HRA-i PLUS

The compact aggregate with heat pump for heating, cooling and air renewal in nZEB homes

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nZEB = nearly Zero Energy Building

HRA-i PLUS

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7 in 1

Seven functions in a single unit

- heating
- cooling
- controlled mechanical ventilation
- air purification
- combined passive + thermodynamic heat recovery
- dehumidification
- free cooling

HRA-i PLUS

TWO VERSIONS

HRA-i PLUS

Uses the energy contained in the air as a thermal source

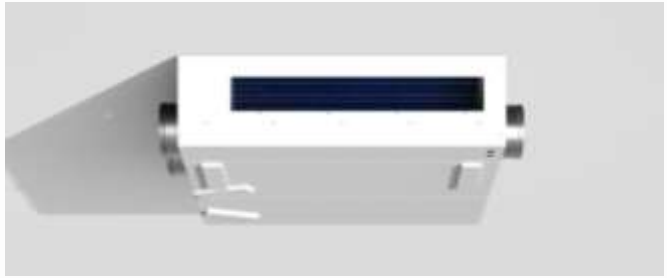
HRA-i PLUS H2O

Uses the energy contained in water as a thermal source

(For a more in-depth look at this version, consult the presentation and dedicated documentation)

HRA-i PLUS

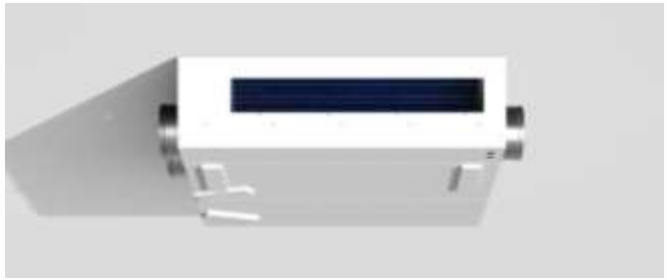
2 sizes:



HRA-i PLUS 50/08

Heating capacity = 3.65 kW
Cooling capacity = 2.57 kW
Total air flow rate = 500 m^3/h
Total renewal air flow rate = 80 m^3/h

Suitable for homes with surfaces areas of up to 59 m^2 (*)



HRA-i PLUS 50/15

Heat output = 3.71 kW
Cooling output = 2.82 kW
Total air flow rate = 500 m^3/h
Total renewal air flow rate = 145 m^3/h

Suitable for homes with surfaces areas of up to 111 m^2 (*)

The declared heating/cooling capacities refers to total values: transmission + ventilation
(*) considering 0.5 vol/h and a room height of 2.7 m

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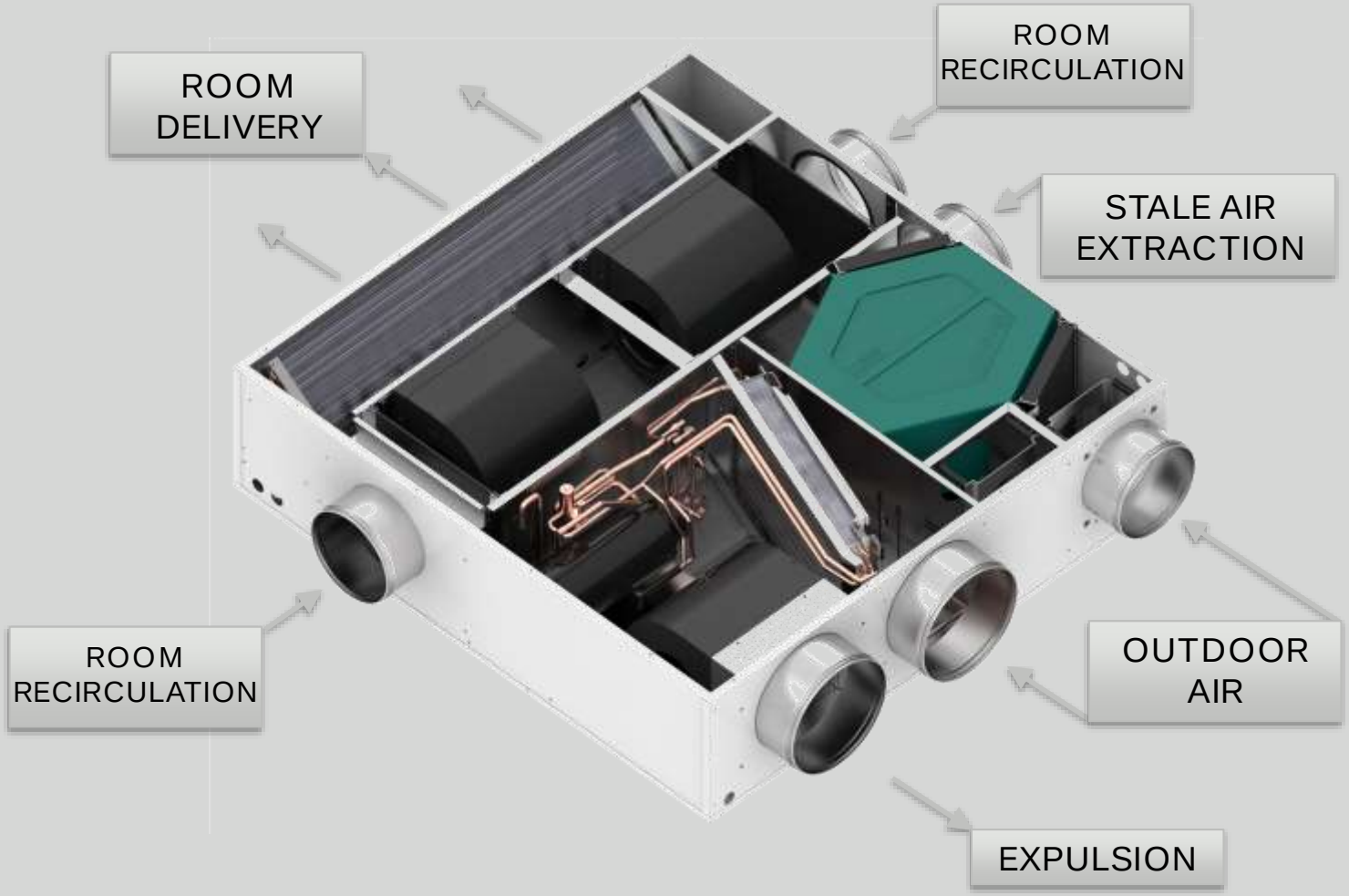
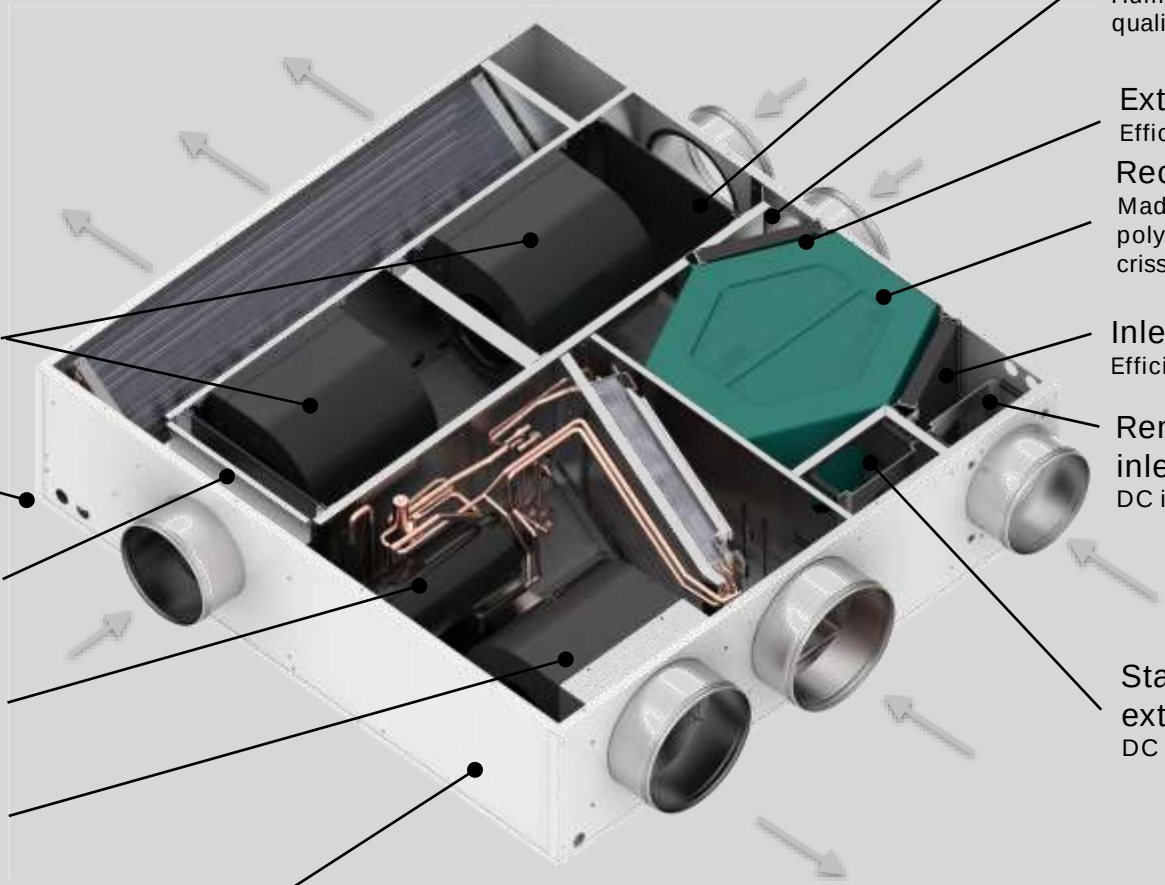
AIR FLOWS



HRA-i PLUS

COMPOSITION OF THE UNIT



Recirculation filter
Efficiency class ePM 1 80%

Indoor room sensors
Humidity/temperature and air quality (VOC+CO_2) sensors

Extraction filter
Efficiency class ePM 1 80%

Recovery unit
Made of polypropylene with criss-cross flows

Inlet filter
Efficiency class ePM 1 80%

Renewal air inlet fan
DC inverter

Stale air extraction fan
DC inverter

Delivery fans
DC inverter

Electrical panel

Recirculation filter
Efficiency class ePM 1 80%

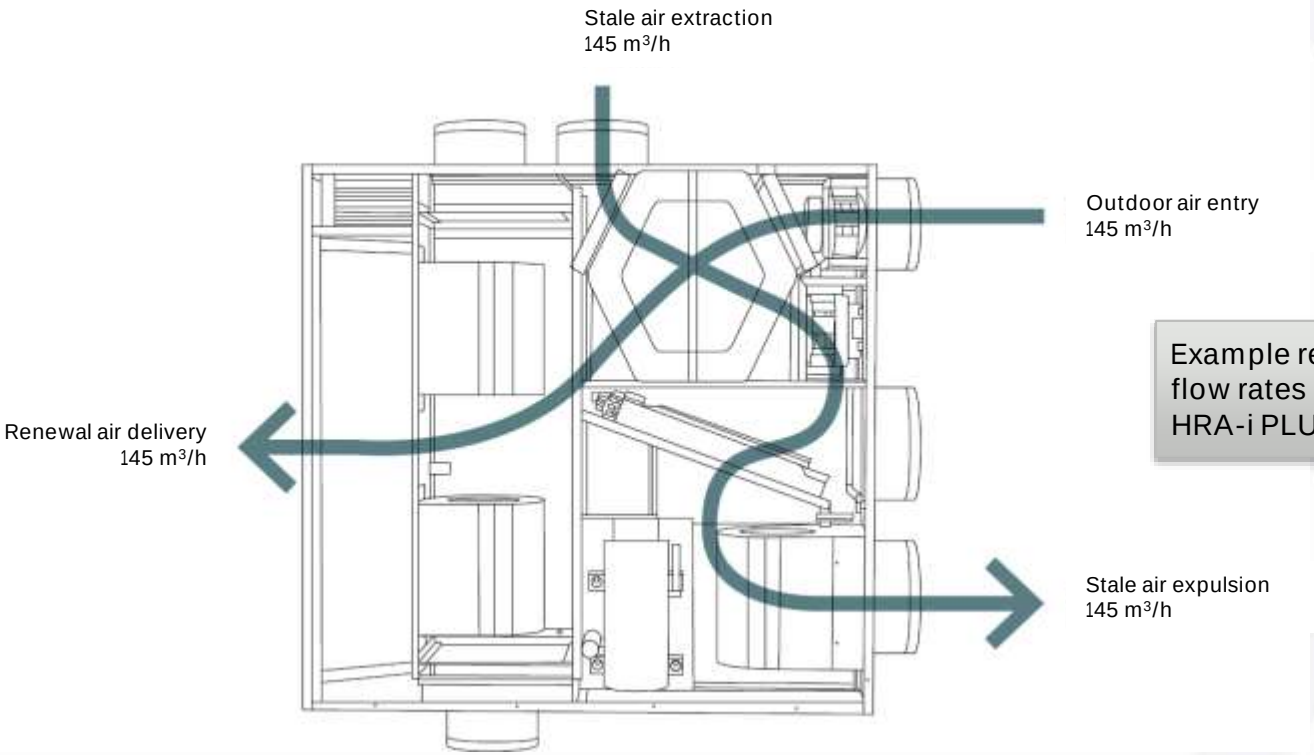
Horizontal compressor
DC inverter

Expulsion fan
DC inverter

Coated metal structure
Sandwich panels made of double galvanised sheet metal and high-density polystyrene inner insulation

HRA-i PLUS

AIR RENEWAL FUNCTION ONLY

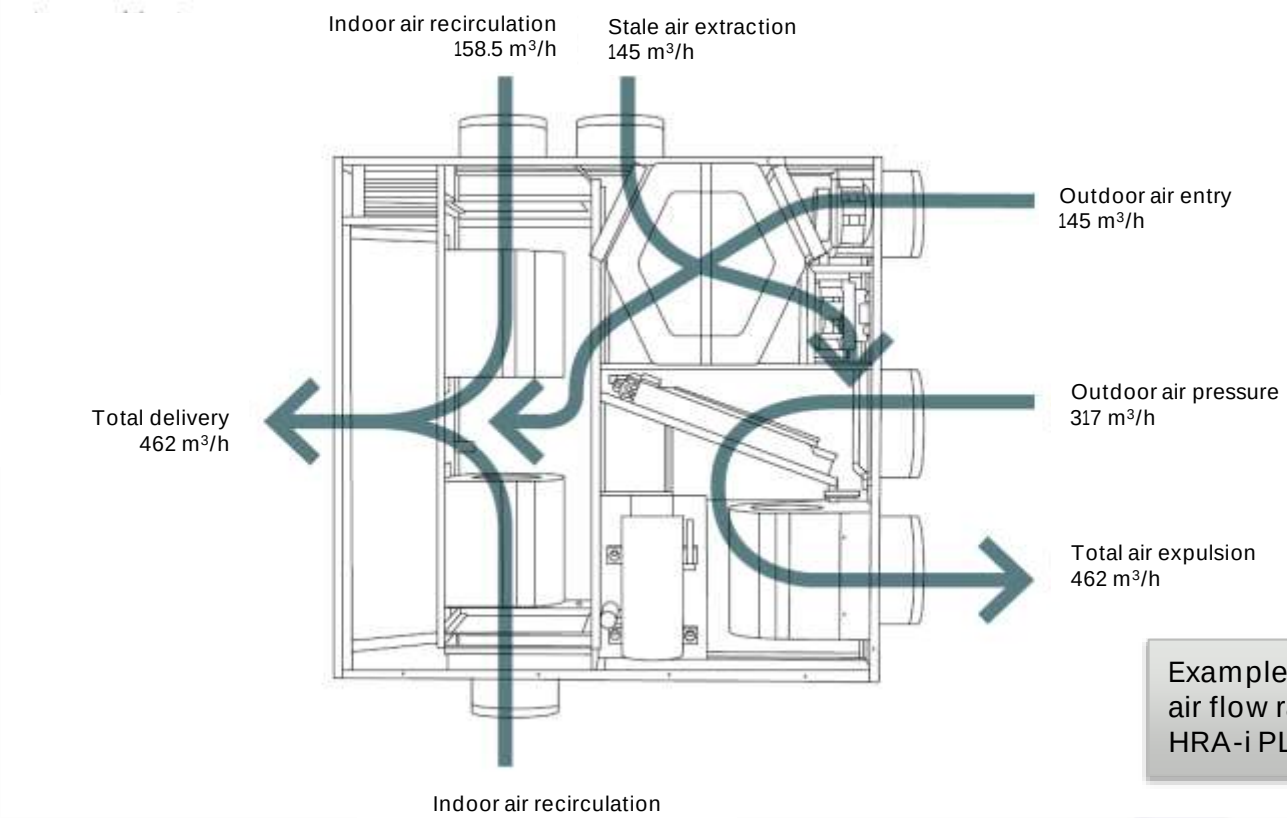


Example referred to the air flow rates of model HRA-i PLUS 50/15

Both in heating and in cooling mode, when the desired room temperature has been reached, HRA-i PLUS remains active for guaranteeing the correct air quality by recovering the heat of the outdoor air in an extremely efficient way, thanks to the double recovery stage, static + thermodynamic, and introducing purified air from the outside, thanks to the ePM1 80% filter.

HRA-i PLUS

AIR RENEWAL AND HEATING OR COOLING FUNCTION

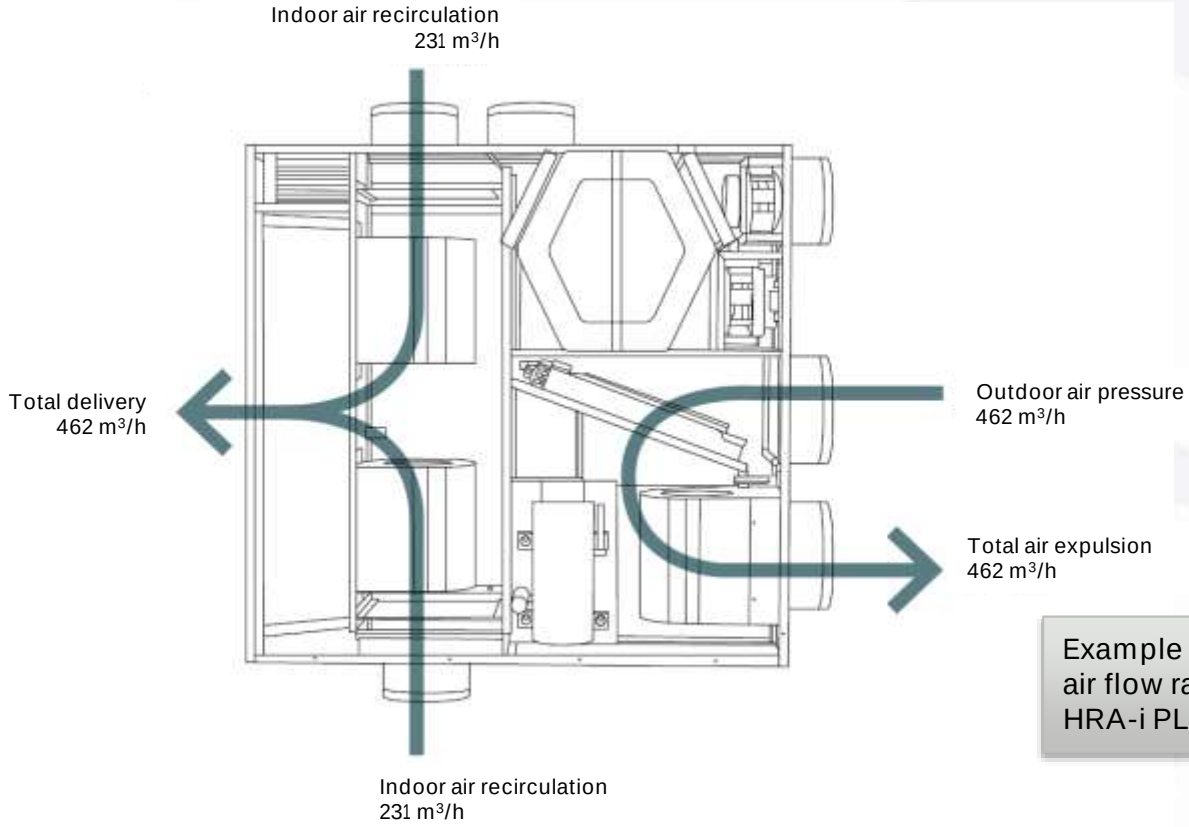


Example referred to the air flow rates of model HRA-i PLUS 50/15

When the desired room temperature has not been reached, the heat pump generates the necessary power thanks to the inverter compressor which draws energy from the air being expelled and from the outside air. In order for it to be adequately distributed, the generated heat uses the renewal air volume together with the recirculation air volume, which are adequately filtered and brought to the right temperature.

HRA-i PLUS

HEATING OR COOLING FUNCTION ONLY



Example referred to the air flow rates of model HRA-i PLUS 50/15

HRA-i PLUS constantly monitors the room temperature, humidity and air quality (VOC and CO_2).
It activates automatically for satisfying all the comfort parameters in the most convenient way energy-wise. For example, if the room air quality is satisfied, the unit only works with the recirculation air, reducing energy consumption.

HRA-i PLUS

CONSTANT-VOLUME FANS
Constant-volume centrifugal fan that automatically adapts to the head losses of the channels.

DC INVERTER COMPRESSOR

SLIM
A mere 260 mm height

AIR QUALITY
Through the CO_2, VOC and humidity sensors, the unit automatically adjusts its operation.

HRA-i PLUS

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CONSTANT-VOLUME DC INVERTER CENTRIFUGAL FAN

“Smart” fans that keep the air flow rate constant by autonomously increasing or decreasing the speed in relation to the pressure head losses of the channels and of the air filter

HRA-i PLUS

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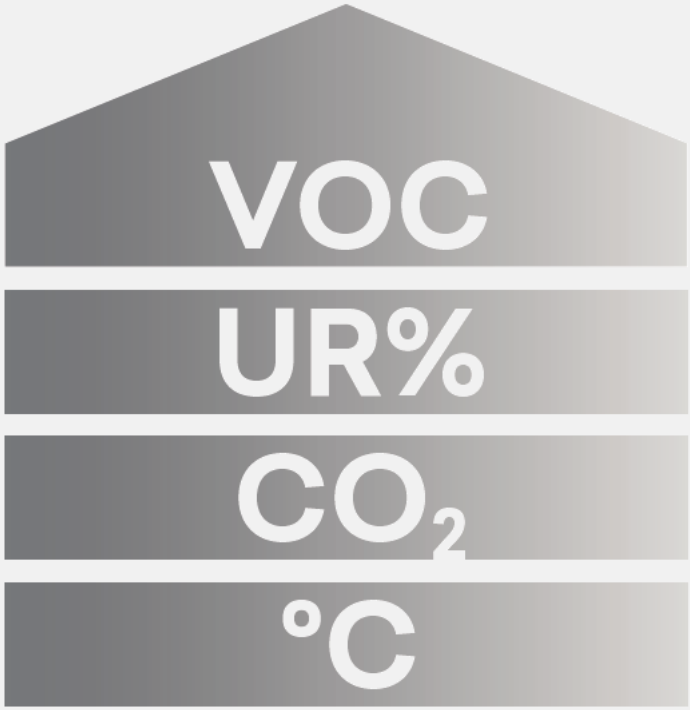
HORIZONTAL DC INVERTER COMPRESSOR

- The unit occupies a height of merely 26 cm
- Broad modulation range up to 15% of the power
- Proprietary driver with advanced motor torque control algorithms to eliminate vibrations

HRA-i PLUS

INTEGRATED AIR QUALITY, TEMPERATURE AND HUMIDITY SENSORS



The renewal volume varies automatically in relation to the internal conditions in order to guarantee optimal comfort and energy saving.

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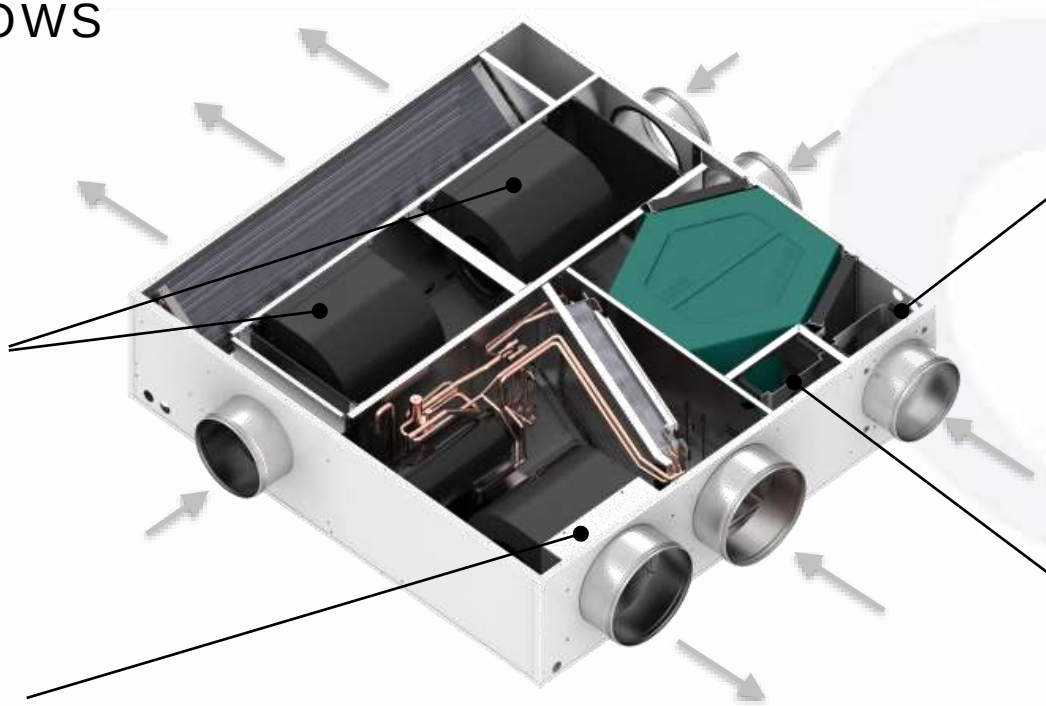
In compact aggregates, the electrical consumption of the fans makes up for roughly 50% of the unit's overall consumption. Thanks to its low height, HRA-i PLUS can be installed in the home's suspended ceilings in a centre position, so as to minimise the length of the aeraulic pipes and thus the electrical consumption of the fans required for overcoming the head losses.

HRA-i PLUS

PRECISE AIR FLOWS



Delivery fans
Constant-volume DC inverter

Expulsion fan
Constant-volume DC inverter

Renewal air
inlet fan
DC inverter

Stale air
extraction fan
DC inverter

Dedicated fans for extracting stale air and introducing air from the outside guarantee a correct renewal air flow rate, regardless of the head losses of the aeraulic pipes. The air flows are perfectly calibrated during the commissioning phase, so the ventilation requirements can be known with certainty.

HRA-i PLUS

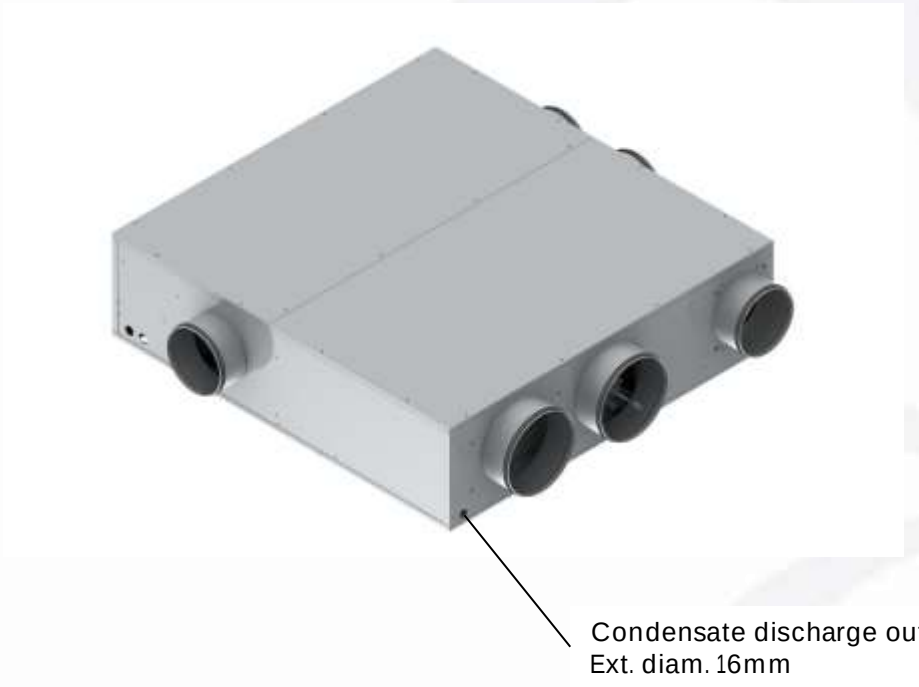
SIMPLE AND ADVANCED WI-FI OR ModBUS CONTROL UNITS

HYDRAULIC CONNECTIONS: CONDENSATE DISCHARGE OUTLET

SIPHON

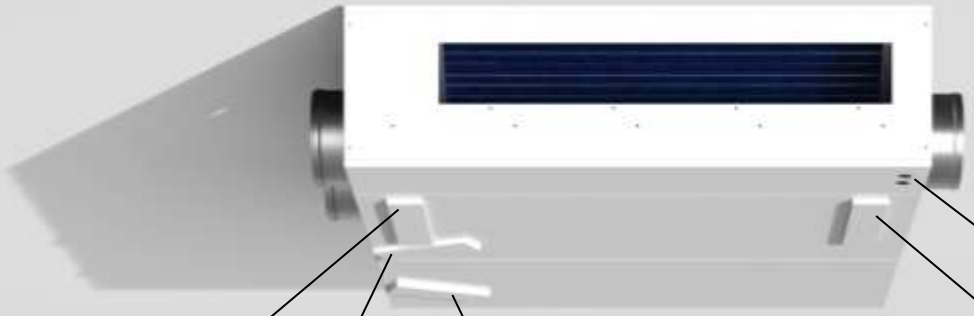
siphon supplied together with the unit

Siphon for horizontal installation



HRA-i PLUS

ACCESSIBILITY



Electrical panel

Room air recirculation filter

Room air recirculation filter

Renewal air inlet filter

Stale air extraction filter

Filter efficiency: ePM1 80%

captures 80% of the particulate with 1-micron size

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DIMENSIONS

DN 160
Stale air extraction, outdoor renewal air intake, recirculation

DN 200
Outdoor air intake and expulsion

HRA-i PLUS

CONTROL with electronic circuit board for wall mounting control ECA031/ECB031/ ECA032/ECB032

Thermostat-unit connection with cable supplied with the thermostat (length 8 metres)

ECB032II white

ECA032II black

SMART Touch thermostat
With ModBUS serial port

ECB031II white

ECA031II black

SMART Touch thermostat
With integrated Wi-Fi

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PERFORMANCES:

TECHNICAL DATA		HRA-I PLUS	
Size		50/08	50/15
AIR FLOW RATE			
Nominal fresh air flow rate	m³/h	80	145
Nominal recirculation air flow rate	m³/h	382	317
Total nominal air flow rate	m³/h	462	462
Static pressure available	Pa	100	100
HEATING PERFORMANCE (AT -5°C; AT 20°C)			
Recovery efficiency (1)	%	89.6	86.7
Total heat capacity(1)	kW	3.65	3.71
Space heating capacity without fresh air load (1)	kW	2.96	2.47
Static recovery heat output (1)	kW	0.61	1.06
Thermodynamic recovery heat capacity (1)	kW	3.04	2.65
Total input power (1)	kW	0.84	0.90
Total COP (1)		4.34	4.12
COOLING PERFORMANCE (AT 35°C; AT 27°C)			
Recovery efficiency (2)	%	85.9	79.3
Dehumidification capacity (2)	l/h	1.0	1.1
Total cooling capacity (2)	kW	2.57	2.71
Space cooling capacity without fresh air load (2)	kW	1.95	1.68
Static recovery cooling power (2)	kW	0.17	0.31
Thermodynamic recovery cooling capacity (2)	kW	2.40	2.41
Total input power (2)	kW	0.72	0.75
Total EER (2)		3.56	3.48

(1) Outdoor air temperature -5°C, 80% relative humidity. Room temperature 20°C; relative humidity 50%, nominal air flow
(2) Outdoor air temperature 35°, 50% relative humidity. Room temperature 27°C; relative humidity 60%, nominal air flow
(3) Free-field sound pressure at a distance of 3 m as per UNI EN3744

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PERFORMANCES:

TECHNICAL DATA		HRA-I PLUS	
Size		50/08	50/15
GENERAL CHARACTERISTICS			
Fan		Constant-volume centrifugal / Radial with aerofoil blades	
Number of fans	No.	4	
Static heat recovery device		Counter-flow plates - polypropylene	
Summer by-pass		yes	
Compressor		DC rotary inverter	
Filters		Flat filters - 2 x ePM1 80%	
Sound pressure (3)	dB(A)	39.5	39.9
REFRIGERATOR FITTINGS			
Refrigerant		R410a	
ELECTRICAL DATA			
Max fans power input	kW	0.31	0.38
Max power input compressors	kW	1.4	1.4
Max total input power	kW	1.71	1.78
Max current absorbed	A	9.5	9.8
Power Supply	V/ph/Hz	230/1/50	
OPERATING LIMITS			
Heating - Indoor air min/max	°C	10/25	
Heating - Outdoor air min/max	°C	-20/20	
Cooling - Indoor air min/max	°C	18/28	
Cooling - Outdoor air min/max	°C	15/38	

HRA-i PLUS

ACCESSORIES SUPPLIED SEPARATELY:

ECB031II - SMART Touch thermostat with integrated Wi-Fi, white

Complete with cable and connector, length 8 metres.

ECA031II - SMART Touch thermostat with integrated Wi-Fi, black

Complete with cable and connector, length 8 metres.

ECB032II - SMART Touch thermostat with integrated ModBUS, white

Complete with cable and connector, length 8 metres.

ECA032II - SMART Touch thermostat with integrated ModBUS, black

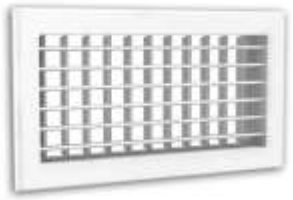
Complete with cable and connector, length 8 metres.

HRA-i PLUS

ACCESSORIES SUPPLIED SEPARATELY:

GR1118II - Isolated plenum for delivery/recovery, horizontal or vertical, with DN 160 mm opening and grille mount. Dimensions: 450x175x175 mm

GR1120II - Intake grille with removable aluminium filter, white version. Dimensions: 450x225 mm



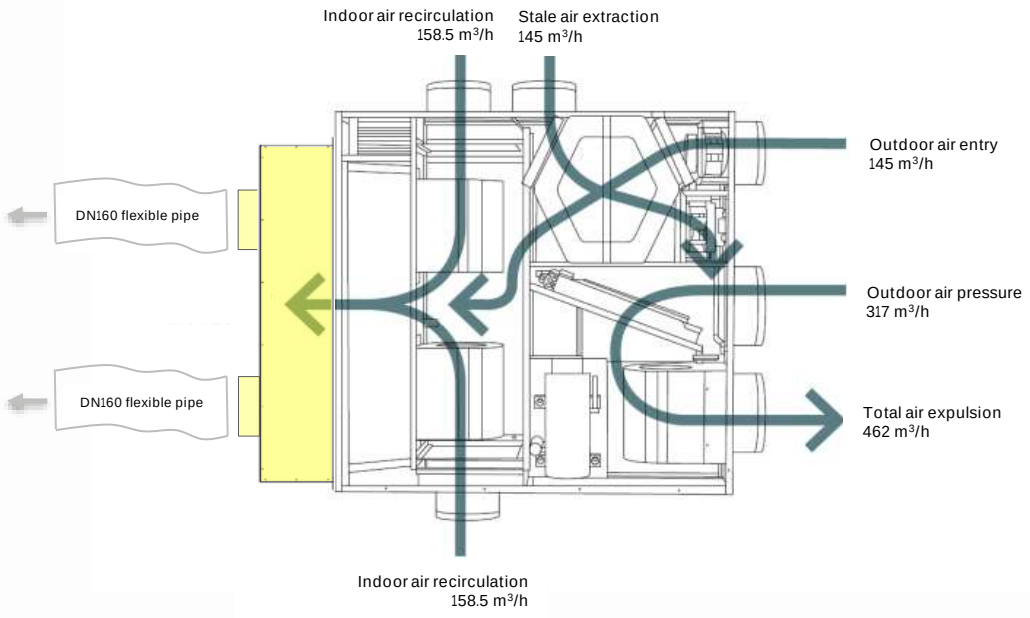
GR1119II - Aluminium delivery grille with double row of orientable fins, white version. Dimensions: 450x225 mm

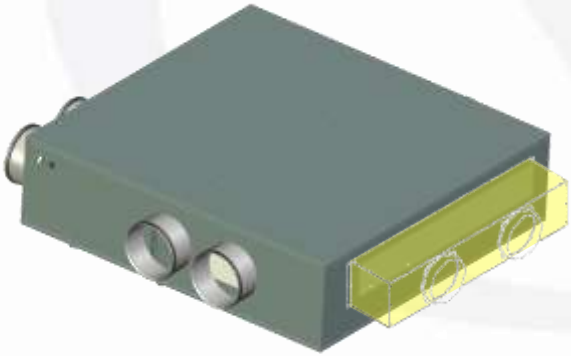
HRA-i PLUS

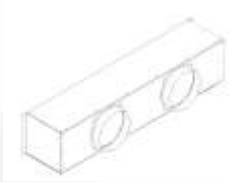
ACCESSORIES SUPPLIED SEPARATELY:

GR1116II - Isolated plenum with flange for connecting the unit and two round openings DN 160 mm.

2 front stubs
DN160



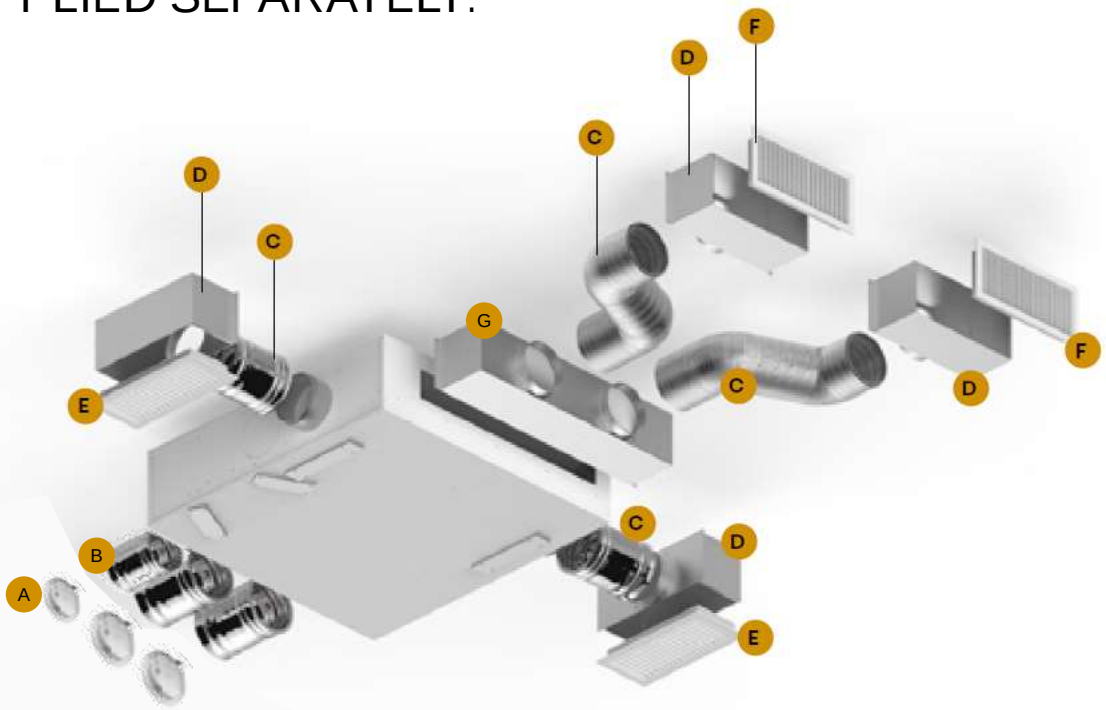




2 x DN160 inlets
Dimensions: 850x175x175 mm

HRA-i PLUS

ACCESSORIES SUPPLIED SEPARATELY:



A – DN160 and DN200 external grilles

B – DN160 and DN200 flexible pipes

C – DN160 flexible pipe

D - GR1118II - Isolated plenum for delivery/recovery, horizontal or vertical, with DN 160 mm opening and grille mount.

E - GR1120II - Intake grille with removable aluminium filter, white version.

F - GR1119II - Aluminium delivery grille with double row of orientable fins, white version.

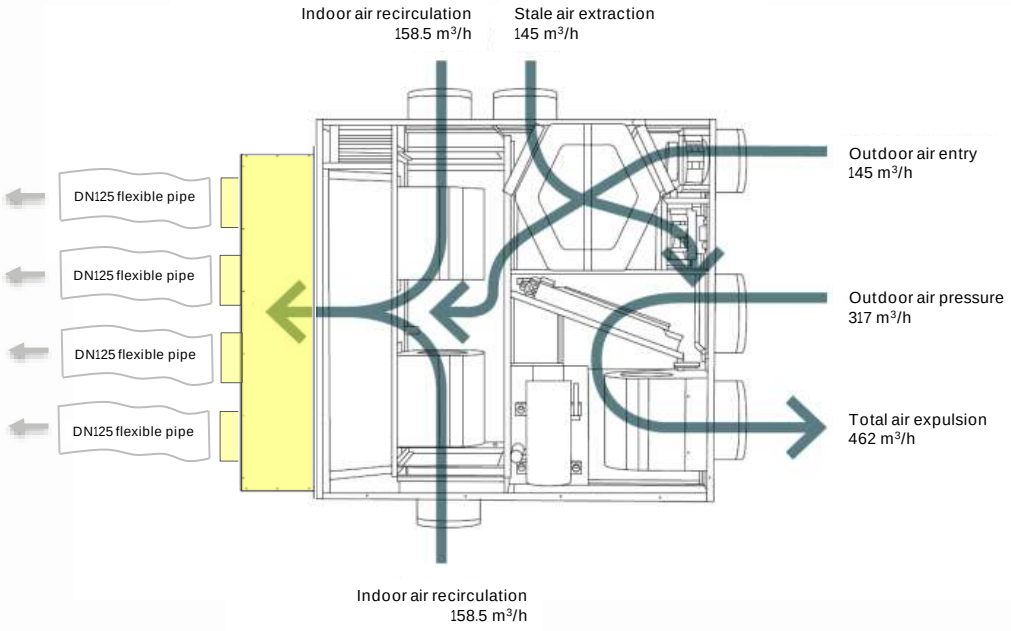
G - GR1116II - Isolated plenum with flange for connecting the unit and two round openings DN 160 mm.

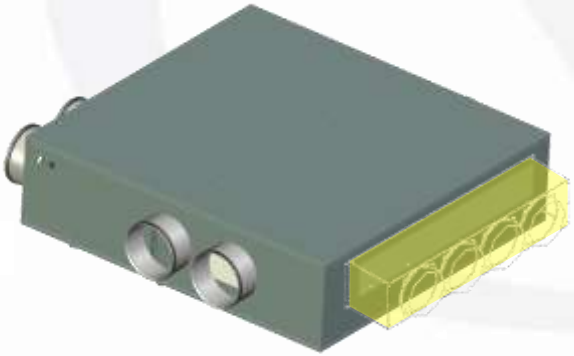
HRA-i PLUS

ACCESSORIES SUPPLIED SEPARATELY:

GR1123II - Isolated plenum with flange for connecting the unit and four round openings DN 125 mm.

4 front stubs
DN125



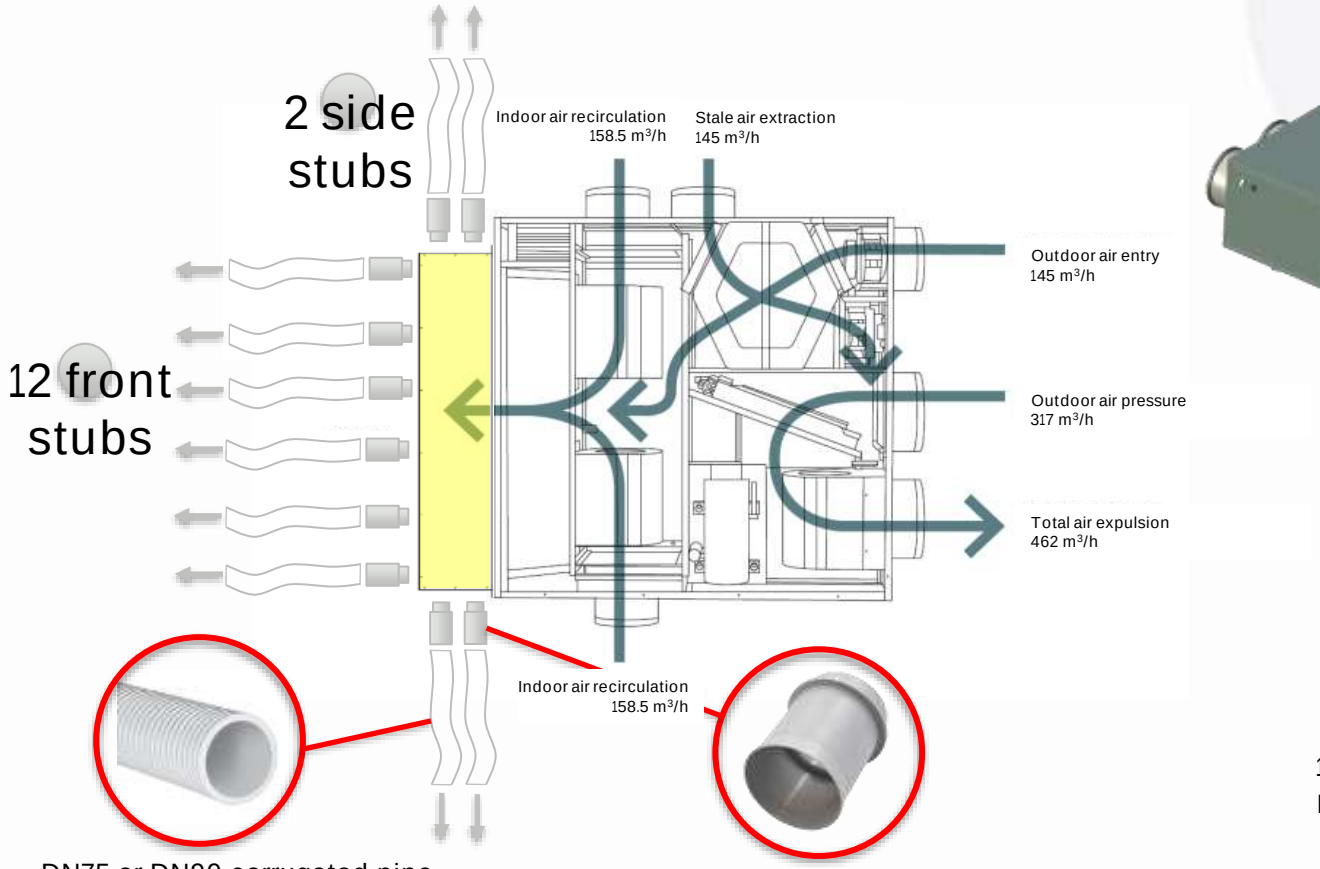


4 x DN125 inlets
Dimensions: 850x175x175 mm

HRA-i PLUS

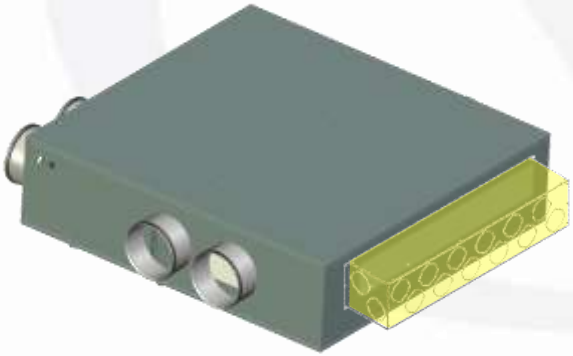
ACCESSORIES SUPPLIED SEPARATELY:

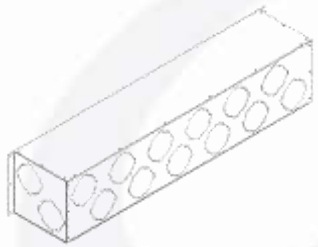
GR1122II - Isolated plenum with flange for connecting the unit and pre-cut elements for the DN75 or DN90 corrugated pipe stubs 2+12+2.



DN75 or DN90 corrugated pipe (supplied separately)

DN75 or DN90 corrugated pipe stub (supplied separately)

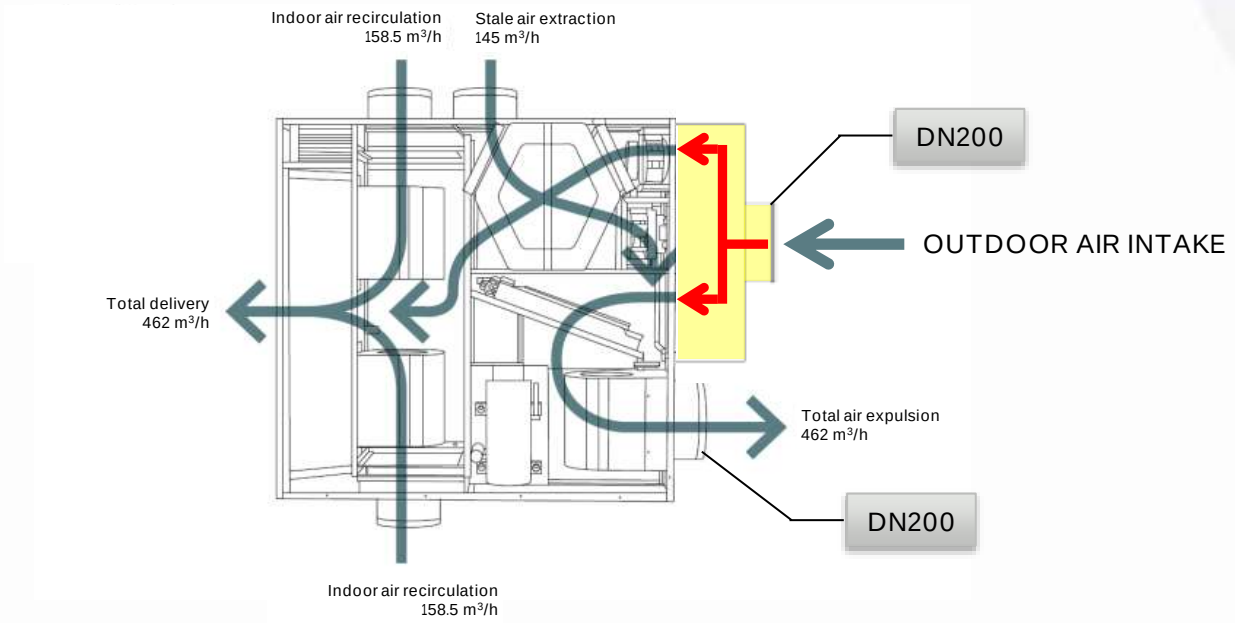


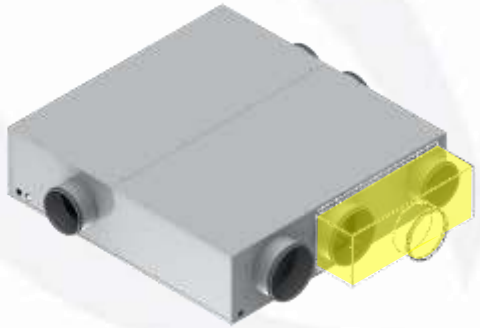


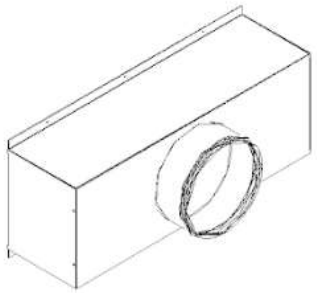
12 front stubs, 2+2 side stubs
Dimensions: 850x175x175 mm

ACCESSORIES SUPPLIED SEPARATELY:

GR1124II - Isolated plenum with single outdoor air intake DN200





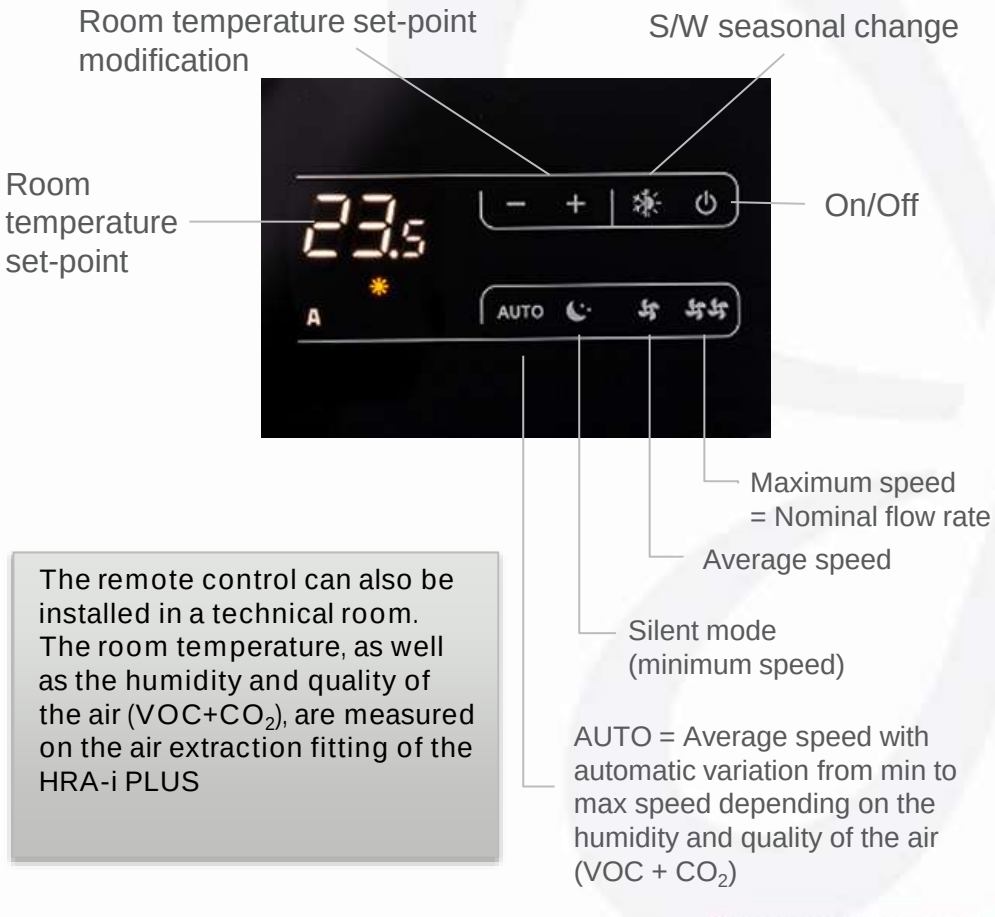


Dimensions: 600x220x220 mm

HRA-i PLUS

CONTROL AND ADJUSTMENT DETAILS

Base functions:

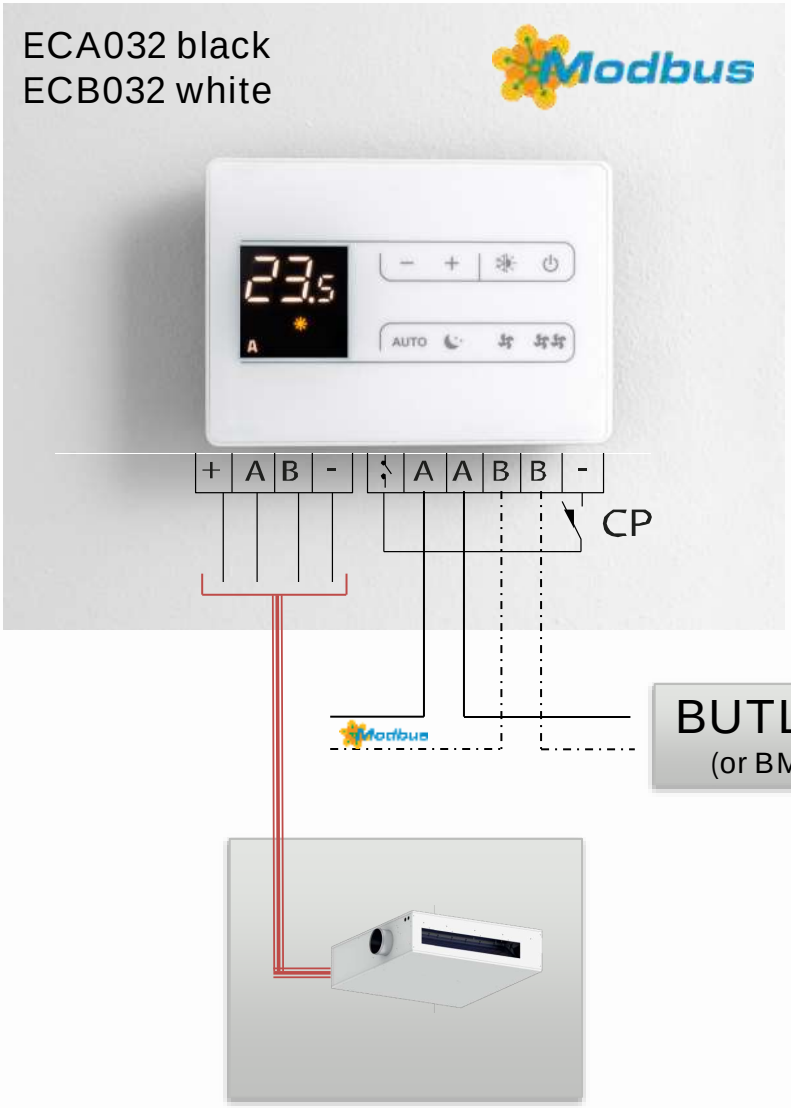


The remote control can also be installed in a technical room. The room temperature, as well as the humidity and quality of the air (VOC+CO_2), are measured on the air extraction fitting of the HRA-i PLUS

HRA-i PLUS

CONNECTIVITY:

ECA032 black
ECB032 white



ECA031 black
ECB031 white

BUTTON LOCK FUNCTION: ECA031/ECB031/ ECA032/ECB032

- Simultaneously pressing the + and — buttons for 1 second causes all the buttons to lock, as confirmed by “LOC” appearing on the display.
- All the adjustments are inhibited by the user and “LOC” appears when any button is pressed.
- To deactivate local locking of the buttons, press the + and — buttons again.

SPECIAL FUNCTIONS: ECA031/ECB031/ ECA032/ECB032

INSTALLER advanced menu, available from 2020

- To access the menu, press the start button ⏻ for 10 seconds
- The control unit will switch on and display the room temperature
- Keeping it pressed again will cause **Ad** to appear
- To move within the menu, use the + and − icons
- To select the menu items and to confirm the changes, press ⏻
- To exit the menu press ⏻ for 10 seconds or wait 30 seconds without giving any command. The display will switch off and the settings will be memorised

Ad	Control modbus address	rb	Reset modbus
uu	Wi-Fi antenna enabling	Fr	Factory reset
Ub	Buzzer volume adjustment	ot	Room T probe offset
br	Display brightness adjustment	oH	Room R.H. probe offset (not active)
di	CP digital input management	Sc	Temperature display scale
rZ	Radiant zone management (only with EF1027)	rE	Electrical heater option
Ld	Not used		

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End of the presentation
Thank you for your attention