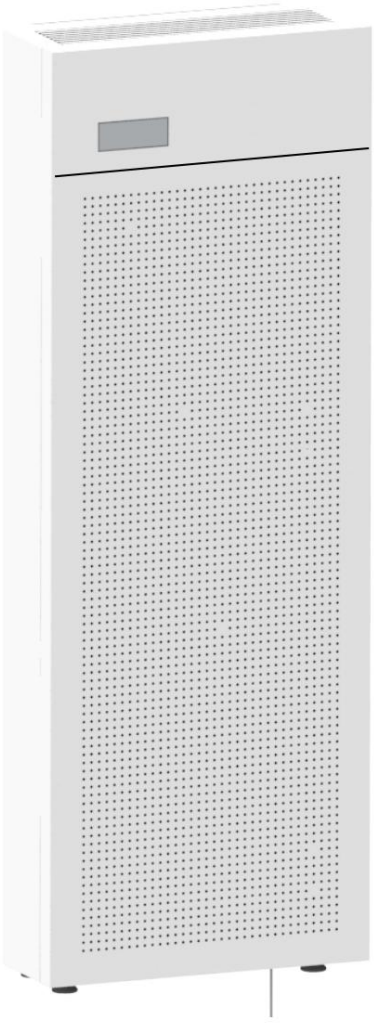
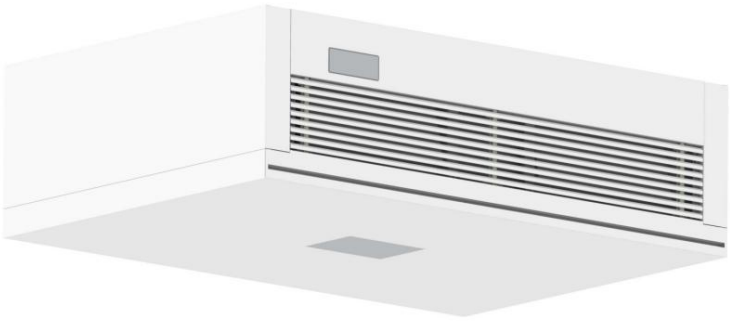
HRU

THERMODYNAMIC MECHANICAL VENTILATION

Ventilation and air exchange unit
in heat pump and thermodynamic recovery
with compressor and BLDC fans.
Integrated CO2 probe .



HRU **V**



HRU **H**

SIMPLIFIED VISUAL INSTALLATION:
- **VERTICAL** *(HRU* **V)**
- **HORIZONTAL** *(HRU* **H)**

GENERAL FEATURES

STRUCTURE

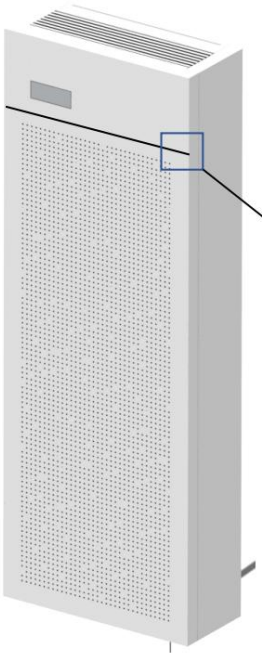
High resistance structure with self-supporting sheet metal frame. Materials with thermal and acoustic insulation.

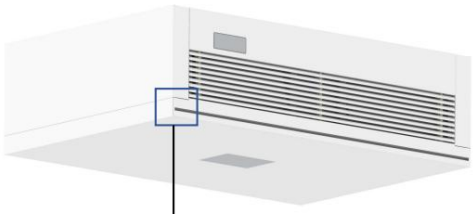
FANS Brushless

plug-fun fans (HRU V); centrifugal pumps with constant flow rate with electronic motor and modulating control (HRU H).

BLDC COMPRESSOR

High efficiency rotary compressor with BLDC motor and control driver.





OPERATION

Unit operation indicator led (ON).

MICROPROCESSOR

Electronic board, panel on board the machine and Wi-Fi management via APP and remote control for the main functions of the unit.

FILTRATION

There are two ePM1 80% filters and a Coarse pre-filter on the outside air.

AIR QUALITY

The units are integrated with a CO2 probe for air quality.

TECHNICAL FEATURES

The HRU units are designed for the air renewal of environments: the ease of installation through two holes with a diameter of 160 mm and the high flow of fresh air, allow the application in field such as schools, clinics, offices and all contexts where air exchange is necessary. The thermodynamic recovery allows to have an integration with respect to the environmental climatic conditions helping the air conditioning system for internal comfort; the injected air is always at a temperature close to or better than the ambient one, thus guaranteeing a higher perceived comfort.
The unit consists of a monobloc including every component for correct operation: fans, refrigeration circuit with high efficiency compressors, air filtration sections and high efficiency counter-current heat recovery unit.

ALL IN ONE	**The units are able to exchange the air, integrate the refrigerating thermal demands of the rooms served independently.**
VENTILATION	HRU **V: Brushless plug-fun fans.** HRU **H: centrifugal machines with constant flow rate with electronic motor and modulating control.** **The fans work in various modes controlled mainly by the air quality sensor placed inside the units. Very high efficiency and low noise levels**
ACTIVE THERMODYNAMIC RECOVERY	**The units allow the active recovery of the energy of the expelled air.** **Thanks to the refrigeration circuit, the thermodynamic recovery makes it possible to supply energy to the environment in a higher quantity than that subtracted from the ventilation for 90% of the operation of the units.**
FILTRATION	**There are 2 ePM1 - 80% filters on the extracted and inlet air (the inlet air filter is placed after the coil to filter impurities in the inlet air). On the outside air there is 1 Coarse pre-filter to protect the unit.**
STRUCTURE	**Self-supporting metal frame.** **Self-supporting metal structure, painted externally with thermal and acoustic insulation in polyethylene and Epdm interposed.**
REFRIGERANT CIRCUIT	**Made of brazed copper complete with: high efficiency BLDC compressor, filter drier, finned coils, electronic expansion valve, reversing valve and safety devices.**
ADJUSTMENT	**Electrical panel on board the unit with microprocessor dedicated to regulation: management of fans with air quality probe, management of the heat pump according to the thermal and refrigerator requirements, display and temperature set point, management of timed dirty filters. Panel on the machine with graphic interface and WIFI and remote control included.**
PROBE	**CO2 probe integrated inside the unit (room air intake).**

PERFORMANCE UNIT

GENERAL TECHNICAL DATA

Unit		HRU V	HRU H
Type of fans		Backward curved radial with Brushless motor	Forward curved blades with motor Constant flow brushless
Number of fans	n.	2	
Air flow BO / V3 / V2 / V1	mc / h	380/320/190/130	460/400/240/140
Compressor type	-	Rotary BLDC	
Refrigerant gas	-	R410A	
Filters	n.	2x ePM1 - 80% + 1x Coarse pre-filter	
Max power absorbed fans	kW	0.1	0.12
Max power absorbed compressors	kW	0.95	1.15
Supply voltage	V / ph /	220/1/50	220/1/50
Max total absorbed power	Hz kW	1.05	1.27
Max total absorbed current		4.8	5.8
Sound pressure 2	A dB (A)	41	43

(1) External air -5 / 80% RH - Internal air 20 ° / 50% RH - Nominal flow rate
(2) Sound pressure at nominal flow V3 at 3 m in free field (according to 3744)

TECHNICAL DATA WINTER OPERATION

Unit		HRU V	HRU H
Thermal potential 1	kW	3.1	3.62
Absorbed potential	kW	0.71	0.84
Total COP		4.4	4.3

(1) External air -5 ° / 80% RH - Internal air 20 ° / 50% RH - Nominal flow rate

TECHNICAL DATA SUMMER OPERATION

Unit		HRU V	HRU H
Cooling capacity [1]	kW	2.41	2.77
Absorbed potential	kW	0.73	0.91
Total EER		3.3	3.0

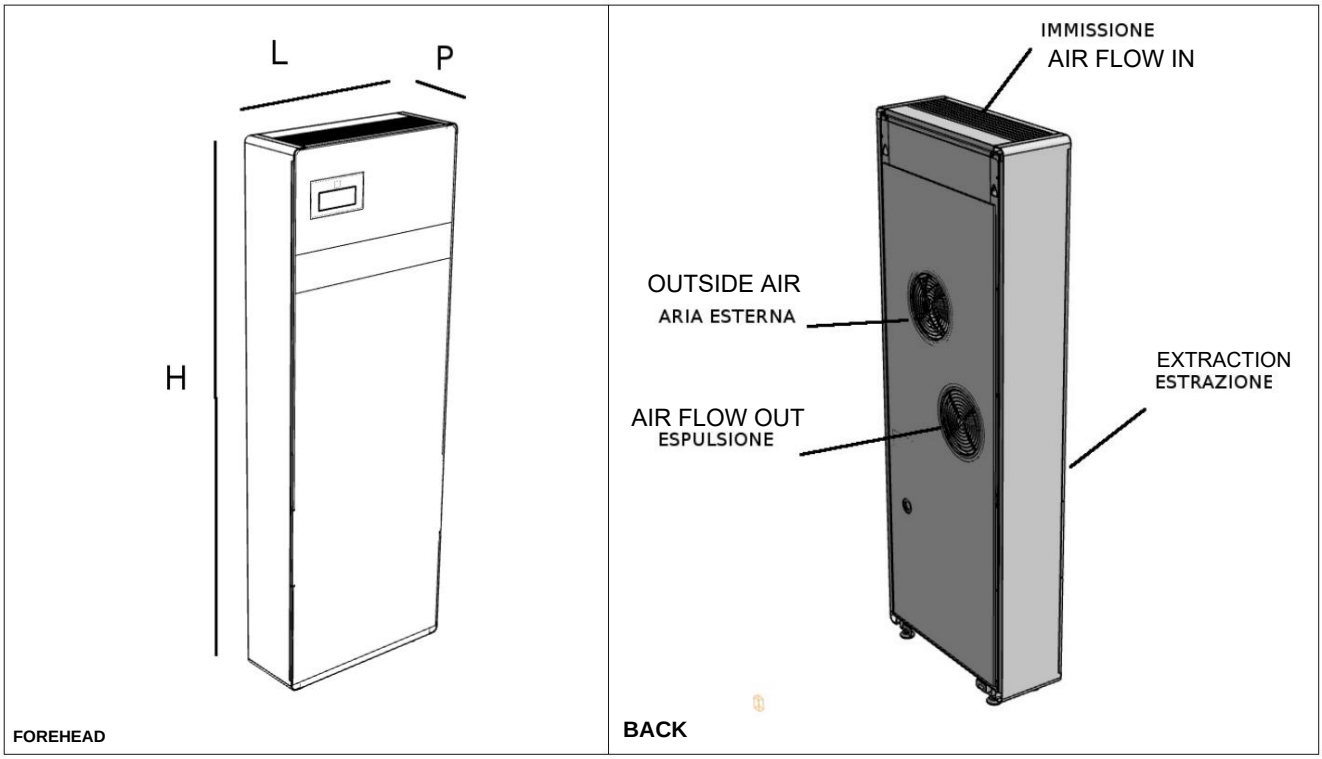
(1) External air 35 ° / 50% RH - Internal air 27 ° / 60% RH - Nominal flow rate

RECOMMENDED SIZING FOR SCHOOL CLASSROOM

Type of school	HRU V	HRU H
Nursery / kindergarten	Max 26 people	Max 31 people
Elementary School	Max 21 people	Max 25 people
Middle School	Max 17 people	Max 21 people
High school / university	Max 15 people	Max 18 people

(Data calculated according to UNI 10339)

DIMENSIONAL DATA HRU V

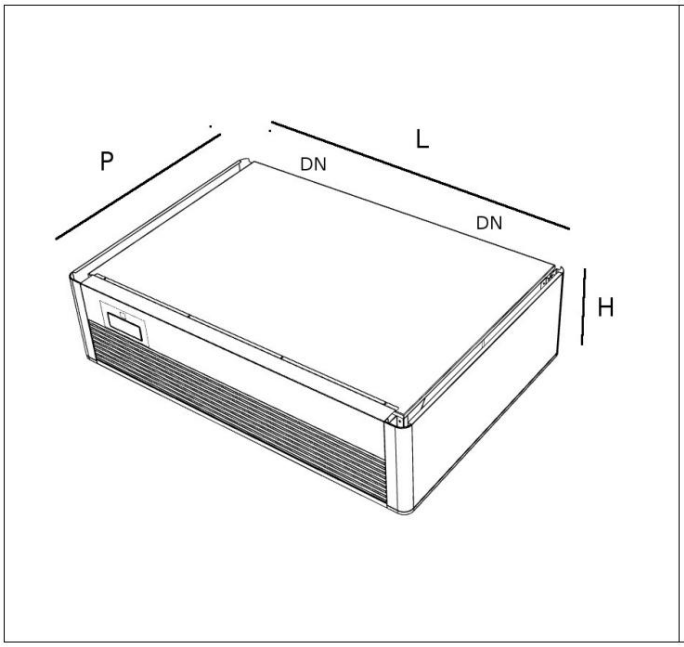


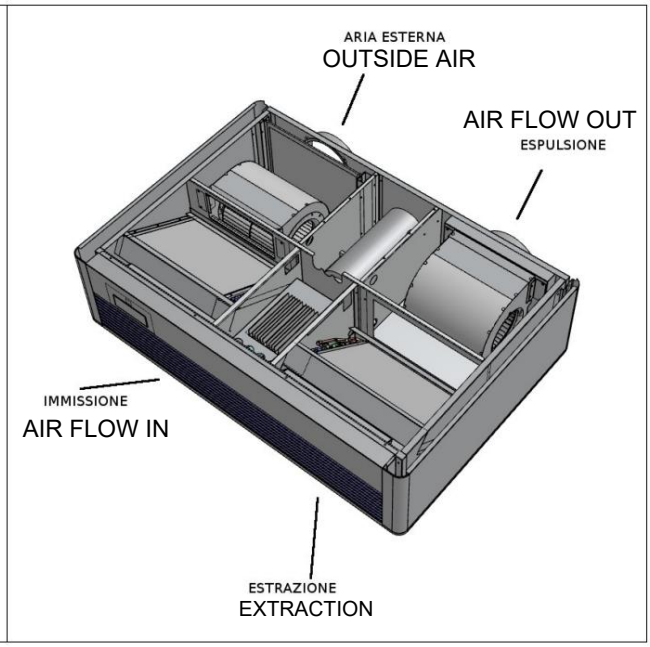
FOREHEAD

BACK

Unit		HRU V
Width (L)	mm	500
Depth (P)	mm	185
Height (H)	mm	1398
External air intake / expulsion connection diameter	mm	160
Condensation	OR	20
Weight	kg	53

DIMENSIONAL DATA HRU H





Unit		HRU H
Width (L)	mm	1010
Depth (P)	mm	690
Height (H)	mm	255
External air intake / expulsion connection diameter (DN)	mm	160
Condensation	OR	20
Weight	kg	74

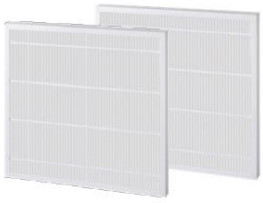
OPERATING LIMITS

Size		HRU H / V	
WARM UP		Indoor air	Outside air
	° C	10/25	-15 / 20
COOLING		Indoor air	Outside air
	° C	18/28	20/38

SPARE PARTS LIST

SPARE PARTS

Coarse replacement filter	
Replacement Coarse pre-filter for unit maintenance, easily removable: **- FDR1V-HRU for vertical unit** HRU **V** **- FDR1H-HRU for horizontal unit** HRU **H.**	

EPM1 replacement filter kit - 80%	
Kit consisting of 2 EPM1 - 80% filters for unit maintenance, easily removable: **- FDR2V-HRU for vertical unit** HRU **V** **- FDR2H-HRU for horizontal unit** HRU **H.**	

CE marking

The CE marking (present on each machine) certifies compliance with the following Community standards:

- Low Voltage Directive 2014/35 / EC
- Electromagnetic Compatibility Directive 2014/30 / EC