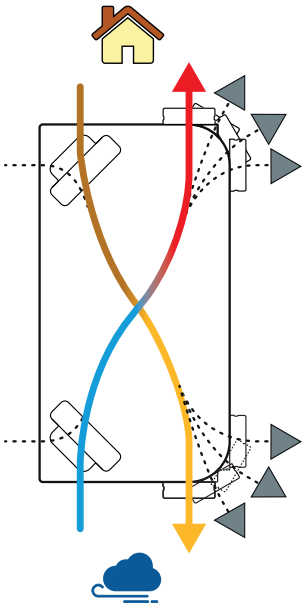


Inverted airflow + rotation 180°
(via electronic management)

Vertical installation on wall *Unit viewed from the front*



Standard air flows
(factory configuration)



Inverted airflow + rotation 180°
(via electronic management)

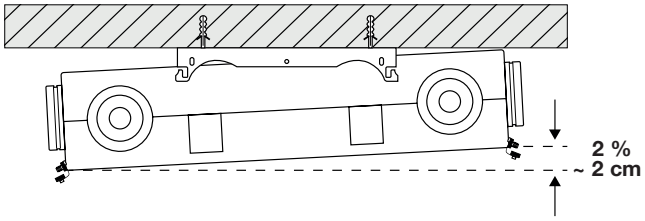
WARNING!
For vertical wall installation, DO NOT direct the stale air extraction and supply air connections downwar

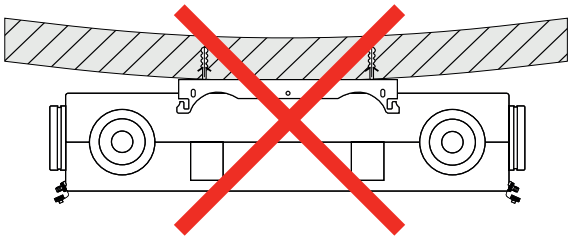
Installation

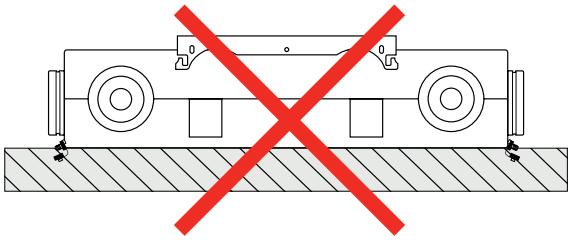
Positioning instructions

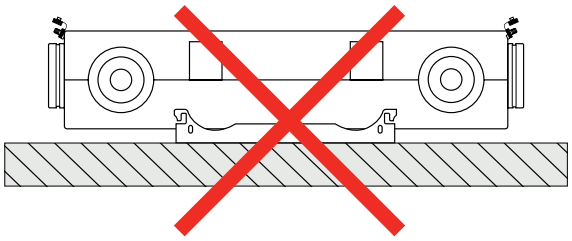
Follow these instructions when positioning the MVHR unit on the ceiling or wall.

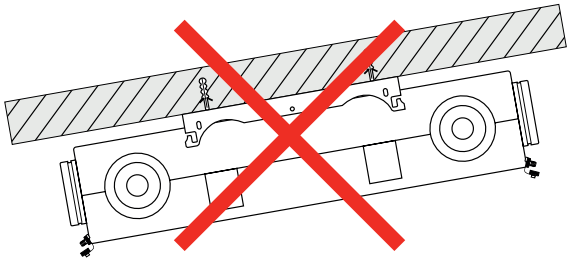
Horizontal installation on ceiling



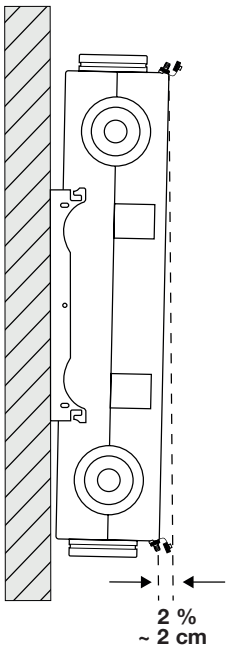








Vertical installation on wall



CAUTION!
Ensure that the unit has a 2% slope towards the condensate drain used. Close the unused drain with the plug provided in the package.

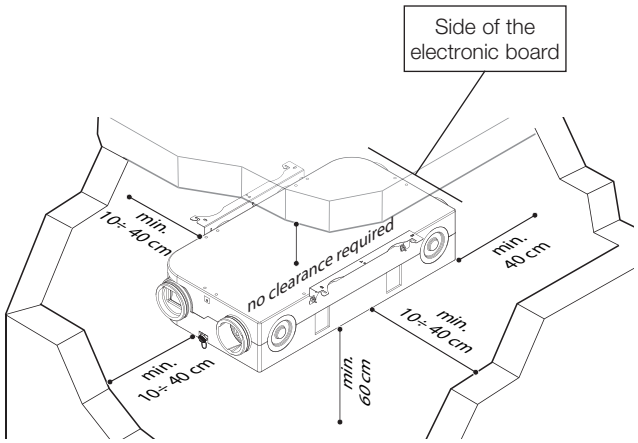
Horizontal installation on ceiling

IMPORTANT! Allow sufficient space for the air duct connections and their bend dimensions, ensuring that the minimum clearance requirements for the machine are met:

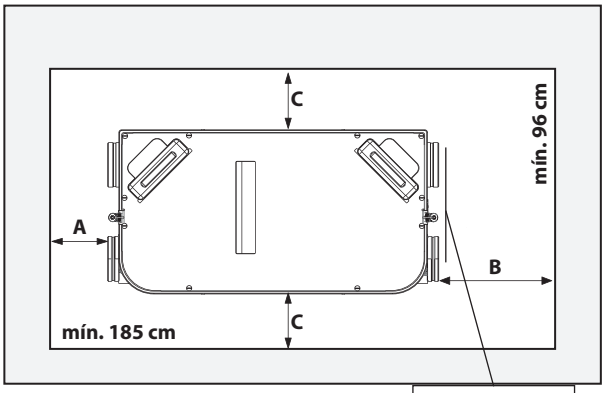
- maintain a minimum distance of 40 cm on the side of the unit where the electrical panel is located;
- maintain a minimum distance of 40 cm on the sides of the unit where the rotatable and interchangeable duct spigot are located;
- maintain a minimum distance of 10 cm on the sides of the unit where there are no rotatable and interchangeable duct spigot;
- maintain a minimum distance of 60 cm below the unit for maintenance operations.

ATTENTION!
In the case of horizontal ceiling installation or installation that is not visible, an inspection hatch must be provided at the unit for maintenance work. A minimum false ceiling height of 30 cm must also be provided.

Minimum space allowances



Inspection hatch dimensions



A = min. 20 cm
B = min. 30 cm
C = min. 10 cm

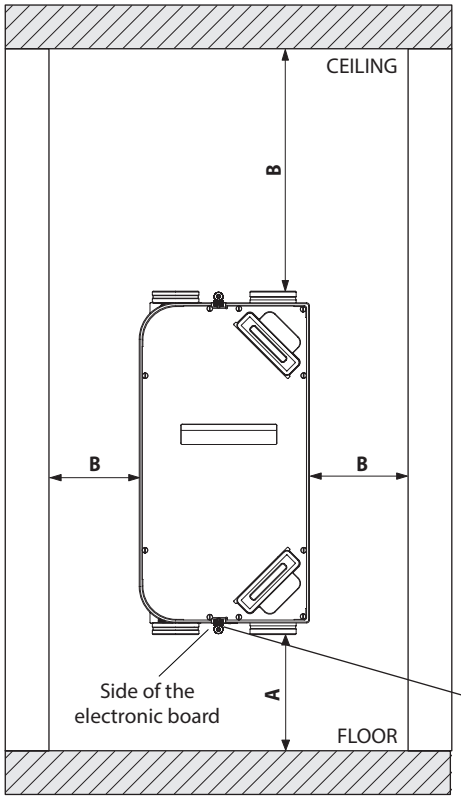
Vertical installation on wall

Horizontal installation on ceiling

IMPORTANT! Allow sufficient space for the air duct connections and their bend dimensions, ensuring that the minimum clearance requirements for the machine are met:

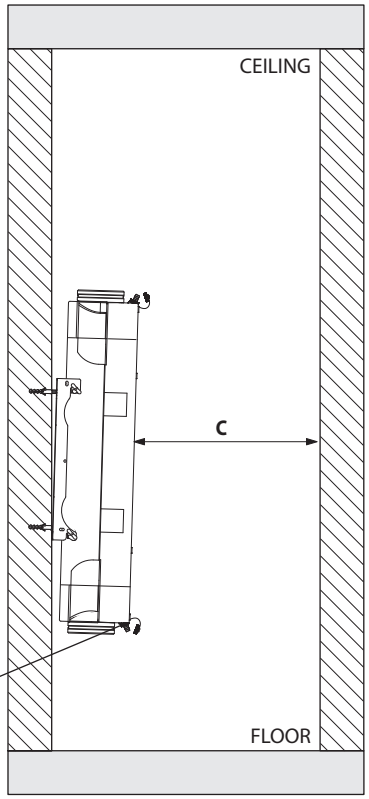
- maintain a minimum distance of 40 cm on the side of the unit where the electrical panel is located;
- maintain a minimum distance of 40 cm from the floor for the installation of the condensate drain;
- maintain a minimum distance of 40 cm on the sides of the unit where there are rotatable and interchangeable duct spigot;
- maintain a minimum distance of 10 cm on the sides of the unit where there are no rotatable and interchangeable duct spigot;
- maintain a minimum distance of 60 cm in front of the unit for maintenance operations.

Minimum space allowances



Condensate drain to be used

Minimum space allowances



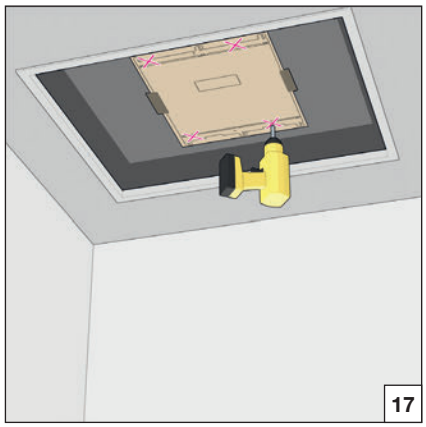
A = min. 40 cm
B = min. 10–40 cm
C = min. 60 cm

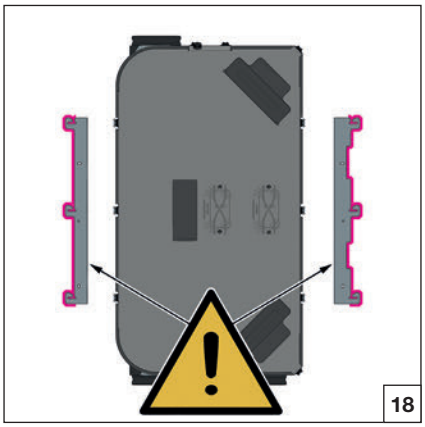
Ceiling mounting

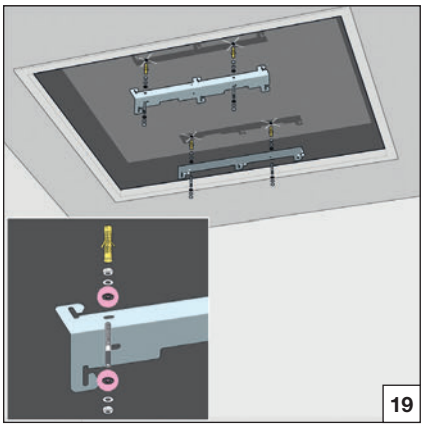
Position the unit on a ceiling that can support the weight of the machine and **use a fixing system that is suitable for the expected load.**

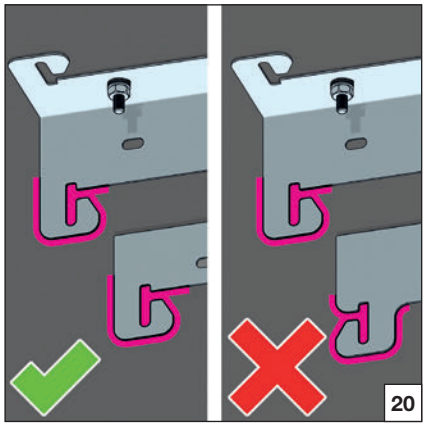
a. Use the template provided to mark the position of the holes on the ceiling and proceed with drilling (fig. 17);
b. Position the plugs (not supplied: the choice is at the discretion of the installer. Provide a fixing system suitable for supporting the expected load) and attach the brackets using screws and washers. It is recommended to apply anti-vibration rubber pads between the ceiling and the bracket (fig. 18, 19, 20);
c. Apply the wing screws to the unit in the 4 holes (two on both long sides), leaving enough space to attach it to the brackets (fig. 21);
d. After positioning the unit, tighten the screws, ensuring a 2% slope of the machine towards the condensate drain (fig. 22, 23, 24).

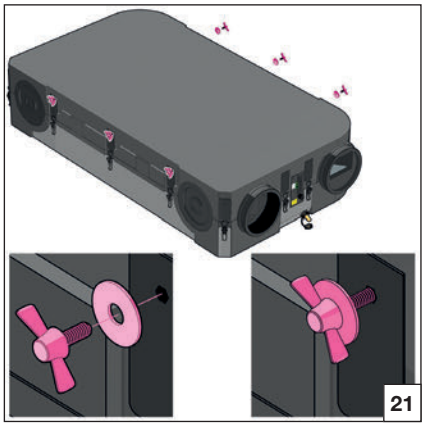
N.B.: Always use the condensate drain towards the outside, bearing in mind the configuration selected for the operation of the MVHR unit (fig. 25).

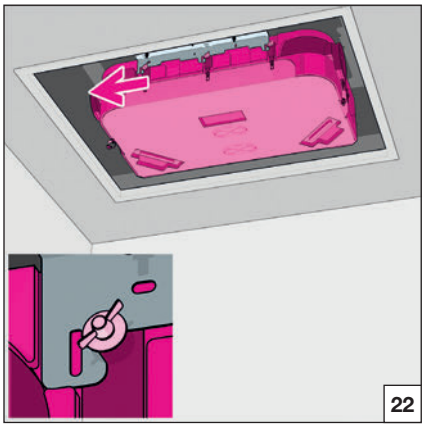


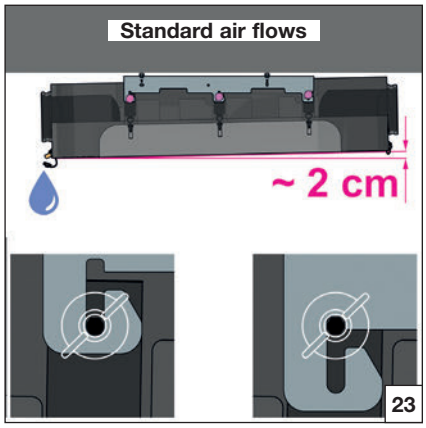


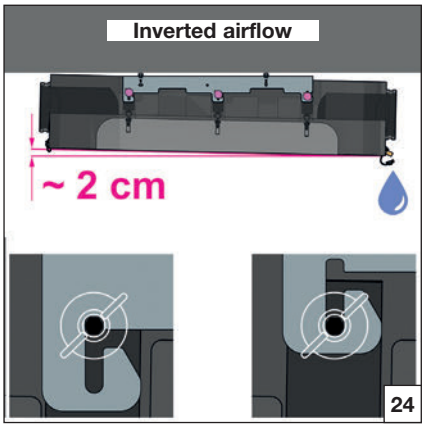


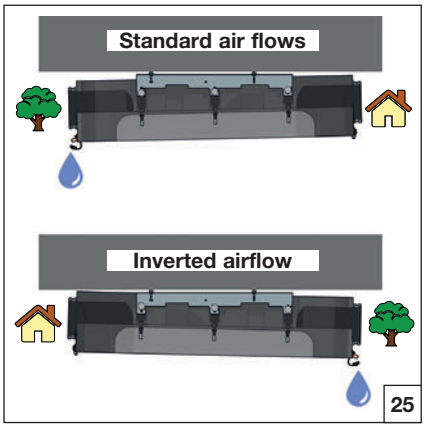










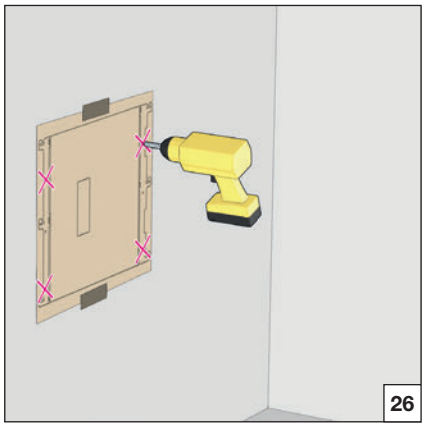


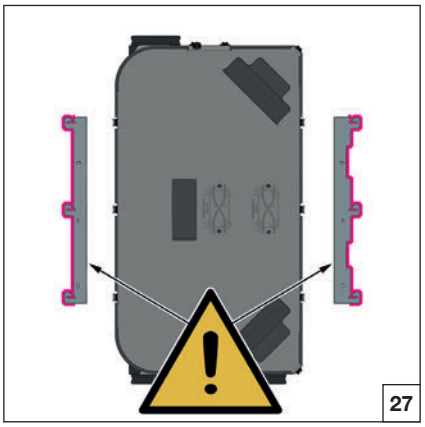
Wall mounting

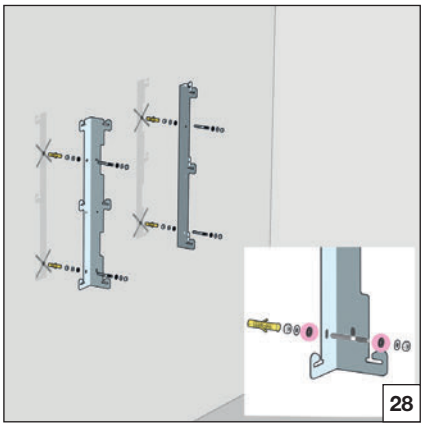
Position the unit on a wall that can support the weight of the machine and **use a fixing system suitable for the expected load.**

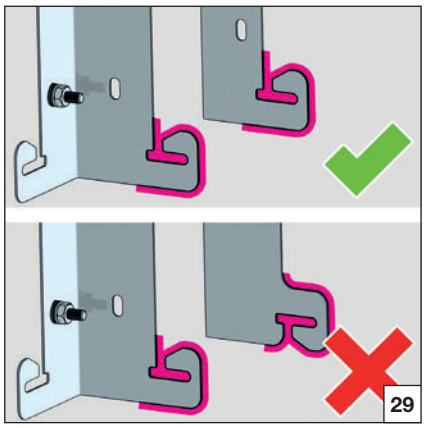
a. Use the template provided to mark the position of the holes on the wall and proceed with drilling (fig. 26);
b. Position the wall plugs (not supplied; the choice is at the discretion of the installer. Provide a fixing system suitable for supporting the expected load) and attach the brackets using screws and washers. It is recommended to apply anti-vibration rubber pads between the wall and the bracket (fig. 27, 28, 29);
c. Apply the wing screws to the unit in the 4 holes (two on each long side), leaving enough space to attach it to the brackets (fig. 30);
d. After positioning the unit, tighten the screws, ensuring a 2% slope of the machine towards the condensate drain (fig. 31, 32);

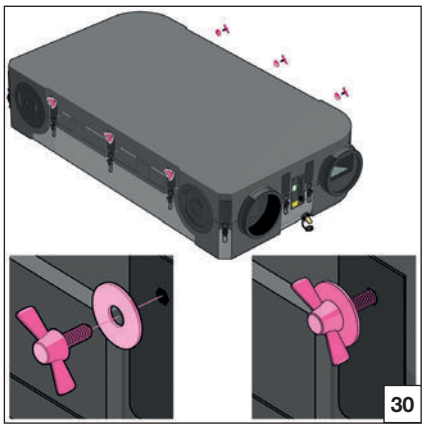
N.B.: Always use the condensate drain on the outside of the room (fig. 33).

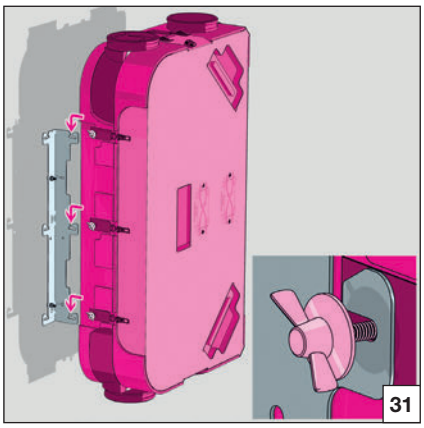


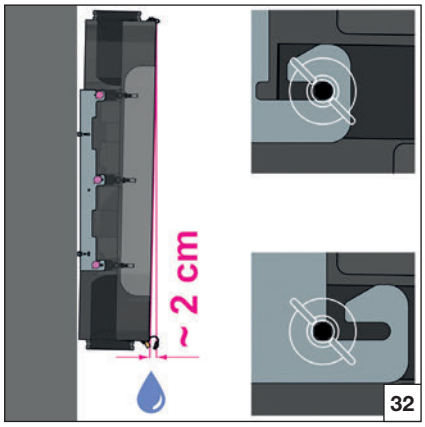










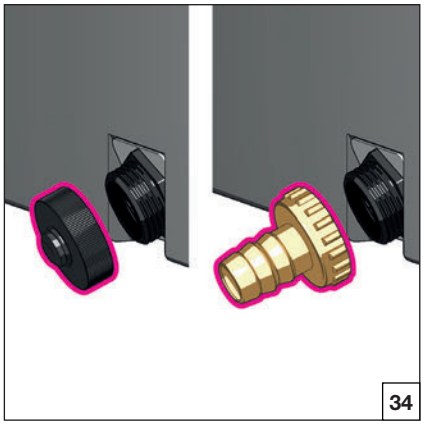


Installation of hydraulic network

For installation of the hose kit on the used condensate drain and the cap on the unused drain, see fig. 34

The condensate drainage system must include a suitable trap, both to allow drainage in conditions of possible negative pressure and to prevent the entry of unwanted odours. Prime the trap before commissioning.

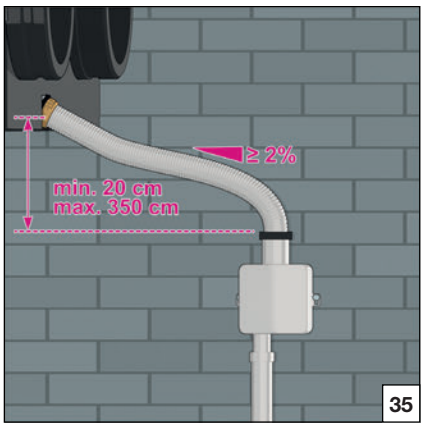
IMPORTANT: ensure that the drain is not uphill. Ensure that the condensate drain pipe does not put strain on the unit's drain connection. The condensate drain must be adequately supported and, to prevent freezing, must be properly insulated if it passes through unheated spaces (e.g. external verandas). Two siphon models are available in the catalogue: wall siphon and condensate drain kit.



Wall installation of SF-P N siphon

The siphon (code 7045504) is designed to be recessed into the wall and must be positioned at a height between a minimum of 20 cm and a maximum of 3.5 m below the machine.

IMPORTANT: position the siphon with the pipe connections vertical, ensuring correct orientation, i.e. with the lip seal at the top. Use a pipe with a male connection with a diameter of 20 to 32 mm (not supplied) to connect the ventilation unit and the siphon, and a pipe with a female connection with a diameter of 32 mm (not supplied) to connect the siphon to the drainage system. The pipes must be installed vertically or at least have a minimum slope of 2% (2 cm difference in height per 1 m length). Once the work is complete and the siphon has been connected and recessed, remove the protective cover and fit the cover plate. For maintenance, remove the plate and wash the cartridge with water.

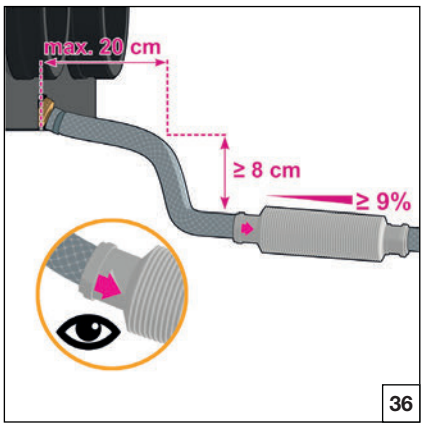


Installation of the SF-M 13 condensate drain kit

The condensate drain kit (code 3600401) is designed to drain condensate in cases where space is limited and does not require wall mounting. To install, gently insert the siphon onto the drain pipe using the adapter provided.

IMPORTANT: check that the arrows printed on the siphon point in the direction of the water flow. To ensure that the trap works properly, run a little water from a tap through the trap in the direction of the arrows. Gently pour the water into the trap through the mouth of the bend. Use a 32 mm diameter pipe (not supplied) to complete the condensate drainage system.

IMPORTANT: The drain must have a slope of approximately 9% (9 cm difference in height per 1 m length) relative to the nearest main drain.



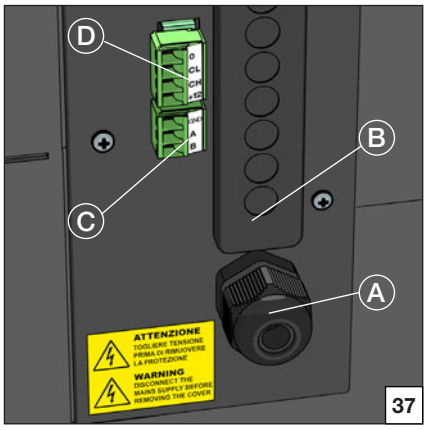
Installation of the electrical network

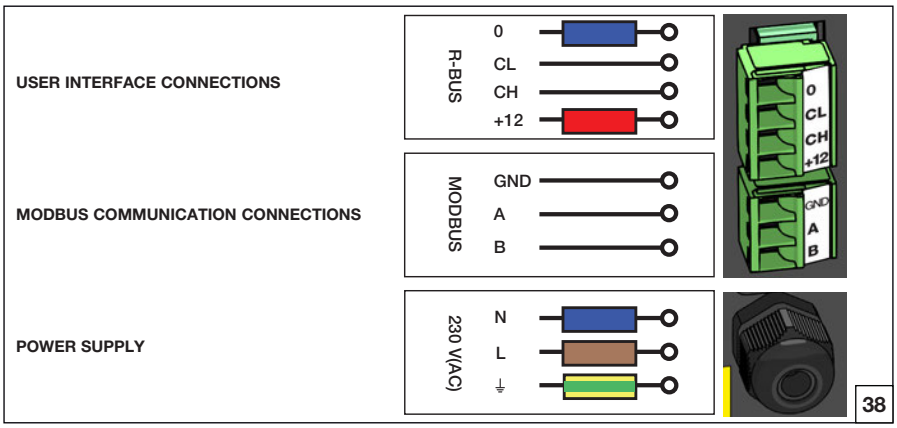
The unit must be connected to an isolated power socket with earthing. The electrical power supply system must be protected against overloads, short circuits, direct and indirect contact, and must be installed in accordance with the laws and regulations in force in the country of use. Electrical work must
be carried out by qualified personnel.
The power supply line must be protected by a magnetothermal differential switch. Check that the supply voltage corresponds to the unit's nominal data (voltage, number of phases, frequency) shown on the nameplate on the machine. The power connection is made via a two-wire cable plus earth. The supply voltage must not vary by more than ± 5 %. Operation must take place within the above values. Otherwise, the warranty will be immediately void and there will be electrical risks for people and the product.

Power supply to the unit
IMPORTANT!
Before making any electrical connections to the machine, disconnect it from the mains!
To power the machine, you must first install an electrical plug (not supplied) on the power cable.
After connecting the plug to an electrical socket, activate the corresponding residual current device on the electrical panel. Power supply voltage: 230 V (AC) 50 Hz.

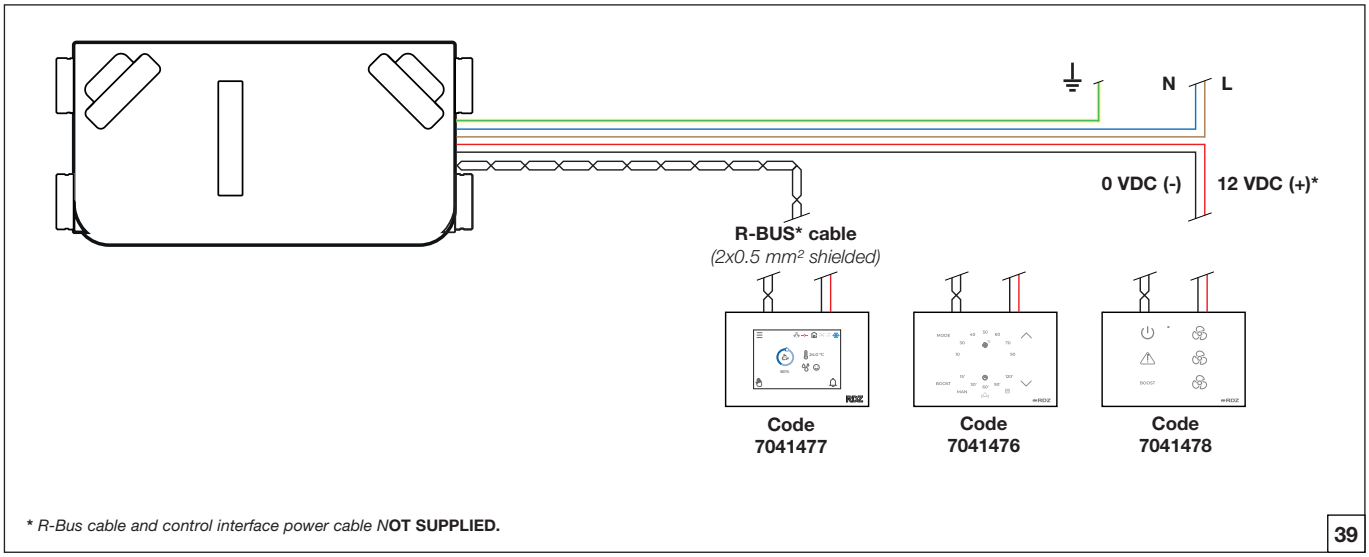
Electrical connections

Observe the electrical connections as shown in fig. 38.





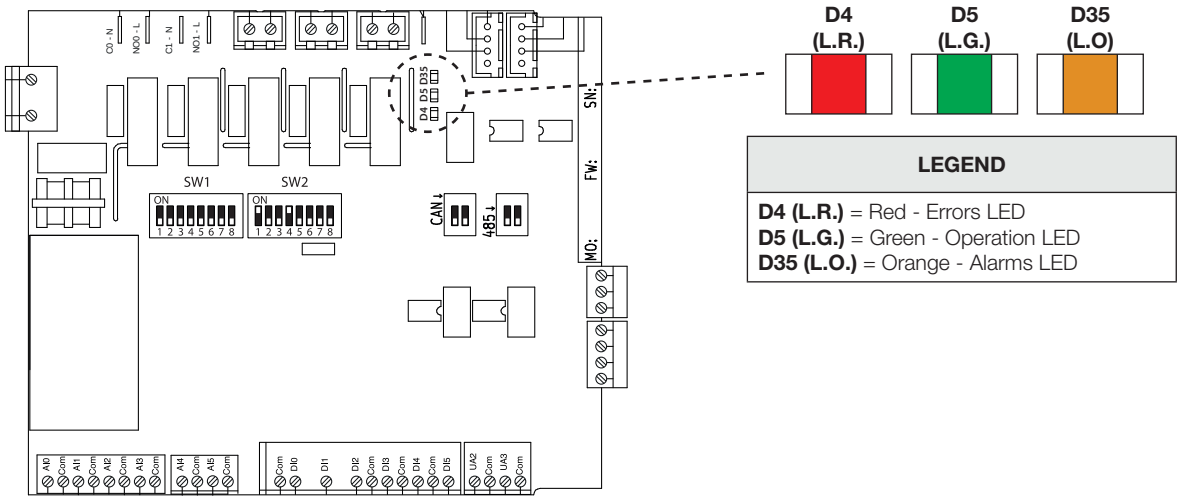
A. Power supply cable gland complete with cable (length = approx. 1.5 m);
B. Digital input/output cable gland;
C. Connections for MODBUS communication;
D. Connections for user interface.



Commissioning

a. Power up the MVHR unit and the wall-mounted control panel. The unit will perform a start-up procedure lasting 5 minutes. During this time, all commands from the user control interface will be disabled (fans not active).
b. Select the desired operating mode via the user interface. For further information, refer to the product instruction sheet:
- CoRe AIR CONTROL touchscreen control with programmable flow rate control by time slots, code 7041477;
- CoRe AIR SPEED LED touch control with manual flow rate control, code 7041476;
- CoRe AIR 3V LED touch control with 3-speed control, code 7041478;

Electronic board on board MVHR units



N.B.: N.B.: Representation of the electronic board with factory configuration for **standard air flows.**

DESCRIPTION AND MODE OF SIGNALLING	TYPE OF LED		
	D4 L.R.	D5 L.G.	D35 L.O.
OPERATION	Number of flashes		
Unit operating in economy mode	-	1	-
Unit operating in renewal mode	-	2	-
Unit operating in boost mode	-	3	-
Unit operating in defrost mode	-	4	-
ALARMS	Number of flashes		
Probe alarm ❶	-	-	1
Probe alarm ❸	-	-	2
Probe alarm ❹	-	-	3
Probe alarm ❷	-	-	4
Air quality probe alarm (Qa)	-	-	5
ERRORS	Number of flashes		
Supply fan malfunction	1	-	-
Exhaust fan malfunction	2	-	-
Dirty filter warning (after 120 days of operation)	3	-	-
Machine lockout for dirty filters (30 days after dirty filters are reported)	4	-	-

SETTINGS SW1			
DIP	**Description**	**Value**	**Default**
DIP 1	Air flow selector	OFF= Nominal flow rates ON= Reduced flow rates	
DIP 2	Flow type selector	OFF= Standard flows ON= Reversed flows	
DIP 3	Recuperator type selector	OFF= Sensitive heat recovery unit	
DIP 4	0-10 V IAQ input selector	OFF= Disabled ON= Enabled	
DIP 5-6-7	Not used	-	
DIP 8	MODBUS air flow management selector	OFF= % ON= m³/h	

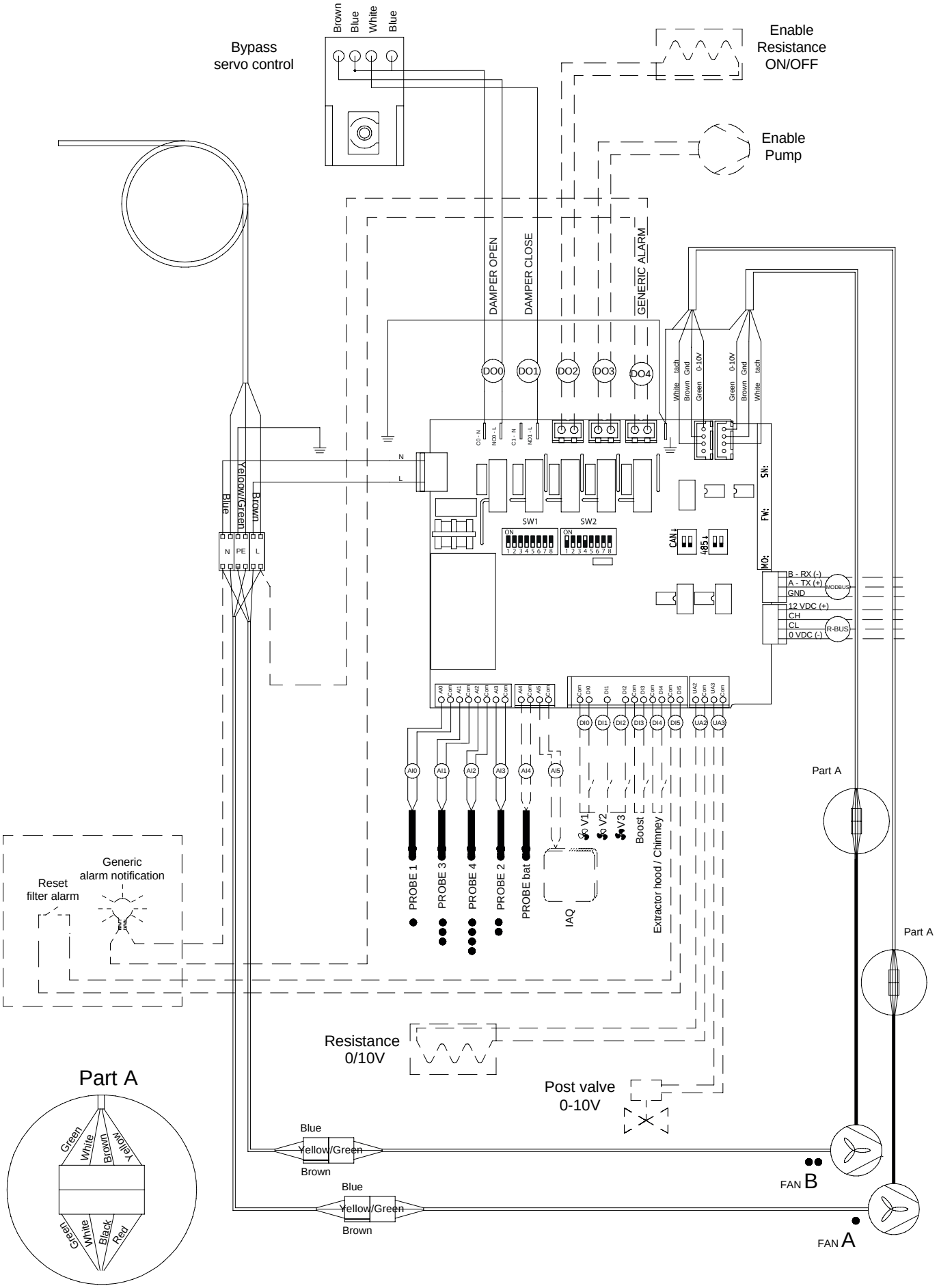
SETTINGS SW2			
DIP	**Description**	**Value**	**Default**
DIP 1–6	Modbus address (from 1 to 63)	Default: 9	
DIP 7	Baud rate	OFF= 19200 Bit/s ON= 9600 Bit/s	
DIP 8	No. of stop bits	OFF= 2 bit ON= 1 bit	

SETTINGS CAN			
DIP	**Description**	**Value**	**Default**
DIP 1-2	R-BUS line termination selector	OFF= Disconnected ON= Connected	

SETTINGS 485			
DIP	**Description**	**Value**	**Default**
DIP 1-2	MODBUS termination selector	OFF= Disconnected ON= Connected	

Electrical diagram

N.B.: N.B.: Representation of the electronic board in factory configuration with **standard flows.**



Legend of the wiring diagram

N.B.: Representation of the electronic board in factory configuration with **standard flows.**

Alimentazione
Power supply
230V 50Hz

DANGER 230 VOLTS!

INGRESSI DIGITALI
DIGITAL INPUTS

- DI0 — (V1) Velocità ventilatore min. / (V1) Minimum fan speed
- DI1 — (V2) Velocità ventilatore med. / (V2) Medium fan speed
- DI2 — (V3) Velocità ventilatore max. / (V3) Maximum fan speed
- DI3 — Boost / Boost
- DI4 — Cappa/camino / Hood
- DI5 — Reset allarmi filtri / Filters alarm reset

INGRESSI ANALOGICI
ANALOGUE INPUTS

- AI0 — Sonda 1 - Probe 1 (Com) (AI0) | nero - black
- AI1 — Sonda 3 - Probe 3 (Com) (AI1) | nero - black
- AI2 — Sonda 4 - Probe 4 (Com) (AI2) | nero - black
- AI3 — Sonda 2 - Probe 2 (Com) (AI3) | nero - black
- AI4 — Sonda post-trattamento / Post treatment probe (Com) (AI4) | nero - black
- AI5 — IAQ - IAQ (Com) (AI5)

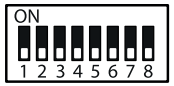
USCITE DIGITALI
DIGITAL OUTPUTS

- DO0 — Apertura serranda Bypass - Bypass opening (C0-N) blu - blue (NO0-L) marrone - brown
- DO1 — Chiusura serranda Bypass - Bypass closing (C1-N) non utilizzato - not used (NO1-L) bianco - white
- DO2 — Resistenza pre-riscaldo elettrico / Electrical pre-heating resistance
- DO3 — Pompa / Pump
- DO4 — Uscita allarme generico / Generic alarm output

USCITE ANALOGICHE
ANALOGUE OUTPUTS

- UA2 — Segnale resistenza 0/10 V / Pre-heater signal 0/10 V (Com) (UA2)
- UA3 — Segnale valvola post 0/10 V / Valve signal 0/10 V (Com) (UA3)

SW1



DIP 1
FLUSSO ARIA - AIR FLOW
OFF= Portate aria nominali - Nominal flow rates
ON= Portate aria ridotte - Reduced flow rates

DIP 2
MODALITÀ FLUSSO - FLOW TYPE
OFF= Configurazione di fabbrica - Factory mode
ON= Flussi invertiti - Reverse mode

DIP 2 OFF | Configurazione di fabbrica - Factory mode

●	(AI0)	SUP	|	Immissione aria - Supply air
●●●	(AI1)	IN	|	Ingresso aria esterna - Air inlet
●●●●	(AI2)	EXT	|	Estrazione aria - Air extraction
●●	(AI3)	OUT	|	Espulsione aria - Exhaust air
A Ventilatore - Fan	(UA0)	SUP	|	Immissione aria - Supply air
B Ventilatore - Fan	(UA1)	OUT	|	Espulsione aria - Exhaust air

DIP 2 ON | Flussi invertiti - Reverse mode

●	(AI0)	OUT	|	Espulsione aria - Exhaust air
●●●	(AI1)	EXT	|	Estrazione aria - Air extraction
●●●●	(AI2)	IN	|	Ingresso aria esterna - Air inlet
●●	(AI3)	SUP	|	Immissione aria - Supply air
A Ventilatore - Fan	(UA0)	OUT	|	Espulsione aria - Exhaust air
B Ventilatore - Fan	(UA1)	SUP	|	Immissione aria - Supply air

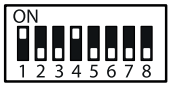
DIP 3
TIPO RECUPERATORE - TYPE OF HEAT RECOVERY UNIT
OFF= Sensibile - Standard
ON= Entalpico - Enthalpic

DIP 4
INGRESSO 0-10 V IAQ - IAQ 0-10 V INPUT
OFF= Disabilitato - Disabilitato
ON= Abilitato - Abilitato

DIP 5-6-7
Non utilizzato - Not used

DIP 8
GESTIONE PORTATA ARIA MODBUS - AIR FLOW MANAGEMENT
OFF= %
ON= m^3/h

SW2



DIP 1-2-3-4-5-6
INDIRIZZO MODBUS - MODBUS ADDRESS
Default: 9 (DIP 1 ON, DIP 4 ON)

DIP 7
VELOCITÀ TRASMISSIONE - BAUD RATE
OFF= 19200 Bit/s
ON= 9600 Bit/s

DIP 8
NR. BIT STOP - NR. OF STOP BITS
OFF= 2 Bit (Wi)
ON= 1 Bit (NKX)

CAN

DIP 1-2
TERMINAZIONE LINEA R-BUS - R-BUS LINE TERMINATION
OFF= Resistenze off - Resistors off
ON= Resistenze on - Resistors on

485

DIP 1-2
TERMINAZIONE LINEA MODBUS - MODBUS LINE TERMINATION
OFF= Resistenze off - Resistors off
ON= Resistenze on - Resistors on

Digital inputs and interfacing with home automation systems and BACS

The REFLAIR MVHR unit has a series of dedicated digital inputs on its electronic board, which can be used for direct connection or to interface with home automation and BACS (Building & Automation Control System) systems.

1. When closed, the DI0 contact allows the machine to operate at speed V1.
2. When closed, the DI1 contact allows the machine to operate at speed V2.
3. When closed, the DI2 contact allows the machine to operate at speed V3.
4. When closed, the DI3 contact allows the machine to operate in Boost mode. When the contact is opened, the unit continues to operate in Boost mode for 15 minutes; at the end of the 15 minutes, the unit returns to the previously selected operating mode.
5. Contact DI4 allows interfacing with external extraction units (hoods or extractors): when closed, contact DI4 inhibits the MVHR unit's stale air recovery function in favour of the external extraction unit.

To connect the desired connectors, refer to the wiring diagram in fig. 40.

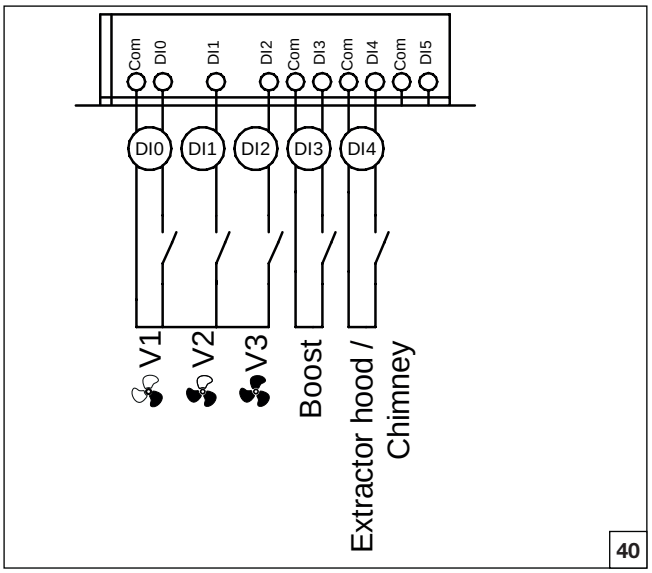


Table of flow rate values in digital inputs*

(*) Flow rate values can be modified via the control panel or via the MODBUS interface.		Nominal flow rates (SW1, DIP 1 = OFF)			Reduced flow rates (SW1, DIP 1 = ON)		
		V1	V2	V3	V1	V2	V3
70RFL00320 70RFL0100320	Flow rates [m³/h]	130	225	320	130	180	225
	Elec. power [W]*	34	63	117	34	49	63
70RFL00400 70RFL0100400	Flow rates [m³/h]	180	280	400	130	225	280
	Elec. power [W]*	49	96	273	34	63	96

* *100 Pa Residual Static Pressure*

Maintenance

IMPORTANT! Before performing any work on the unit or accessing internal parts, ensure that the power supply has been disconnected.

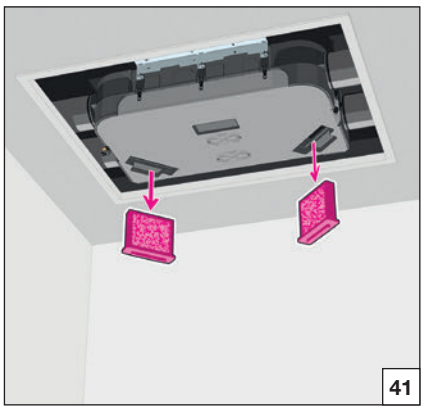
IMPORTANT! Pollen may be present. Use appropriate personal protective equipment:

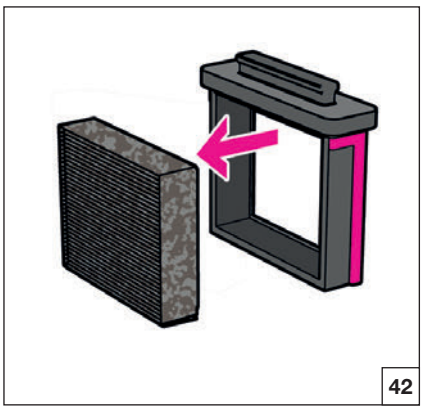
Filter cleaning

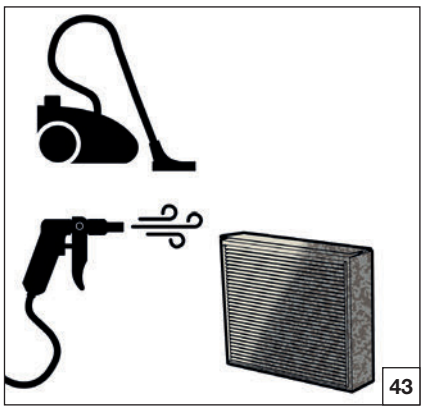
Dirty filters increase the unit's pressure drop, reduce the volume of treated air, increase electricity consumption and reduce the unit's efficiency. Filters require periodic cleaning, with inspection recommended every 90 days, or ALWAYS when indicated by the filter alarm on the remote control. To clean the filters, proceed as follows:

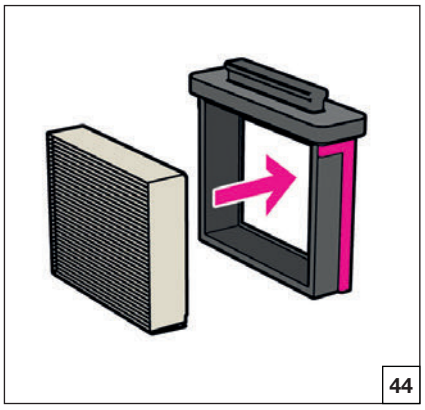
a. Gently remove the filters, taking care not to disperse the material retained by the filter (fig. 41);
b. Remove the filter matrix from the support tray (fig. 42);
c. Gently vacuum or blow the filters (fig. 43) . If vacuuming or blowing is not sufficient, the filters must be replaced and disposed of in accordance with current regulations. The filters must be replaced after the 3rd cleaning cycle;
d. After cleaning, reinsert the filter matrix into the filter holder drawer (fig. 44) and refit it into the unit (fig. 45-46).

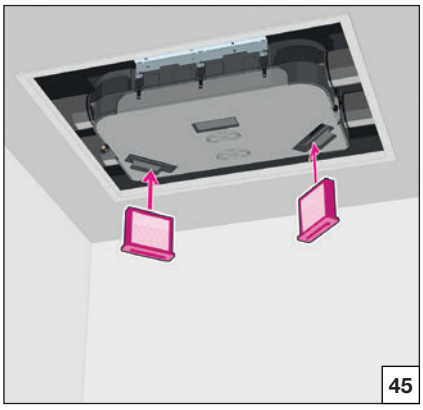
IMPORTANT! Failure to clean and/or replace the air filters may result in excessive pressure drop between the upstream and downstream sides of the filters. After cleaning or replacing the filters, reset the alarm using the appropriate command on the control panel (or dedicated device in the case of connection with digital input on board the machine). In the event of a filter alarm with machine lockout, it is necessary to switch the unit off and on again to restore operation.

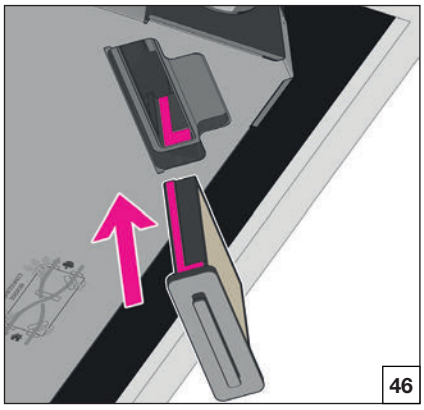








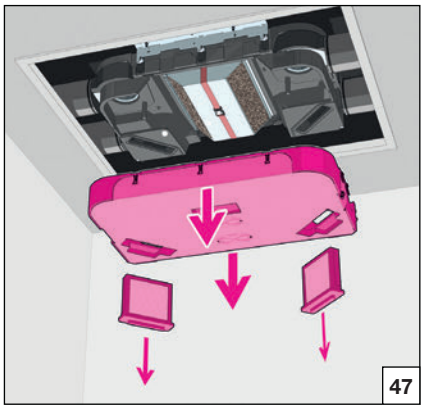


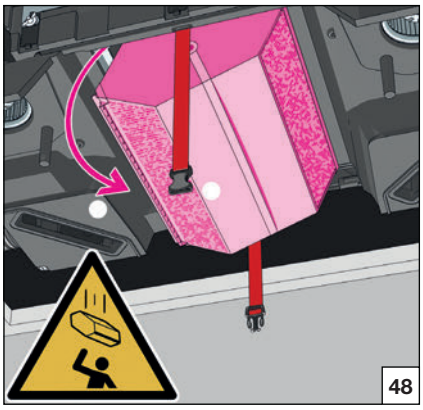


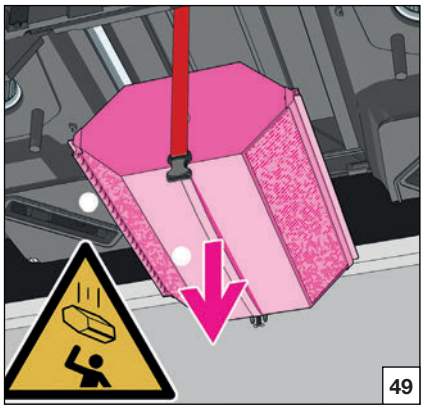
Cleaning the heat exchanger

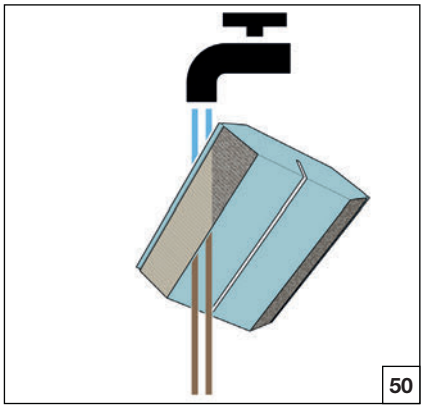
The heat exchanger must be cleaned at least every two years. To clean it, proceed as follows:

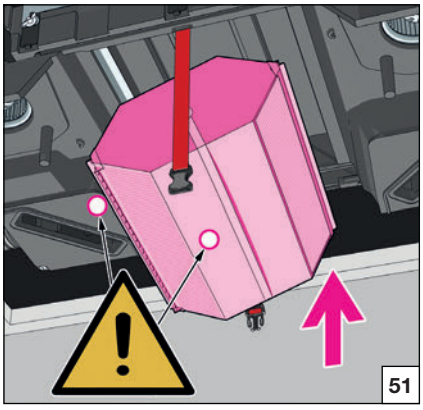
a. Remove the filter trays, open all the lever closures and slightly unscrew the screws on the cover panel of the electronic board (fig. 47);
b. Untie the support strap of the heat recovery unit. CAUTION: if installed on the ceiling, support the heat exchanger;
c. Tilt the heat exchanger and remove it from its housing. CAUTION: use suitable protective gloves (fig. 48-49);
d. Wash the heat exchanger with running water and do not use pressurised water (no pressure washer) (fig. 50)
e. After cleaning, reinsert the dry heat recovery unit: insert the heat recovery unit into its housing and hook it in place by rotating it. CAUTION: Ensure that the heat recovery unit is inserted into its housing in the correct direction, using the orientation marks provided (fig. 51-52);
f. Reconnect the support strap (fig. 53);
g. Replace the lower shell, close all the lever closures that were previously opened, tighten the screws on the electronic board cover panel and reinsert the filter holders (fig. 54).

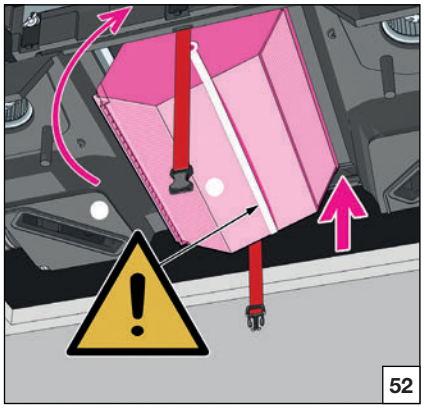


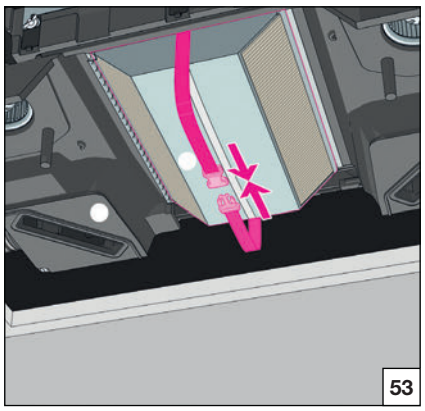


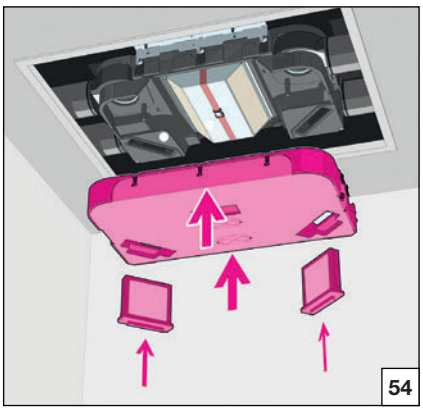












Spare parts

Only use original RDZ spare parts. For spare part codes, refer to the table below. For the installation of spare parts, refer to the instruction sheets for each spare part.

	70RFL00320/400 - 70RFL0100320/400
Supply and Extract Filter Kit (G4 – ISO coarse 65 %)	70RFLG4001
Supply and Extract Filter Kit (F7 – ISO ePM1 60 %)	70RFLF7001

Table of interventions

Fault	**Causes**	**Solution**
Fans not working	Machine not powered up - No command (machine switched OFF) - Fan speed not detected - Ejection probe and/or external air intake probe disconnected or broken	Supply power to the unit - Check the protection fuse on the unit's circuit board - Turn on the unit and select a fresh air flow rate - Check the fan tachometer connections - Check the fan power supply - Check the fan control signal - Connect or replace the probes
Remote control not working	Remote control unit not powered	Check the remote control power supply
Poor or no air flow Drop in performance	Clogged filters	Replace the filters
	Clogged external air inlet grille	Clean the external air inlet grille
	Clogged heat exchanger	Clean the heat exchanger
	Dirty fan	Clean the fan
	Damaged impeller	Verify the fan is undamaged
	Clogged fan ducts	Clean/clear the ventilation ducts
	Air leakage from ducts	Check for leaks/cracks on the intake / supply ducts
	Outdoor temperature below 0 °C	The unit may be in antifreeze mode; wait until the outdoor temperature rises or consider installing an antifreeze heater.
Air pulsations	Fan operating near zero flow conditions, flow instability, obstruction, or poor connection	Check and/or clean the intake/supply ducts - Adjust the fan speed
High noise levels	Noise coming from the unit	Check for cracks and/or air leakage from the unit panels - Check if the motors rotate freely/correctly - Adjust the fan speed
	Noise coming from the ducts	Check for leaks/cracks on the intake/supply/exhaust ducts
High vibration levels	Unit vibrating excessively	Check the integrity of the casing and the tightness of the screws - Check that the unit cover is correctly closed - Check the tightness of the screws on the mounting bracket- Check for the presence of anti-vibration mounts as per mounting instructions
	Fan blades out of balance	Check the integrity of the blades - Clean the fans - Check that the metal clips on the fan blades, used for balancing, have not become detached.

DECLARATION OF CONFORMITY / DICHIARAZIONE DI CONFORMITÀ

Annex II (A) of the 2006/42/EC Machinery Directive
Allegato II lettera A della Direttiva Macchine 2006/42/CE.

The undersigned ***Samir Tabban*** *in his role as the technical manager for:*
Il sottoscritto **Samir Tabban** in qualità di responsabile direzione tecnica dell'azienda:

RDZ Spa
Viale Trento 101
Sacile (PN) ITALIA

Declares / Dichiara

That the "Heat Recovery Unit /
Che le "Unità di Recupero Calore
"REFLAIR 150
REFLAIR 250
REFLAIR 320
REFLAIR 400
REFLAIR 150 Easy
REFLAIR 250 Easy
REFLAIR 150 Entalpica
REFLAIR 250 Entalpica"

Serial N°
Matricola N°

Complies with the following Directives / Sono conformi alle seguenti Direttive:

Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery;
Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the approximation of the laws of the Member States relating to electromagnetic compatibility;
Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of
Member States relating to electrical equipment designed for use within certain voltage limits;
Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of hazardous substances in electrical and electronic equipment (RoHS 2);

Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE);
Commission Regulation (EU) 1253/2014 and 1254/2014 implementing Directive 2009/125/EC and 2010/30/EU regarding the specific eco-design of the residential ventilation units
Harmonized standards applied to designing and manufacture : CEI-EN 60335-2-40, CEI-EN 55014-1, CEI-EN 55014-2
Direttiva 2006/42/CE del Parlamento Europeo e del Consiglio del 17 maggio 2006 relativa alle macchine;
Direttiva 2014/30/UE del Parlamento Europeo e del Consiglio del 26 febbraio 2014 concernente il riavvicinamento delle legislazioni degli Stati membri relative alla compatibilità elettromagnetica;
Direttiva 2014/35/UE del Parlamento Europeo e del Consiglio del 26 febbraio 2014 concernente il riavvicinamento delle legislazioni degli Stati membri relative al materiale elettrico destinato ad essere adoperato entro taluni limiti di tensione;
Direttiva 2011/65/UE del Parlamento Europeo e del Consiglio del 8 giugno 2011, sulla restrizione dell'uso di sostanze pericolose nelle apparecchiature elettriche ed elettroniche (RoHS 2);
Direttiva 2012/19/UE del Parlamento Europeo e del Consiglio del 4 luglio 2012 sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE);
Regolamenti della commissione (UE) N. 1253/2014 e 1254/2014 di attuazione delle Direttive 2009/125/CE e 2010/30/UE riguardo alle specifiche per la progettazione ecocompatibile delle unità di ventilazione residenziali;
Norme armonizzate applicate alla progettazione ed alla costruzione : CEI-EN 60335-2-40, CEI-EN 55014-1, CEI-EN 55014-2

In case of improper use or unauthorized modification of the machinery equipment, this document will loose its validity. It is forbidden to put the unit that is object of this declaration in service before the machine or the plant in which the machine will operate is in compliance with the dispositions of Machinery Directive 2006/42/EEC and following modifications.
La presente perde ogni validità in caso di uso improprio o di eventuali modifiche, da noi non autorizzate, apportate alle suddette macchine. È fatto divieto di mettere in servizio le unità oggetto di questa dichiarazione, prima che la macchina o l'impianto in cui saranno incorporate o assiemate siano conformi alle disposizioni della Direttiva Macchine 2006/42/CE.

Sacile: *September 2025* / Settembre 2025

RDZ S.p.A.
Invisible Heating and Cooling
Sistemi di Climatizzazione Radiante
Ing. Samir Tabban
(Technical Manager -Direzione Tecnica)

RDZ S.p.A.
V.le Trento, 101 | 33077 Sacile (PN) Italy
Tel. +39 0434 787511 | Fax +39 0434 787522
info@rdz.it | www.rdz.it
C.F. 02406000261 | P. Iva 00635650930
R.E.A. 70634 | Cap. Sociale € 398.400,00 i.v.
Soggetta all'attività di direzione e coordinamento di Caleffi S.p.A.

NOTES

NOTES

CLICK | SCAN

qr.rdz.it/?qr=P776

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10/2025

RDZ
You Feel, We Care

RDZ S.p.A.
V.le Trento, 101 - 33077 SACILE (PN) - Italy
Tel. +39 0434.787511 Fax +39 0434.787522
info@rdz.it www.rdz.it

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001