Universal Ducted Mechanical Ventilation Unit with Sensible Heat Recovery, REFLAIR Series

Function

The REFLAIR series identifies the range of universal MVHR units, meaning they are suitable for both false ceiling and wall installations.

The unit ventilates the room to maintain the correct comfort and air quality conditions within the environment, promotes the filtration of the supplied air and the thermal recovery of the extracted air. The unit is, in fact, equipped with a counterflow heat exchanger which, during the winter season, recovers the thermal energy from the expelled air and pre-heats the fresh air supplied to the room.
The unit is managed through wired controls, with the possibility of selecting the operating mode. The operating flow rate can be controlled and modulated at will thanks to the presence of fans with electronic commutation motors. This feature makes it possible to guarantee the set flow rate within a wide range of static pressures, adapting to the air distribution system.
The unit features rotatable fan assemblies to orient the connections of the air flows exiting the unit and interchangeable connections for the air flows entering the unit.

FREE-COOLING

Product range

REFLAIR 320 (70RFL00320 - 70RFL0100320): mechanical ventilation units for universal installation, wall or ceiling mounted, with high-efficiency sensible heat recovery. — Maximum flow rate 320 m^3/h.

REFLAIR 400 (70RFL00400 - 70RFL0100400): mechanical ventilation units for universal installation, wall or ceiling mounted, with high-efficiency sensible heat recovery. — Maximum flow rate 400 m^3/h.

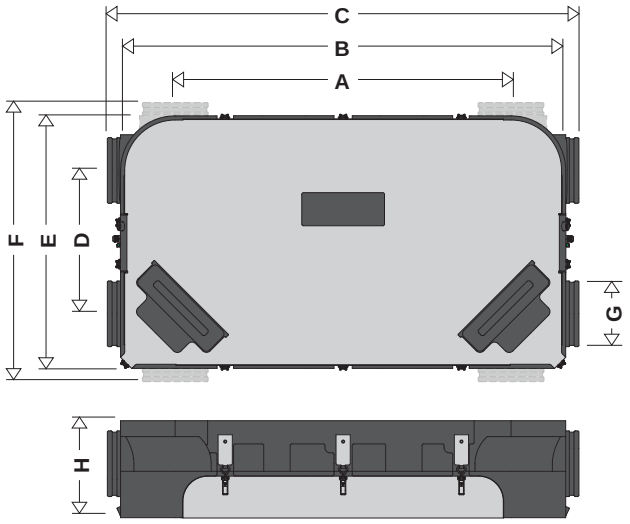
Technical specifications

Features
- High-efficiency Mechanical Ventilation with (Sensible) Heat Recovery;
- Horizontal ceiling or vertical wall installation;
- Rotatable fan assemblies to orient the air flows exiting the unit (continuous adjustment range from 0° to 90°);
- Adjustable orientation of air flows entering the unit via interchangeable connections and caps (in-line or at 90°);
- Can be paired with a LED touch control with display and setting of operating flow rates;
- Can be paired with a touch-screen display control with visualization and setting of operating flow rates programmable by time bands.

Structure and Components
- Structure made of high-density expanded polypropylene, thermo-insulating and sound-absorbing;
- Constant flow rate centrifugal fans with electronic commutation motors;
- Bistable drive motor for opening/closing the bypass damper for free-cooling/free-heating;
- Double-flap damper for simultaneous exclusion of the heat exchanger and opening of the bypass duct for free-cooling/free-heating;
- Counterflow heat exchanger made of polystyrene;
- 4 NTC temperature sensors;
- Condensate drain with hose fitting that can be installed in two positions.

Functions
- Automatic Free-cooling and Free-heating: If, during mid-seasons, the outdoor temperature is already at favourable conditions for maintaining indoor comfort, a motorized double-flap damper diverts the air flow, forcing it to pass through a dedicated bypass duct;
- Antifreeze Protection: If the outdoor temperature is too severe in winter, the supply fan automatically reduces its speed in order to prevent the heat exchanger from freezing;
- Automatic Constant Flow Rate Control: The fans with EC brushless motors allow the modulating variation of the impeller speed. This function allows the maintenance of the set flow rate regardless of the pressure drops in the distribution network.

Dimensions



[mm]

Code	A	B	C	D	E
70RFL00320 - 70RFL0100320 / 70RFL00400 - 70RFL0100400	1015	1345	1425	433	763
	F	G	H	kg	
	843	200	294	32	

Technical specifications

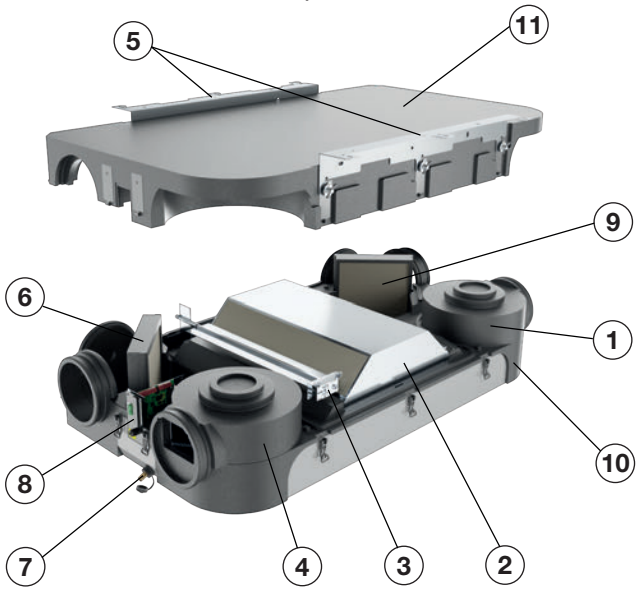
	REFLAIR 320 (70RFL00320 - 70RFL0100320)		REFLAIR 400 (70RFL00400 - 70RFL0100400)	
	Operating Flow Rate	Electric Power	Operating Flow Rate	Electric Power
Normal:	225 m³/h	63 W (*)	280 m³/h	96 W (*)
Boost:	320 m³/h	117 W (*)	400 m³/h	273 W (*)
		300 W (max) (**)		378 W (max) (**)
Air duct connection diameter:	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 static pressure*

** *500 Pa residual static pressure and Boost operating flow rate*

Characteristic components

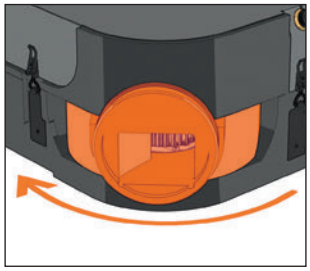
70RFL00320 - 70RFL0100320 | 70RFL00400 - 70RFL0100400



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. Wiring box
9. Indoor air filter (G4)
10. Lower part of the supporting structure in EPP
11. Upper part of the supporting structure in EPP

Construction Features

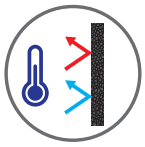
Rotatable Fan Assemblies



The REFLAIR series MVHR units are equipped with rotatable fan assemblies that allow the orientation of the air connections for the exiting flows in a range from 0° to 90°.
The direction of the exit flow is always coincident with the connection axis. This allows maximum installation versatility and guarantees the same air handling performance regardless of the configuration.

Structure made of high-density expanded polypropylene (EPP)

The REFLAIR units have a supporting structure made of high-density expanded polypropylene (EPP). Compared to traditional ventilation units with a structure typically made of metal sheet, the use of this innovative material offers notable advantages, particularly combining its characteristics of low weight and high resistance with its complete recyclability.



Thermal Insulation

The EPP structure naturally benefits from excellent thermal insulating properties. This characteristic makes it possible to limit the thermal dispersion (or heat loss) of the air flows, consequently optimizing the heat recovery efficiency of the ventilation unit.

Acoustic Insulation

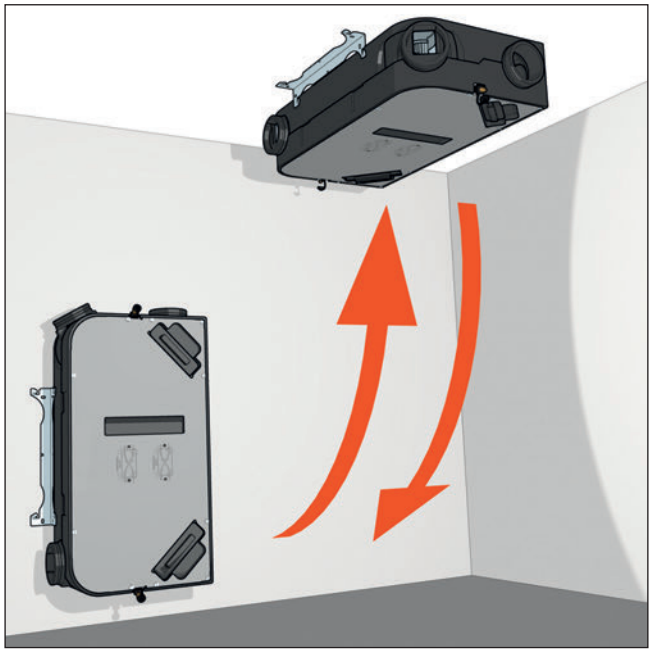
The silent operation of the ventilation unit is further facilitated by the use of EPP. This material is, in fact, able to provide an acoustic dampening effect, significantly mitigating the acoustic emission from the fans.

Lightness and Resistance

EPP is a very lightweight material but is simultaneously endowed with notable load resistance. Thanks to this feature, the REFLAIR series MVHR units have a drastically reduced overall weight compared to traditional solutions, resulting in benefits both during handling and installation.

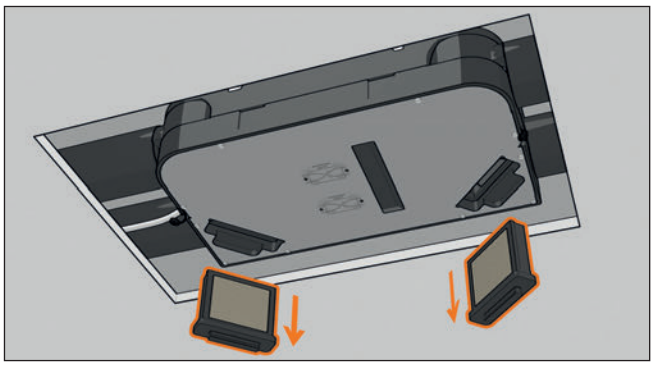
Universal Installation

The REFLAIR series units are compatible with both horizontal ceiling installations and vertical wall installations.
This feature, combined with the multiple possible configurations of the air connections, allows for maximum versatility during the realization of the MVHR system.



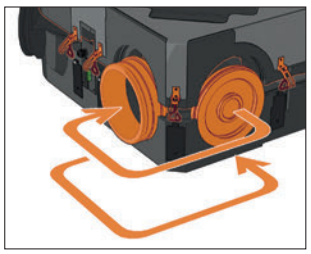
Filters with Large Cross-Section

The filtration devices within the REFLAIR series MVHR units feature a large passage surface area which maximizes performance while simultaneously limiting pressure drops. The 45° orientation allows for the optimization of airflow characteristics, regardless of the configuration adopted for the inlet air flows.
The practical filter holders are easily removable without the use of any specific tools, allowing for quick and easy maintenance.



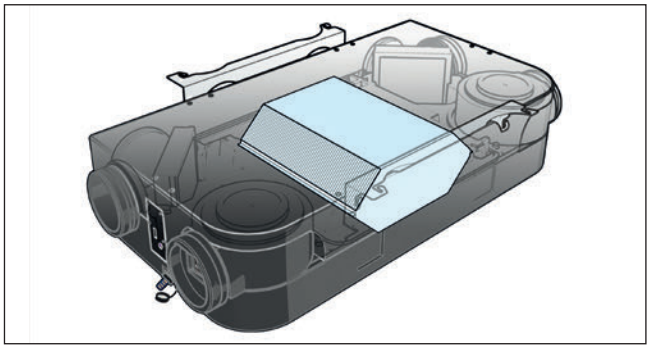
Interchangeable Connections and Caps

The air connections for the inlet flows to the REFLAIR series units can be swapped with the closing caps to obtain configurations with in-line or lateral inlets, simplifying ductwork connection operations.



Compact Heat Recovery Unit

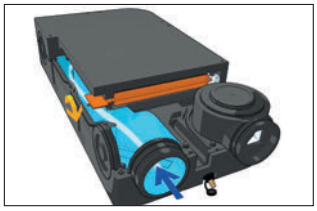
The aluminum heat recovery unit with polystyrene plates enables heat exchange between the air flows. The vertical arrangement of the plates and the widthwise development of the exchanger allow for compact unit dimensions with equivalent performance compared to the “traditional” version with horizontal plates and heightwise development.

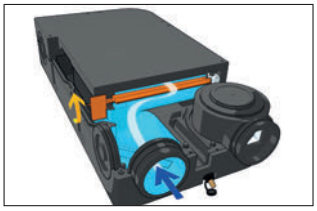


Free-cooling

The automatic free-cooling system utilizes a special double-flap bypass damper:

- during free-cooling operation, the air flow through the heat recovery unit is excluded and the bypass duct is simultaneously opened, allowing for maximum comfort under favourable outdoor air temperature conditions;
- during normal operation, the bypass duct is closed so as to allow the maximum possible heat recovery.

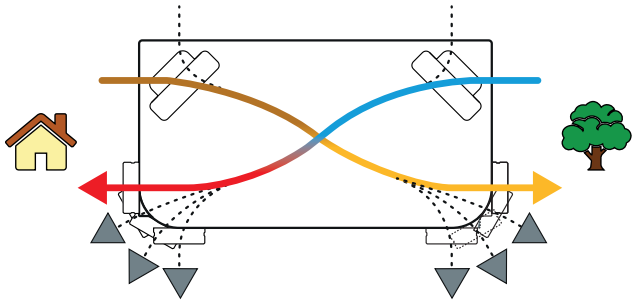




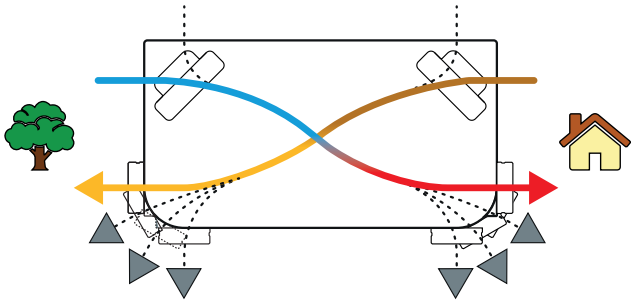
Reversibility

The REFLAIR series MVHR units can be reconfigured to reverse the supply and extract air flows in order to adapt to installation requirements.

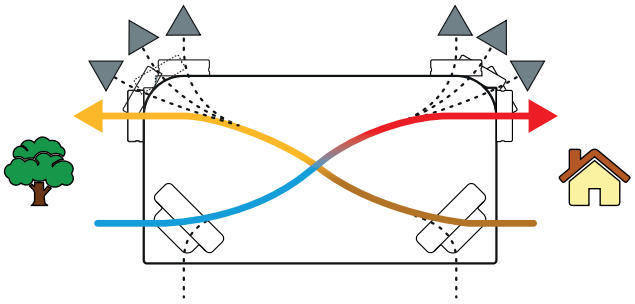
Horizontal installation on ceiling *View of the unit from below*



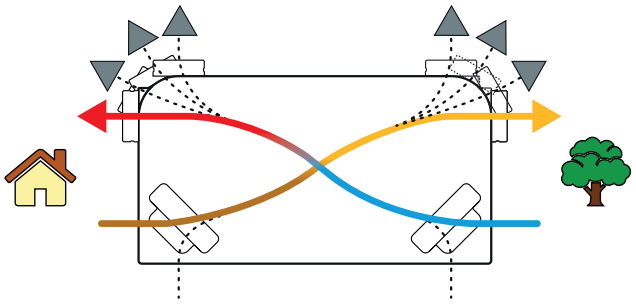
Standard air flows
(factory configuration)



Inverted airflow
(via electronic management)

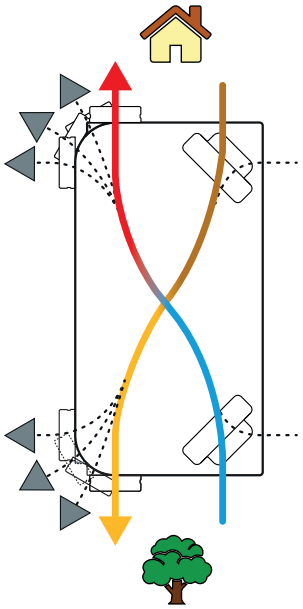


Standard air flows + rotation 180°
(factory configuration)

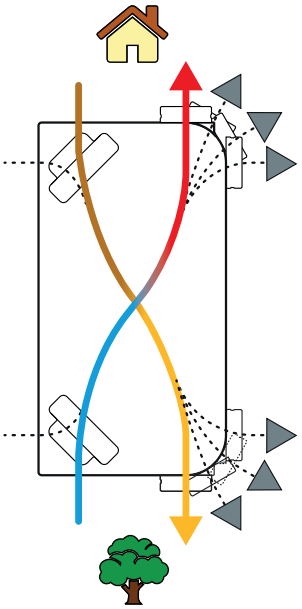


Reversed flows + 180° rotation
(via electronic management)

Vertical installation on wall *Unit viewed from the front*



Standard air flows
(factory configuration)

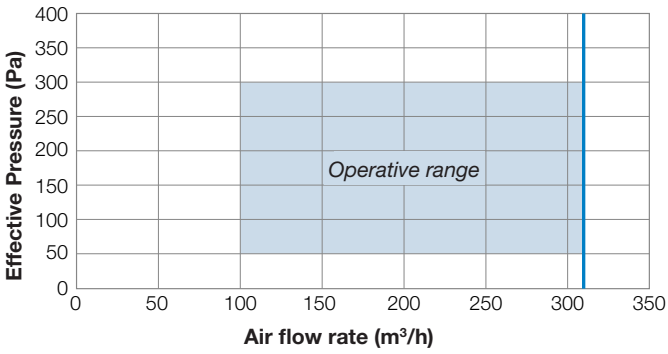


Inverted airflow
(via electronic management)

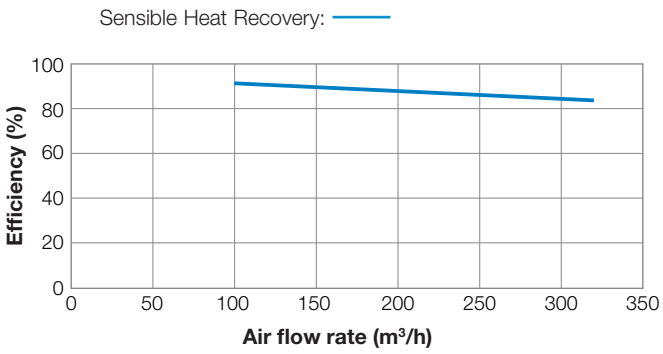
MVHR Unit Performance

The REFLAIR series MVHR units are equipped with two centrifugal fans with electronic commutation motors, allowing for a drastic reduction in power consumption. The fans guarantee the set flow rate within a wide range of static pressures, automatically adapting the unit to the air distribution system.

REFLAIR 320 Airflow Performance (70RFL00320 - 70RFL0100320)



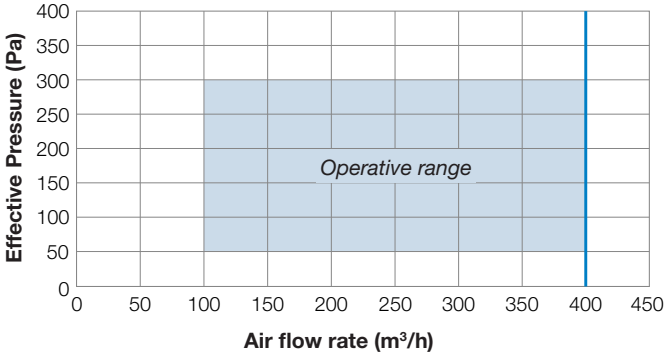
REFLAIR 320 Heat Recovery Efficiency (70RFL00320 - 70RFL0100320)



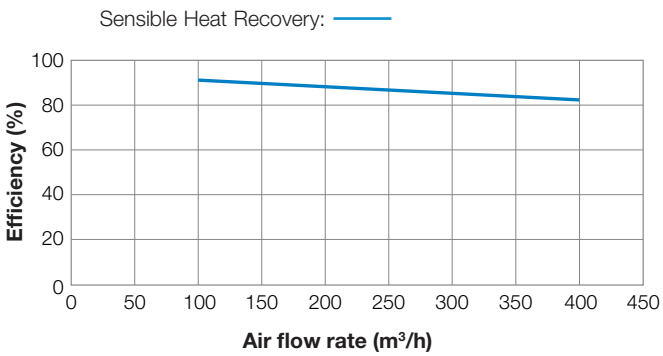
Function	Flow rate m³/h	Min–Max Static Pressure Pa	Absorbed Electrical Power W
Normal	225	50–300	63 W (*)
Boost	320	50–300	117 W (*)

* 100 Pa residual static pressure

REFLAIR 400 Airflow Performance (70RFL00400 - 70RFL0100400)



REFLAIR 400 Heat Recovery Efficiency (70RFL00400 - 70RFL0100400)



Function	Flow rate m³/h	Min–Max Static Pressure Pa	Absorbed Electrical Power W
Normal	280	50–300	96 W (*)
Boost	400	50–300	273 W (*)

* 100 Pa residual static pressure

Regulatory Requirements

The UNI EN 16798-1 standard defines 3 environmental comfort categories for residential buildings and, for each of these, the required fresh air flow rate per person. Once the comfort level is chosen and the total volume to be served is known, it is possible to identify the unit size and, given the nominal fresh air flow rate, the maximum number of people allowed in the room.

Comfort Level	Category	Fresh air flow rate (l/s per person)	Fresh air flow rate (m³/h per person)
Excellent	I	10	~ 36
Good	II	7	~ 25
Sufficient	III	4	~ 15

Unit Selection Table

Model	Nominal fresh air flow rate [m³/h]	Heat recovery unit type	Room volume* [m³]	Max room area* [m²]	Max number of people per comfort level according to EN 16798 standard		
					I Excellent	II Good	III Sufficient
REFLAIR 320	225	sensibile	450	170	6	9	15
REFLAIR 400	280	sensibile	560	210	8	11	19

*considering 0.5 vol/h and 2.7 m room height

Optional Filters

F7 supply and extract filter kit for REFLAIR series MVHR units.

Air filter type:
- F7 extract filter (ISO ePM1 60%)
- F7 supply filter (ISO ePM1 60%)

Code	Flow rate
70RFLF7001	320/400 m³/h

G4 supply and extract filter kit for REFLAIR series MVHR units.

Air filter type:
- G4 extract filter (ISO Coarse 65%)
- G4 supply filter (ISO Coarse 65%)

Code	Flow rate
70RFLG4001	320/400 m³/h

Wired User Controls

CHARACTERISTICS
- Wall installation on built-in box 502/503 or Ø 60 mm
- Power supply 12 VDC (power supply unit required)
- Bus cable 2x0.5 mm² twisted and shielded
- Power consumption max. 60 mA
- R-BUS port
- Devices for indoor application

CoRe Air Speed

Room control for displaying and setting the unit's operation.

Code
7041476

CoRe Air Control

Room control for managing operating modes, time schedules and parameters of the unit.

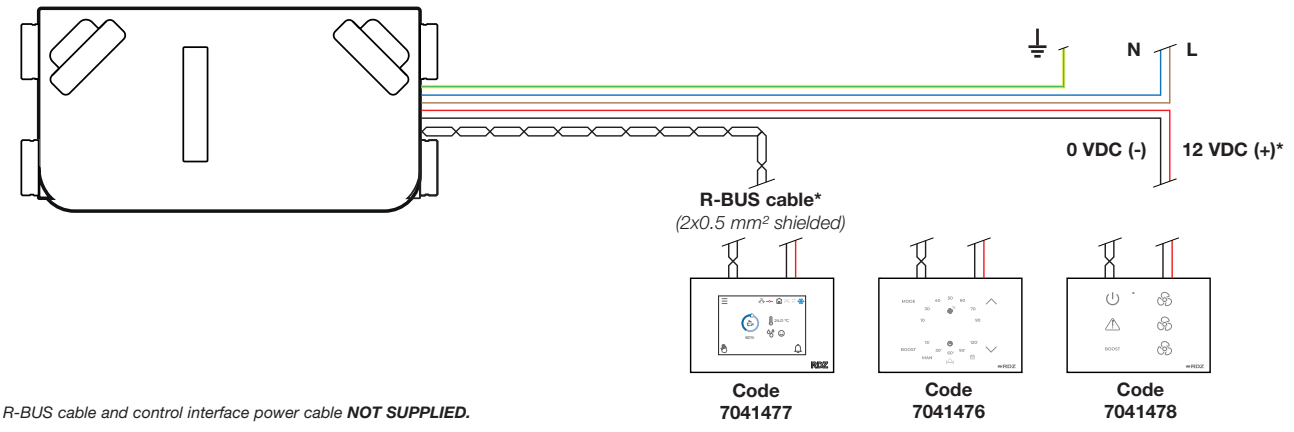
Code
7041477

CoRe Air 3v

Room control for displaying and setting the operation of the controlled mechanical ventilation unit.

Code
7041478

Electrical diagram



* *R-BUS cable and control interface power cable* ***NOT SUPPLIED.***

Accessoires

SF -M13

Flexible Condensate Drain Kit.
Complete with silicone membrane trap, pipe, and fitting.

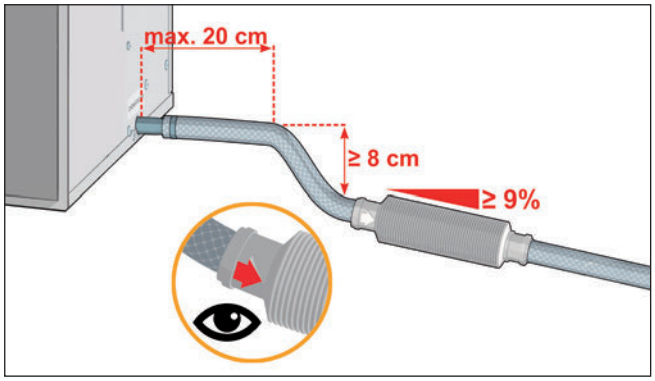
Code
3600401

SF-P N

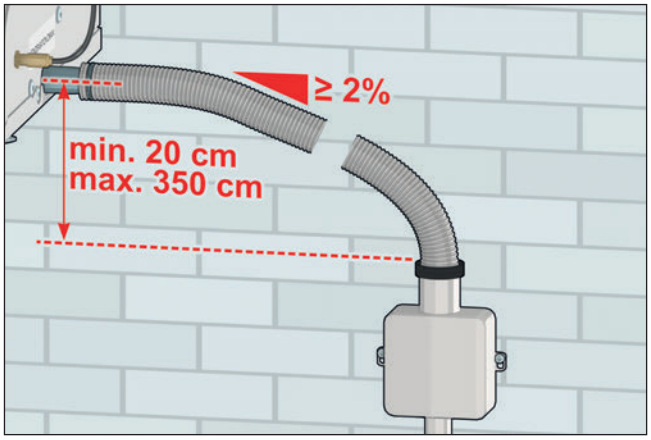
Wall Condensate Drain Kit.
Complete with trap and housing for wall or recessed installation.
Adjustable installation depth. Ready for connection to Ø 20-32 mm pipes.
Washable cartridge.

Code
7045504

Installation

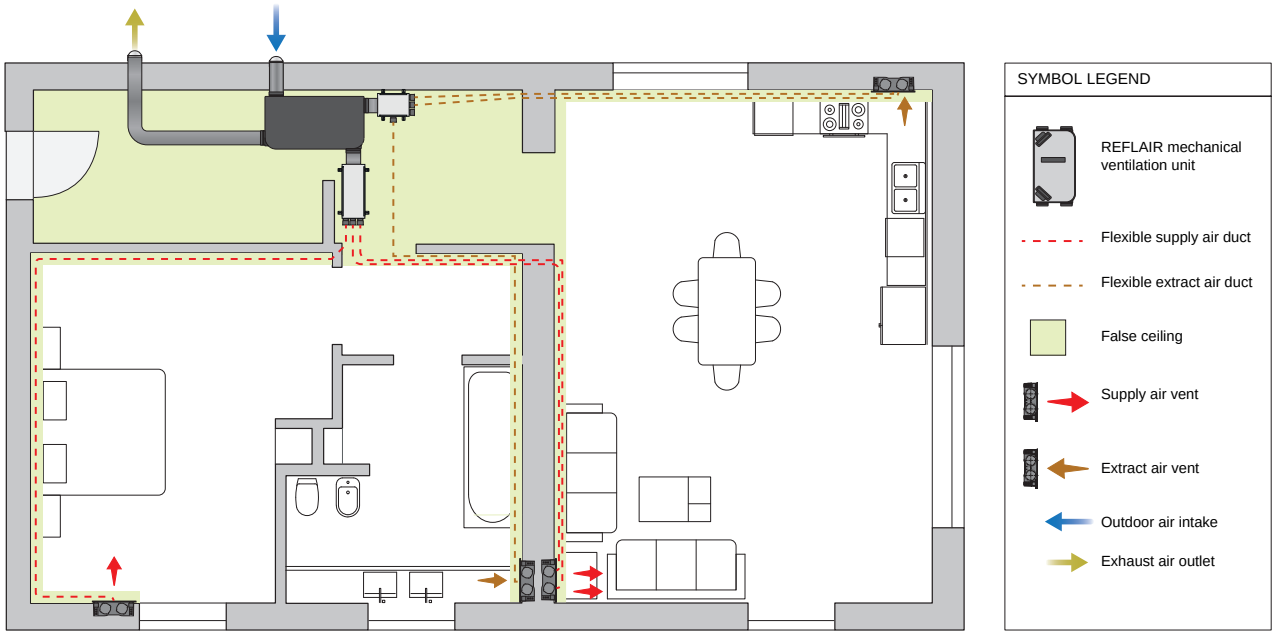


Installation

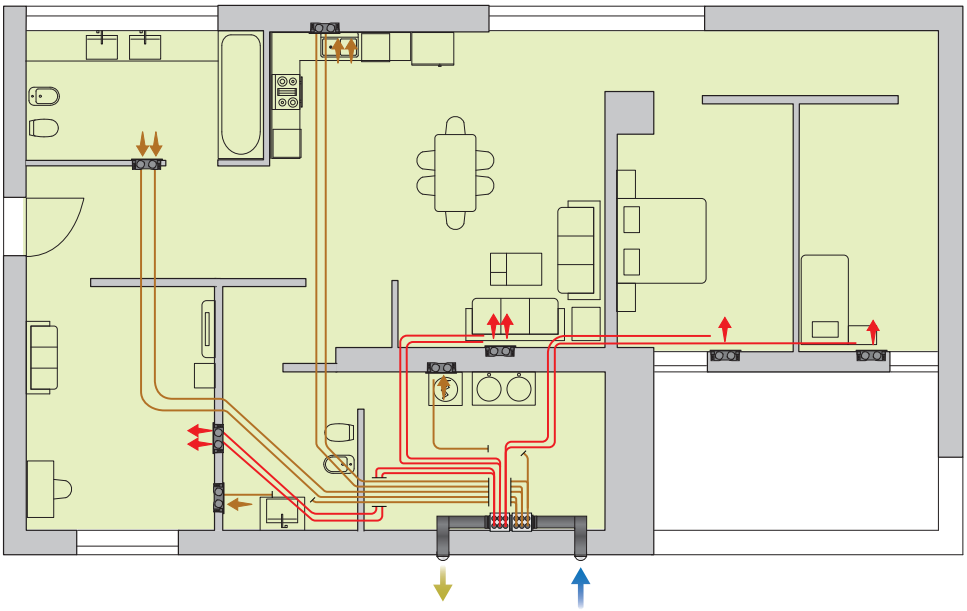


Application Diagrams

Horizontal false ceiling installation



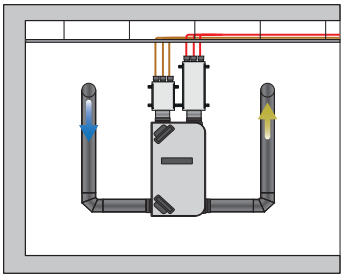
Vertical installatione on wall



SYMBOL LEGEND

- REFLAIR mechanical ventilation unit
- Flexible supply air duct
- Flexible extract air duct
- False ceiling
- Supply air vent
- Extract air vent
- Outdoor air intake
- Exhaust air outlet

MVHR Unit Front View



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