HiDew
Dehumidifiers

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ROE
RVE

High Efficiency Heat Recovery Systems

TECHNICAL DATA SHEET

PRODUCT DESCRIPTION

INTRODUCTION

Air quality and purity, temperature and humidity are critical for comfort, especially during winter when, opening the windows for air results in a significant loss of the internal heat and discomfort for the occupants. In this case, a system of controlled mechanical ventilation is the best solutions to maintain both the levels of energy performances and the quality of the indoor air.
Recent regulations on energy saving in buildings, combined with increasingly efficient thermal insulation and ever-better fitting of doors and windows, have definitely made our homes more comfortable both thermally and acoustically. This, however, has also transformed them into potential "hazardous, seales traps", where pollutants used in the production process (such as formaldehyde) can be spontaneous released. To achieve adequate air renewal in the building and to ensure good indoor air quality, it is essential to install a controlled mechanical ventilation system. Air renewal is essential for clean living air.
The European Parliament has legislated on this, citing ventilation as a need for the buiding. This need can clash with the need to improve the building's energy performance to reduce consumption to a minimum.
Controlled mechanical ventilation with HiDew ROE and RVE heat recoveries, is the best solution to reduce energy needs of a building and, at the same time, to improve the healthiness of the spaces.

DESCRIPTION

High efficiency HiDew heat recoveries are conceived for the usage in residential and commercial buildings, where you want to renew the air and recover the heat, reducing the energy consumption of the building and maintaining a healthy ambience air. The installation of a high efficiency HiDew heat recovery grants not only an healthier ambient, but also an investment on the building (increasing its value according to the classification).
ROE and RVE models mount electronic centrifugal fans with brushless engine and inverter and grant high performances in terms of low emitted sound and reduced electrical consumption.
HiDew ROE and RVE units mount only electrical and aeraulic high-quality components: this is the reason why they are the reference units in terms of efficiency, reliability, accessibility and sound level.
All HiDew high efficiency heat recovers grant performances over 90%.
HiDew uses only high efficiency recoveries, countercurrent, certified EN 308.

SERIES

There are 8 models available and they are classified according to the version (with / without fans), the installation version (ceiling or wall) and the air flows:

ROE – HORIZONTAL HEAT RECOVERY SYSTEM WITH ELECTRONIC FANS (CEILING INSTALLATION)

10 = 100 m3/h	**20** = 200 m3/h	**35** = 350 m3/h	**50** = 500 m3/h

RVE – VERTICAL HEAT RECOVERY SYSTEM WITH ELECTRONIC FANS (WALL INSTALLATION)

35 = 350 m3/h	**50** = 500 m3/h

STRUCTURE

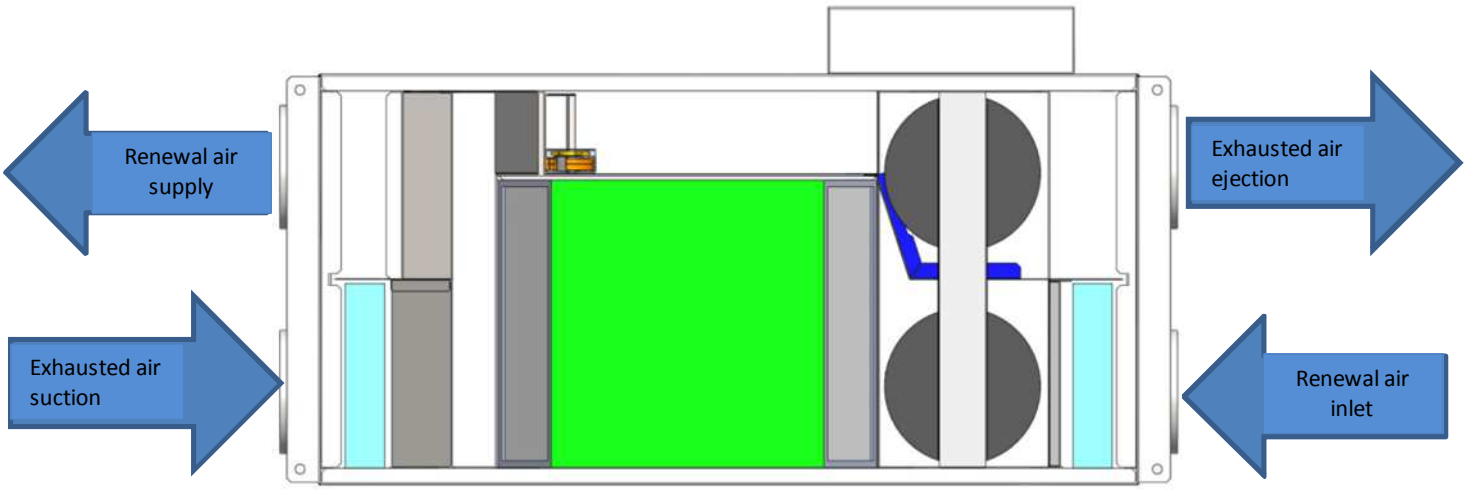
The unit is realized in white painted steel sheet, with a sober but elegant design. The accessibility for the horizontal model is from the low, while for the vertical one is from the front. The access to filters, fans and heat recover is easier thanks to the presence of removable panels.
Thanks to the sound absorber and to the use of over-dimensioned fans, the sound emitted level is very reduced.
All the panels are covered with a synthetic polyurethane material with open cells, to grant the maximum absorbent power. The material used is in 1st class, according to the UL 94 directions.
Bolts and screws and the fixing systems are realized in non-oxidable materials such as INOX or carbon steels with superficial passivation treatments.

AIR FLUXES

ROE and RVE units are provided with 4 circular take-offs with gasket, for the connection with circular air ducts:

1. Renewal air supply (bedrooms, kitchen and living room)
2. Exhausted air suction (bathrooms, laundry and kitchen)
3. Exhausted air ejection
4. Renewal air inlet

The below image represents the connections of the horizontal units ROE 10 – 20 – 35 - 50



AVAILABLE OPTIONS

CHARACTERISTICS - FUNCTIONS - OPTIONS	STANDARD CONTROL	ADVANCED CONTROL
Electronic fans with brushless motor and built-in inverter	STANDARD	STANDARD
Correct fan rotation control	STANDARD	STANDARD
Intelligent automatic defrost	STANDARD	STANDARD
3 speeds setting	STANDARD	-
Multi-speeds setting	-	STANDARD
Timed dirty filters signal	STANDARD	STANDARD
General fault signal	STANDARD	-
Detailed fault signal	-	STANDARD
Graphic adjustment display to be placed on the wall	-	STANDARD
Boost mode	-	STANDARD
Programming by time bands	-	STANDARD
RS485 serial port	-	OPTIONAL
Free-cooling	OPTIONAL	OPTIONAL
Dirty filters sensor	-	OPTIONAL
Humidity probe	-	OPTIONAL
CO_2 probe	-	OPTIONAL
VOC probe	-	OPTIONAL
Air purifier	-	OPTIONAL
Hot water coil duct	OPTIONAL	OPTIONAL
Supply air temperature control kit	-	OPTIONAL
High efficiency filters set	OPTIONAL	OPTIONAL
Air supply at constant flow	-	OPTIONAL
Air supply at constant pressure	-	OPTIONAL

OPTIONS DESCRIPTION

INTELLIGENT AUTOMATIC DEFROST

Renewing the air in winter, when temperatures are particularly low, implies the formation of ice within the heat recover. To set again the unit in the best functioning conditions it is fundamental to melt the internal ice. ROE and RVE units can automatically activate the defrosting each time it is needed. This function allows to maintain the high efficiency of the heat recover in every season. HiDew speaks of “intelligent” defrost because, according to a particular functioning logic, it reduces the time necessary for the defrosting process, and optimize the energy recover.

TIMED DIRTY FILTERS SIGNAL

The heat recover includes two air filters. To maintain healthy ambiences, it is suggested to inspect, clean and / or substitute them. As a memo, the led installed on the wall will light on for three continuous days every three months. At the end of the third day, it turns off automatically, even if the control / cleaning has not been done.

GENERAL FAULT SIGNAL

The general fault signal informs the user that the heat recover is not working correctly and it is necessary the intervention of a qualified technician, in order to verify the fault. The signal consists of the quick flashing of the led.

DETAILED FAULT SIGNAL

The detailed fault signal (function available with the Advanced control) informs the user that the heat recover is not working correctly and it is necessary the intervention of a qualified technician. The nature of the fault is visible on the on wall display. The intervention of the technician will therefore be quite easy, because the display signals the fault.

BOOST MODE

The boost mode (function available with the Advanced control) is particularly useful when you want to eliminate the disagreeable smells that can occur in the house. It activates for 15 minutes the air renewal at the max speed (the time can be modified by the user). To activate the boost mode, it is sufficient to press a key on the display of the advanced control- at the end of the 15 minutes, the unit returns to the normal functioning conditions.

TIME BANDS PROGRAMMING

The time bands program function (available only if combined with the Advanced control) allows to set for each time of the day some parameters, such as, for instance, the speed of the fans, the turning on / off and the temperature of the supply air (if also the option "supply air temperature control kit" is preview). The program is a weekly one, so every day may have a profile aligned with the way-of-life of the family.

RS485 SERIAL PORT

ROE and RVE units, combined with the Advanced control, can be connected to a super-vision or domotic system that communicates with the Modbus RS485. In this way, a total remote control of the unit is granted.

FREE COOLING

In summer time, when external conditions are more comfortable than the internal ones, the unit automatically activates the injection of external air without keeping the heat of the ejection air. In this way, the internal comfort is granted by exploiting the "fresh" external air. Over 25°C internal temperature, the free-cooling is activated (only if the external air is lower). With the Advanced control, the temperature for the activation of the free-cooling function can be set and modify by the use

DIRTY FILTERS SENSOR

The dirty filter sensor (available only if combined with the Advanced control) signals the necessity of cleaning / substituting the air filters. This option (different from the timed dirty filter signal) indicates the real necessity to intervene on the filters.

HUMIDITY PROBE

The humidity probe (option available only if combined with the Advanced control) is useful to set the renewals of air according to the internal air humidity value. In this way, the renewal is completely automatic and aligned with domestic activities. It is important to underline that, in particularly humid areas, overall in summer time, critical situations may occur and this might lead to a continuous air renewal.

CO2 PROBE

The CO_2 probe (option available only if combined with the Advanced control), is particularly useful for installations in public ambiences such as, for instance, offices or meeting rooms, where the CO_2 value is submitted to continuous and quick changes. In this case, the air renewal will always be aligned with the real necessity of the ambient.

VOC PROBE

The VOC probe (option available only if combined with the Advanced control), allows the control of the air general quality, measuring the microorganisms content in the air. The use of the VOC probe is particularly useful where a very healthy ambient is required. The air renewal can be modulated according to the real incidence of micro-organisms present in the air.

AIR PURIFIER

The air purifier (option available only if combined with the Advanced control) is a device that purifies the renewal air supply in ambient but also the pipes for the air distribution. Often, we do not consider that the air distribution channels may become insane if not properly maintained. The air purifier can be managed in three ways: manual (turning it on / off from the wall-mounted display); with time-bands; combined with the VOC probe. In this last case, the low quality of the air will automatically activate the air purifier.

HOT WATER COIL DUCT

The water coil is contained within a duct plenum, with circular take-offs and gaskets. It can be supplied with both hot and cold water.

SUPPLY AIR TEMPERATURE CONTROL KIT

This option (available only if combined with the Advanced control) allows to set the air supply temperature thanks to the use of a post-heating coil, a three-ways valve, a temperature probe and a software that manages the valve by making a comparison between the temperature read in ambient and a temperature value set from the wall display.

HIGH-EFFICIENCY FILTERS SET

As an alternative to the standard air filters in the unit, the heat recover can be supplied with higher efficiency filters. These filters can retain in a more effective way the micro-particles of dust, incrementing the pureness of air.

AIR SUPPLY AT CONSTANT FLOW

This option (available only if combined with the Advanced control) is particularly useful for the installations where a step regulation is not adequate, and a strict and precise control of the renewal air volume is desired. The option allows to set from the wall display a m^3/h value of air flow and the unit, automatically and independently from the form and the length of air distribution channels, will suit the user's settings.

AIR SUPPLY AT CONSTANT PRESSURE

This option (available only if combined with the Advanced control) allows to set a constant pressure on the supply air. HiDew has developed a sophisticated regulation software for this specific function. The air supply at constant pressure is a very useful option when, in the air distribution system, hygro-adjustable openings are used. These particular openings can automatically modify the air flow, according to the ambient humidity value.

STANDARD CONTROL

ROE and RVE units can be supplied with two kinds of control: the standard one (standard supplied) or the advanced control (optional).
To manage the ROE – RVE units with the standard control, it is sufficient to install on the wall:

- A 0 – 1 – 2 – 3 switch for the turning on, turning off and the regulation of 3 fan speeds
- A led (230V) for the timed dirty filter signal and an eventual fault in the functioning.

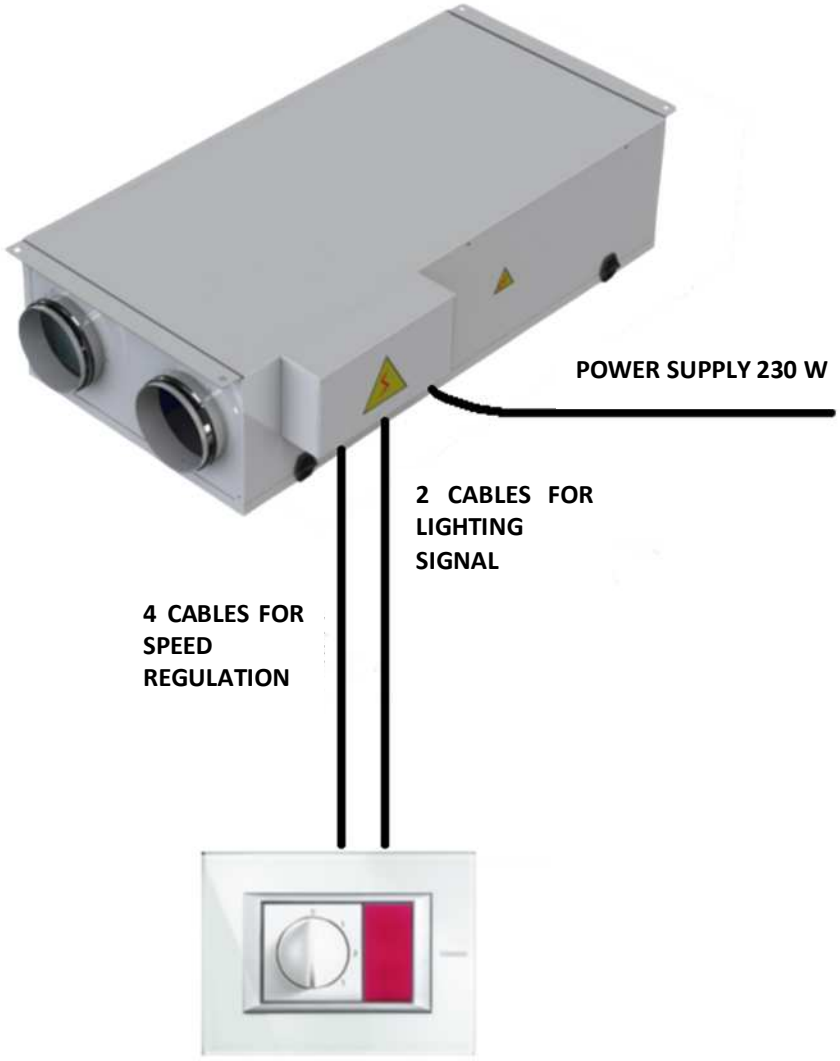
The switch and the led are not supplied by HiDew, but will be bought and mounted by the installer.
Here below you find some of the common possibility you will find on the market:

BTICINO MATIX	BTICINO LIVING	BTICINO AXOLUTE
		

VIMAR PLANA	VIMAR IDEA	VIMAR EIKON
		

With this solution, the control can be integrated in the ambient as the other light switches, avoiding unaesthetic impacts.
It can be placed in a common 503 box.

CONNECTION BETWEEN THE UNIT AND THE ON WALL SWITCHES: 6 cables (4 for the selectors and 2 for the led)



ADVANCED CONTROL

ROE and RVE heat recovers can be managed with an Advanced control.
With this option, an elegant remote display and an electrical box 503 will be supplied.
The Advanced control is necessary when you want to control complex parameters such as, for instance, CO2 values, air quality, supply air temperature, time-bands, etc. A list of the functions that the Advanced control can manage, is available on page 6.

On the graphic display there are 6 keys with intuitive symbols to easy the set of the several available functions.
The connection between the heat recover and the wall display is realized through a shielded 2 cables bus.

TECHNICAL DATA

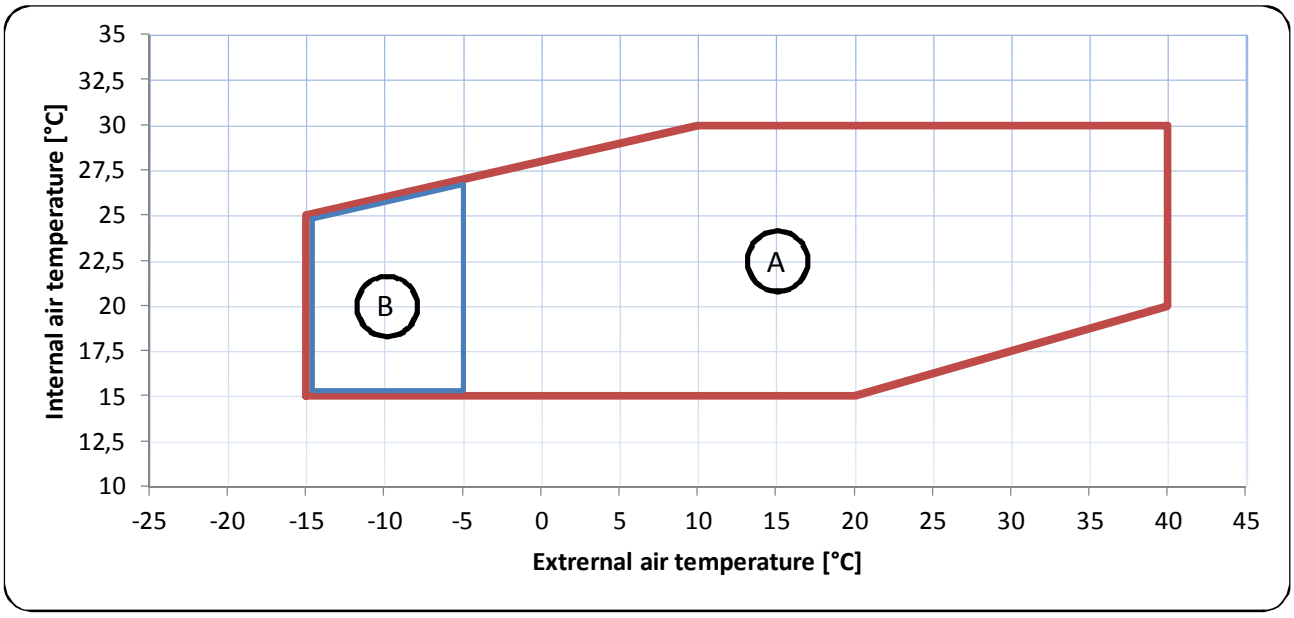
TECHNICAL DATA TABLE

		ROE				RVE	
		10	20	35	50	35	50
NOMINAL AIR FLOW	m^3/h	100	200	350	500	350	500
EFFICIENCY	%	93	91	90	88	90	88
RECOVERED HEATING POWER IN WINTER	W	790	1547	2660	3732	2660	3732
RECOVERED HEATING POWER IN SUMMER	W	270	538	920	1280	920	1280
RATED POWER CONSUMPTION	W	21	40	84	74	84	74
MAX POWER CONSUMPTION	W	40	128	128	254	128	254
POWER SUPPLY	V / Ph / Hz	230 / 1~+N / 50					
AVAILABLE STATIC PRESSURE MEDIUM SPEED	Pa	70	75	75	80	75	80
AVAILABLE STATIC PRESSURE MAX SPEED	Pa	150	160	150	160	150	160
LOAD LOSSES	Pa	--	--	--	--	--	--
TEMPERATURE WORKING RANGE	°C	-10 / +43					
MAX HUMIDITY	% ur	90					
NET WEIGHT WITHOUT ACCESSORIES	Kg	23	33	40	47	55	56

The efficiency and the recovered heating power in winter are declared at the following conditions: ambient air +20°C 50% R.H. and external air -5°C 80% R.H.
The recovered heating power in summer is declared at the following conditions: ambient air +26°C 50% R.H. and external air +35°C 70% R.H.
The power consumptions are declared according to the nominal air flow and with a static pressure of 50 Pa.
The static pressures are declared according to the nominal air flow.

Different conditions mean different values: the further you are from the mentioned conditions, the further you are from the declared values.

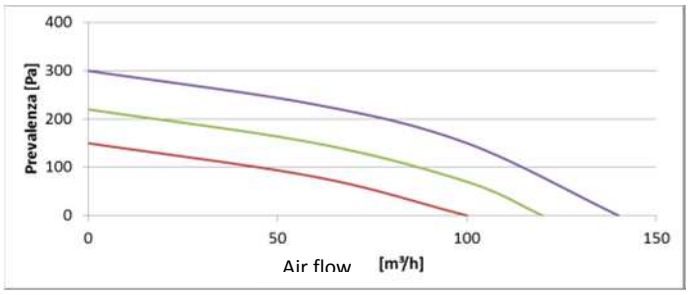
OPERATION LIMITS

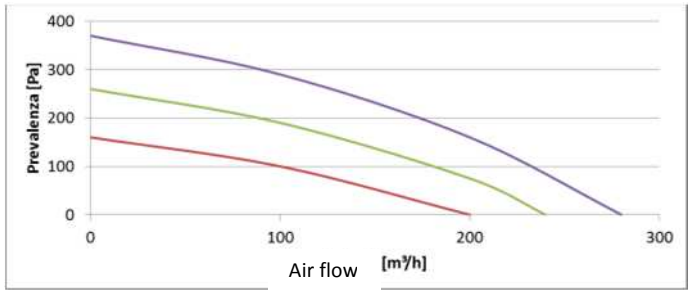


A. Operation limits
B. In those temperature conditions, the installation of the external air heater for low temperature is suggested.

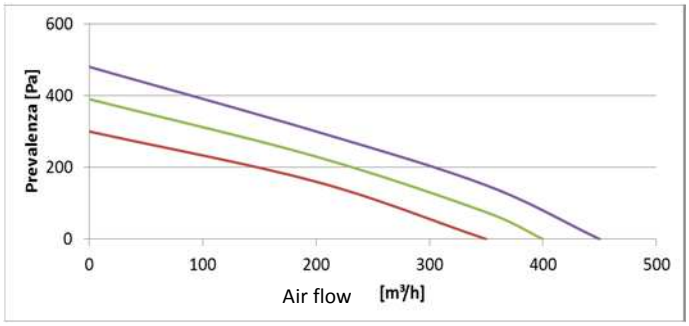
AIR FLOW AND PRESSURE CURVES

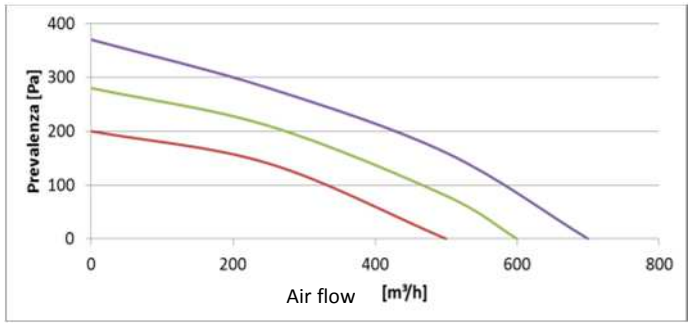
ROE 10 ROE 20





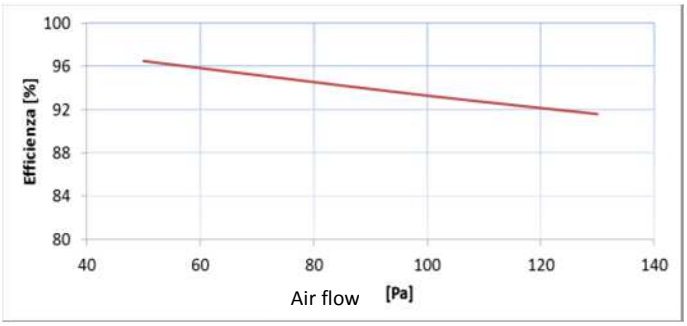
ROE 35 – RVE 35 ROE 50 – RVE 50

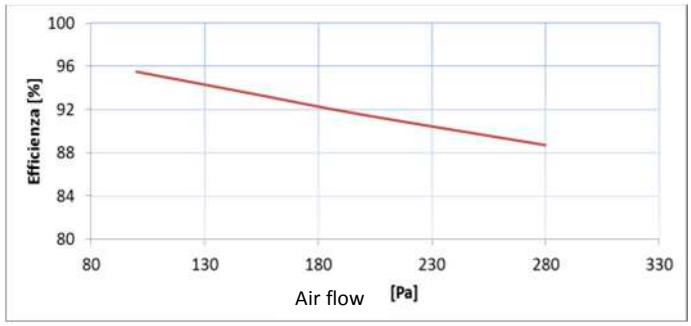




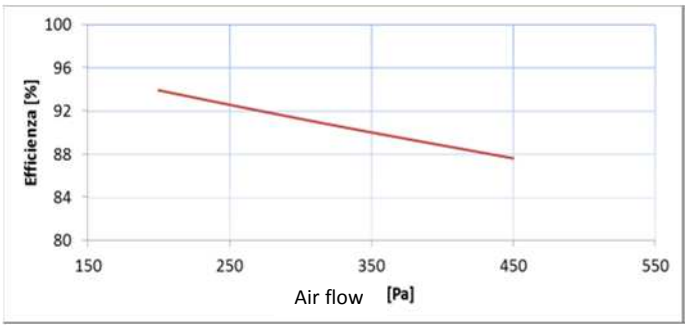
YIELD CURVES

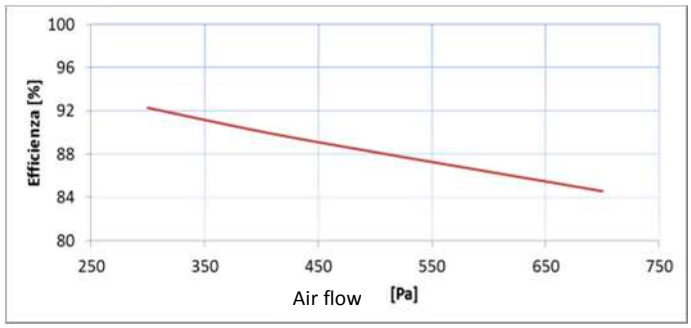
ROE 10 ROE 20





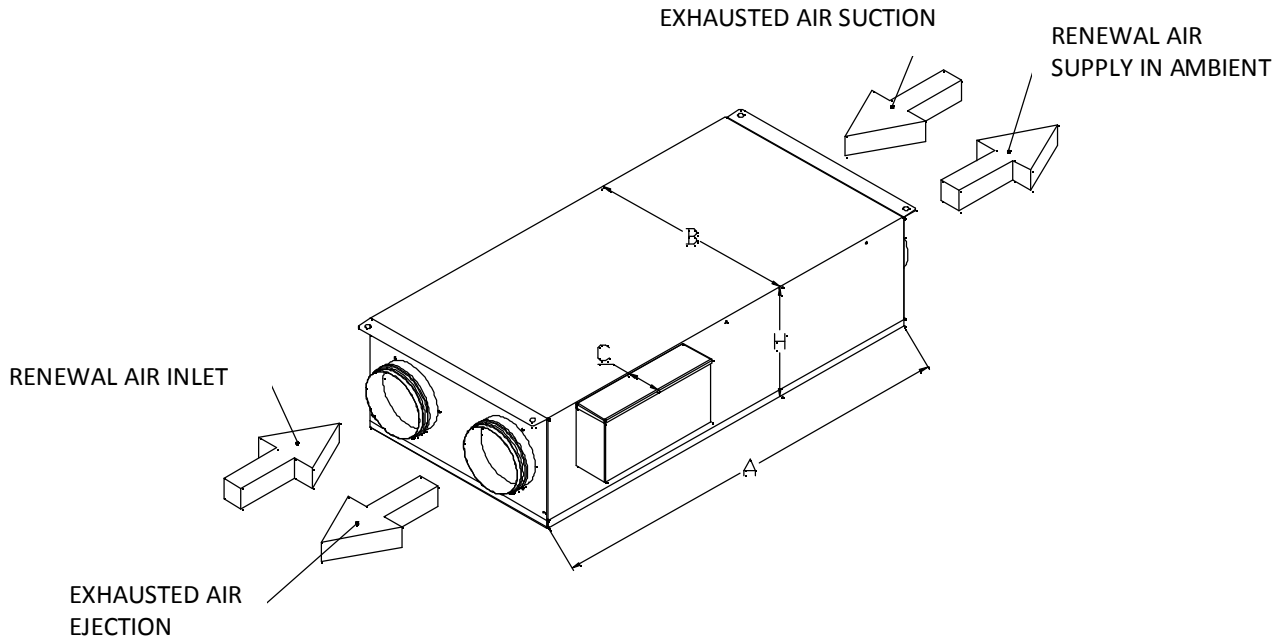
ROE 35 – RVE 35 ROE 50 – RVE 50



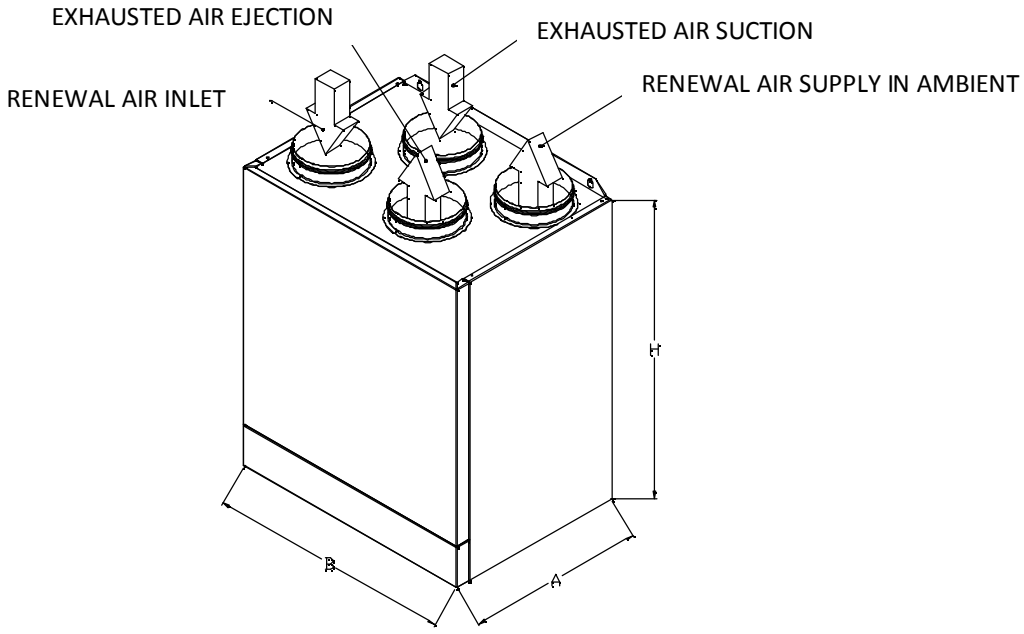


OVERALL DRAWINGS

ROE (HORIZONTAL UNIT WITH ELECTRONIC FANS)



RVE (VERTICAL UNIT WITH ELECTRONIC FANS)



	A	B	H	Take-offs diameter Ø	C
ROE 10	850	350	200	125	80
ROE 10 S (with free-cooling)	850	500	200	125	80
ROE 20	1000	500	270	160	80
ROE 35	1000	650	270	180	80
ROE 50	1000	650	400	180	80
RVE 35	510	700	860	180	
RVE 50	510	700	860	180	

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