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WLHP terminal

Water Loop Heat Pump

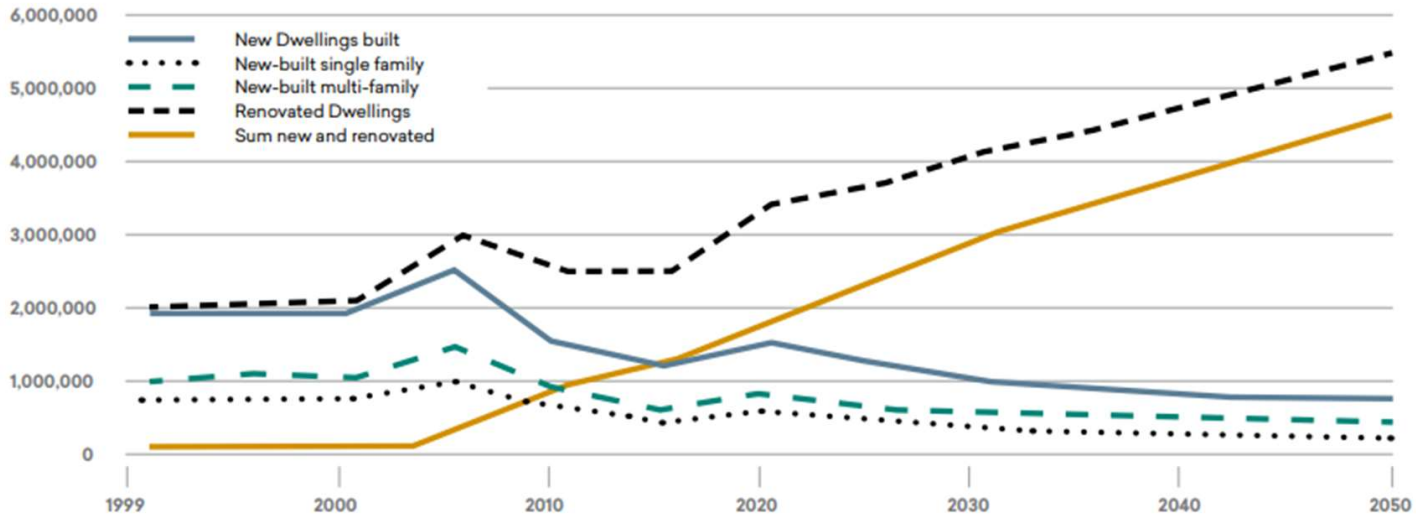
INTRO

EUROPEAN BUILDINGS MARKET

The projected evolution of the European building stock sees a very strong increase in renovations. The ratio of new buildings to the total building stock at the EU-27 level shows a present and future stagnation in the trend of new buildings: much will therefore play out on building renovations and replacements.

EU-27 Proiezioni al 2050 del numero di abitazioni residenziali di nuova costruzione e ristrutturazione

EU-27 New-built and Renovated Dwellings



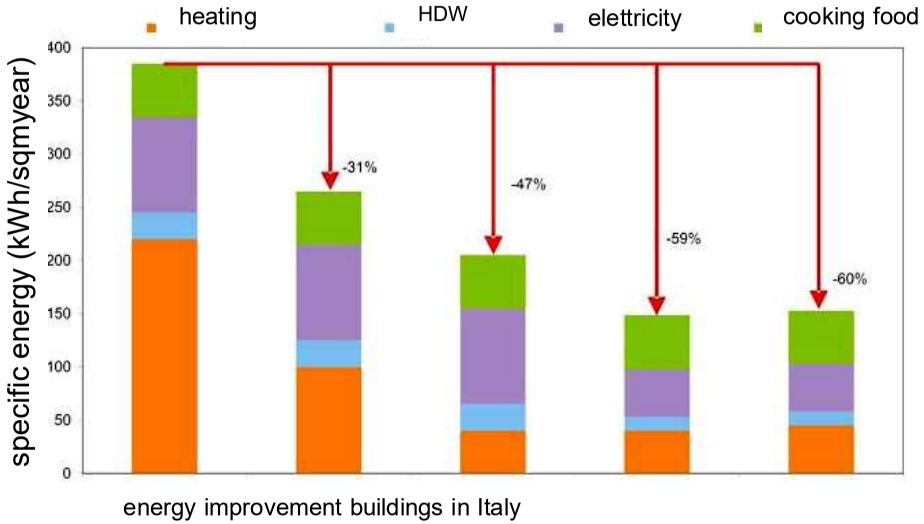
Fonte: EU Building Stock Observatory (BSO) - Osservatorio del patrimonio edilizio dell'UE

The growth of the heat pump market will be influenced mainly by the following factors:

- ✓ the need to accelerate the energy transition in the heating and cooling sector as well has put heat pumps at the center of policymakers' attention, and legislation

Building envelope efficiency, The integration of renewable sources , smart buildings;

In your opinion, to maintain the water level, is it better to open the faucet or plug the holes?



energy improvement buildings in Italy

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Building envelope efficiency, The integration of renewable sources , smart buildings;

- ✓ **European Economic incentives**

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- ✓ European Economic incentives
- ✓ **Increased performance of Heat Pumps;**

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- ✓ the need to accelerate the energy transition in the heating and cooling sector as well has put heat pumps at the center of policymakers' attention, and legislation

Building envelope efficiency, The integration of renewable sources , smart buildings;

- ✓ European Economic incentives
- ✓ Increased performance of Heat Pumps;
- ✓ **Possibility to extend installations as much as possible to the renovation market, which mainly involves existing buildings, condominiums, multi-family buildings; (About 80% of the residential construction market will be in renovation: only 20% will be in new)**

The difficulty of architectural integration of the external components of the PdC in an existing building context

Minimally invasive interior plant interventions in the upgrading of the existing

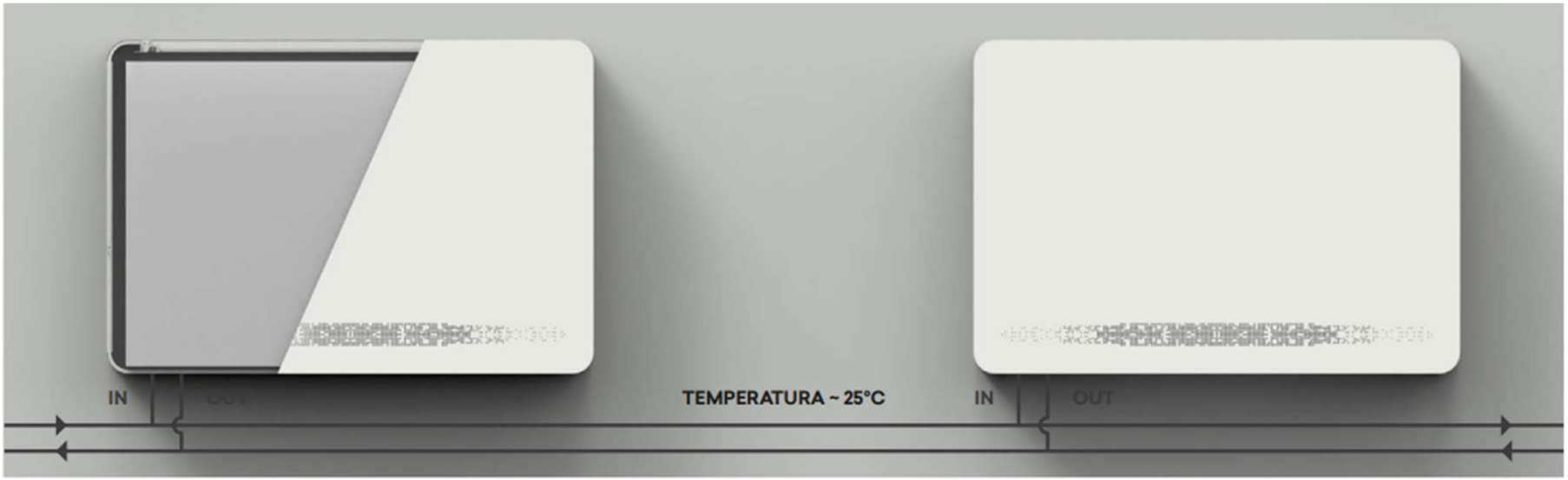
The preponderant issue is to find a solution to extend the use of heat pumps as far as possible to the market of existing buildings with centralized systems such as condominiums, multifamily buildings, tertiary and captive buildings.
(The EC estimates that 35 million buildings could be renovated by the end of the 2020-2030 decade).

However, there are several technical obstacles to its implementation as a direct generation system

- ✓ Systems with existing piping supplied at high temperature; high heat losses in distribution piping (both heating and DHW) - Losses of can reach between 30-50% of heat produced;
- ✓ Distribution system generally uninsulated or characterized by poor or deteriorated insulation;
- ✓ Difficulty in working on the existing distribution network: Continuity of living in the building;

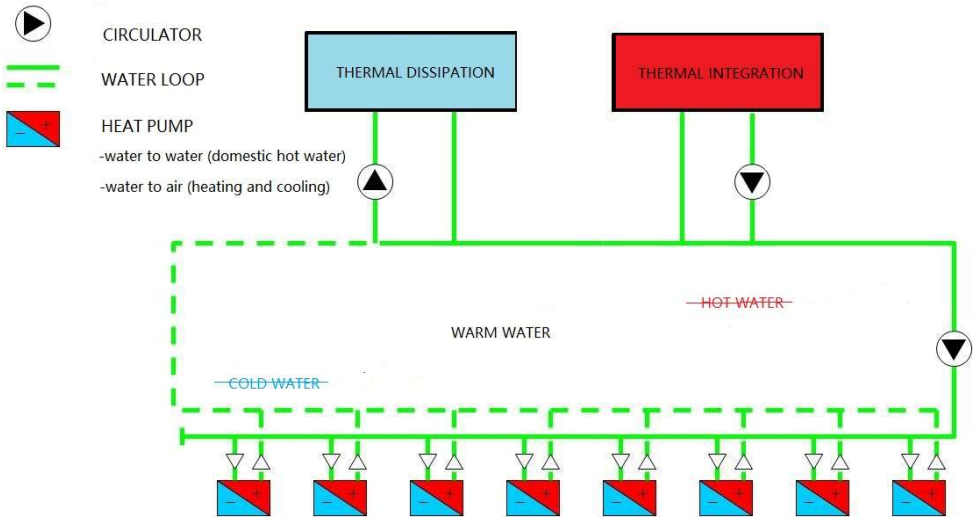
The water/air heat pump - Water Loop Heat Pump:

- does not require any external unit;
- total absence of installation constraints;very high efficiency;
- constant heat output independent of outdoor temperature;Installation on the existing system;
- required flow rate is modest, especially in air conditioning.



Particular plant solution with WLHP water/air heat pumps

Ring plant (water loop system)



The water loop system consists of a two-pipe closed-type hydraulic circuit maintained at neutral temperature by thermal dissipation or integration systems. This acts as a source for decentralized water/air heat pumps - WLHPs - placed in the rooms to be air conditioned: in heating they draw heat from the loop while in cooling they pour it back.

Main features of WLHP

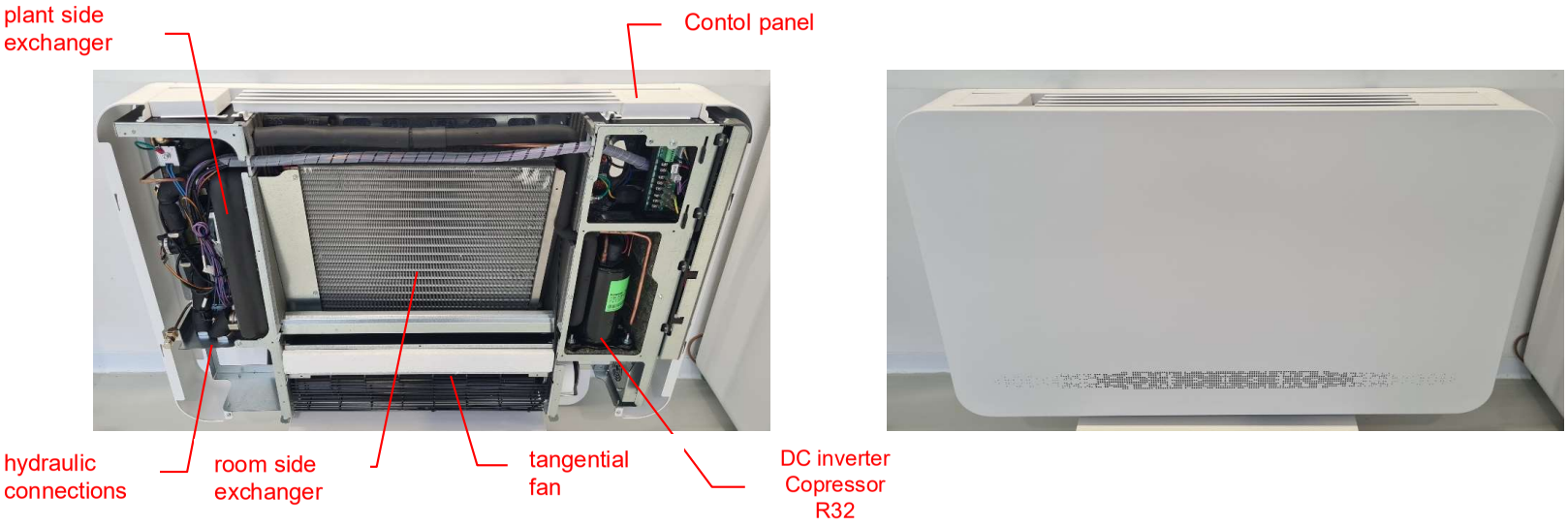
DC Inverter compressor : modulates the power on the actual need ensuring an ideal temperature level
Tangential Inverter Fan: in continuous modulation it gradually dampens the revolutions when the set temperature is reached, thus ensuring maximum comfort.

Wide range of powers range of power: 3 Sizes - Range Thermal power ranges from 1.1 to 3.1 kW,

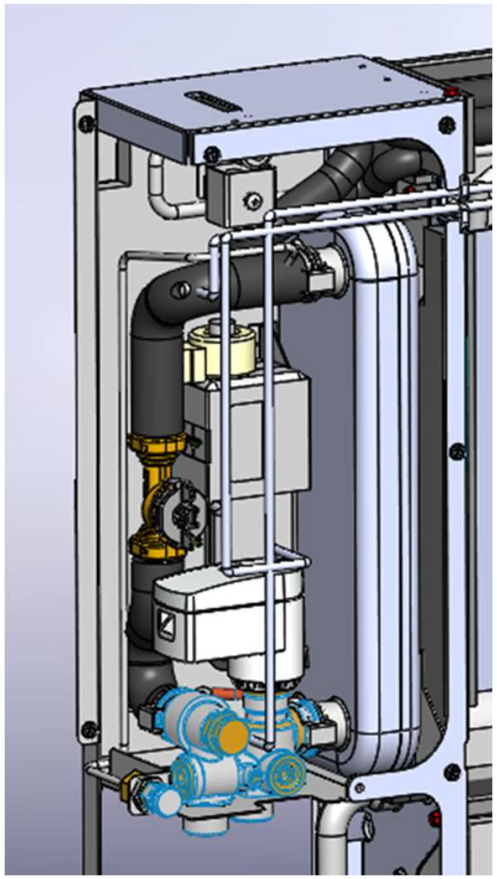
refrigeration from 1.1 to 3.1 kW High efficency: COP 5.90, EER 4.80

Propane gas R290: GWP 3

Design and aesthetics in only 14 cm depth



Main features of WLHP



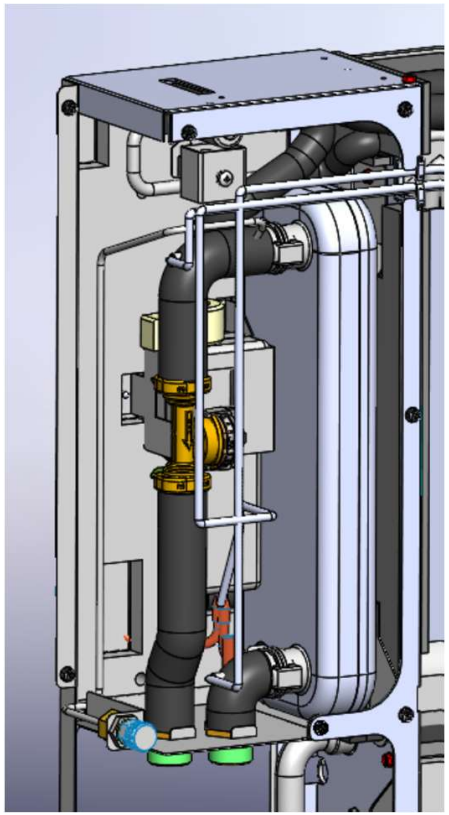
- Smart touch control on board the machine or on the wall with the possibility of control with APP, WIFI or ModBus connection; ;
- Electronic metering system allows consumption to be monitored to facilitate the division of expenses
- Flow management: 2/3-way modulating valve with mechanical and magnetic filter to protect the plate heat exchanger

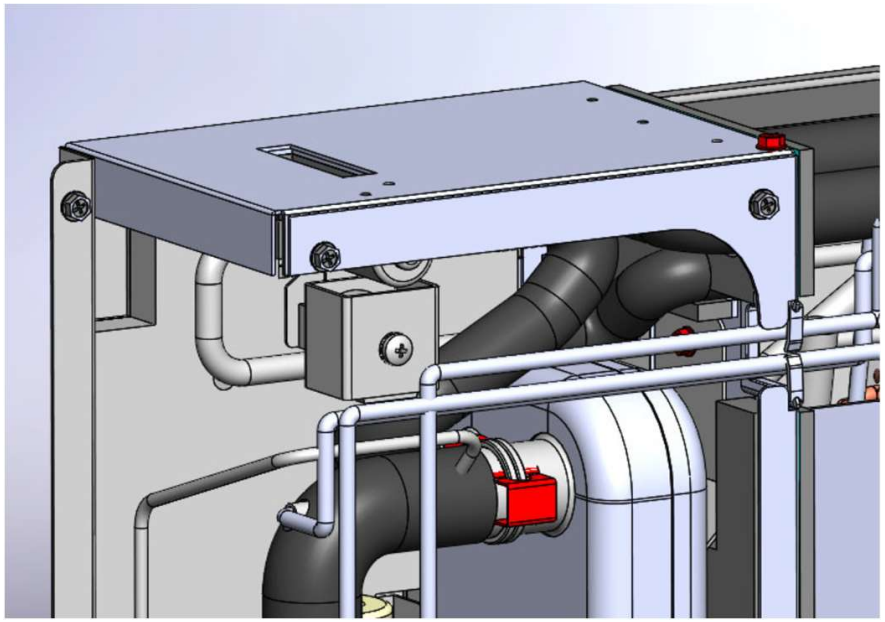
Commissioning:

A check-list will be prepared for data collection phase on existing by the designer/installer/. Important will be side-by-side installer and in pre and final start-up phase (proper balancing of flow rates)

WLHP: Configuration accessories

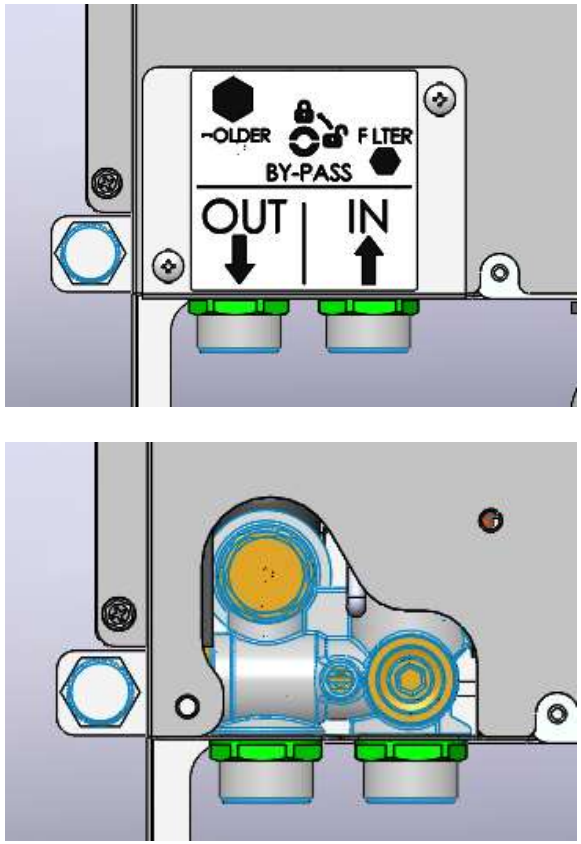
HYDRONIC KIT + VORTEX

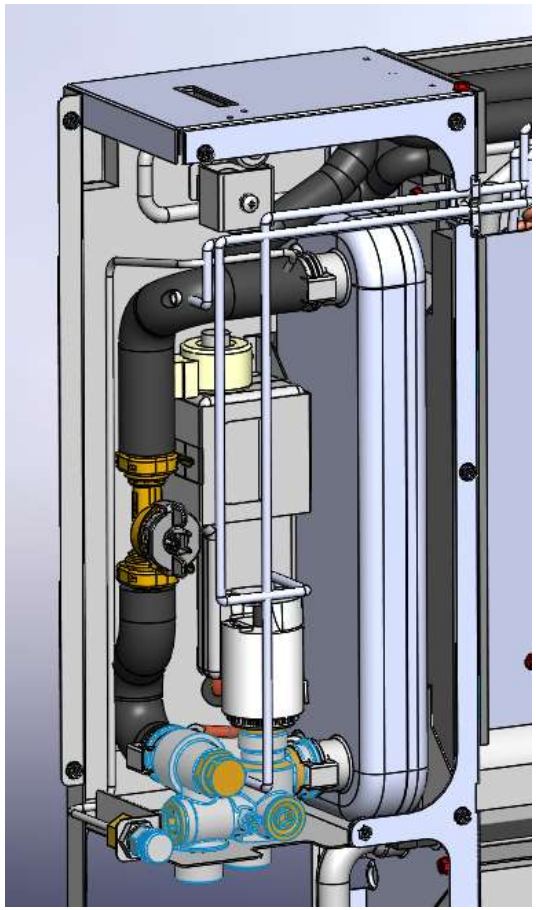




WLHP: Configuration Accessories

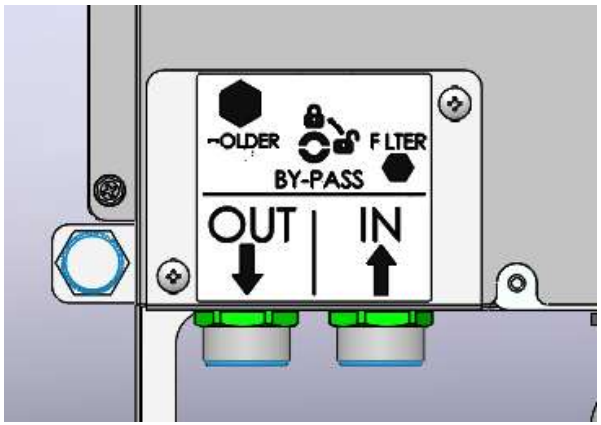
HYDRONIC KIT+ VORTEX + 2/3 VALVE + ON-OFF ON/OFF VALVE

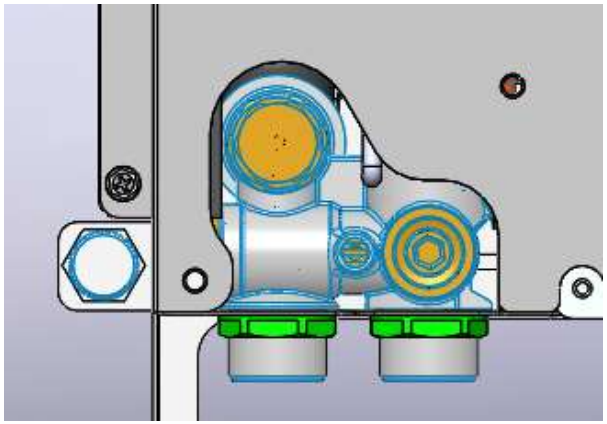


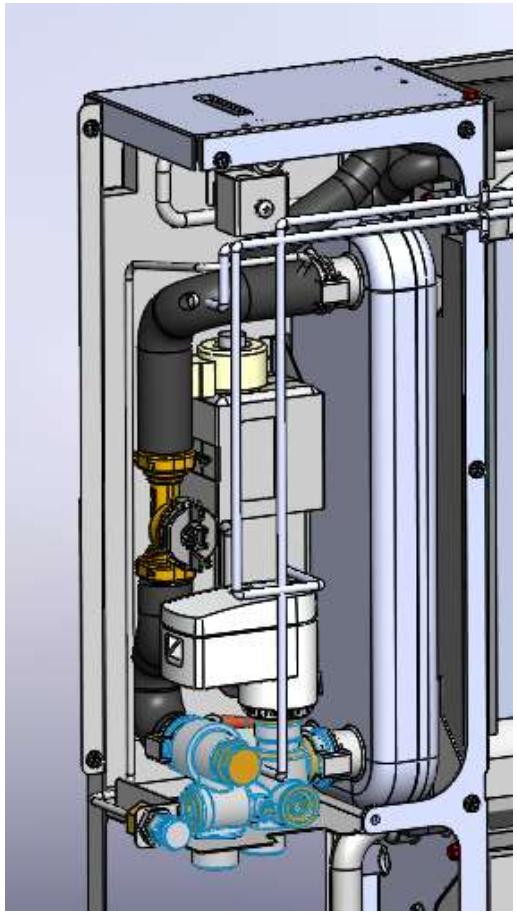


WLHP: Configuration Accessories

HYDRONIC KIT+ VORTEX + 2/3 VALVE + ON-OFF ON/OFF VALVE + MODULATING VALVE

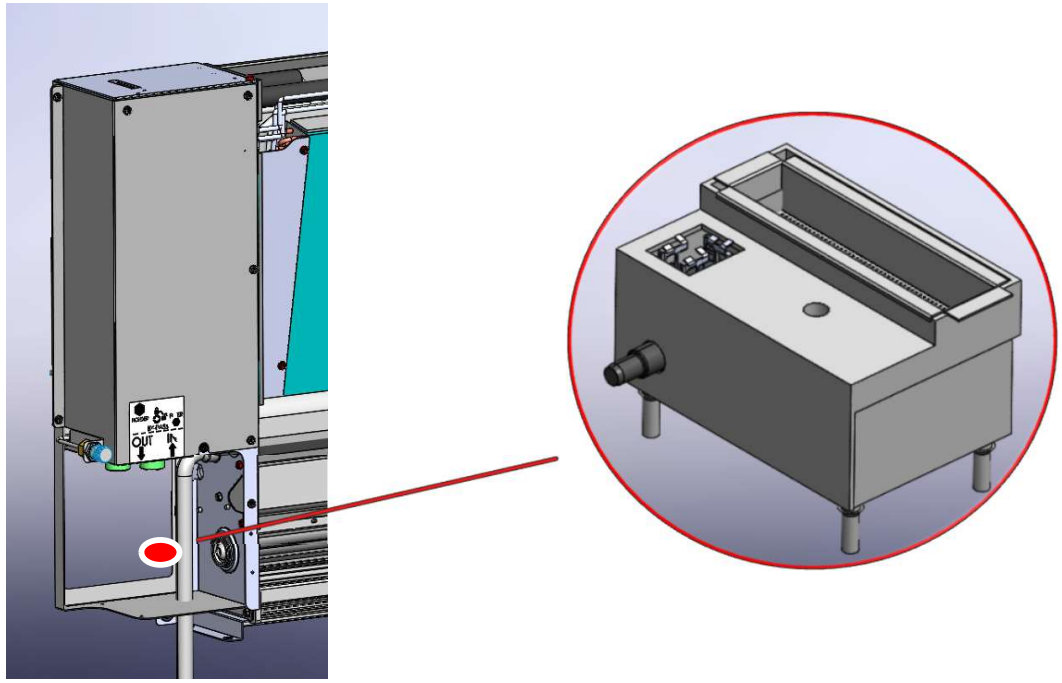






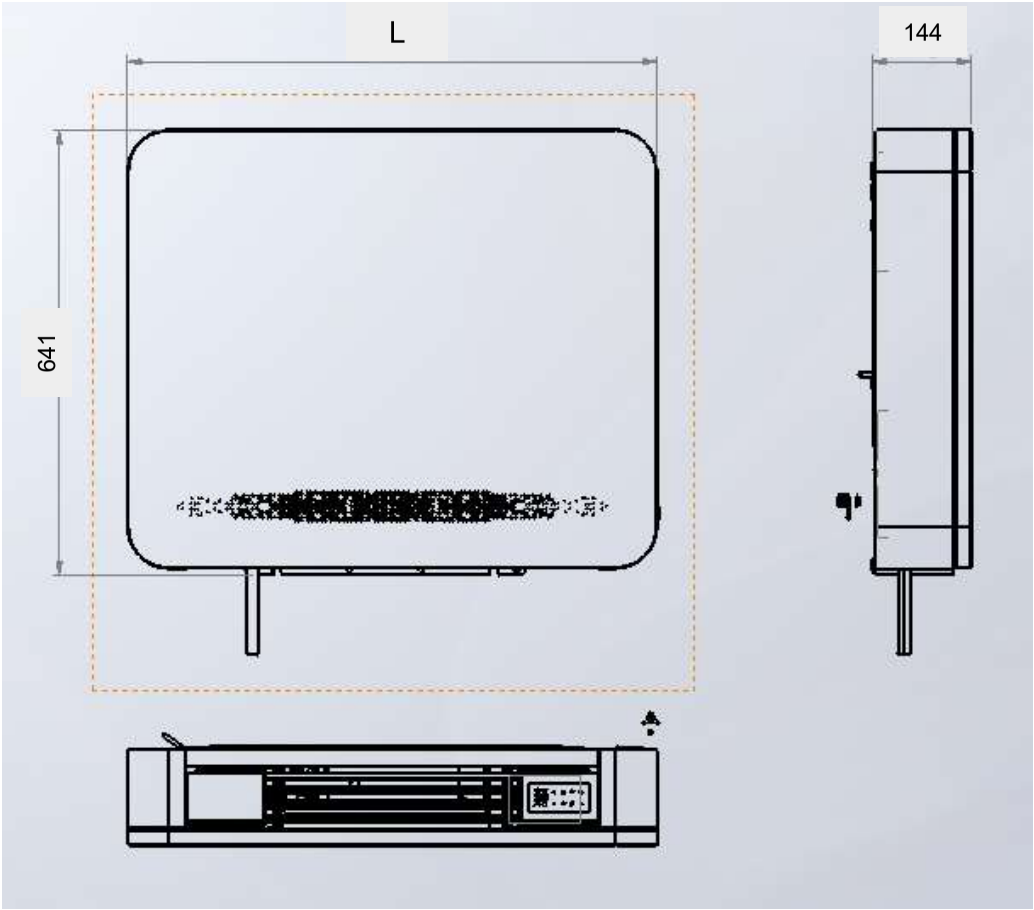
WLHP: Configuraion accessories

Condensate injection pump kit



Where possible, it is always advisable to implement condensate drainage for disposal in the summer period. In cases where it is not possible to drain condensate into the existing building, it can be re-injected into the system using an optional condensate injection kit inside the unit.

WLHP: dimensional



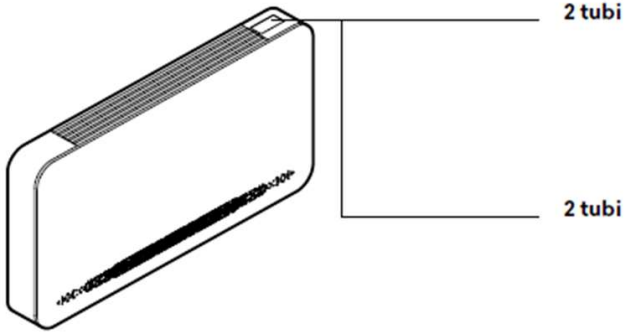
WLHP 200
775x641x144

WLHP 400
975x641x144

WLHP 600
1225x641x144

WLHP: Controls

M7 series on-board controls (Always Mandatory)



Cod. ECA944II

Cod. EWF944II

MODULATING SPEED

- PI Logic
- touch interface
- Modulating speed
- RS485 modbus Port for connection with BUTLER o BMS (only controls no WI FI)

M7 series wall control (in addition to on-board control)

LED electronic control panel with touch interface, wall installation on 503 box complete with thermostat and temperature probeand relative humidity in the room. Cable connection. White color

Advantages of the upgraded system with WLHP

- Use of renewable energy and elimination of pollutant and CO2 emissions from urban centers;
- Heating, cooling with the same system, even simultaneously;
- Use of existing pipelines: heat pump connects to the connection points of existing terminals highly flexible and versatile solution, with minimally invasive interventions without specialized workers;
- Reduction of distribution losses in the system - reduction of operating costs;
- housing continuity;
- Complete room-by-room autonomy of operation (Independent daily and weekly programming for each room via APP);Optimal comfort: hot or cold where and when needed;

Caratteristiche principali del WLHP

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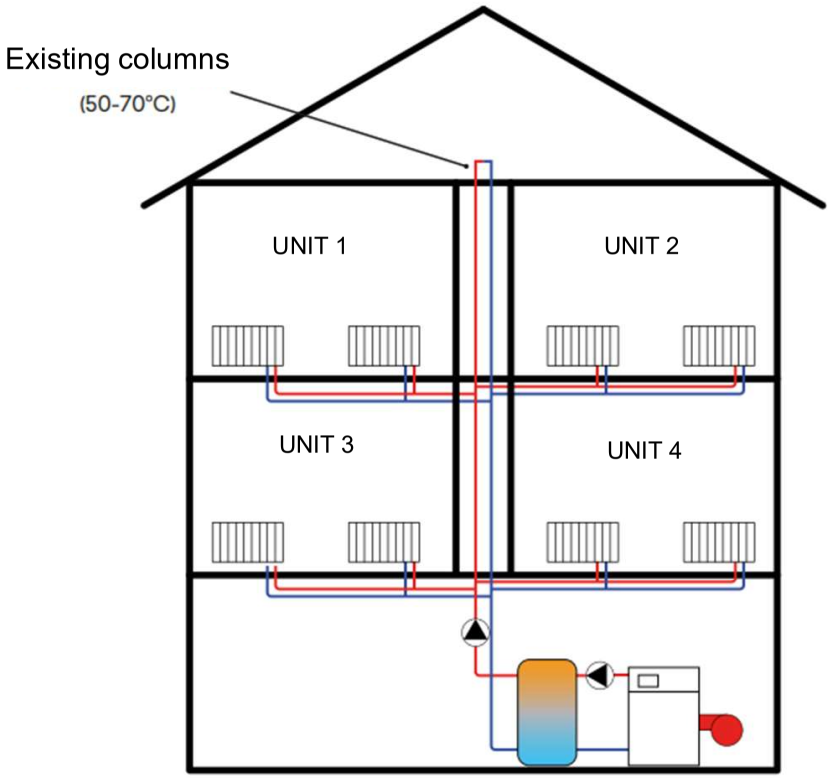
			WATER LOOP HEAT PUMP		
Modelli	u.m.		200	400	600
PRESTAZIONI IN RAFFREDDAMENTO (W 30°C; A 27°C)					
Potenza frigorifera massima	(1)	kW	1,20	1,70	3,00
Potenza frigorifera nominale	(1)	kW	1,10	1,50	2,60
Potenza frigorifera minima	(1)	kW	0,20	0,30	0,60
Potenza assorbita nominale	(1)	kW	0,2	0,3	0,5
EER			4,40	4,80	4,80
SEER			5,50	6,10	7,90
PRESTAZIONI IN RISCALDAMENTO (W 20 °C; A 20 °C)					
Potenza termica massima	(2)	kW	1,40	2,30	3,60
Potenza termica nominale	(2)	kW	1,10	2,00	3,10
Potenza termica minima	(2)	kW	0,40	0,40	0,80
Potenza assorbita nominale	(2)	kW	0,2	0,4	0,5
COP			5,20	5,40	5,90
SCOP			6,44	6,92	6,74
DATI ELETTRICI					
Tensione		V/ph/Hz	230/1/50	230/1/50	230/1/50
Potenza assorbita massima		kW	0,40	0,89	1,15
Corrente massima assorbita		A	1,74	3,87	5,01

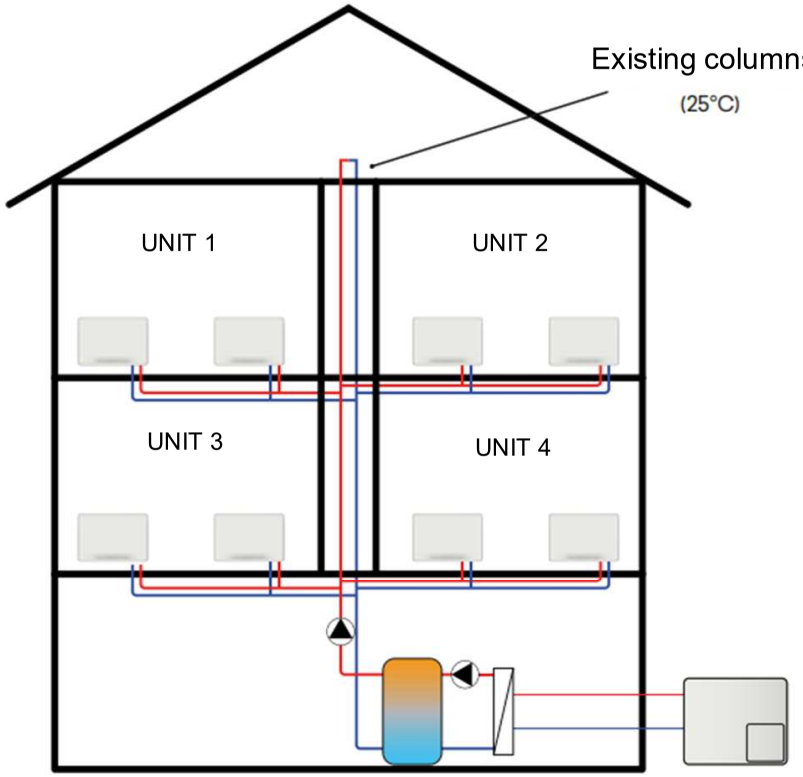
		WATER LOOP HEAT PUMP		
Modelli	u.m.	200	400	600
DATI IDRAULICI				
Attacchi idraulici	" EK	3/4	3/4	3/4
Portata nominale in riscaldamento	L/min	3,7	7,7	12,0
Portata nominale in raffreddamento	L/min	4,5	5,2	9,0
Perdita di carico nominale in riscaldamento	kPa	6,80	11,20	12,50
Perdita di carico nominale in riscaldamento con valvola regolatrice di flusso	kPa	7,80	14,20	20,50
Perdita di carico nominale in raffreddamento	kPa	4,80	5,40	7,50
Perdita di carico nominale in raffreddamento con valvola regolatrice di flusso	kPa	5,40	6,70	11,80
DATI GAS REFRIGERANTE				
Tipo refrigerante		R290	R290	R290
Quantità refrigerante	kg	0,10	0,14	0,15
DIMENSIONI E PESI PRODOTTO				
Larghezza	mm	775	975	1225
Altezza	mm	641	641	641
Profondità totale	mm	144	144	144
Peso a vuoto	kg	35,0	40,0	45,0
LIMITI DI FUNZIONAMENTO				
Riscaldamento - aria interna min/max	°C	5/27	5/27	5/27
Riscaldamento - acqua min/max	°C	10/45	10/45	10/45
Raffreddamento - aria interna min/max	°C	18/35	18/35	18/35
Raffreddamento - acqua min/max	°C	15/50	15/50	15/50

! High pressure drops: evaluate circulator loop head

Example of upgrading an existing apartment building



EXISTING PLANT



REDEVELOPED PLANT

Advantages of the upgraded system with WLHP

COMFORT IMPROVEMENT

- Use of existing piping and limited interior work:
- The heat pump connects to existing radiator connection points In addition to heating, the unit takes care of summer cooling and dehumidification
- Complete autonomy of operation on a room-by-room basis Independent daily and weekly programming for each room via APP
- Optimal comfort due to the system independently and quickly adapting to environmental and heat load conditions
- Elimination of pollutant and CO2 emissions from urban centers

Advantages of the upgraded system with WLHP

REDUCED PAYBACK TIME

- High use of renewable energyImprovement of the "energy class of the building"
- Elimination of thermal losses in the distribution system from the central thermal power plant to each individual dwelling
- Reduction of more than 50% in primary energy compared to a combustion system
- High seasonal efficiency of the entire system

Advantages of the upgraded system with WLHP

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REDUCTION IN ENERGY CONSUMPTION

- Reduction in operating costs
- Elimination of costs required for gas connection, chimney and related securing in accordance with legal regulations of combustion systems
- Simple installation that does not require specialized and expensive workers
- Extremely low investment and installation time Connection to the electrical utility of the individual apartment for comfort satisfaction

WLHP Heat Pump Options

COOLING MODE : condensate disposal

Condensation produced by air conditioners is often a problem and eliminating it is not easy, but INNOVA has a solution for every problem. Through a high-pressure injection system, condensate produced in the summer period is re-injected into the existing system. Through a pressure switch, the pressure level of the system is monitored, discharging into the technical room

FLOW RATE MANAGEMENT AND CLEANING

Both on/off and modulating 2/3-way valve with mechanical and magnetic filter for protection of plate heat exchanger (and provision for check valve for injection of condensate into system)

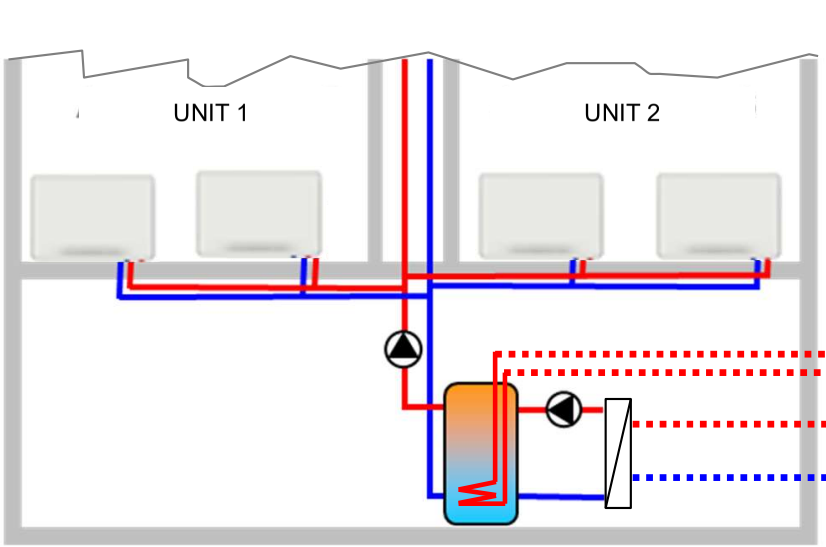
REMOTE CONTROL via APP

Whith «InnovApp » is possible:

- control the unit remotely
- manage multiple devices
- Set a different operation mode for each device
- daily/weekly scheduling

Solutions for thermal balancing of the ring

Plant variants that increase efficiency



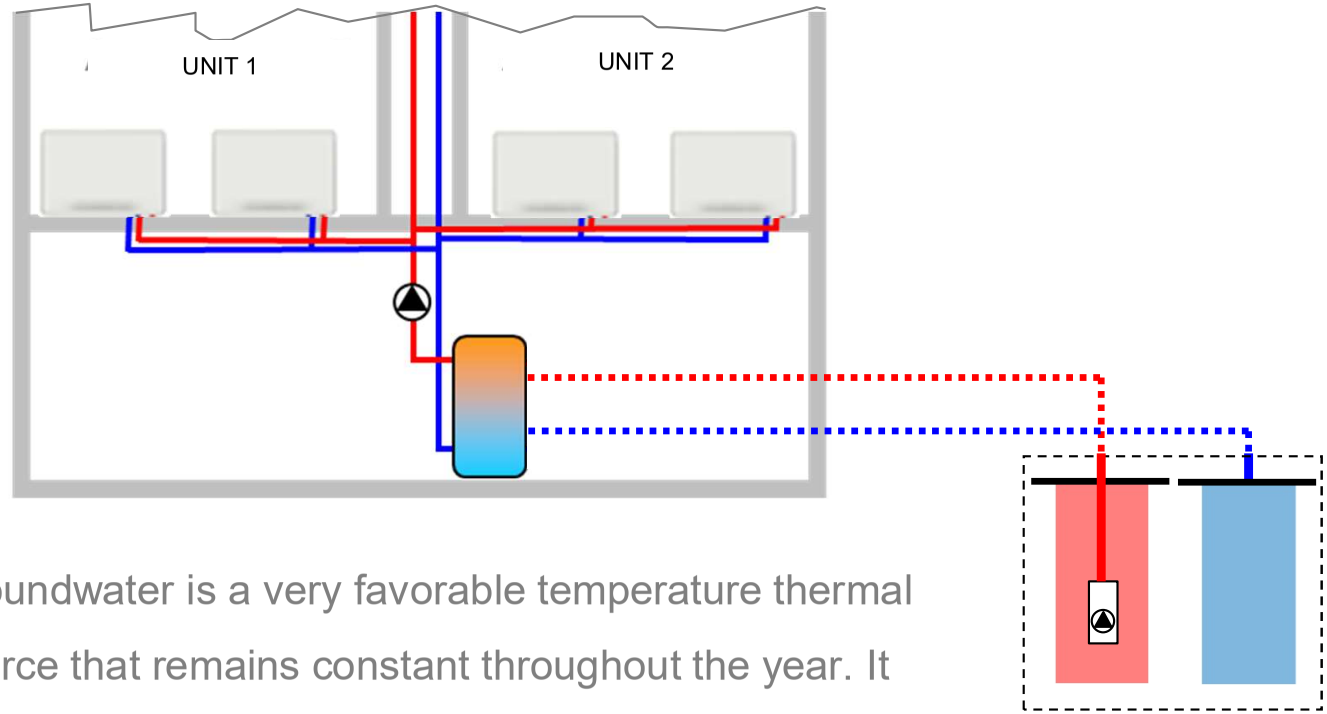
Solar thermal panels for ring water heating in winter phase

Evaporative tower for cooling the ring water in summer phase

Photovoltaic panels to support the heat pump

Solutions for thermal balancing of the ring

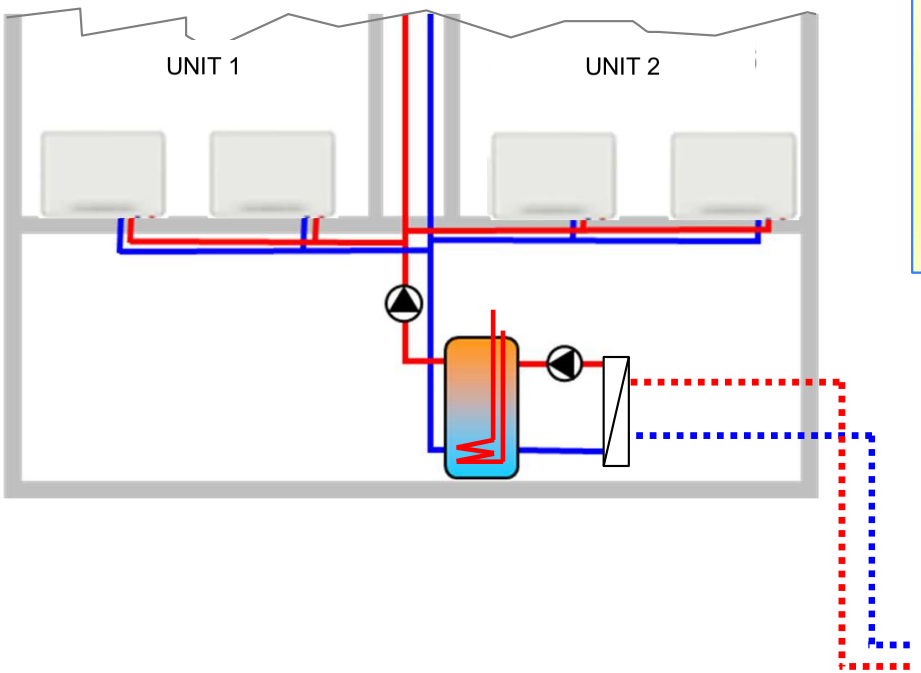
Groundwater use



Groundwater is a very favorable temperature thermal source that remains constant throughout the year. It allows balancing of the plant loop in both winter and summer phases using 100% renewable energy.

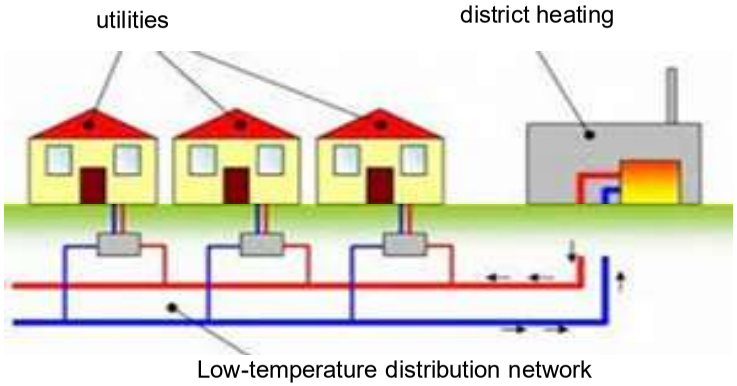
Solutions for thermal balancing of the ring

Low-temperature district heating networks



"Cold" district heating

The advantages in the use of low-temperature district heating networks are related to the possibility of being able to transfer to the network not only industrial waste heat, but also heat from various local businesses such as supermarkets or offices, which can dispose of heat without additional costs or even sell it.



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OKKI

Heat pumps for air conditioning large rooms in summer and winter

OKKI: Preventing the heat,curing the cold

innova

AIR CONDITIONING OF LARGE ENVIRONMENTS: THE CURRENT STATUS

- large rooms are commonly heated with boilers and unit heaters - systems using fossil fuels, which are inefficient, noisy, complex and expensive to install, and rarely offer integration for summer cooling;
- Lack of thermal comfort due to air stratification and significant thermal gradient in height;
- Energy inefficiency: given the heights it requires an increase in the temperature of the heating system to reach the desired level in the work zone = Waste of Energy
- Increased heating costs;
- Environmental impact: Inefficiency due to air stratification can increase energy consumption, and the related environmental impact;

OKKI: Preventing the heat,curing the cold

THE CURRENT STATE

The problem with such tall buildings is stratification due to the convection effect that pushes warm air upward as it is lighter. Therefore, if we measure the indoor temperature in a heated room, we will see that the temperature increases by about 7 percent for every meter of height (see example in the illustration.To avoid this stratification and waste of energy, fans are generally placed on the ceiling, pushing the warm air to the lower areas and equalizing the room temperature.Translated with www.DeepL.com/Translator (free version)

OKKI: Preventing the heat,curing the cold

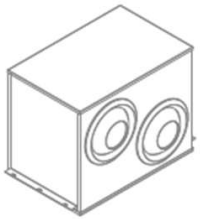
THE SOLUTIONS OFFERED BY THE MARKET TODAY

- **Radiant systems** (gas or electric): These systems emit heat through radiators or radiant panels mounted on the ceiling or walls. Radiation provides even heating and can be an energy-efficient choice.
- **Hot air generators:** These devices heat air and distribute it to the room through fans. They are often used in industrial halls to heat large volumes of air. They can run on gas, electricity or other energy sources.
- **Underfloor heating:** This system involves installing heating cables or pipes under the floor. It heats the entire area evenly and is especially effective in sheds with good insulation. It is a comfortable choice but requires careful planning during construction or renovation.
- **Heat pumps:** They are considered efficient solutions for heating large areas and can also be used for cooling during the warmer months. On the other hand, however, they are not entirely sustainable in terms of cost as they use significant amounts of electricity for their operation.

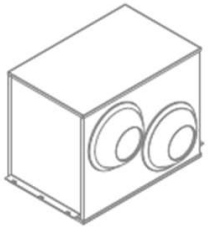
OKKI: Preventing the heat,curing the cold

- **2 Size – 3 Versions - Power Range** 15-30 kW Three-phase ;

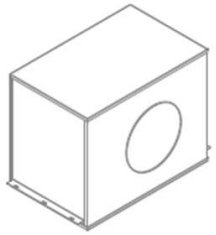
SA- Smart-jet version with automatic nozzles



SM- Version with manual nozzles



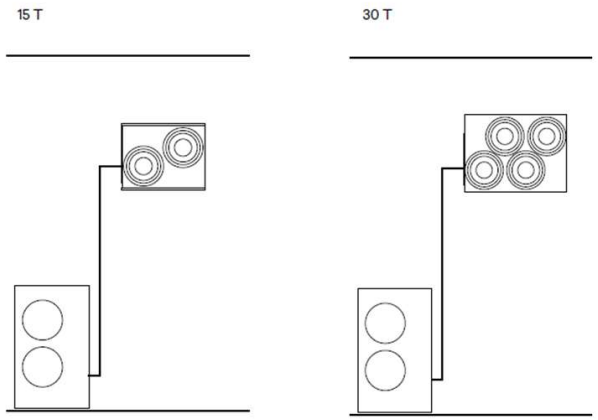
SC- Ducted version

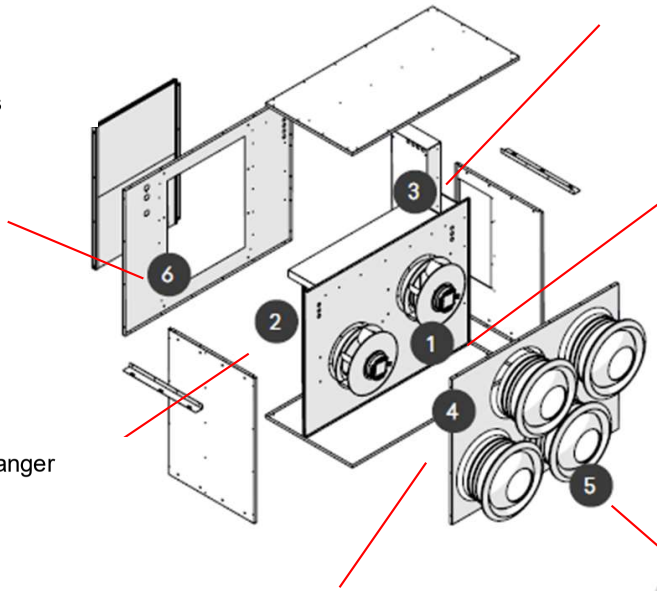


- Refrigerant with low GWP **R32**;
- Easy installation, efficient, environmentally friendly and economical
- Indoor unit with small size;
- Inverter heat pump; brushless EC supply fans
- **Smart Jet** System : thanks to the motorized nozzles of the Smart Jet system, OKKI ensures optimal comfort in the area of interest, avoiding any kind of heat loss.

OKKI: Preventing the heat,curing the cold

Sizes





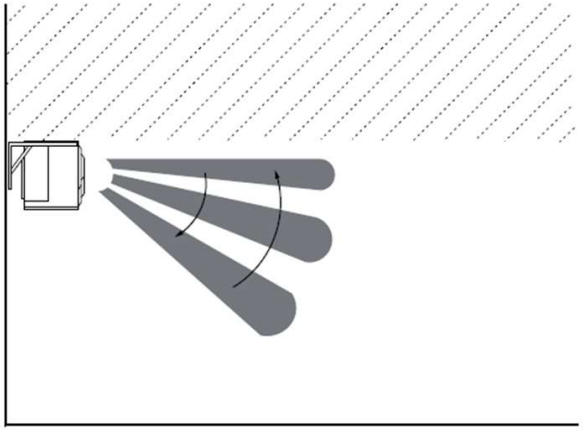
OKKI: technical data

			OKKI	
Modelli		u.m.	15	30
PRESTAZIONI IN RISCALDAMENTO (A 7/6; A 20) (1)				
Potenza resa totale nominale		kW	13,40	28,00
Potenza resa totale minima		kW	3,40	5,50
Potenza resa totale massima		kW	16,00	29,00
COP	(2)		3,76	3,71
COP (massimo - minimo)	(2)		5,23÷3,03	5,00÷3,05
PRESTAZIONI IN RAFFREDDAMENTO (A 35; A 27/19) (3)				
Potenza resa totale nominale		kW	13,40	23,20
Potenza resa totale minima		kW	3,30	6,10
Potenza resa totale massima		kW	15,00	27,00
EER	(2)		3,23	3,11
EER (massimo - minimo)	(2)		5,08÷2,56	4,59÷2,93
PRESTAZIONI AERAULICHE				
Portata aria nominale		m^3/h	2500	5000
Prevalenza utile		Pa	170	170
VENTILATORE LATO AMBIENTE				
Tipo			Radiale	
Numero		Nr.	1	2
Potenza assorbita massima		W	400	400
LIVELLI SONORI				
Potenza sonora irradiata nel canale Lw		dB(A)	60,0	64,0
Pressione sonora media a 5 m Lp		dB(A)	39,0	42,0

OKKI: Unit configuration

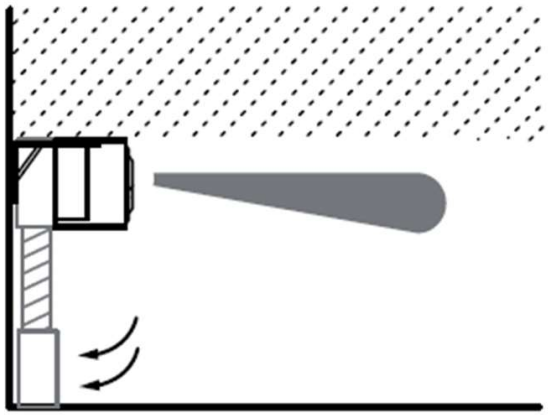
To optimize these configurations, we recommend the use of the accessories air intake plenum kitducted and floor air intake module.

Smart Jet



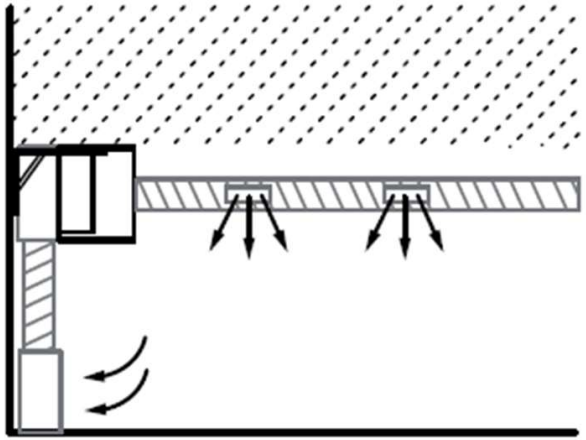
Smart jet technology enables a ductless terminal, offering precise air throw control and advanced features for comfort and stratification prevention.

Manual Jet



The Manual Jet configuration offers amanual control of air direction.For installations greater than 3.5 m, displacement intake plenum is recommended.

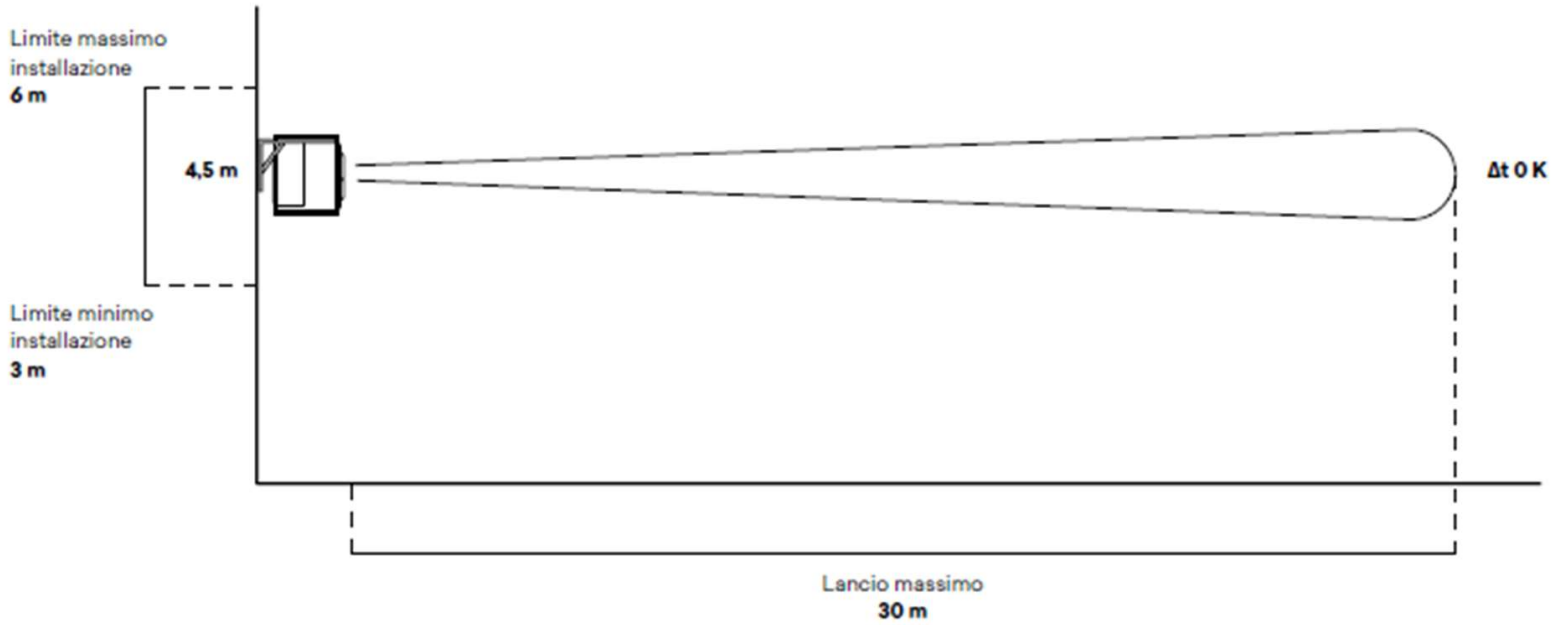
Ducted



Ducting allows precise air distribution through the supply air duct system.Ideal for rooms of wide width

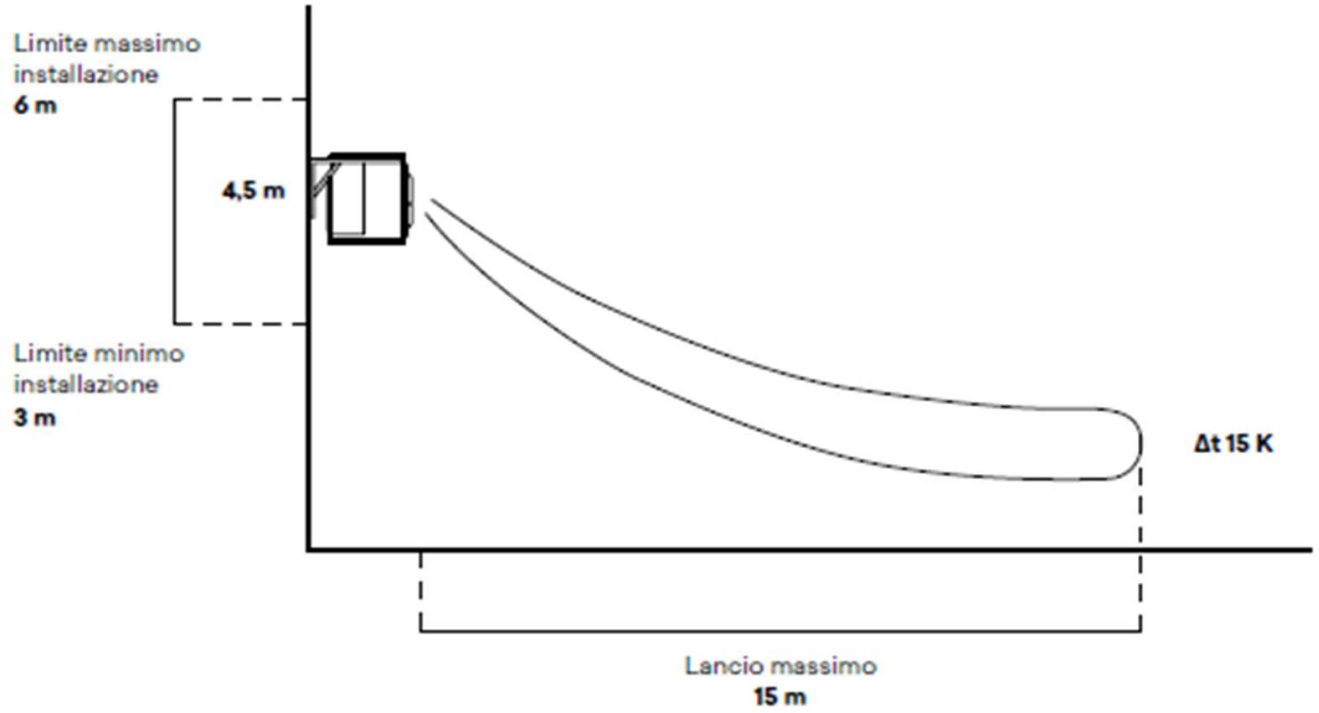
OKKI: indoor unit launch

isothermal launch



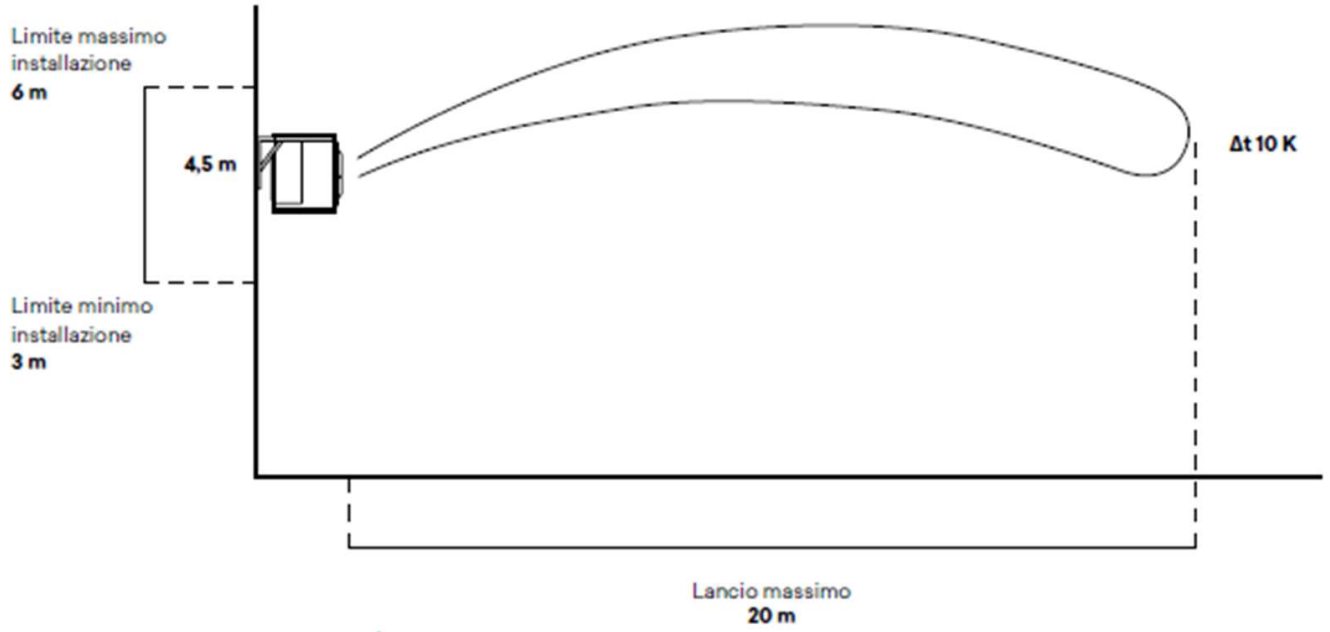
OKKI: indoor unit launch

Warm-up launch



OKKI: indoor unit launch

launch in cooling



OKKI: dimensional

15T

Unità
2 nozzles

MODELLO		15T
L	mm	1010
P	mm	893
H	mm	802
Peso	kg	75,0

Unità
twin-fan

MODELLO		15T
L	mm	940
P	mm	340
H	mm	1416
Peso	kg	98,0

30T

Unità
4 nozzles

MODELLO		30T
L	mm	1360
P	mm	953
H	mm	1026
Peso	kg	97,0

Unità
twin-fan

MODELLO		30T
L	mm	980
P	mm	370
H	mm	1500
Peso	kg	128,0

OKKI: Commands

recessed installation box

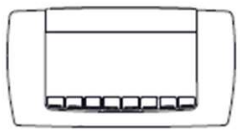
AHRP0681II

remote controls

Digital remote control with color touch screen
AHRX0012II

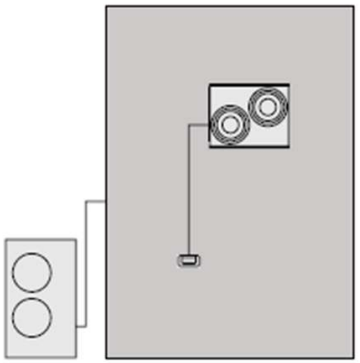
WiFi module to be ordered combined with the remote control for radio communication between units.
Prepare a WiFi module foreach unit
AHRX0013II

ModBus



series connection via RS 485 modbus port

cod:
AHRX0011II

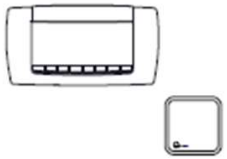


ModBus

modulating speed, controls up to 10 units, rs485 modbus port, quick connection for each unit

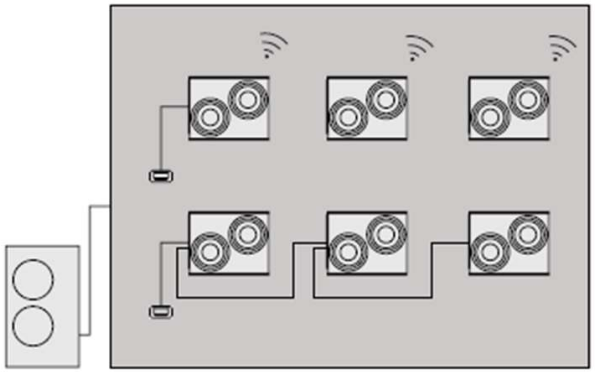
cod:
AHRX0011II

WiFi



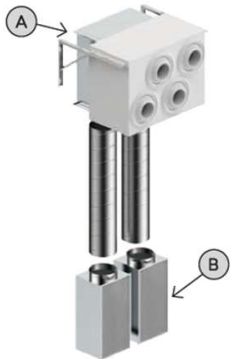
modulating speed, controls up to 10 units, rs485 modbus port, quick connection for each unit

cod:
AHRX0011II
AHRX0013II

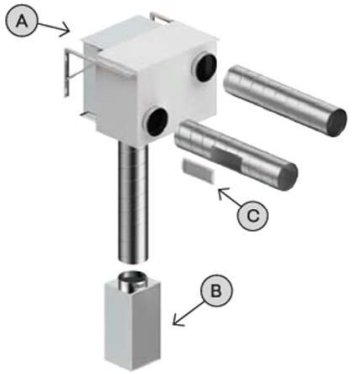


OKKI: Accessories

SM- Version with manual nozzles



SC- ducted version

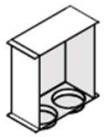


A AHRX0051II
Kit plenum di ripresa aria canalizzata

B AHRX0061II
Modulo di ripresa aria da terra

C AHRX0071II
Griglia da canale per mandata aria

air intake plenum

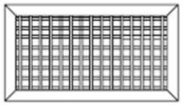


Rear air intake module with lower connection 1 x dn 355 mm; dimensions 720x624x453 mm	15 T SA 15 T SC 15 T SM	NEW	AHRX0051II
Rear air intake module with lower connection 2x dn 355 mm; dimensions 1080xx1024x453 mm4453 mm	30 T SA 30 T SC 30 T SM	NEW	AHRX0052II

air intake plenum on the ground

Modulo di aspirazione aria da terra per dislocazione, fornito completo di griglia e filtro, 1xDN 355 mm. Dimensioni (bxhxp): 535x1035x495 mm	Tutti	NEW	AHRX0061II (1)

air grille



ground air intakefor dislocation supplied complete with 400x200 mm grille: air flow rate 500 mc/h, throw7 m.expect 5 grilles for size 15 and 10 grilles for size 30	Tutti	NEW	AHRX0071II

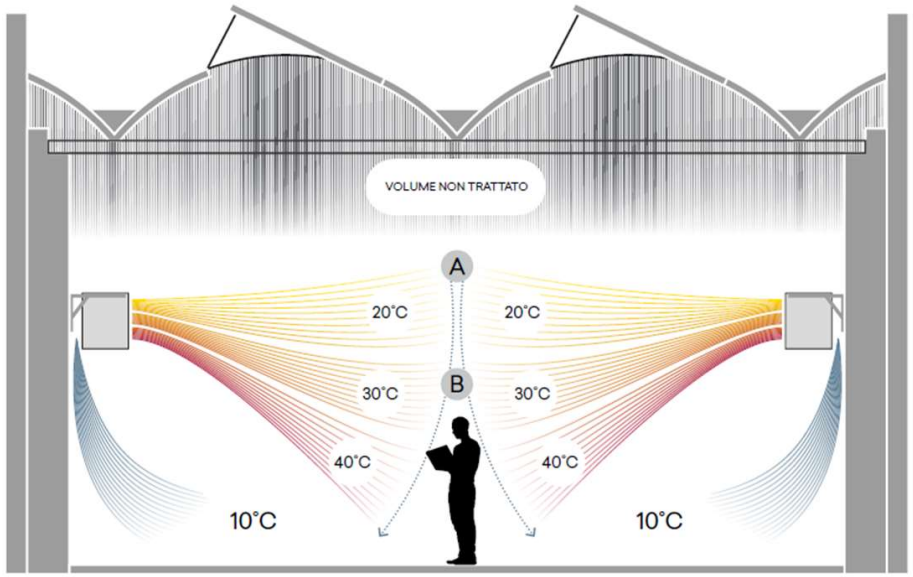
OKKI: Prevent the heat, cure the cold

Operation phases of OKKI with Smart Jet System

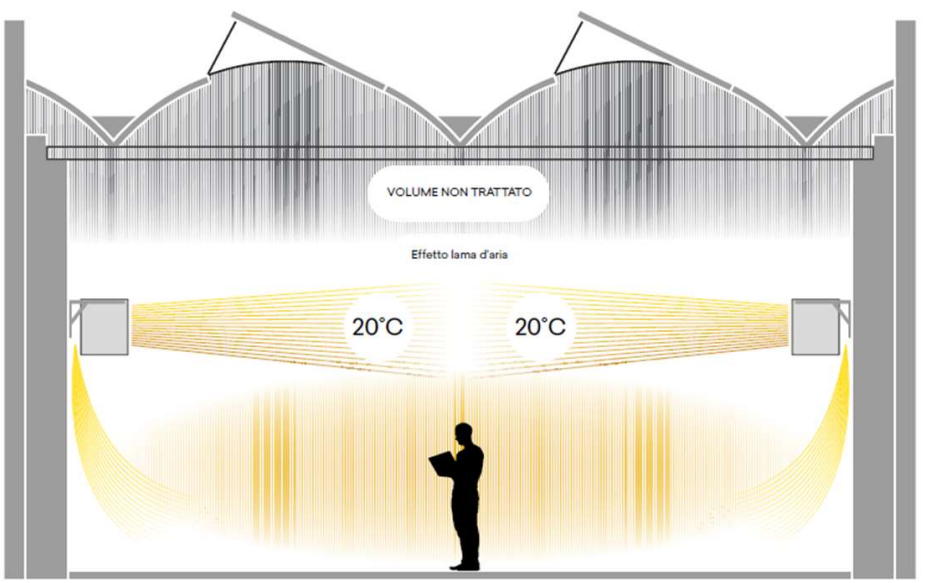
- **Pre-heating;** Upon startup, the Smart Jet system directs the nozzles to a horizontal position. This prevents air, still not adequately warm, from being directed directly at people.
- **Fast Heating** : when the air is at the ideal temperature, the power ismaximized and the nozzles directed downward ensuring rapid heating.
- **Maintenance with Air Blade Effect** : OKKI finely modulates the power output. At this stage, the Smart Jet system, progressively orients the nozzles to a horizontal position generating an "air blade" that acts as a thermal barrier, optimizing heat distribution in the occupied area and preventing any upward dispersion

OKKI: Prevent the heat, cure the cold

Smart Jet System - HEATING



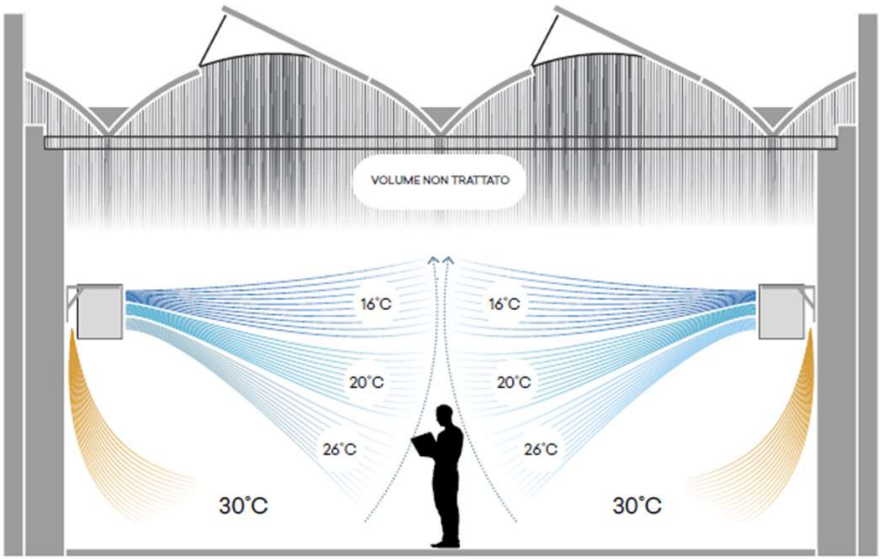
Pre-heating A and Fast-heating B



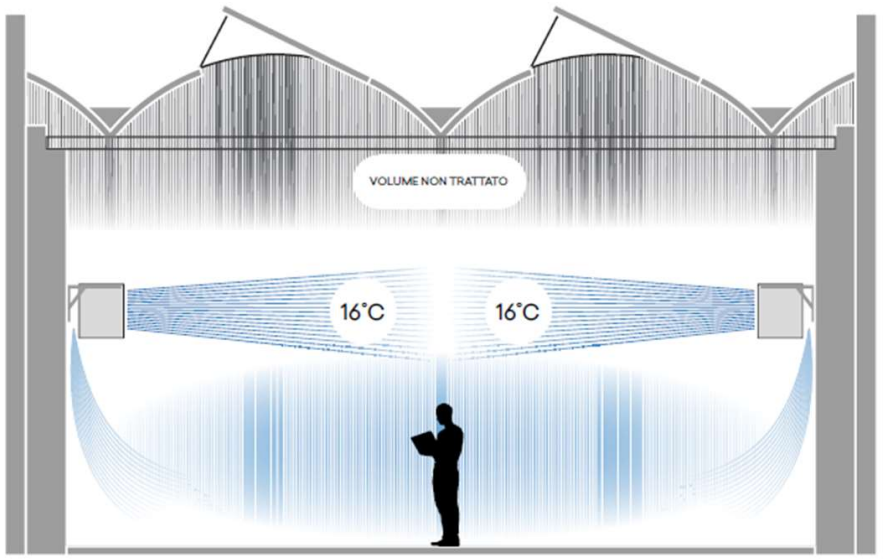
Maintenance with Air Blade Effect

OKKI: Prevent the heat, cure the cold

Smart Jet system- COOLING



Pre-Cooling and Cooling



Mantainance with air blade effect

Simplified sizing example

5 key factors to consider when heating an industrial hall

1.Volumetry and height of the building S area in square meters and H Height in m, also evaluate the geometry for choosing the placement of units (presence of openings..)

2.Building insulation and presence of openings and glazing: : **Requirement q** - the more the building is insulated and the openings are tight, the less heat loss and, consequently, the greater the savings in economic terms.

3.Comfort temperature: the ideal indoor comfort temperature and the minimum temperature that is reached when the system is turned off - degree of thermal rise Δt

4.Areas to be heated and the presence of machinery that contributes heat : it is important to know whether there is a need to heat the entire hall or there is a need for zone heating. Another important element in calculating the heat output to be installed is the possible contribution of heat sources from machinery operating inside the building. If present, these reduce the power to be installed.

5.Air exchange: Knowing the amount of air exchange in the room to be heated is critical to recreating a comfortable space without affecting the health of workers.

pre-dimensioning example

Building type and intended use

The subject shed has a square shape, with an area S of 370 m2 (21x18 ml approx.) and a height H of 6.0m.

The shed does not have good heat insulation, so the minimum temperature recorded in winter is about 5°C, and it would be desirable for it to reach 17°C

Through experience, in the absence of precise calculations can be considered:

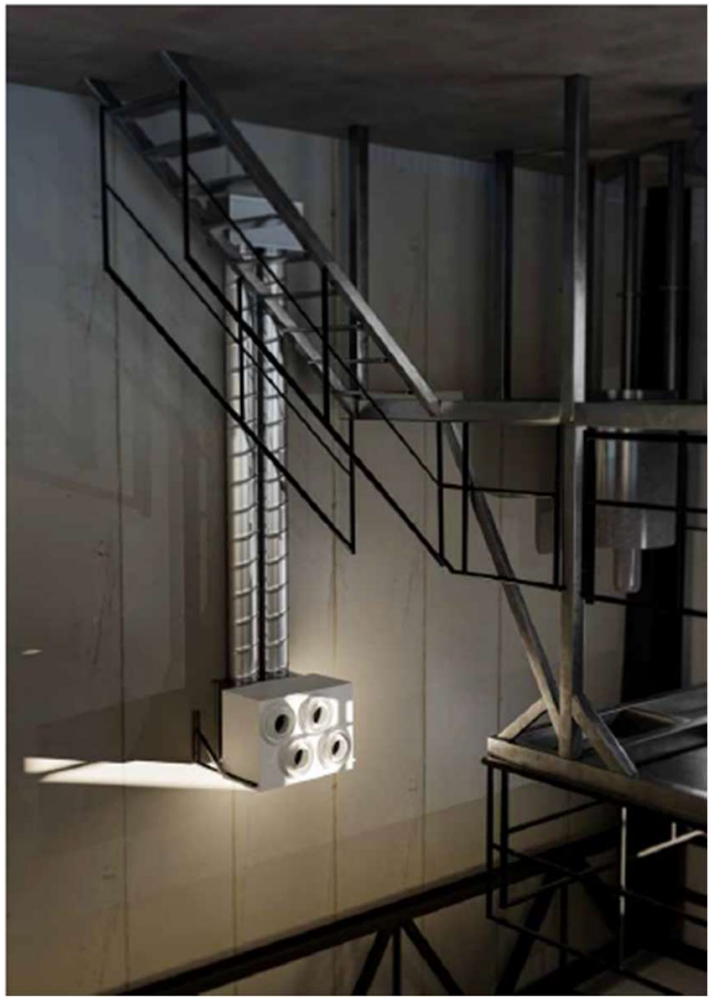
Very poorly isolated q= 2,5 w/h
Poorly isolated q= 1,5 w/h
discreetly isolated q= 1,2 w/h
well insulated q= 1,0 w/h

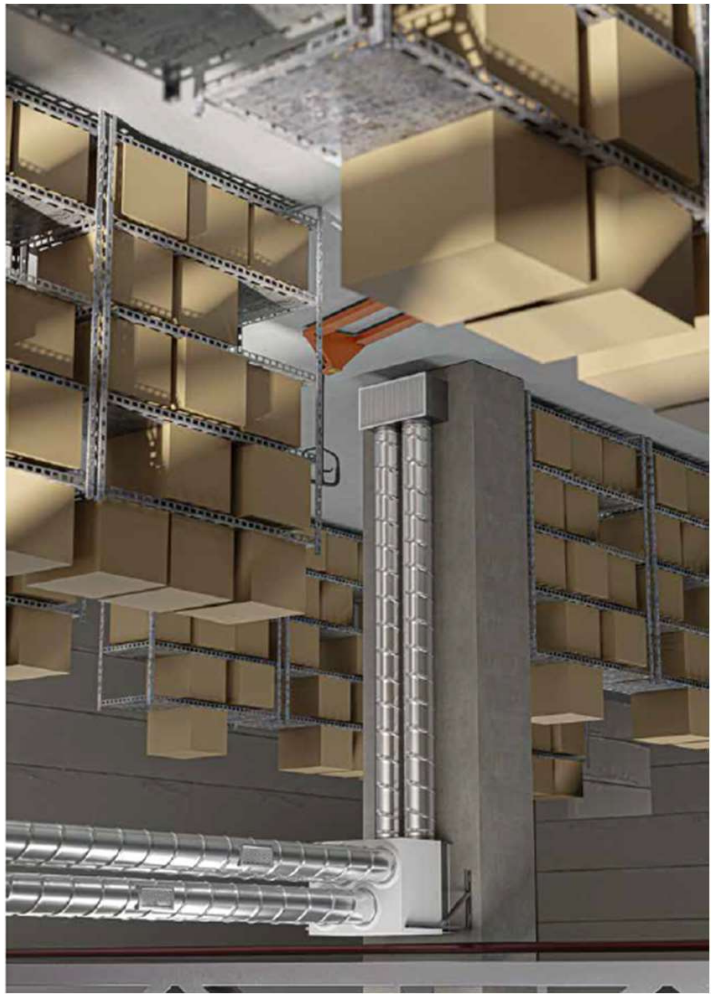
Calculation of the required power

To heat a poorly insulated industrial hall, we need to consider a requirement q (watt/h), multiplying it by the degree of thermal rise Δt and the volume of the room V in m3.

Pot (W) = S x H x Δt x q + 10%(tollerance)= 370 x 6,0 x (17-5) x 1,5 = 43.956 W

N°3 units 15 T P_{nom} 13,40 kW/cad (P_{max} 16 kW)





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..2.0 Ceiling

Horizontal ceiling installation

…2.0 Ceiling

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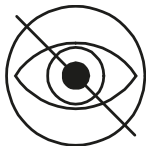
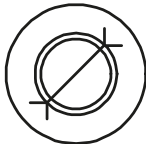
…2.0 Ceiling: Argomentazioni commerciali



- Almost invisible inside and out: with a height of only 255 mm of is extremely thin and unobtrusive;



- 162 mm holes: no need for professional drilling tools (water core drills);

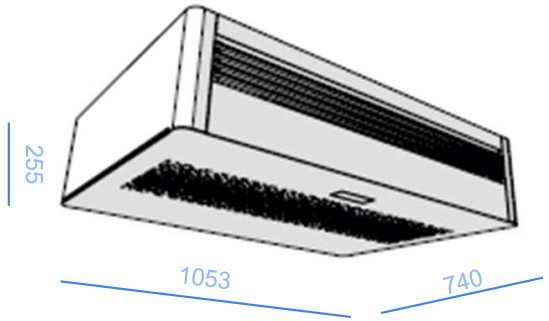
- Cooling only and PdC in one model. Energy Class A, R32 gas;

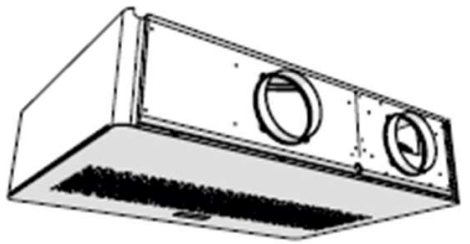
- easy to install: all installation accessories are contained in the package;

…2.0 Ceiling: Version

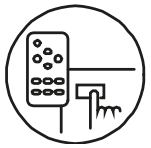
- **2 Sizes – version 12 HP / version 12 HP ELEC**;

COMS12OC4II	NEW	..2.0 CEILING 12 HP	Prestazioni in raffreddamento (A 35 °C; A 27 °C), Potenza frigorifera nominale: 2,25 kW Prestazioni in riscaldamento (A 7 °C; A 20 °C), Potenza termica nominale: 2,21 kW
COMS12OCEII	NEW	..2.0 CEILING ELEC 12 HP	Prestazioni in raffreddamento (A 35 °C; A 27 °C), Potenza frigorifera nominale: 2,25 kW Prestazioni in riscaldamento (A 7 °C; A 20 °C), Potenza termica nominale: 2,21 kW

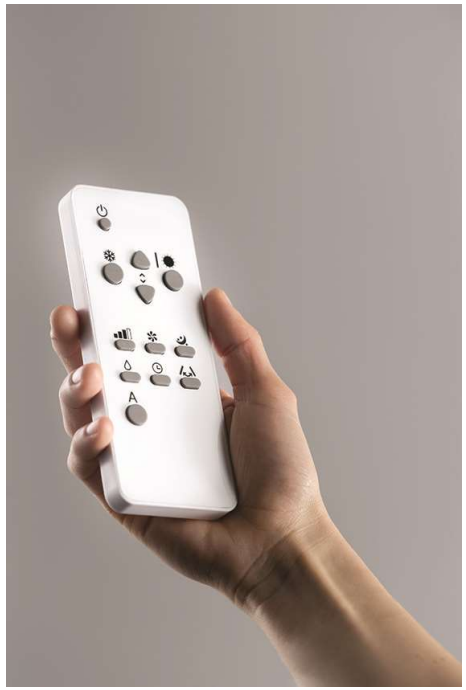




…2.0 Ceiling: Controls



- controllable in multiple ways: the air conditioner can be operated either from the on-board panel, from the supplied remote control, or from the app, available on Android and iOS;



…2.0 Ceiling: Accessories

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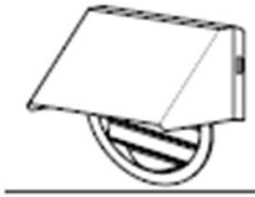
GRIGLIE E ALTRI ACCESSORI

	aluminum grating kit diam 160 mm for outdoor
	rainproof potection kit diam 160 mm
	insect potection kit diam 160 mm

..2.0 Ceiling: technical data

			..2.0 CEILING	
Modelli		u.m.	12 HP	12-ELEC
PRESTAZIONI IN RAFFREDDAMENTO (A 35 °C; A 27 °C)				
Potenza frigorifera massima Dual Power	(1)	kW	3,05	3,05
Potenza frigorifera nominale	(1)	kW	2,25	2,25
Potenza frigorifera minima	(1)	kW	1,10	1,10
Potenza assorbita totale		kW	0,70	0,70
Capacità di deumidificazione		L/h	0,9	0,9
EER			3,21	3,21
Classe di efficienza energetica	(2)		A	
PRESTAZIONI IN RISCALDAMENTO (A 7 °C; A 20 °C)				
Potenza termica massima Dual Power	(3)	kW	3,00	3,00
Potenza termica nominale	(3)	kW	2,21	2,21
Potenza aggiuntiva resistenza elettrica		kW	-	0,90
Potenza termica minima	(3)	kW	0,94	0,94
Potenza totale assorbita	(3)	kW	0,70	0,70
COP			3,16	3,16
Classe energetica			A	
DATI ELETTRICI				
Potenza assorbita		kW	1,15	2,05
Corrente massima assorbita		A	5,10	9,00
Tensione		V/ph/Hz	230/1/50	230/1/50

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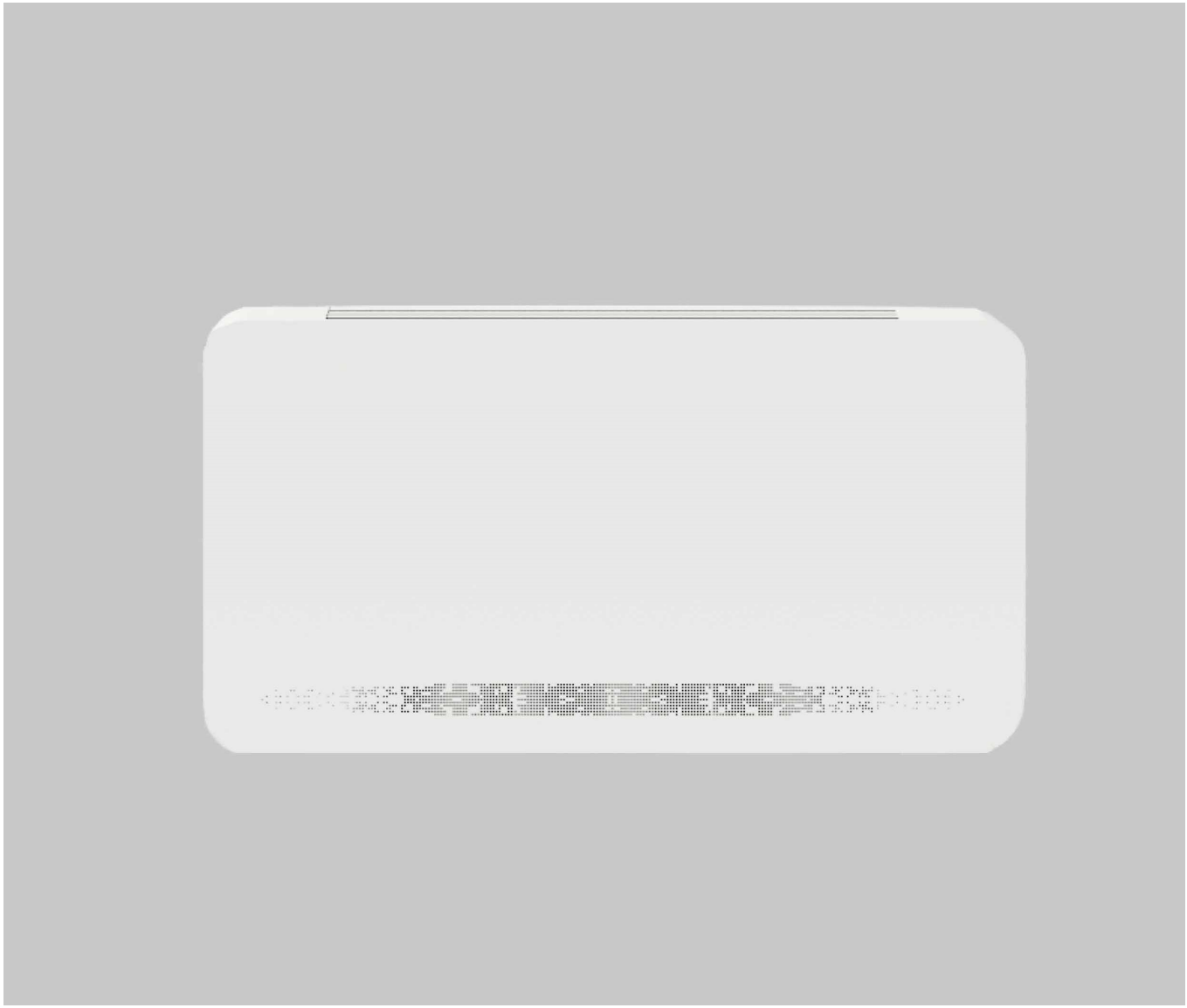
>OSMO<

Even smaller, even thinner

>OSMO<



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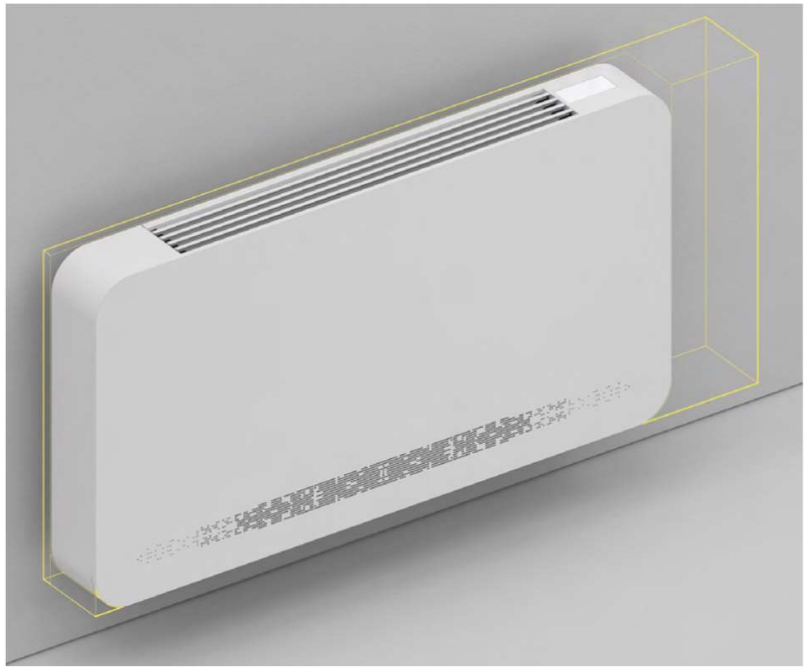
>OSMO<



- Revamped aesthetics, unified with other product ranges
- More well-being in less space: 'OSMO' reduces product width by 5 centimeters and depth by 1 centimeter
- No need to order the condensate drip tray for horizontal installation
- SX connections as in previous version, can be ordered with DX connections
- Reversing connections allowed in case of extreme necessity

- The controls are only in the new version, M7 series, with increased sensitivity, for both machine-mounted and wall-mounted installation.
- WIFI and Bluetooth versions available

>OSMO<: Modelli

- 2 version: SL – RS,
- fixed suction grid
- 5 power sizes
- White color RAL 9003
- Only 2-pipe connections
- Thinner: 119 mm SL version (129 mm for horizontal and RS version)

>OSMO<: Models

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SL

UNITS WITH CABINET FOR WALL OR CEILING INSTALLATION

- Units for wall and ceiling installation have different codes
- No need to order condensate drip pan for horizontal installation

>OSMO<: Models

RS

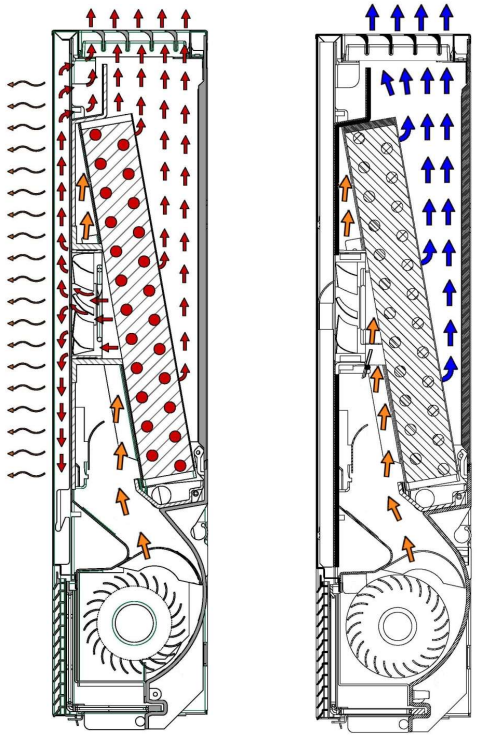
UNITS WITH RADIANT FRONT PANEL ONLY WITH VERTICAL DISCHARGEFOR WALL INSTALLATION

The radiated well-being

>OSMO<: Models

RS

- In heating, the micro fans are activated "in parallel" with the valve only if the temperature of the water circulating inside the coil exceeds 32 °C. In summer with the temperature of the water circulating inside the coil below 20 °C naturally such micro fans are deactivated and rather flaps are opened that allow the total utilization of the coil surface and prevent the formation of condensation.



>OSMO<: Models

- With micro-fans (1 for the 200 model, 2 for 400 and 600, and 3 for 800 and 1,000) mounted between the front panel and the coil, OSMO RS enable radiant heating with maximum acoustic comfort.
- Control panels available as accessories provide for the specific "radiant" winter night operation in which the main fan is turned off and the unit heats by radiation and natural convection.

>OSMO<: Technical data

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			>OSMO< SL					>OSMO< RS				
Modelli		u.m.	200	400	600	800	1000	200	400	600	800	1000
PRESTAZIONI IN RAFFREDDAMENTO (W 7/12 °C; A 27 °C) (1)												
Resa totale in raffreddamento		kW	0,91	2,12	2,81	3,30	3,71	0,91	2,12	2,81	3,30	3,71
Resa sensibile in raffreddamento		kW	0,71	1,54	2,11	2,65	2,90	0,71	1,54	2,11	2,65	2,90
Portata acqua		L/h	157,0	365,0	483,0	568,0	638,0	157,0	365,0	483,0	568,0	638,0
Perdita di carico		kPa	12,1	8,2	17,1	18,0	21,2	12,1	8,2	17,1	18,0	21,2
Potenza assorbita massima		W	11	19	20	29	33	11	19	20	29	33
Potenza sonora massima	(2)	dB(A)	51	53	54	55	57	51	53	54	55	57
PRESTAZIONI IN RISCALDAMENTO (W 45/40 °C; A 20 °C) (3)												
Resa in riscaldamento		kW	1,02	2,21	3,02	3,81	4,32	1,02	2,21	3,02	3,81	4,32
Portata acqua		L/h	175,0	380,0	519,0	655,0	743,0	175,0	380,0	519,0	655,0	743,0
Perdita di carico		kPa	9,1	9,2	19,1	21,2	23,3	9,1	9,2	19,1	21,2	23,3
Potenza assorbita massima		W	11	19	20	29	33	11	19	20	29	33
Potenza sonora massima	(2)	dB(A)	51	53	54	55	57	51	53	54	55	57
DATI IDRAULICI												
Contenuto acqua batteria		L	0,47	0,80	1,13	1,46	1,80	0,47	0,80	1,13	1,46	1,80
Pressione massima di esercizio		bar	10	10	10	10	10	10	10	10	10	10
Attacchi idraulici		"EK	3/4									

>OSMO<: Technical data

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DATI ELETTRICI

Alimentazione elettrica	V/ph/Hz	230/1/50									
Corrente massima assorbita	A	0,11	0,16	0,18	0,26	0,28	0,11	0,16	0,18	0,26	0,28
Potenza assorbita alla minima velocità	W	4,0	4,0	5,0	5,0	6,0	4,0	4,0	5,0	5,0	6,0

DATI SONORI

Pressione sonora alla massima portata aria	dB(A)	41	42	44	46	47	41	42	44	46	47
Pressione sonora alla media portata aria	dB(A)	33	34	34	35	38	33	34	34	35	38
Pressione sonora alla minima portata aria	dB(A)	24	25	26	26	28	24	25	26	26	28

DIMENSIONI E PESI PRODOTTO

Larghezza	mm	680	880	1080	1280	1480	680	880	1080	1280	1480
Altezza	mm	580	580	580	580	580	580	580	580	580	580
Profondità totale	mm	119	119	119	119	119	129	129	129	129	129
Peso netto	kg	13,0	16,0	18,0	20,0	23,0	13,0	16,0	18,0	20,0	23,0

(1) Temperatura acqua in ingresso batteria 7 °C, Temperatura acqua in uscita batteria 12 °C, Temperatura aria ambiente 27 °C b.s. e 19 °C b.u. (secondo EN 1397) - velocità massima
(2) Potenza sonora misurata secondo EN 16583
(3) Temperatura acqua in ingresso batteria 45 °C, Temperatura acqua in uscita batteria 40 °C, Temperatura aria ambiente 20 °C b.s. e 15 °C b.u. (secondo EN 1397) - velocità massima

I modelli >OSMO< SL ad installazione orizzontale e RS hanno profondità di 129 mm.

>OSMO<: M7 series controls

Collegamenti unità - comando

VIA CAVO:

cod:
EEB749II

cod:
EFB749II

- Logica PI
- Interfaccia tattile
- Comanda fino a 16 uni
- Porta RS485 modbus per collegamento BUTLER o BMS

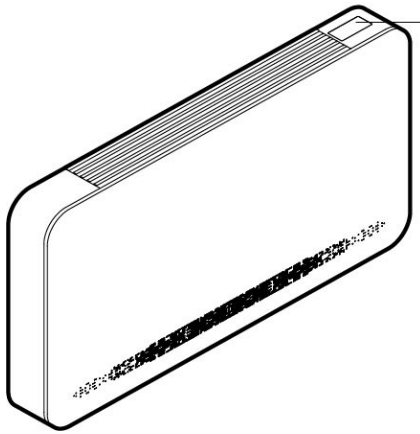
BLUETOOTH:

cod:
EGB749II

- Logica PI
- Interfaccia tattile
- Comanda fino a 16 uni
- Bluetooth

>OSMO<: On-board controls

Electronic controls with PI adjustment: ECA844, EWA844



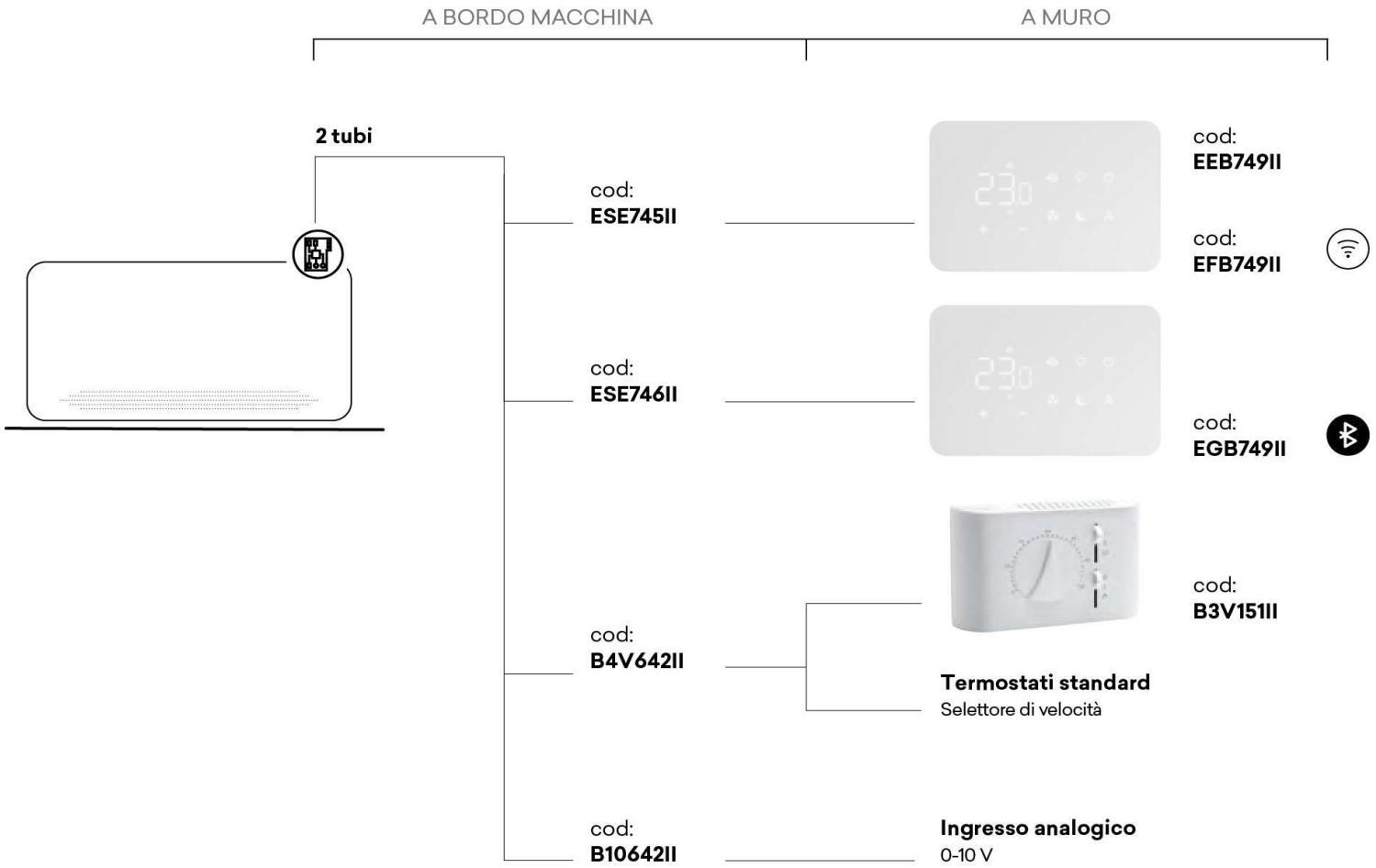
2 tubi

2 tubi

cod:
ECA844II

cod:
EWA844II

>OSMO<: On-board controls



NB: >OSMO< in wall-mounted control versions can also use Smart Touch controls (se see AirLeaf controls section

>OSMO<: Comandi remoti a muro

Electronic wall control panel with thermostat and room probe M7 series

- EEB749 Modbus

- EFB749 Wi Fi

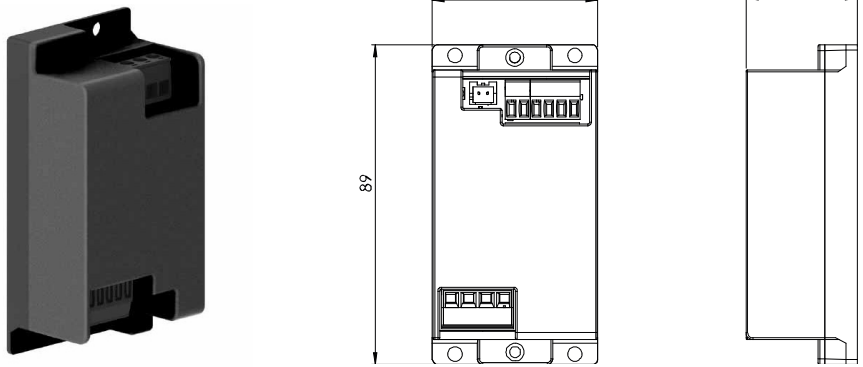
- EGB749 Bluetooth

The new M7 series remote wall control is an evolution that is distinguished by:

- New design and reduced thickness, for semi-recessed on 503 box (small round boxes and 2-post square boxes are not compatible)
- Interactive touch display with increased sensitivity;
- Availability of new Bluetooth version for wireless terminal connection, especially ideal for renovations and replacement of old terminals;
- Features, equipment and connections are the same as the previous model;
- They should be interfaced with the new ESE745 (Modbus and WIFI) and ESE746 (Bluetooth) boards.

>OSMO<: Wall-mounted remote controls

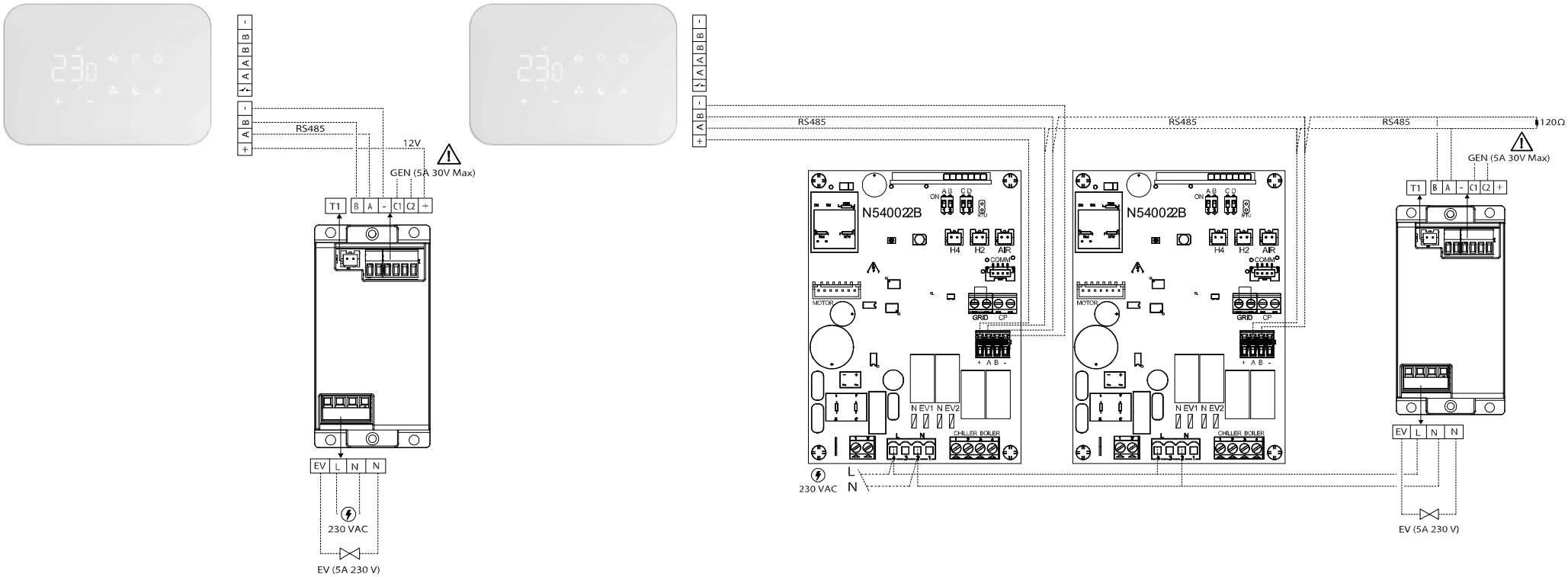
Zone module MZS, cod. EG1028
For external terminal controls such as: radiant heaters, radiant system circuits



- It is the board that allows you to control heads of other terminals (e.g., radiators and floor systems);
- the user can then have a single of type of wall control for all his terminals even if mixed;
- in this way with the Butler Pro Innova web server can remotely manage and control the entire system;
- provide an electrical box for housing the board chassis, i.e., it can be installed in the manifold box of the radiant system or on electrical box;

>OSMO<: Wall-mounted remote controls

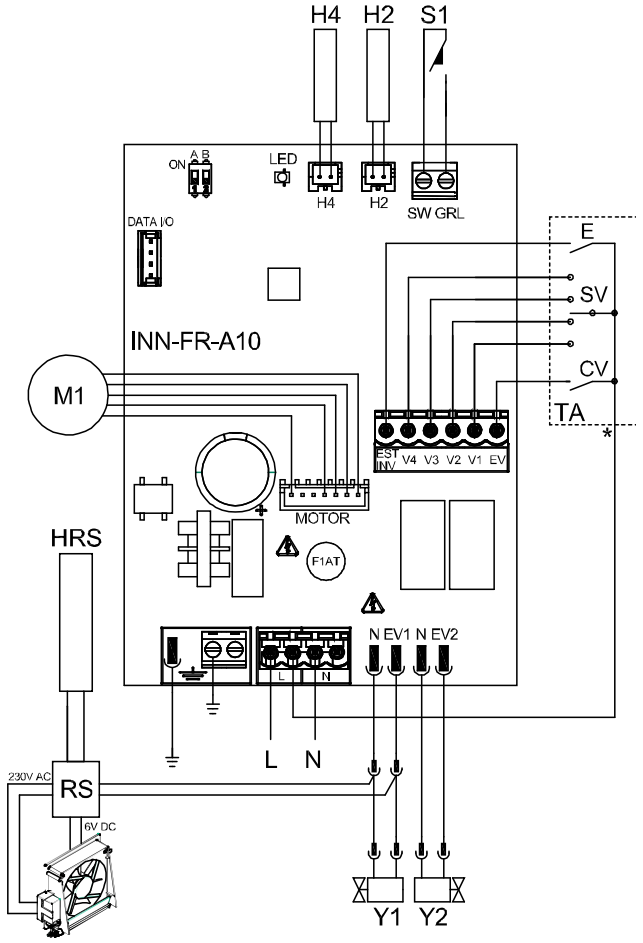
Zone module MZS, cod. EG1028
For external terminal controls such as: radiant heaters, radiant system circuits



>OSMO<: Wall-mounted remote controls

B4V842 3-speed DC motor driver for traditional thermostats and home automation systems

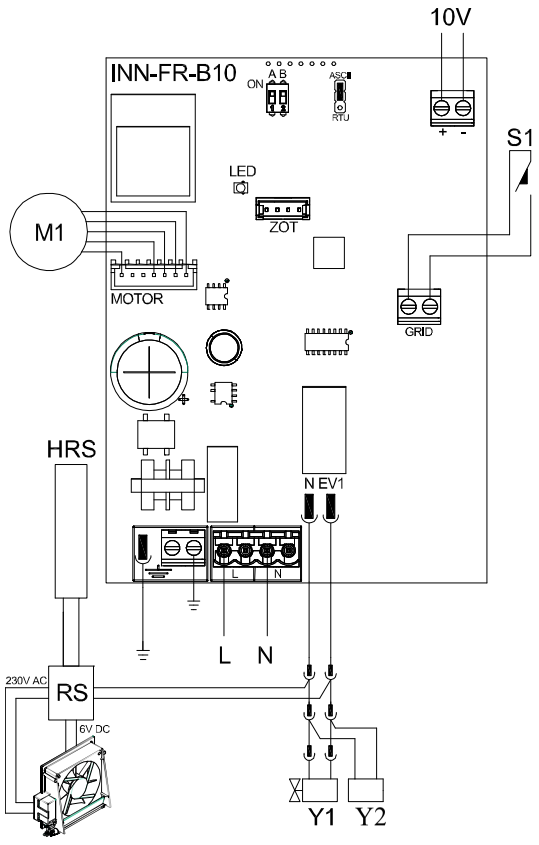
- Machine-mounted board that enables motor control, with fixed speeds that can be combined with Innova B3V151 thermostat controls and all commercially available fancoil controls.
- It has a 230 V output for driving the summer and winter solenoid valve.
- It is the ideal control for pairing with the most common home automation systems
- Can be combined with home automation systems in Konnex as long as KNX actuator modules with relay outputs are used



>OSMO<: Wall-mounted remote controls

0-10 V DC Motor Drivers B10842

- Board mounted on the machine that allows the motor to be managed, with continuously variable speeds.
- It can be combined with commercially available 0-10 V thermostats and common 0-10 V signal generators.
- It has a 230V output for driving the summer and winter solenoid valve.
- It is the ideal control for pairing with BMS systems or flexible home automation systems where the programmer can handle P, PI or PID algorithms
- Can be combined with home automation systems in Konnex or others, as long as KNX actuator modules with 0-10 V output are used



>OSMO<

innova

Butler Pro and Butler Pro Touch web servers: management by APP

The commands compatible with the web server are the modulating ones:

- ECA844, on-board PI logic control
- EEB749; wall-mounted controls
- WIFI EWA844 and Bluetooth EGB749 commands cannot be connected to the web server
- with the activation of the web server, the latter takes precedence over local commands. E.g.: if you change the temperature manually, the temperature set in the calendar will be resumed after the number of hours given in the parameter (HFM)

innova

FÄRNA

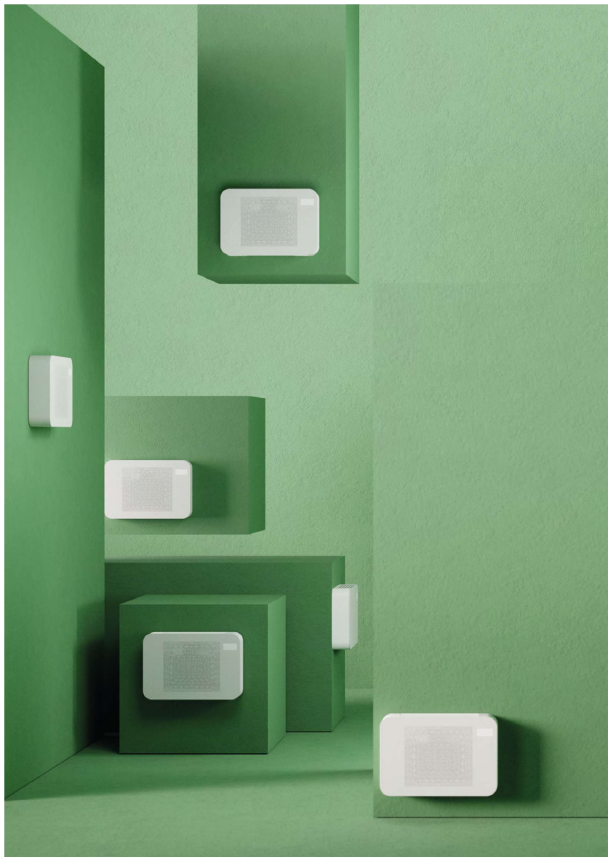
More power in less space

FÄRNA: the fancoil you didn't expect

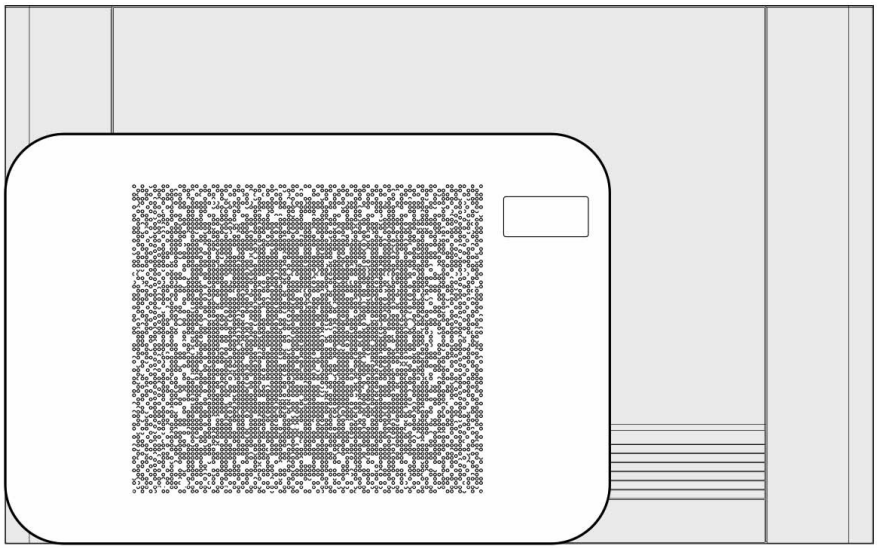
FÄRNA

Perfect integration with the environments of installation

Versatility of installation. Can be placed at all heights



FÄRNA



FARNA BIG **SL 600**

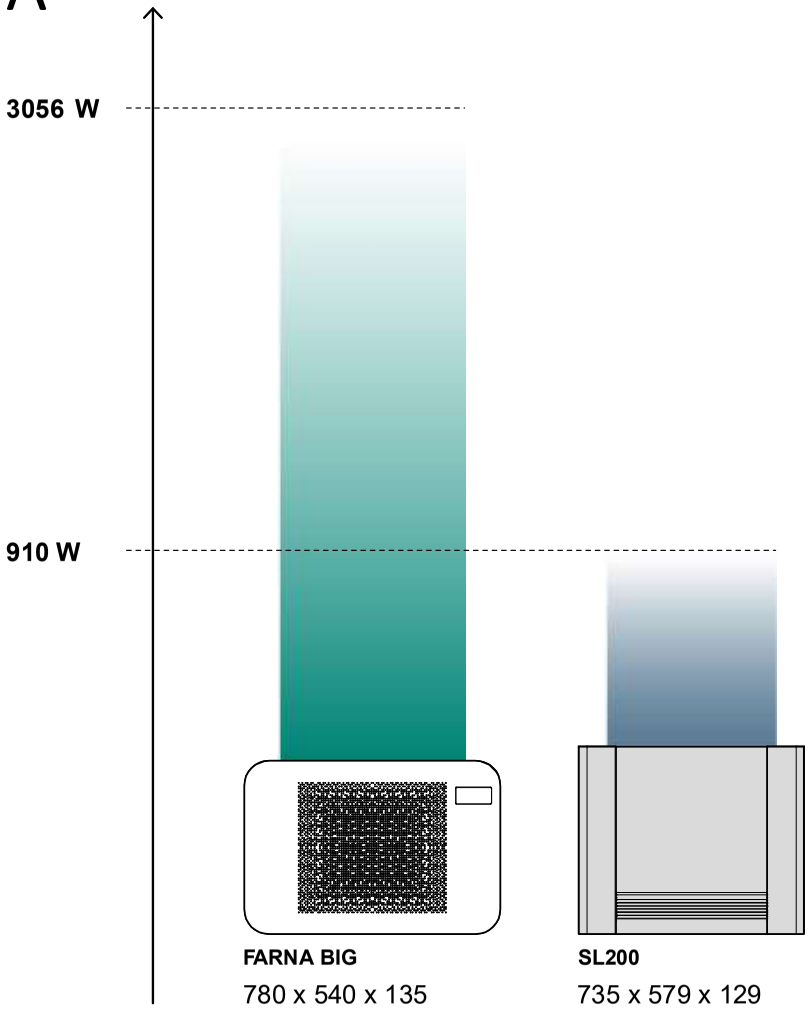
LARGHEZZA RIDOTTA
Larghezza ridotta del 32% rispetto ai classici fancoil.

POTENZA AUMENTATA
Potenza aumentata del 300% rispetto ai classici fancoil.

DC INVERTER
Massimo comfort con il minor consumo.

FUNZIONAMENTO SILENZIOSO

FÄRNA



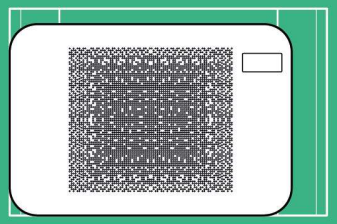
Similar size, three times the power
&
Similar power, nearly half the size

FÄRNA

Similar size,
triple the power

Potenza

+300%



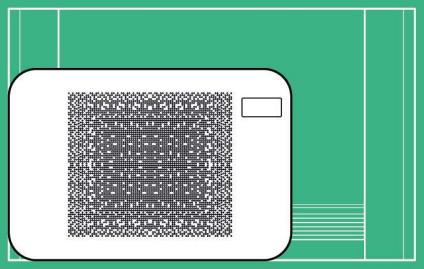
Simile Dimensione

BIG e SL200

Similar power,
size almost halved

Dimensione

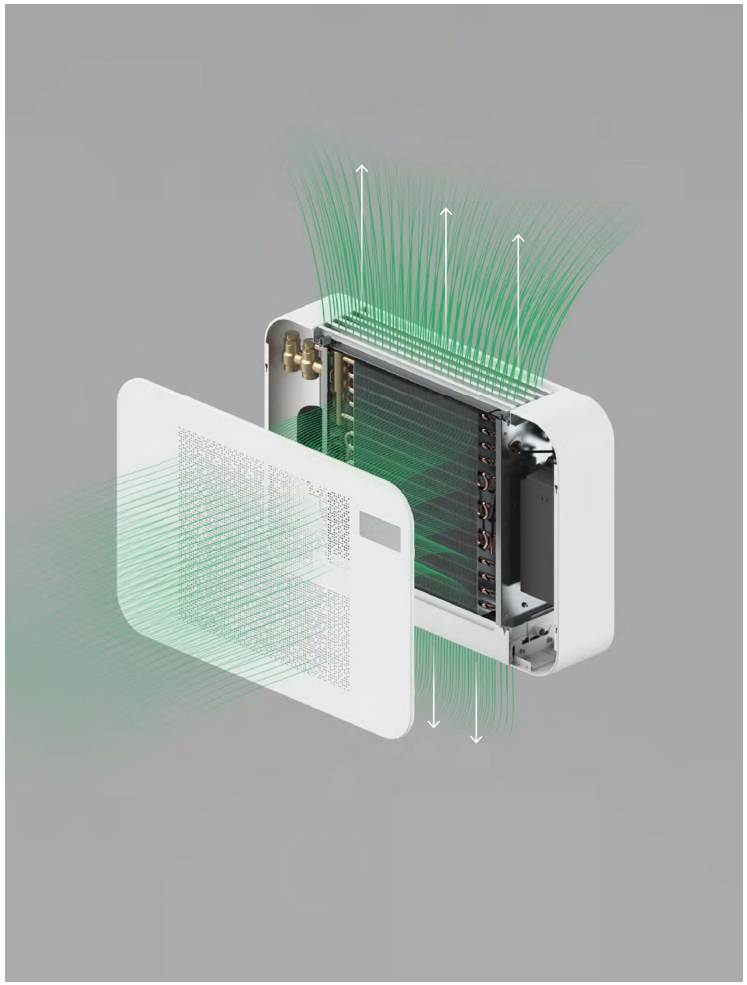
-32%



Simile Potenza

BIG e SL600

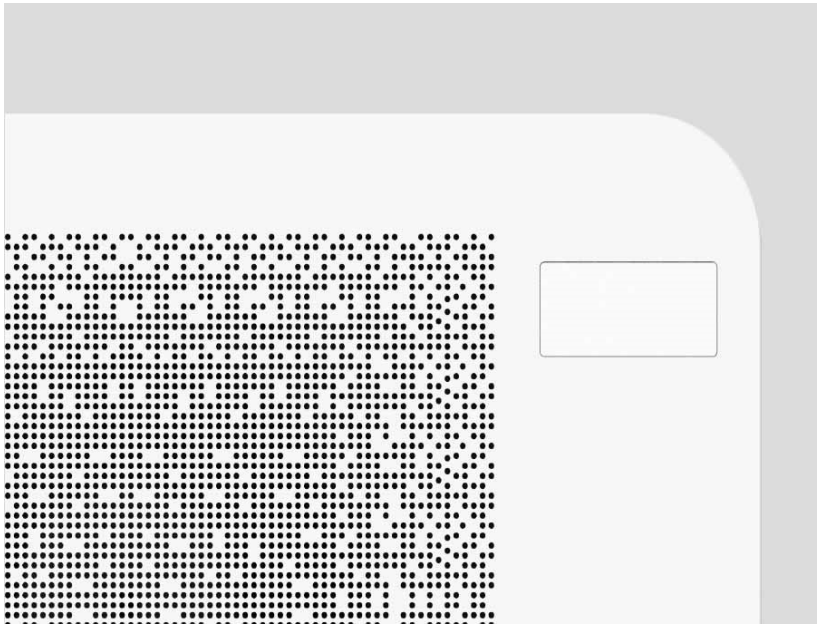
FÄRNA



Revolutionized airflow layout

- Air intake is from the front
- air output occurs at the bottom and the top
- air strikes the battery orthogonally across its entire surface area
- significantly increases the heat transfer coefficient
- this explains the reasons for smaller size for the same power or more power for the same size

FÄRNA



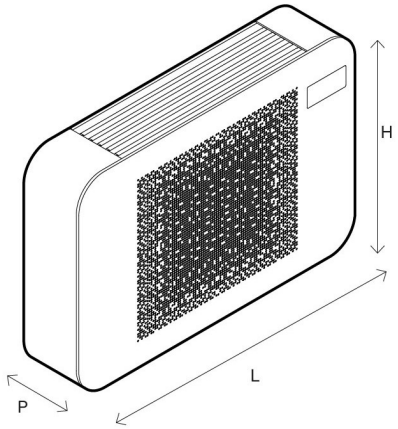
- Available in 2 sizes
- Fixed front suction grid
- Color white RAL 9003
- hydraulic connections only in the left side
- Only 2-pipe version
- Wall-mounted installation
- Remote control as standard

- The controls are only in the new version, M7 series, with increased sensitivity, for both machine-mounted and wall-mounted installation.
- WIFI and Bluetooth versions available
- Half the thickness of the previous version of wall-mounted controls, Installation only on box 503.

FÄRNA SMALL

Bianco RAL 9003

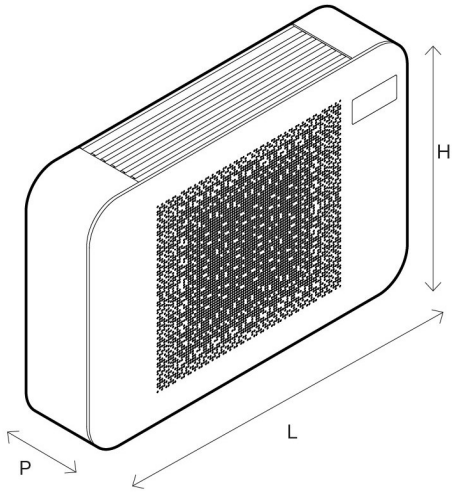
2 Versione a 2 tubi



FÄRNA BIG

Bianco RAL 9003

2 Versione a 2 tubi



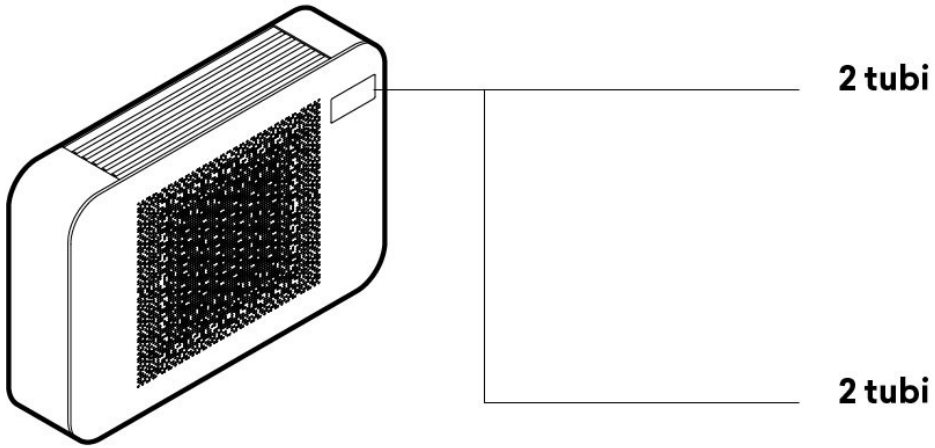
MODELLO	SMALL	BIG
L (mm)	635	780
P (mm)	135	135
H (mm)	440	540

FÄRNA: dati tecnici

Modelli		u.m.	SMALL	BIG
PRESTAZIONI IN RAFFREDDAMENTO (W 7/12 °C; A 27 °C) (1)				
Resa totale in raffreddamento		kW	1,50	2,80
Resa sensibile in raffreddamento		kW	1,26	2,32
Portata acqua		L/h	253,0	473,0
Perdita di carico		kPa	9,0	17,0
Potenza assorbita massima		W	15	25
Potenza sonora massima	(2)	dB(A)	53	51
PRESTAZIONI IN RISCALDAMENTO (W 45/40 °C; A 20 °C) (3)				
Resa in riscaldamento		kW	1,80	3,06
Portata acqua		L/h	304,0	510,0
Perdita di carico		kPa	10,0	16,0
Potenza assorbita massima		W	15	25
Potenza sonora massima	(2)	dB(A)	53	51
DATI IDRAULICI				
Pressione massima di esercizio		bar	10	10
Attacchi idraulici		" EK	3/4	

Min diam 20 multilayer pipe

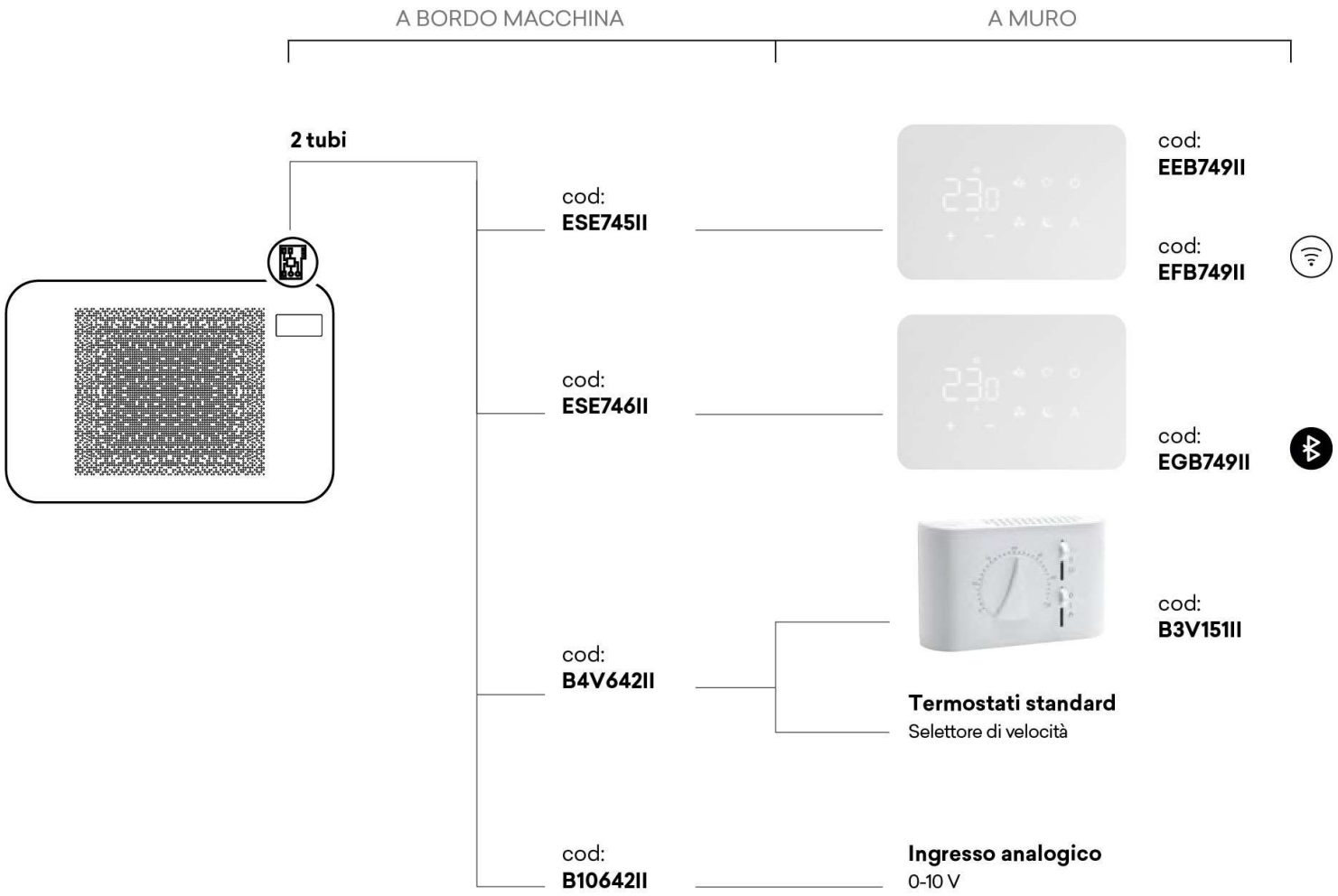
FÄRNA: On-board controls



cod:
ECA844II

cod:
EWA844II

FÄRNA: Wall-mounted controls



innova

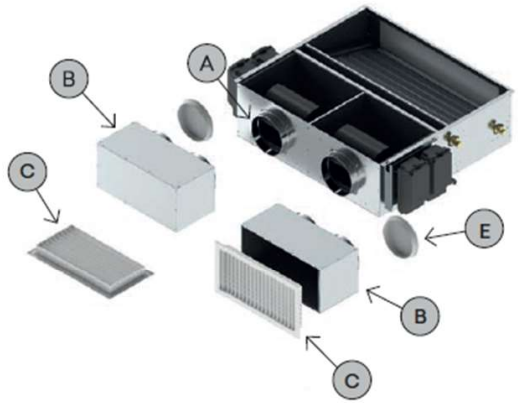
Ducto/Ducto Multi Thin

Even thinner

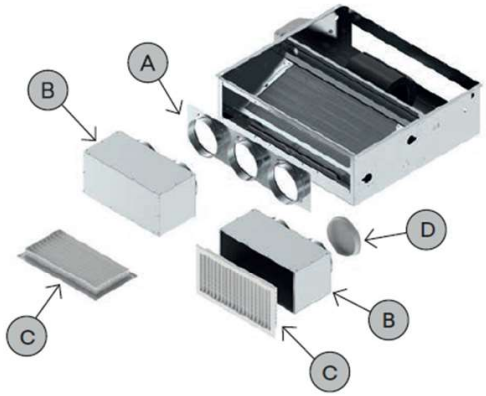
Ducto/ducto Multi Thin in less than 19 cm

- Version with reduced height in less than 19 cm, compared to 24 cm of the current version
- Connection with M7 series remote controls - 0-10 V connection (To have them with M6 controls, use code 2023 while maintaining the price of 2024)
- Approximately 25 percent reduction in power compared to the Ducto/Ducto Multi version

Ducto/ducto Multi: Air supply accessories



- (A) Serranda di non ritorno.
- (B) Plenum isolato per mandata/ripresa con due imbocchi DN 160 mm femmina e attacco griglia.
- (C) Griglia di mandata in alluminio a doppio filare di alette orientabili.
- (D) Tappo.

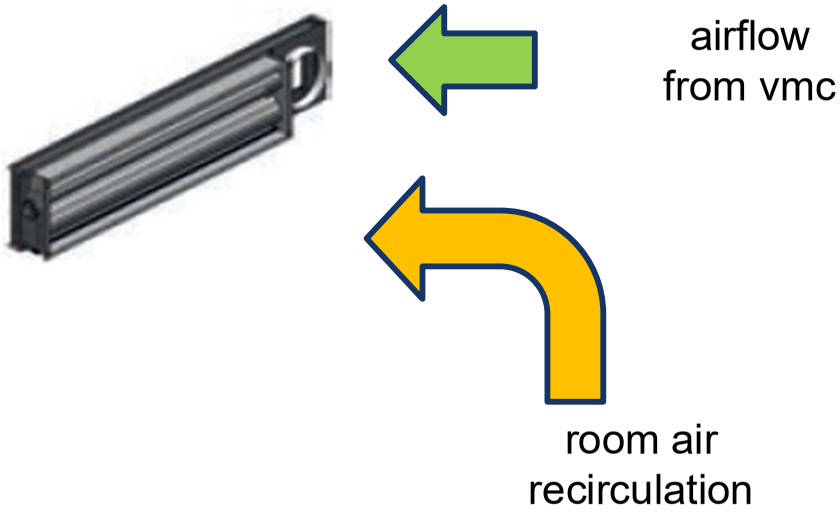


- (A) Piastra di mandata con imbocchi circolari DN 160 mm.
- (B) Plenum isolato per mandata/ripresa con due imbocchi DN 160 mm e attacco griglia.
- (C) Griglia di mandata in alluminio a doppio filare di alette orientabili.
- (D) Tappo.

Ducto/ducto Multi: Air intake accessories

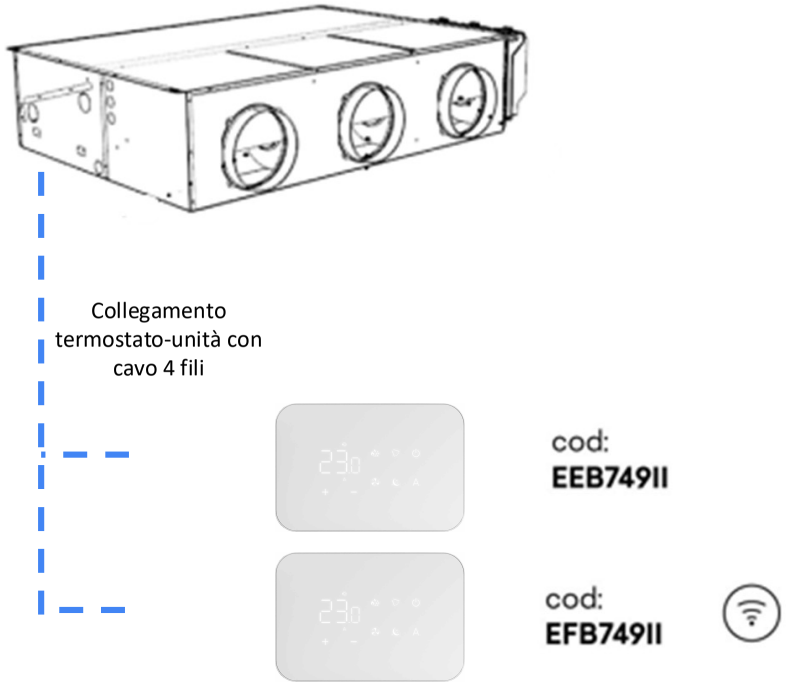
- Similar accessories for air intake of the previous version
- Insertion of new intake accessory: Outdoor Air Kit.

Thanks to two motorized grilles, it allows recirculation air and clean air inlet from the VMC



Ducto/ducto Multi thin: Commands

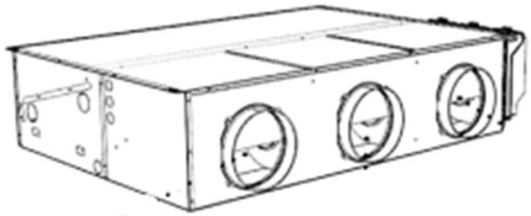
MODEL with electronic board with continuous modulation for wall control connection M7 series - EEA749/EFB749 (Order as many remote controls as there are zones)

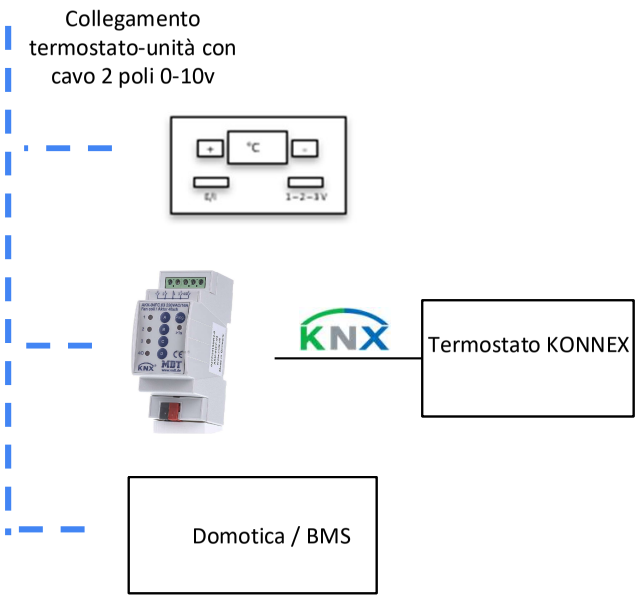


To get the M6 series Smart touch controls, order the ducto/ducto multi code 2023 but keeping the price of 2024

Ducto/ducto Multi thin: Commands

MODEL with 0-10 V input for fan speed (Provide No. 0-10 V inputs as many as there are zones)





Thermostat with 0-10V output for fan speed(not supplied by INNOVA)

KONNEX thermostat + actuator(not supplied by INNOVA)

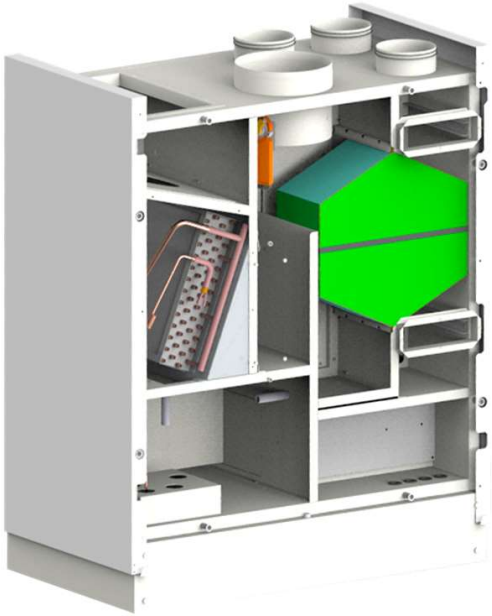
Home automation or BMS (building management system) control with 0-10 V signal for fan speed (not provided by INNOVA)

innova

HRS

Air renewal unit with direct expansion integration

HRS



HRS H - HRS V - HRS HX - HRS VX

- HRS is a ventilation unit complete with heat recovery unit dedicated to air exchange without energy waste.
- The unit is suitable for individual family units, apartments, and in all cases where the nominal flow rates for air exchange do not exceed 250 m^3/h, with total flow rate, including recirculation, up to 900 m^3/h
- Tested and classified according to UNI EN 13141-7 standard

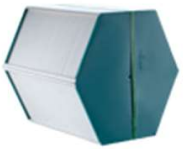
HRS

STRUTTURA
Struttura ad alta resistenza con telaio autoportante in lamiera aluzink con estetiche verniciate RAL9003.
Scelta di materiali con elevate caratteristiche di isolamento termico ed acustico

VENTILATORI
L'unità è dotata di ventilatori centrifughi Erp2018 con motore elettronico a basso consumo energetico.

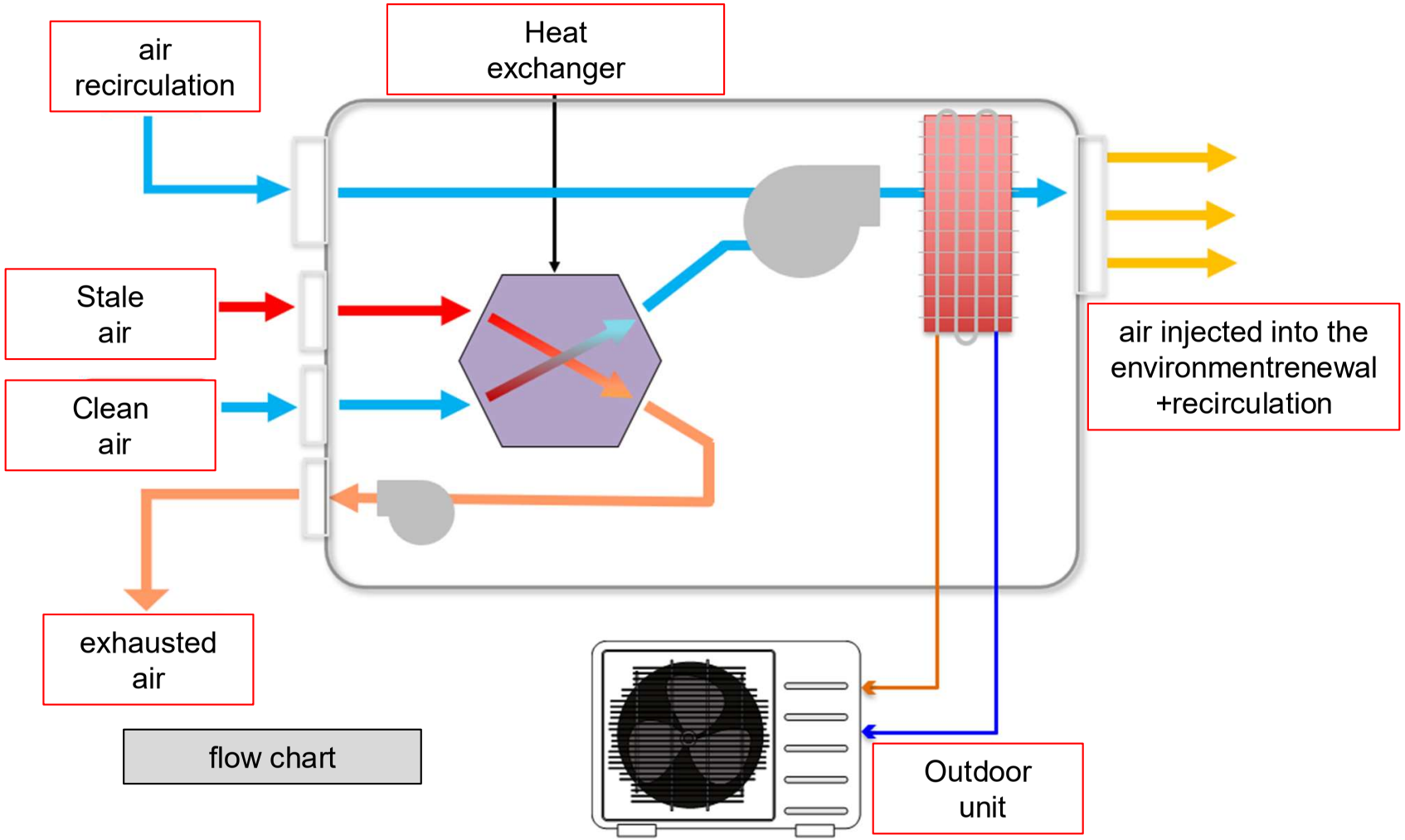
SEZIONE DI TRATTAMENTO
Batterie e scambiatori di calore per il trattamento dell'aria ad espansione diretta;

RECUPERATORE
Scambiatore di calore in polipropilene a flussi incrociati in controcorrente ad alto rendimento.
Versioni con scambiatore ENTALPICO;



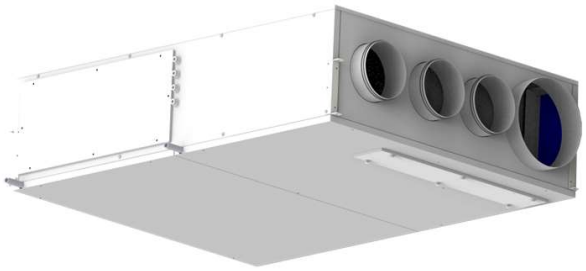
UNITA' ESTERNA
Unità esterna completa di compressore e ventilatore con inverter, valvole di espansione ed elettronica

HRS – Vmc with direct expansion post exchanger



HRS – Configurazioni

HRS H
Horizontal from suspended ceiling

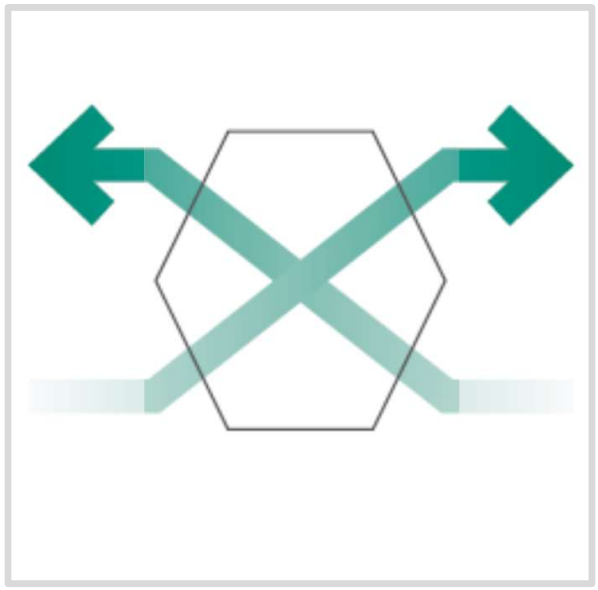


HRS V
Vertical exposed

HRS – two versions of heat recovery

HRS

With passive recovery



HRS X

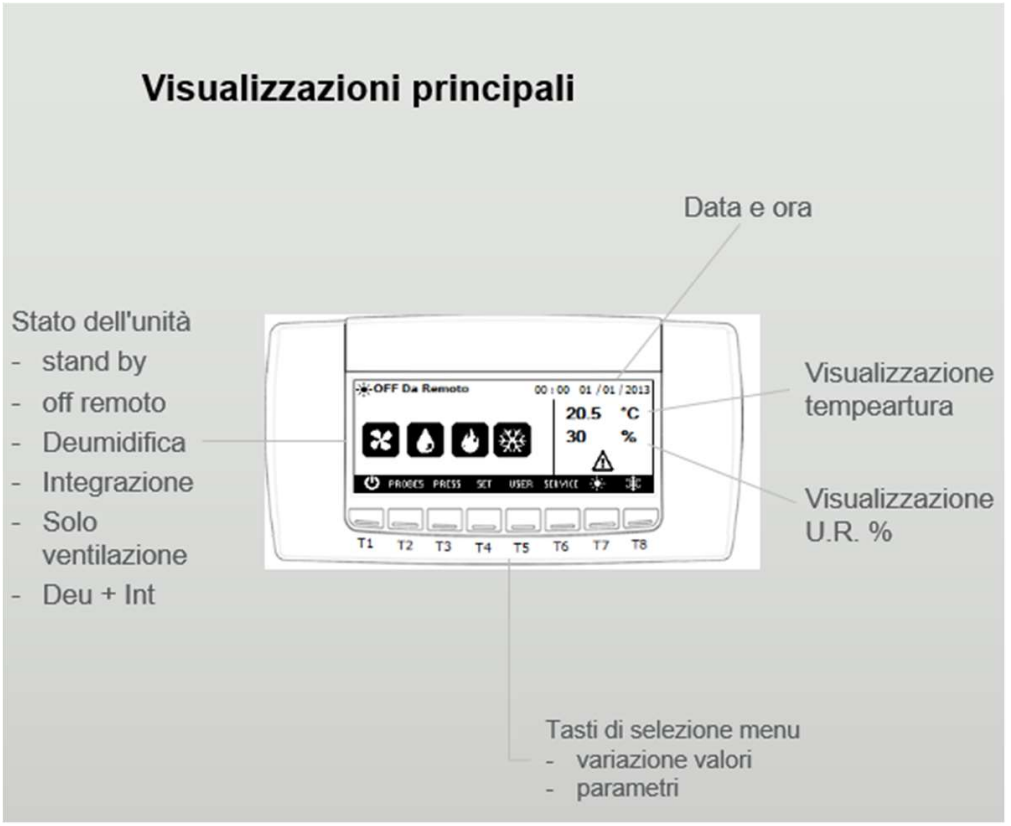
With enthalpy recovery

HRS – Control

TGF remote control

Respect from the other side down, theVNR sequence, (+) , (-)

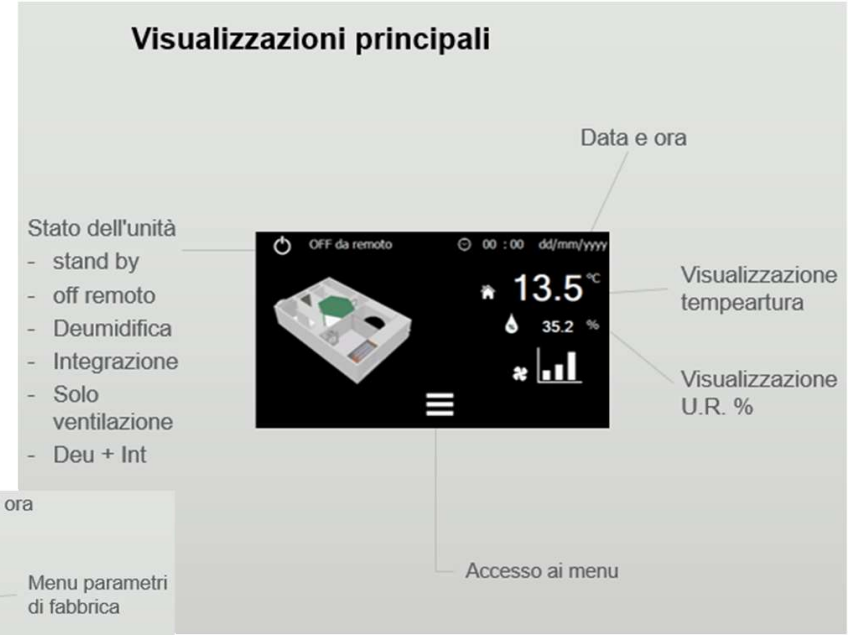
TGF graphic remote terminal for support on 503 box or wall, or dedicated flush-mounted box

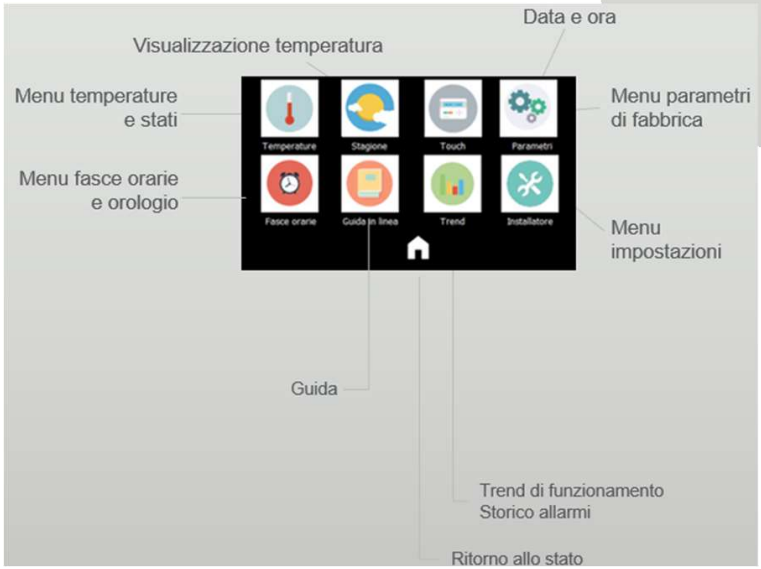


HRS – Control

TNF remote control with flush-mounted cassette

+





HRS – Aeraulic accessories similar to the HRW version

PLENUM DI MANDATA PER TUBI FLESSIBILI		
	Plenum di mandata per tubi flessibili con 3 imbocchi circolari, DN 125 mm. Flange per fissaggio unità. Isolamento interno in propilene	HRS 60/15 V HRS X 60/15 V
	Plenum di mandata per tubi flessibili con 5 imbocchi circolari, DN 125 mm. Flange per fissaggio unità. Isolamento interno in propilene	HRS 90/25 V HRS X 90/25 V
		HRS 60/15 H HRS X 60/15 H
	Plenum di mandata per tubi flessibili con 6 imbocchi circolari, DN 125 mm. Flange per fissaggio unità. Isolamento interno in propilene	HRS 90/25 H HRS X 90/25 H
PLENUM DI MANDATA PER TUBI CORRUGATI		
	Plenum di mandata per tubi corrugati con 8 imbocchi frontali e 4+4 imbocchi laterali per attacco DN 75/DN 90 mm	HRS 60/15 V HRS X 60/15 V
	Plenum di mandata per tubi corrugati con 12 imbocchi frontali e 4+4 imbocchi laterali per attacco DN 75/DN 90 mm	HRS 60/15 H HRS X 60/15 H
		HRS 90/25 V HRS X 90/25 V
	Plenum di mandata per tubi corrugati con 15 imbocchi frontali e 4+4 imbocchi laterali per attacco DN 75/DN 90 mm	HRS 90/25 H HRS X 90/25 H
PLENUM PER TUBO SINGOLO		
	Plenum di mandata condotto singolo 1xDN 200mm completo di flange per fissaggio all'unità e isolamento interno in propilene	HRS 60/15 V HRS X 60/15 V
	Plenum di mandata condotto singolo 1xDN 200mm completo di flange per fissaggio all'unità e isolamento interno in propilene	HRS 90/25 V HRS X 90/25 V
	Plenum di mandata condotto singolo 1xDN 250mm completo di flange per fissaggio all'unità e isolamento interno in propilene	HRS 90/25 H HRS X 90/25 H
	Plenum di mandata condotto singolo 1xDN 200mm completo di flange per fissaggio all'unità e isolamento interno in propilene	HRS 60/15 H HRS X 60/15 H

HRS – Technical data

Modelli	u.m.	HRS 60/15-H	90/25-H	60/15-V	90/25-V	60/15-HX	90/25-HX	60/15-VX	90/25-VX
PRESTAZIONI AERAULICHE VMC									
Portata aria nominale	m^3/h	692	838	620	840	692	838	620	840
Portata aria nominale ricircolo	m^3/h	575	575	460	460	541	541	579	579
Portata aria nominale rinnovo	m^3/h	151	263	160	261	151	263	160	261
Prevalenza utile	Pa	100	100	100	100	100	100	100	100
PRESTAZIONI IN RECUPERO DI CALORE (A 7; A 20) (1)									
Efficienza di recupero sensibile	%	86,6	86,5	84,0	85,9	77,0	75,0	77,0	75,0
Efficienza di recupero entalpico	%	-	-	-	-	63,0	62,0	63,0	62,0
PRESTAZIONI IN RISCALDAMENTO (A 7; A 20) (1)									
Potenza resa totale	kW	4,20	4,20	6,10	6,10	4,20	4,20	6,10	6,10
Potenza assorbita totale	kW	1,05	1,05	1,52	1,52	1,05	1,05	1,52	1,52
COP		4,00	4,00	4,01	4,01	4,00	4,00	4,01	4,01
PRESTAZIONI IN RECUPERO DI CALORE (A 30; A 25) (2)									
Efficienza di recupero sensibile	%	83,0	84,0	83,0	84,0	86,0	86,0	86,0	86,0
PRESTAZIONI IN RAFFREDDAMENTO (A 35; A 25)									
Potenza resa totale	kW	3,70	3,70	5,50	5,50	3,70	3,70	5,50	5,50
Potenza assorbita totale	kW	1,08	1,08	1,57	1,57	1,08	1,08	1,57	1,57
EER		3,42	3,42	3,50	3,50	3,42	3,42	3,50	3,50

HRS – Technical data

DATI ERP ECODESIGN										
Classe di efficienza energetica SEC		B								
SCAMBIATORE DI CALORE										
Tipo		Espansione diretta								
Numero	Nr.	1	1	1	1	1	1	1	1	
RECUPERATORE DI CALORE										
Tipo		Piastre controcorrente - pellicola plastica permeabile entalpica								
Numero	Nr.	1	1	1	1	1	1	1	1	
VENTILATORE LATO AMBIENTE										
Tipo		Radiale a pala rovescia - Motore elettronico direttamente accoppiato - segnale 0-10 V								
Numero	Nr.	1	1	1	1	1	1	1	1	
VENTILATORE LATO ESTERNO										
Tipo		Radiale a pala rovescia - Motore elettronico direttamente accoppiato - segnale 0-10 V								
Numero	Nr.	1	1	1	1	1	1	1	1	
FILTRO ARIA DI RINNOVO										
Tipo		Filtro piano plissettato								
Numero	Nr.	1	1	1	1	1	1	1	1	
Efficienza		ePM1 80%								

(1) Efficienza secondo UNI EN 13141-7 Temperatura esterna 7 °C - Umidità esterna 72 % - Temperatura interna 20 °C - Umidità interna 28 %
(2) Efficienza secondo UNI EN 13141-7 Temperatura esterna 30 °C - Umidità esterna 60 % - Temperatura interna 25 °C - Umidità interna 50 %
(3) Dati riferiti alla norma UNI EN 3741 e UNI EN 3744

innova

HRA LARGE

Active recovery units for heating, cooling and air renewal of large dimensions space

HRA LARGE

innova

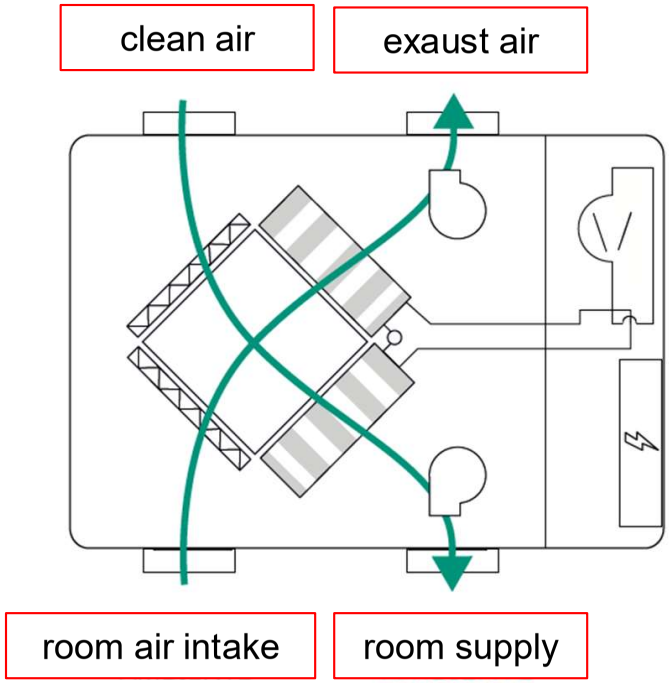
VENTILATORI RADIALI
Ventilatori radiali a pale rovesce EC Brushless.

RISCALDAMENTO E RAFFREDDAMENTO

COMPRESSORE BLDC INVERTER

DEUMIDIFICA
Contribuisce alla deumidifica
degli ambienti in estate.

HRA LARGE



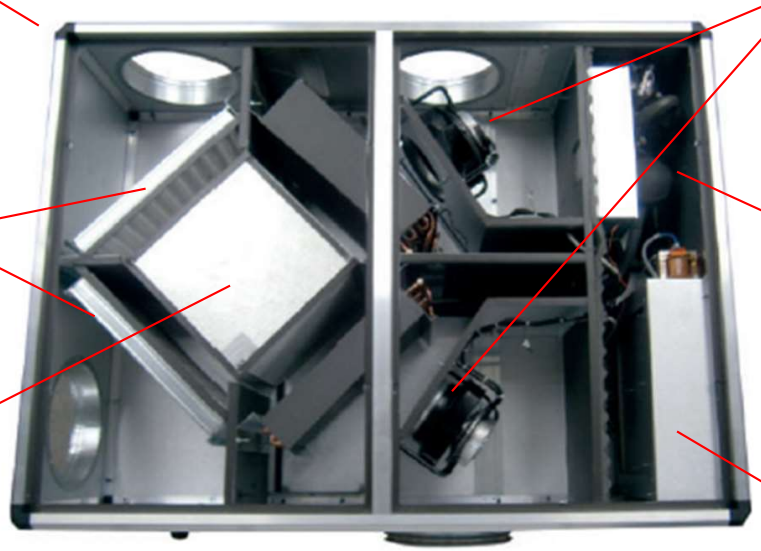
HRA fully meets the needs of air renewal, air purification and energy saving from residential to large rooms in both winter and summer. The unit allows passive and active recovery of energy from exhausted air. Thermodynamic recovery allows thanks to its refrigeration circuit to supply energy to the environment in a higher amount than that subtracted by ventilation. Thanks to the integrated INVERTER heat pump, it maximizes the recovered energy by multiplying it and producing a first step of power in both heating and cooling.Translated with www.DeepL.com/Translator (free version)

HRA LARGE – General Features

STRUTTURA
Struttura ad alta resistenza con telaio a profili in alluminio e pannelli sandwich.
Scelta di materiali con elevate caratteristiche di isolamento termico ed acustico

FILTRAZIONE
A monte del recuperatore sono presenti due filtri con classe di filtrazione M5 + F7

RECUPERATORE
Scambiatore di calore in alluminio a flussi incrociati

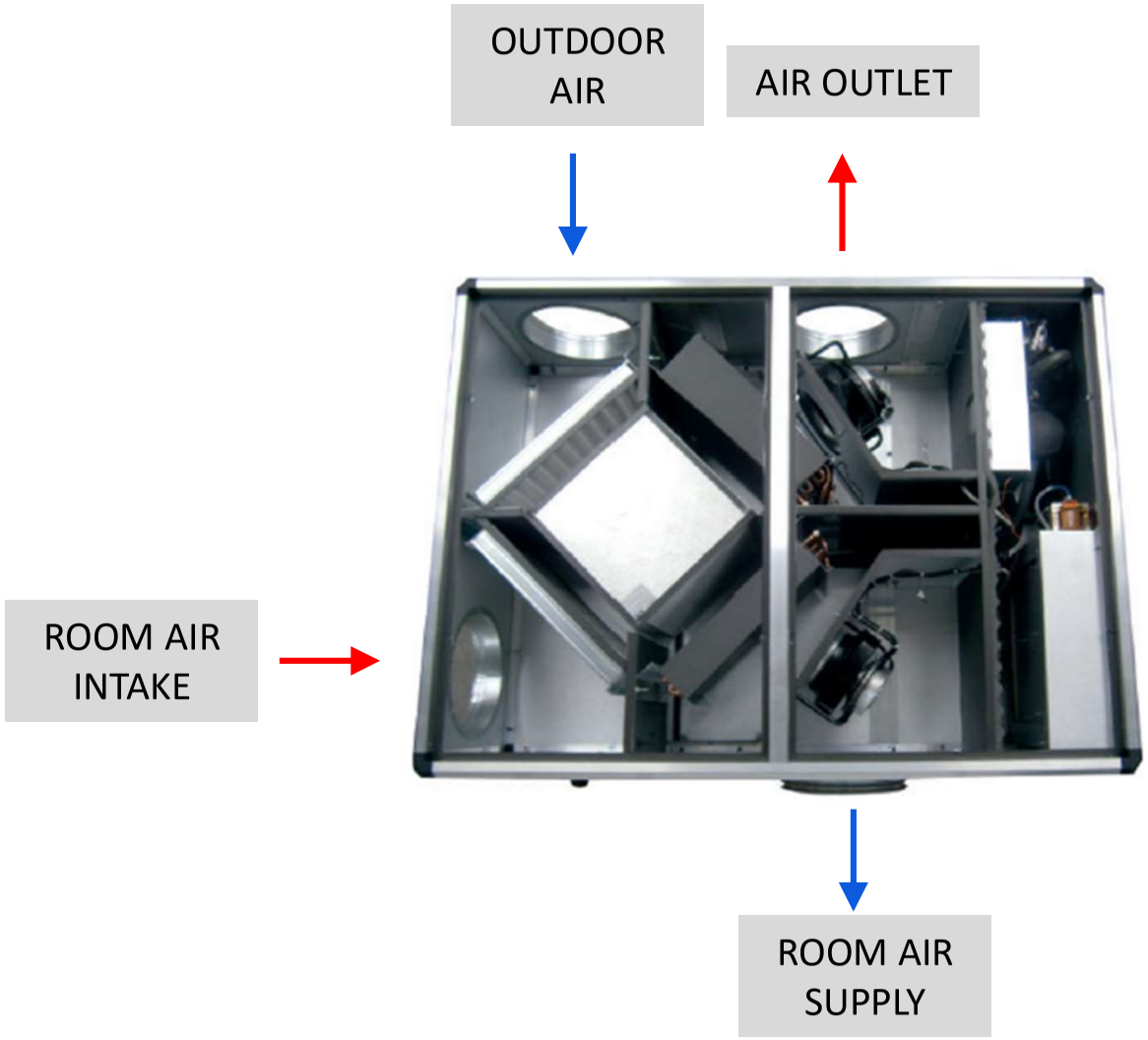


VENTILATORI
L'unità è dotata di ventilatori radiali a pala rovescia con motore elettronico a basso consumo

COMPRESSORE
Compressore rotativo o scroll ad alta efficienza con protettore termico incorporato
Motore BLDC con driver di comando

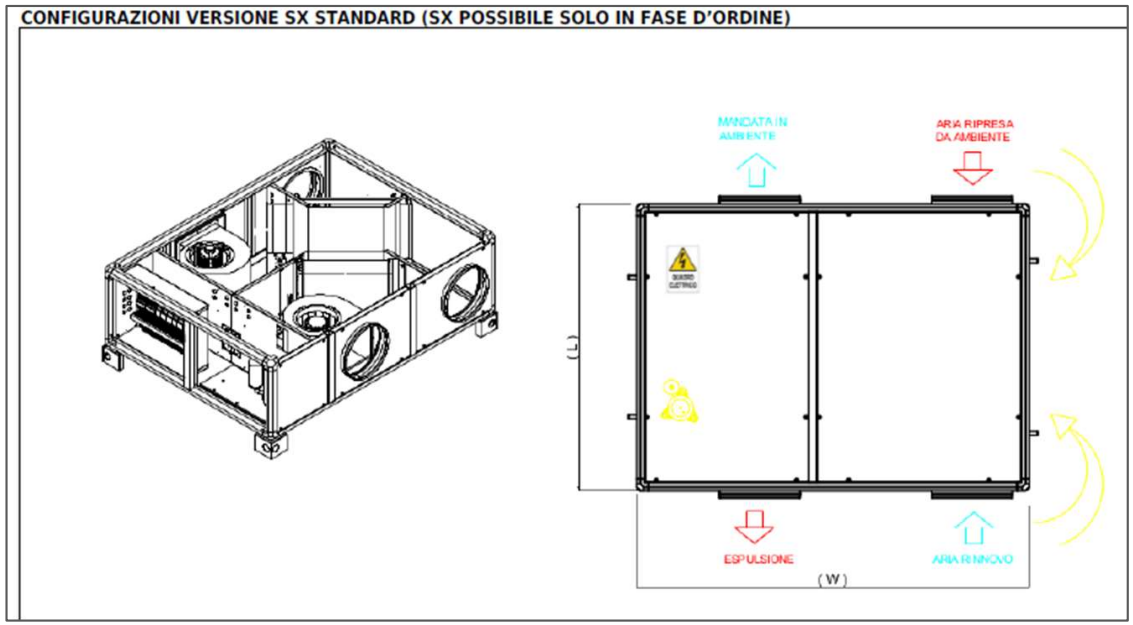
MICROPROCESSORE
La gestione del sistema affidata ad un elettronica evoluta ma di semplice gestione. Una guida in linea garantisce attraverso la tastiera di comando un corretto utilizzo.

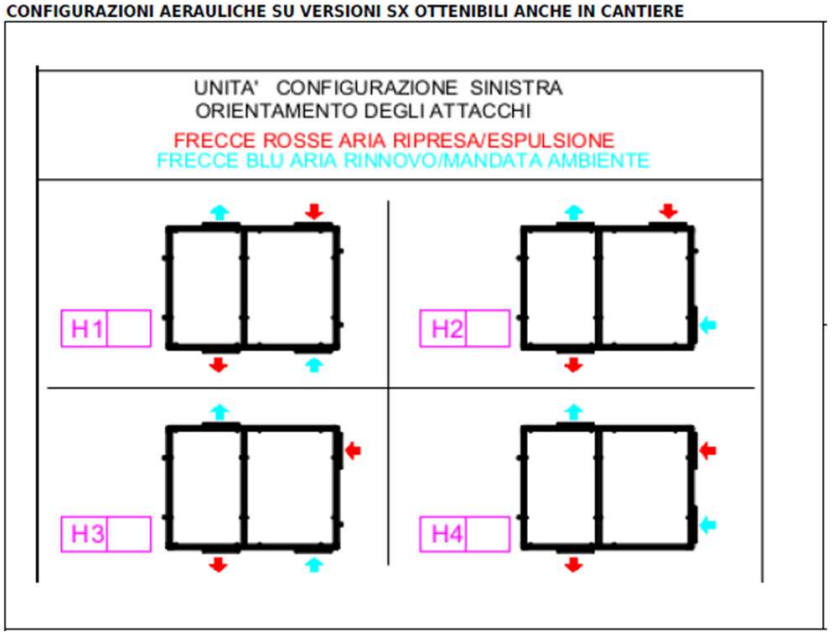
HRA LARGE – Configurazione Unità



Air connections are configurable during installation through the removable panels, an operation that can be easily performed on site.Red arrows refer to exhaust/room air and blue arrows to intake/outdoor air

HRA LARGE – Aeraulic connections Orientation





Unit seen from above

The unit is provided with 4 male circulated connections of different Ø depending on the size. Installation of at least 500mm of flexible piping is recommended to avoid vibration drag and annoying noise due to installation.According to the system in which the unit is to be installed, it will be possible to orient the four aeraulic connections appropriately.

HRA LARGE

5 grandezze:

HRA LARGE 60

Air flow rate$_{(nom)}$ = 500 m^3/h
Heat output $_{A\ -5\ °C/A\ 20°C)}$ = 2,55 kW
Cold output $_{(A\ 35\ °C/A\ 27°C)}$ = 2,56 kW
usable head$_{(expulsion/renewal\ side)}$ =335/360 Pa

HRA LARGE 100

Air flow rate$_{(nom)}$ = 1200 m^3/h
Heat output $_{A\ -5\ °C/A\ 20°C)}$ = 5,09 kW
Cold output$_{(A\ 35\ °C/A\ 27°C)}$ = 6,21 kW
Usable head$_{(expulsion/renewal\ side)}$ =570/575 Pa

HRA LARGE 200

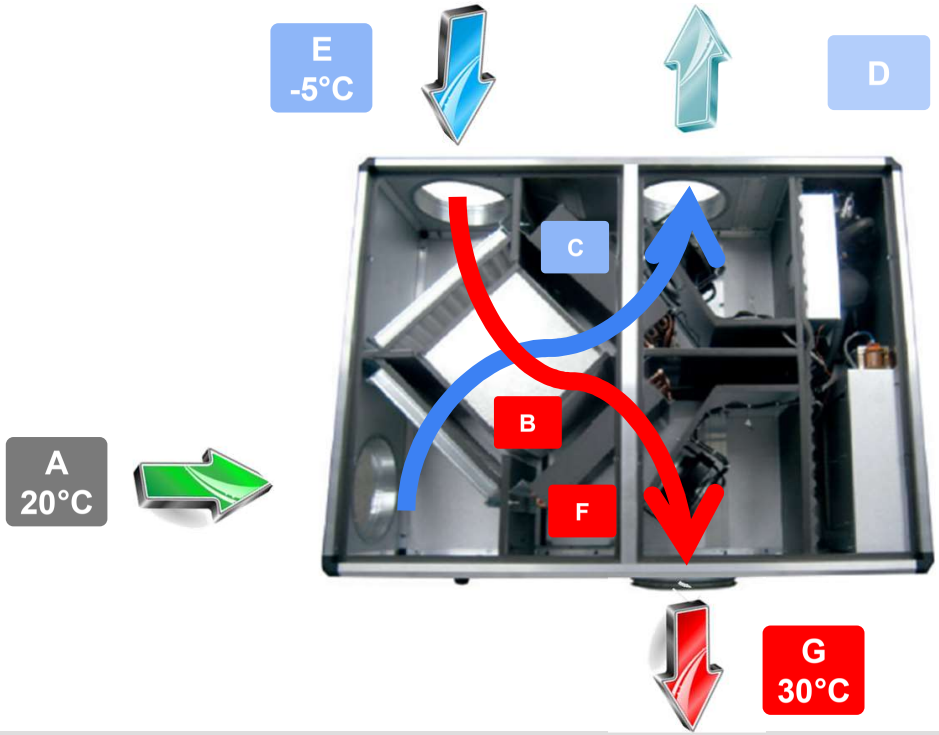
Air flow rate$_{(nom)}$ = 2200 m^3/h
Heat output $_{A\ -5\ °C/A\ 20°C)}$ = 8,85 kW
Cold output$_{(A\ 35\ °C/A\ 27°C)}$ = 10,38 kW
Usable head$_{(expulsion/renewal\ side)}$ =390/470 Pa

HRA LARGE 5 grandezze:

HRA LARGE 300	Air flow rate$_{(nom)}$ = 3500 m^3/h Heat output$_{A\ -5\ °C/A\ 20°C)}$ = 15,93 kW Cold output$_{(A\ 35\ °C/A\ 27°C)}$ = 17,70 kW Usable head$_{(expulsion/renewal\ side)}$ =460/465 Pa

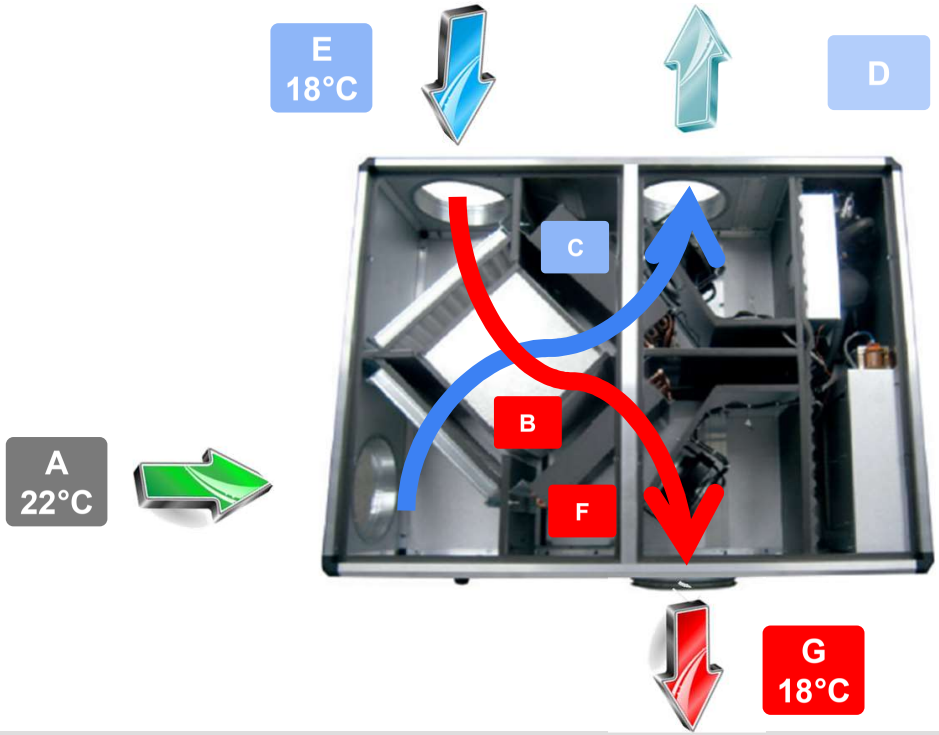
HRA LARGE 450	Air flow rate$_{(nom)}$ = 5000 m^3/h Heat output $_{A\ -5\ °C/A\ 20°C)}$ = 22,18 kW Cold output $_{(A\ 35\ °C/A\ 27°C)}$ = 25,80 kW Usable head$_{(expulsion/renewal\ side)}$ =310/260 Pa

HRA LARGE: Winter operation



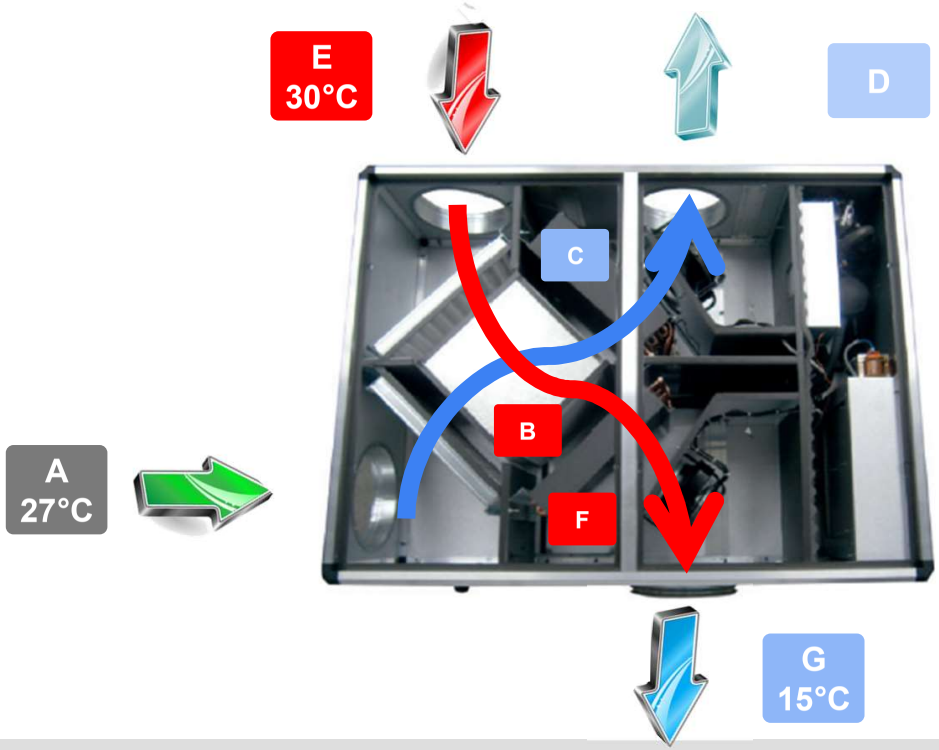
The stale air "A", extracted at a temperature of 20°C, passes through the static exchanger "B" and gives up part of its heat to the fresh air coming from the 'outside, passes through the evaporator "C" of the heat pump, which recovers the residual energy. The fresh air "E" taken from outside, passes through the static exchanger "B" and subtracts the energy of the exhaust air, after which it receives energy from the condenser "F" and is fed into the noble rooms at an ideal temperature.Translated with www.DeepL.com/Translator (free version)

HRA LARGE: Mid-season operation



When outdoor conditions are better, in terms of temperature, to indoor conditions, the unit control turns off the compressor and injects fresh air with free energy content. This feature is called FREE COOLING.

HRA LARGE: Cooling operation



In Summer, the unit ventilates the rooms by recovering energy through the sensible heat recuperator "B".The refrigeration cycle is reversed; warmer outdoor air "E" passing through the evaporator "F" is fed into the room "E" cooled and dehumidified, avoiding humid air inputs into the room and contributing to the room's refrigeration needs

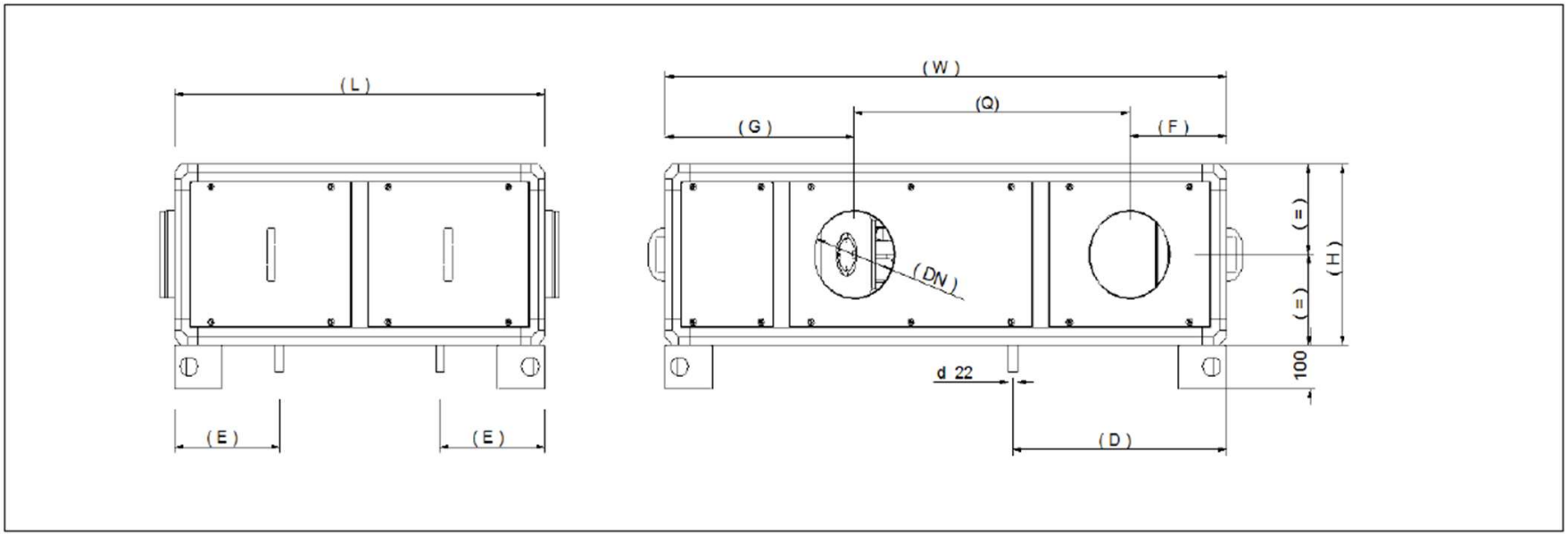
HRA LARGE - Plus

- ✓ Air renewal and purification
- ✓ Thermodynamic Inverter Recovery combined with Passive Recovery;
- ✓ first power step in both heating and cooling;
- ✓ Satisfies part of the thermal energy required by the building;
- ✓ It contributes to the Dehumidification of rooms in summer season;
- ✓ Improves Indoor Comfort;

HRA LARGE: technical data

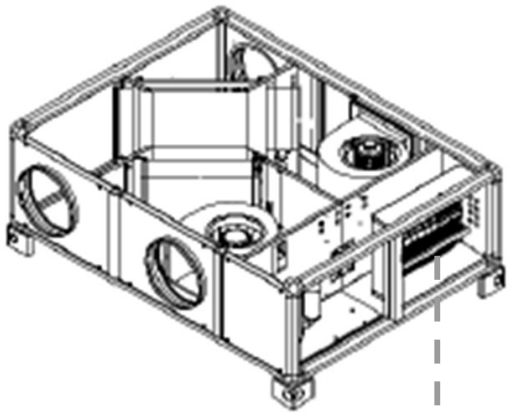
		HRA LARGE				
Modelli	u.m.	60	100	200	300	450
PRESTAZIONI AERAULICHE VMC						
Portata aria massima	m^3/h	700	1500	2500	3500	5000
Portata aria nominale	m^3/h	500	1200	2200	3500	5000
Portata aria minima	m^3/h	360	600	1000	1800	3000
PRESTAZIONI IN RISCALDAMENTO (A -5 °C; A 20 °C)						
Potenza resa totale	kW	2,55	5,09	8,85	15,93	22,18
Potenza assorbita massima totale	kW	0,45	0,85	1,16	3,15	3,98
Frequenza compressore	Hz	60	60	60	60	60
COP		5,61	5,98	5,49	5,05	5,57
PRESTAZIONI IN RECUPERO DI CALORE (A -5; A 20)						
Efficienza di recupero sensibile	kW	3,0	4,6	9,9	14,5	21,3
Frequenza compressore	Hz	60	60	60	60	60
PRESTAZIONI IN RAFFREDDAMENTO (A 35 °C; A 27 °C)						
Potenza resa totale	kW	2,56	6,21	10,38	17,70	25,80
Potenza assorbita massima totale	kW	0,71	1,30	2,31	4,23	4,10
Frequenza compressore	Hz	60	60	60	60	60
EER		3,60	4,77	4,49	4,18	4,10
PRESTAZIONI IN RECUPERO DI CALORE (A 35; A 27)						
Efficienza di recupero sensibile	kW	1,0	1,0	2,7	3,0	5,9
Frequenza compressore	Hz	60	60	60	60	60

HRA LARGE - dimensional



Modello	HRA	60	100	200	300	450
Larghezza W	mm	1400	1680	1960	1960	2240
Profondità L	mm	925	1250	1430	1430	1615
Altezza C	mm	415	515	620	720	920
DN	mm	200	250	355	400	500
S	mm	50	50	50	50	50
F	Mm	240	252	285	285	333
G	Mm	472	682	615	615	653
D	Mm	532	562	645	645	622
E	Mm	362	319	390	390	370
Q	Mm	688	746	1055	1055	1255
Condensa	Ø	22	22	22	22	22
Peso	kg	140	230	325	382	570

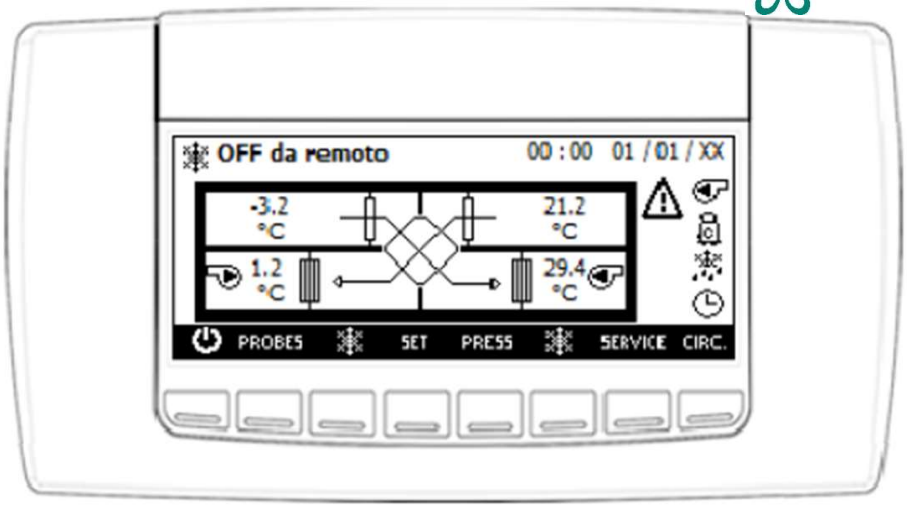
HRA LARGE - Control



connections :
- Shielded/braided (min. 1mm) three-wire cable
- Maximum distance of 150 mt between remote terminal and board on board unit.

Respect from the other side down, theVNR sequence, (+) , (-)

TGF graphic remote terminal for support on 503 box or wall, or dedicated flush-mounted box



MAINS FUNCTIONS:

Air temperature display via probes
Heating/cooling mode management
Change indoor temperature set point
Time zone management
Alarm display
Service menu for compressor maintenance, fans, refrigerant circuit, defrosting
Alarm history menu

HRA LARGE - Controls

Regolazione:

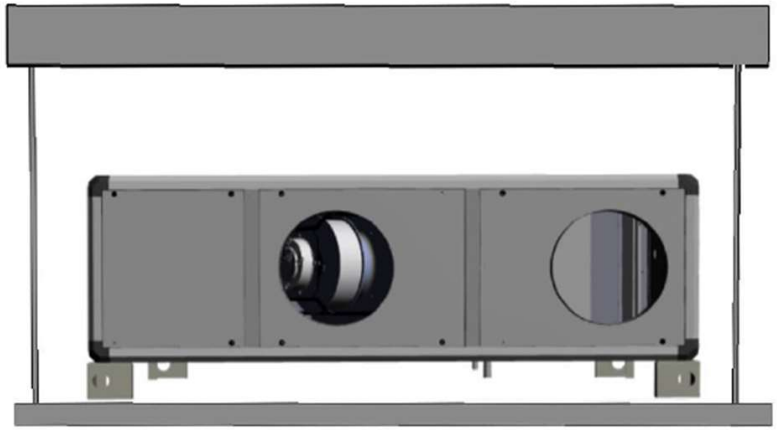
On-board electrical panel with microprocessor and dedicated control. Fan management, display of internal machine temperature probes, timed dirty filter management.Operation with fixed point regulation on supply or with return air probe combined with external probe.Management of defrosting algorithm optimized for operation at low internal temperatures.Extensive graphic interface with configuration menu and multilingual user menu.Provision for MODBUS RTU RS 485 communication with a wide variety of home automation systems.Translated with www.DeepL.com/Translator (free version)

Terminal block X2 - Connections by customer (common to all versions)

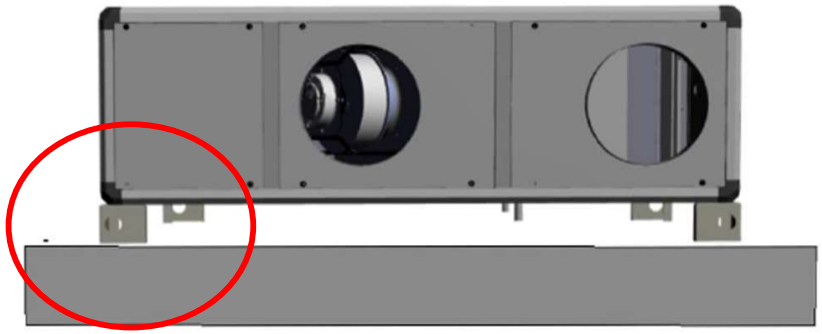
Sonda di regolazione	Ntc Sonda di ripresa ambiente (già collegata in fabbrica)
Comando remoto Accensione / spegnimento unità	Contatto chiuso / unità ON
Comando Estate / inverno	Contatto chiuso / estate
No regolazione su Temp. Esterna	Contatto chiuso / funzione attiva
Comunicazione Rs485	Seriale Modbus RTU
Alimentazione ausiliaria 24Vac	Alimentazione esterna 24Vac (max 10VA)
Collegamento display Visiograph (TGF)	non invertire la polarità
Serranda Free cooling on	230V - 2 punti
Serranda Free cooling off	230v - 2 punti
Sonda Free cooling	Ntc (opzionale con kit free cooling)
Valvola batteria di post	Uscita 0-10vdc per valvola o batteria elettrica di post

The electrical cable entry is located on theside of the unit; Two passages with installed cable glands are provided, and inside the electrical panel will then be located the "X2" customer terminal block where to make all the required electrical connections;

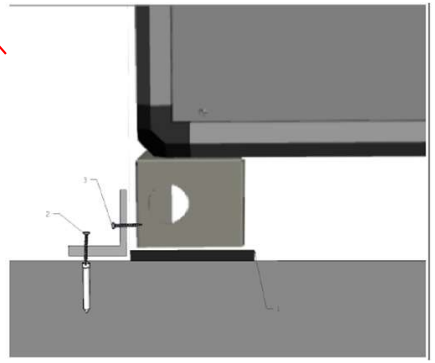
HRA LARGE – Positioning Unit



Ceiling mounting



Floor mounting



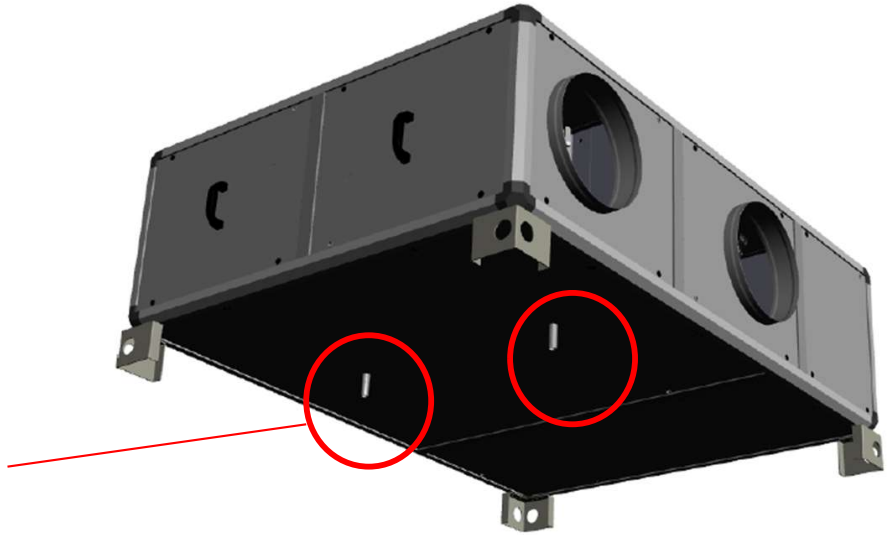
Because of vibrations, the unit may have movements with respect to the support surface;
Secure the unit on the support surface or metal structure by means of brackets or fixing profiles;
Place rubber or vibration dampers calculated according to the weight of the unit to prevent transmission of vibration from the unit to adjacent structures;

HRA LARGE – Condensate Connection

Observe the following standards when installing the condensate drain:

- Slope of at least 2% at the drainage pipe;
- Provide the possibility of disconnecting the exhaust pipe for any maintenance (especially in case of ceiling installation);
- Make sure the discharge end of the pipe is at least below the water level of the siphon;
- make sure the siphon is always full of water.
- make sure that the siphon is properly made and has a minimum height that is adequate for the depression caused by the fans

Install the condensate drain on both drains located at the bottom of the unit



HRA LARGE – Accessories

BER - ELECTRIC PRE/POST PROBE HEATING COIL

Power electric heater from 2 to 16 kW, DN

diameter from 250 to 400

Complete with power and safety electrical panel.

To be installed on the air supply with

replacement/integration logic

HRA LARGE – Accessories

BAF – WATER HEATING COILS

Heating power from 3.1 to 27.98 kW,Cooling power from 3.68 kW to 33.7 kW

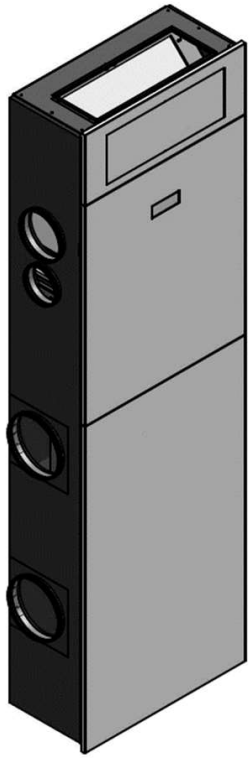
diameter DN 250 to 500

Pre/post water heating units consist of galvanized sheet metal frameand a heat exchange coil composed of copper tubes and fins made of aluminum. They are provided with male circular inlets that facilitate installation to the duct. They are equipped with threaded connections including valves for ventingair and the discharge of the coil.

innova

HRA I PLUS VERTICAL

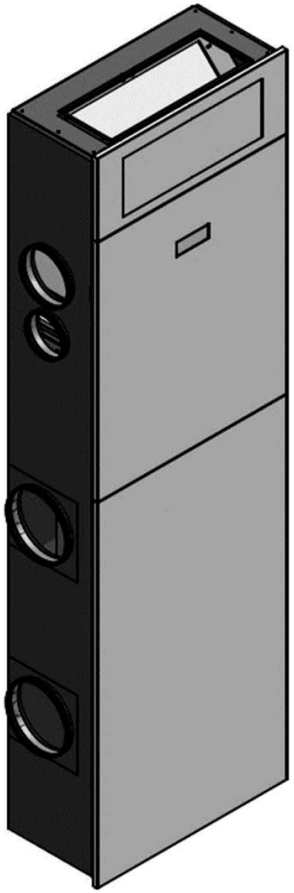
HRA I PLUS Vertical



Compact unit for heating, cooling and VMC for nZEB building

nZEB = nearly Zero Energy Building

HRA I PLUS Vertical

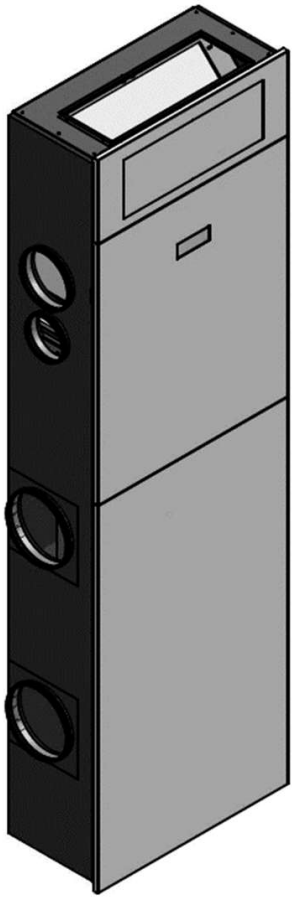


7 in 1

Seven functions in 1

- Heating
- Cooling
- VMC
- Air purification
- Passive and thermodynamic recovery
- Dehumidification
- free cooling

HRA I PLUS Verticale



HRA I PLUS VERTICALE	Heating output = 3.47 kW Post heating (electrical resistance) = 2.00 kW Cooling power= 3,42 kW total air flow rate = 550 m^3/h fresh air flow rate = 150 m^3/h Housing area up to 110 m^2 (*)

One size 50/15 with exchanger
sensible or enthalpic

HRA I PLUS Verticale: Components

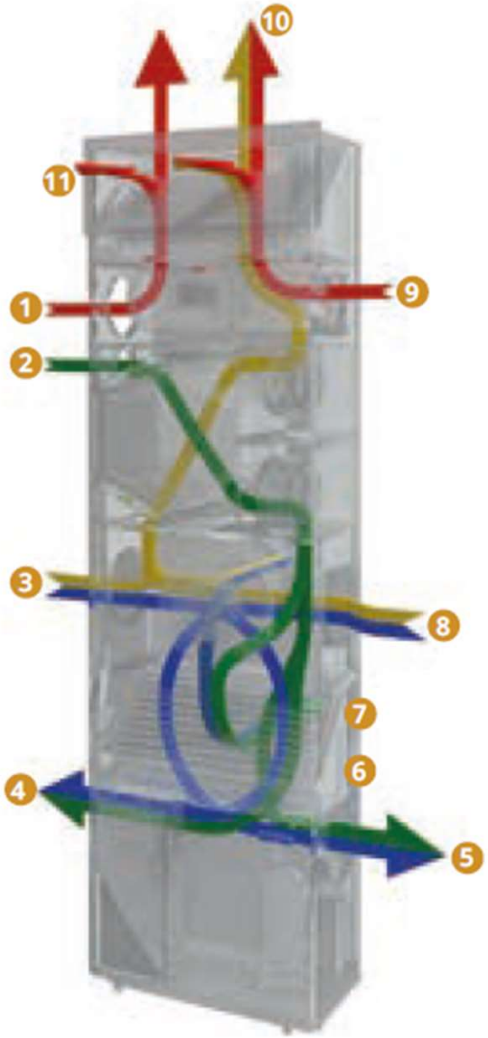
1. Mandata alta aria in ambiente (SUP)
2. Batteria ad alta efficienza lato ambiente
3. Display di controllo
4. Attacco ricircolo
5. Ventilatore di mandata aria ambiente
6. Attacco estrazione aria ambiente (ETA)
7. Filtro aria di estrazione
8. Attacco aria di rinnovo + ventilazione
9. Attacco espulsione aria (EHA)
10. Scarico condensa
11. Quadro elettrico
12. Compressore twin rotary DC Inverter
13. Batteria ad alta efficienza lato aria esterna
14. Attacco espulsione aria (EHA)
15. Sistema di raccolta condensa
16. Ventilatore aria di rinnovo + alimentazione batteria lato esterno
17. Attacco aria di rinnovo + ventilazione (alternativa)
18. Ventilatore espulsione aria viziata (EHA)
19. Scambiatore a flussi incrociati
20. Ventilatore prelievo aria di rinnovo
21. Attacco di ricircolo
22. Ventilatore di mandata aria ambiente
23. Mandata frontale aria ambiente (in alternativa al n°1)

HRA I PLUS Vertical: Airflows

Configurable on the sides or the rest of the unit

FUNZIONALITÀ

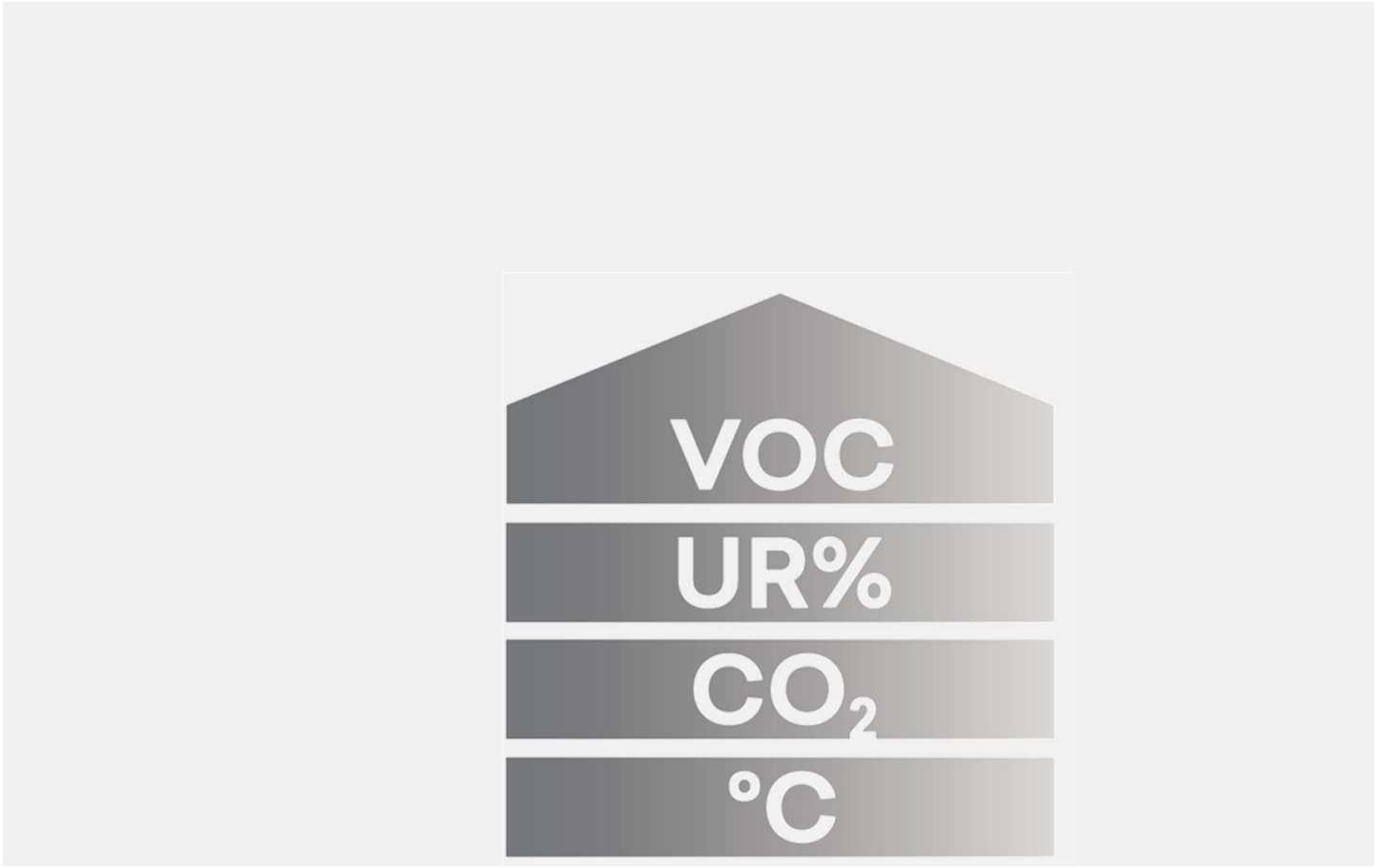
1. Aria di ricircolo
2. Estrazione aria ambiente
3. Aria di rinnovo
4. Espulsione aria
5. Espulsione aria posteriore
6. Aria viziata posteriore
7. Presa aria viziata posteriore
8. Aria di rinnovo
9. Aria di ricircolo
10. Mandata aria
11. Ricircolo



HRA I PLUS Vertical: Controls

	Pannello comandi a muro elettronico SMART TOUCH con termostato e sonda ambiente con modulo WiFi integrato (fornito con cavo di collegamento di 8 m). Colore nero
	Pannello comandi a muro elettronico SMART TOUCH con termostato e sonda ambiente con porta Modbus integrata (fornito con cavo di collegamento di 8 m). Colore nero
	Pannello comandi a muro elettronico SMART TOUCH con termostato e sonda ambiente con modulo WiFi integrato (fornito con cavo di collegamento di 8 m). Colore bianco
	Pannello comandi a muro elettronico SMART TOUCH con termostato e sonda ambiente con porta Modbus integrata (fornito con cavo di collegamento di 8 m). Colore bianco

HRA I PLUS Vertical: sensor



HRA I PLUS Verticale: Technical data

		HRA-I PLUS VERTICALE	
Modelli	u.m.	50/15-VERTICALE SENSIBILE	50/15-VERTICALE ENTALPICA
PRESTAZIONI AERAULICHE VMC			
Portata aria nominale immissione	m^3/h	550	550
Portata aria nominale rinnovo	m^3/h	150	135
Portata aria nominale ricircolo	m^3/h	400	415
Prevalenza utile	Pa	100	100
PRESTAZIONI IN RISCALDAMENTO (A -5 °C; A 20 °C)			
Potenza resa totale	kW	3,47	3,47
Potenza resa al netto del carico di ventilazione	kW	2,77	2,77
Potenza resa in recupero statico	kW	0,57	0,57
Potenza resa in recupero termodinamico	kW	2,90	2,90
Potenza assorbita in recupero termodinamico	kW	0,88	0,88
COP		3,87	3,87
PRESTAZIONI IN RAFFREDDAMENTO (A 35 °C; A 27 °C)			
Potenza resa totale	kW	3,42	3,42
Potenza resa al netto del carico di ventilazione	kW	2,05	2,05
Potenza resa in recupero statico	kW	0,57	0,57
Potenza resa in recupero termodinamico	kW	2,85	2,85
Potenza assorbita in recupero termodinamico	kW	0,95	0,95
EER		3,57	3,57
PRESTAZIONI IN RECUPERO DI CALORE (A -5; A 20)			
Efficienza di recupero sensibile	%	86,7	78,0

innova

DEH

Wall-mounted dehumidifier exposed or built in versions