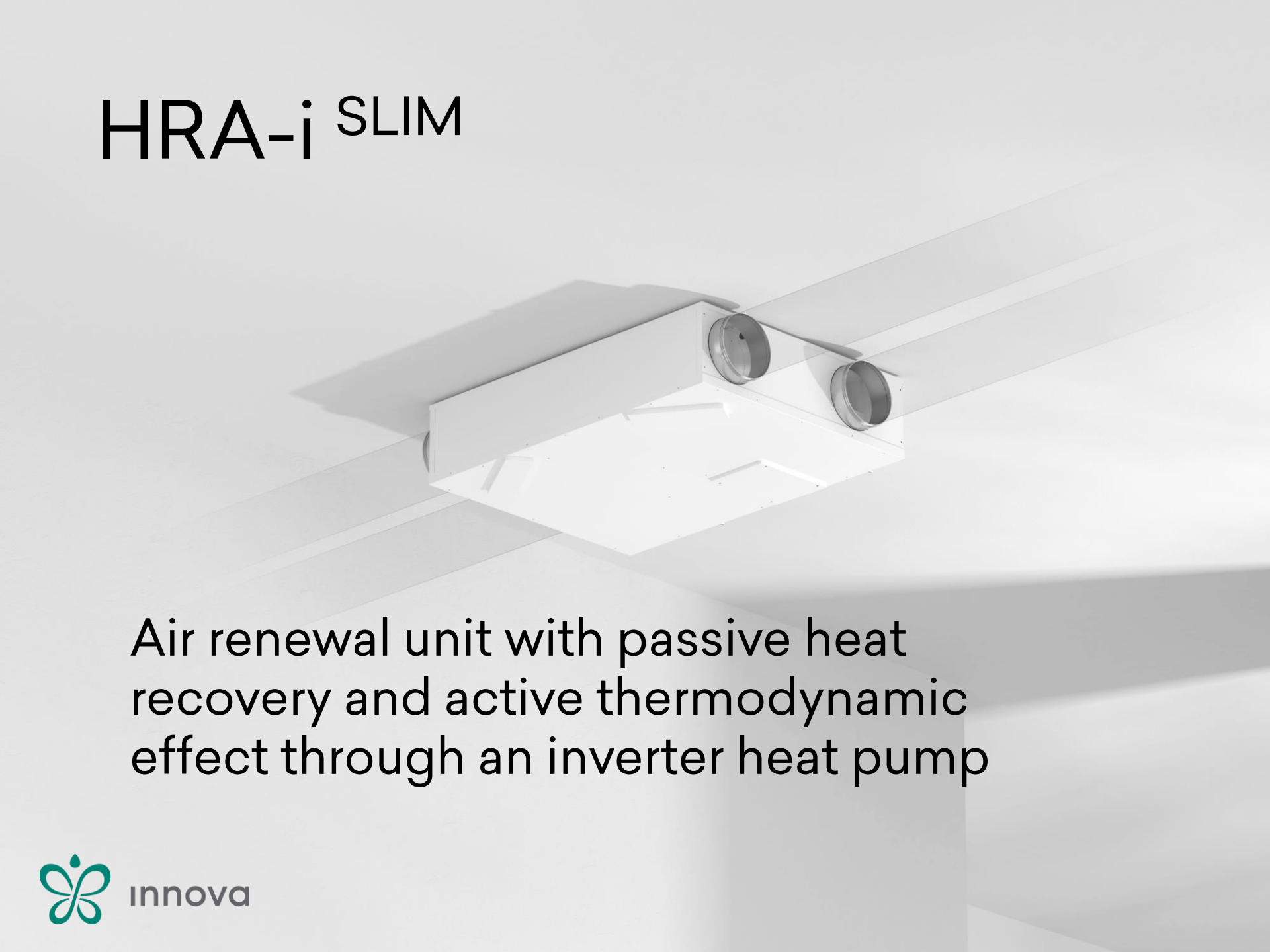
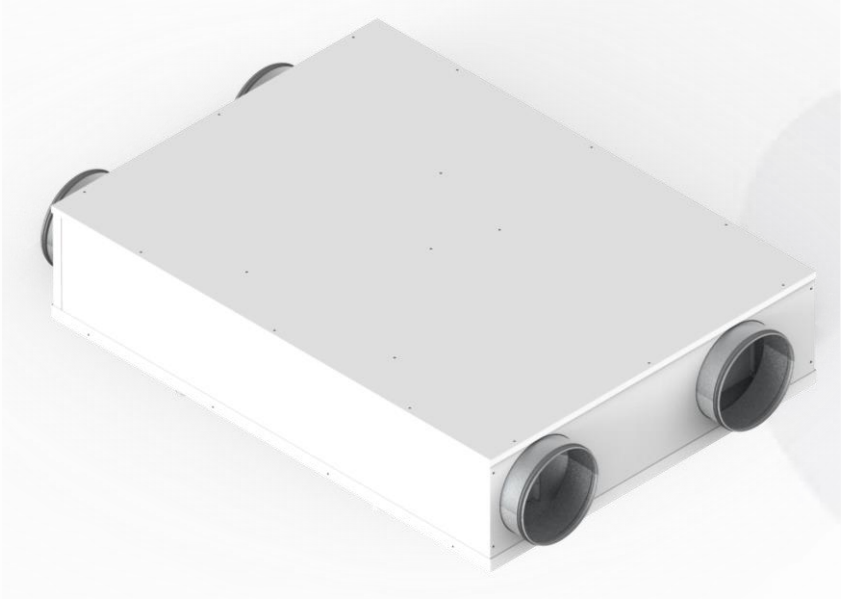
HRA-i SLIM



Air renewal unit with passive heat recovery and active thermodynamic effect through an inverter heat pump

innova

HRA-i SLIM



CONSTANT-VOLUME FANS

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

HEATING AND COOLING

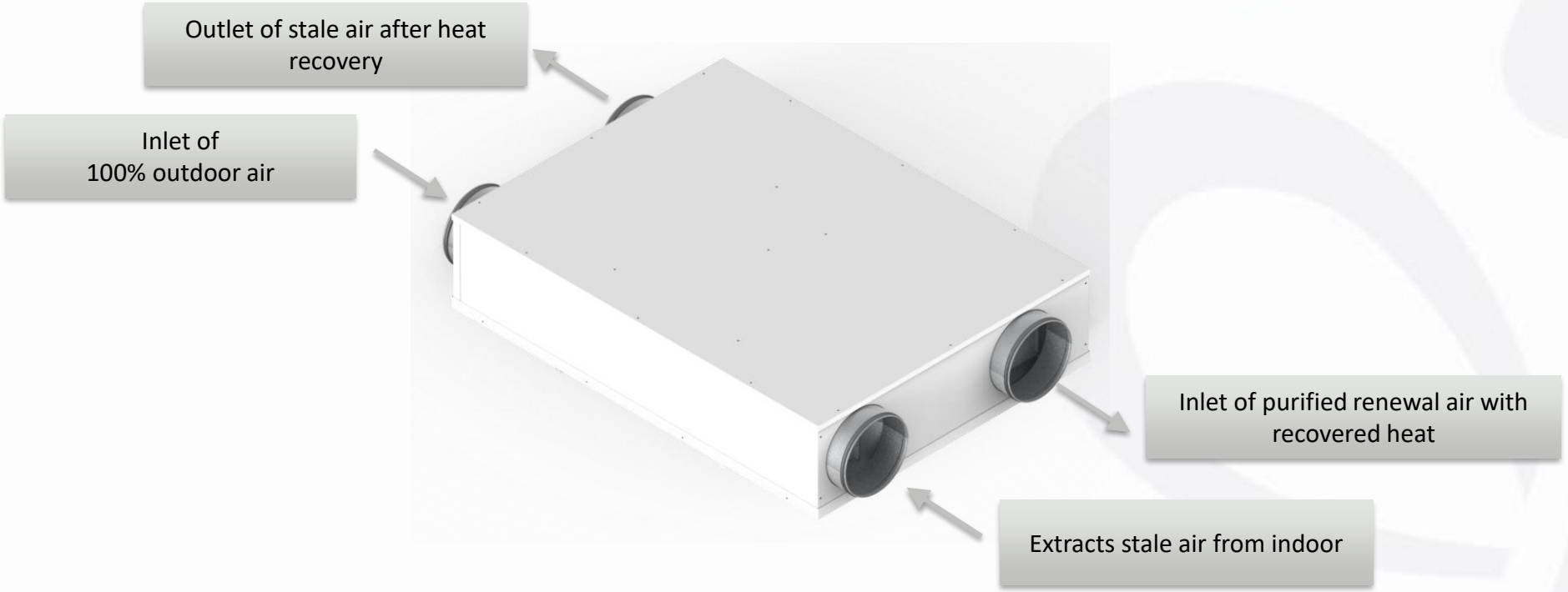
Generates an initial power step in heating and cooling mode.

DC INVERTER COMPRESSOR

DEHUMIDIFICATION

Helps to dehumidify rooms in summer.

HRA-i SLIM

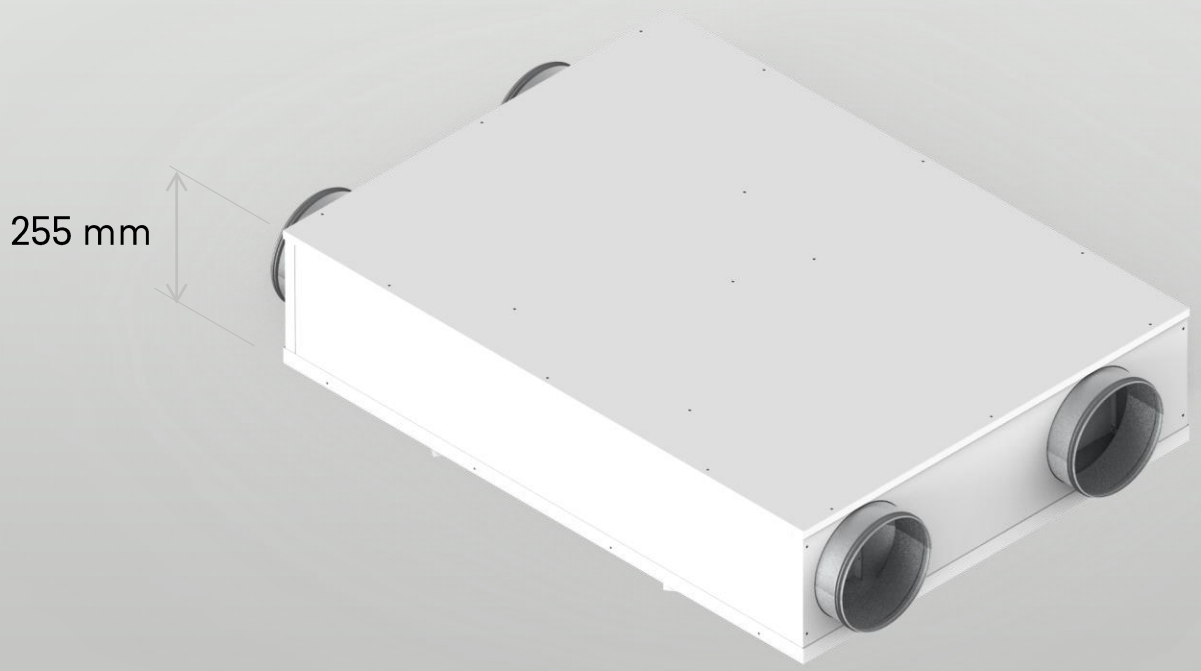


HRA-i SLIM fully satisfies air renewal, purification and energy saving requirements in residential dwellings in both **winter and summer**.

Thanks to the integrated **INVERTER heat pump** it maximises the recovered energy by multiplying it and producing an initial power step in both heating and cooling modes.

HRA-i SLIM

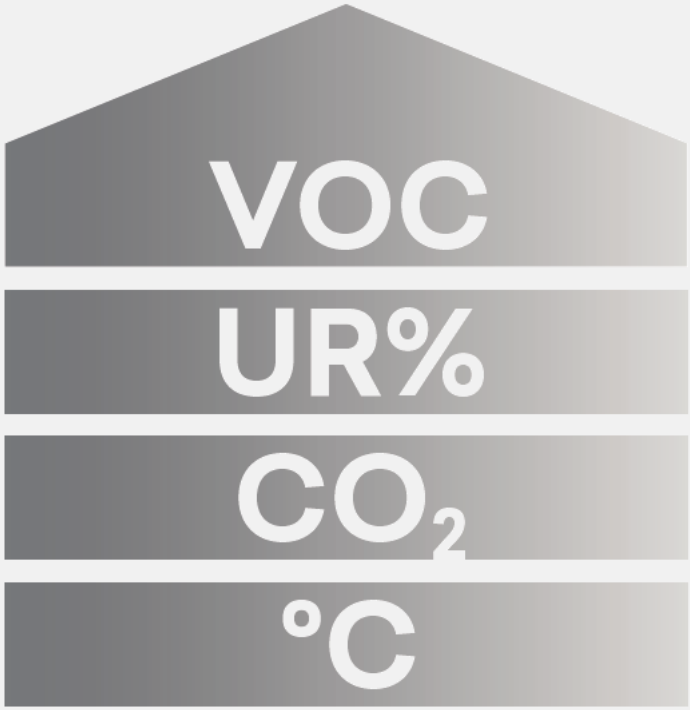
EXTREMELY SLIM



HORIZONTAL DC INVERTER COMPRESSOR

HRA-i SLIM

INTEGRATED AIR QUALITY, TEMPERATURE AND HUMIDITY SENSORS

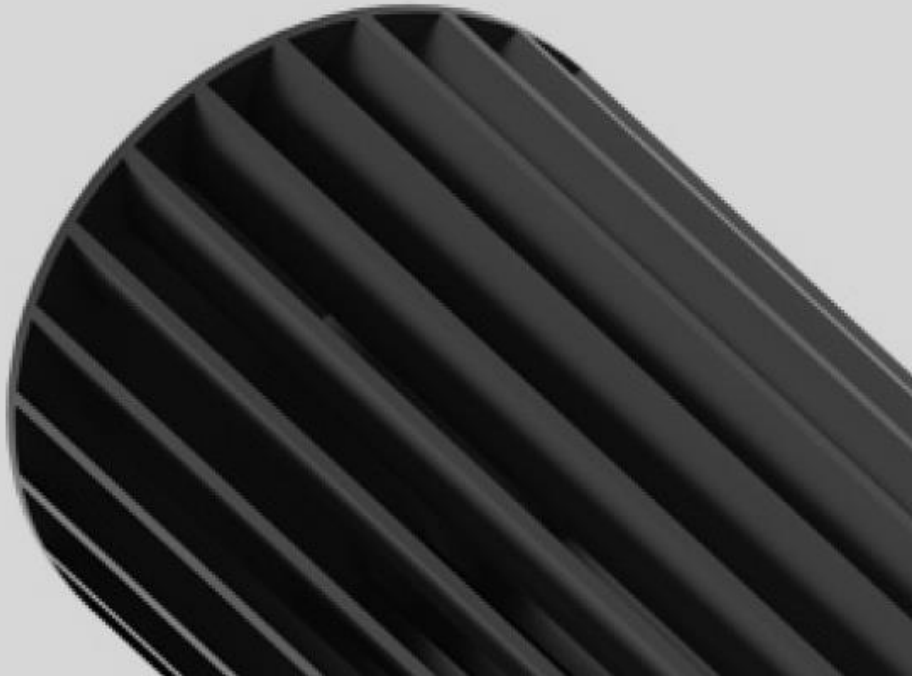


The renewal air volume is automatically adjusted in relation to the internal conditions in order to guarantee optimal comfort and energy saving.

HRA-i SLIM

CONSTANT-VOLUME DC INVERTER CENTRIFUGAL FAN

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

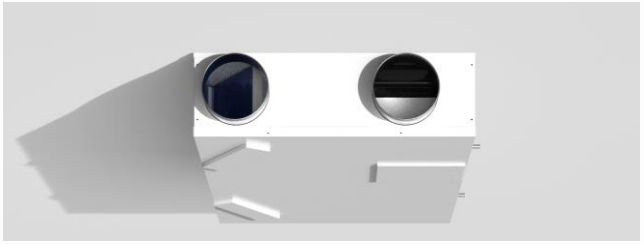


HRA-i SLIM

SIMPLE AND ADVANCED WI-FI OR ModBUS CONTROL UNITS

HRA-i SLIM

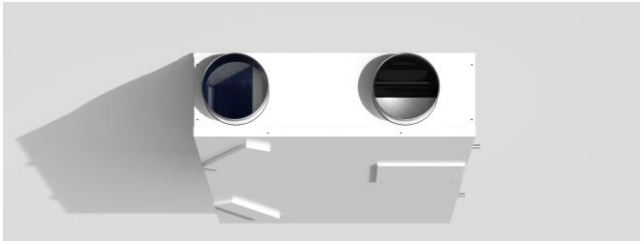
3 sizes:



HRA-i SLIM 14

Air flow rate = 185 m^3/h
Available static pressure = 135 Pa

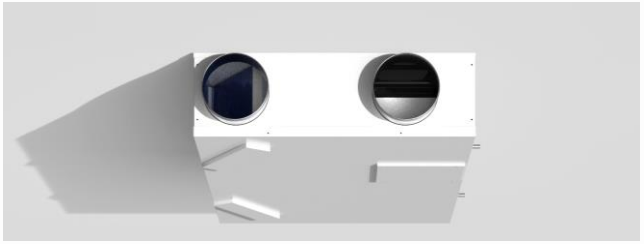
Suitable for homes with surface areas of up to 117 m^2 (*)



HRA-i SLIM 20

Air flow rate = 235 m^3/h
Available static pressure = 100 Pa

Suitable for homes with surface areas of up to 174 m^2 (*)



HRA-i SLIM 30

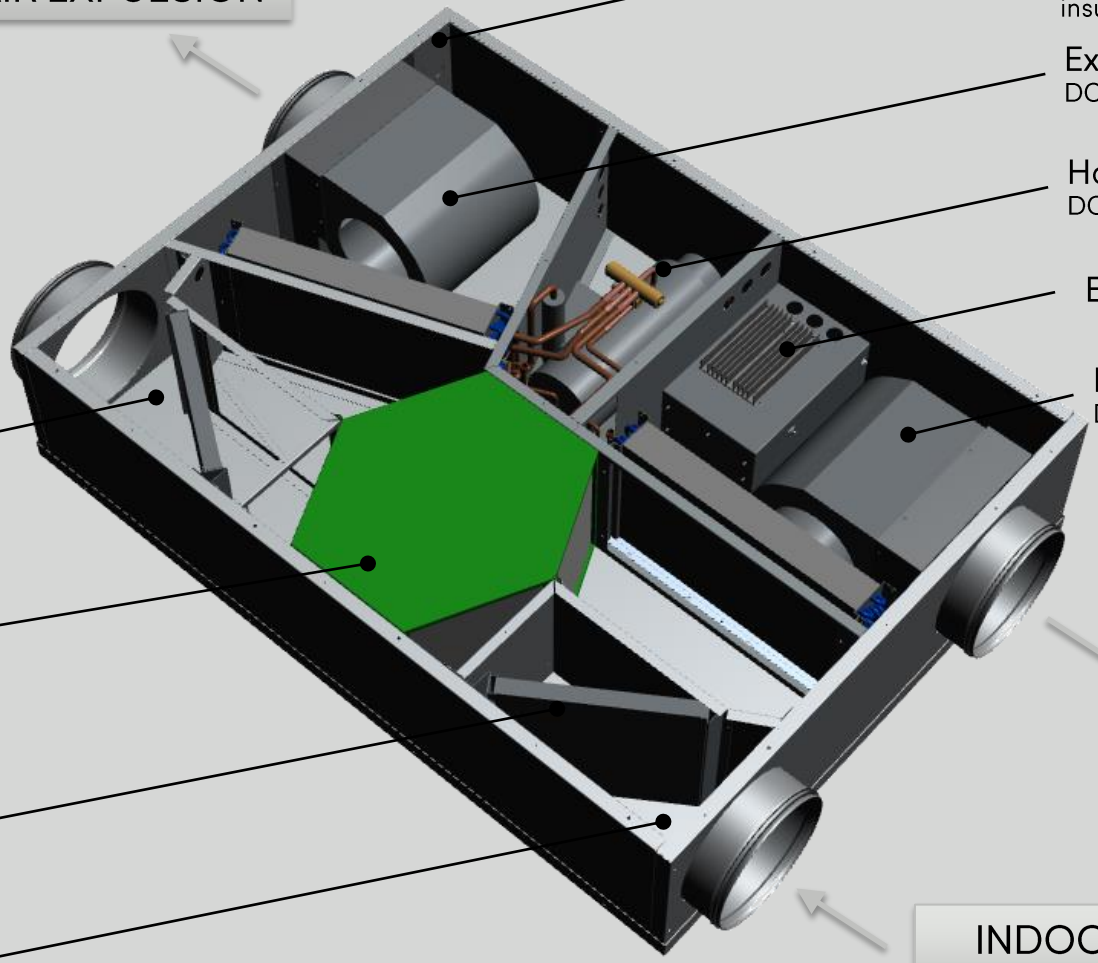
Air flow rate = 318 m^3/h
Available static pressure = 100 Pa

Suitable for homes with surface areas of up to 235 m^2 (*)

(*) considering 0.5 vol/h and a room height of 2.7 m

HRA-i SLIM

DETAILED VIEW



STALE AIR EXPULSION

FRESH AIR INTAKE

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

Extraction fan
DC inverter

Horizontal compressor
DC inverter

Electrical panel

Inlet fan
DC inverter

Air inlet filter
Efficiency class ePM1 80%

Heat recovery unit
Made of polypropylene with criss-cross flows

Extraction filter
Efficiency class ePM1 80%

Humidity and Air quality sensors ($VOC+CO_2$)

FRESH AIR INLET

INDOOR STALE AIR

HYDRAULIC CONNECTIONS: CONDENSATE DISCHARGE OUTLET

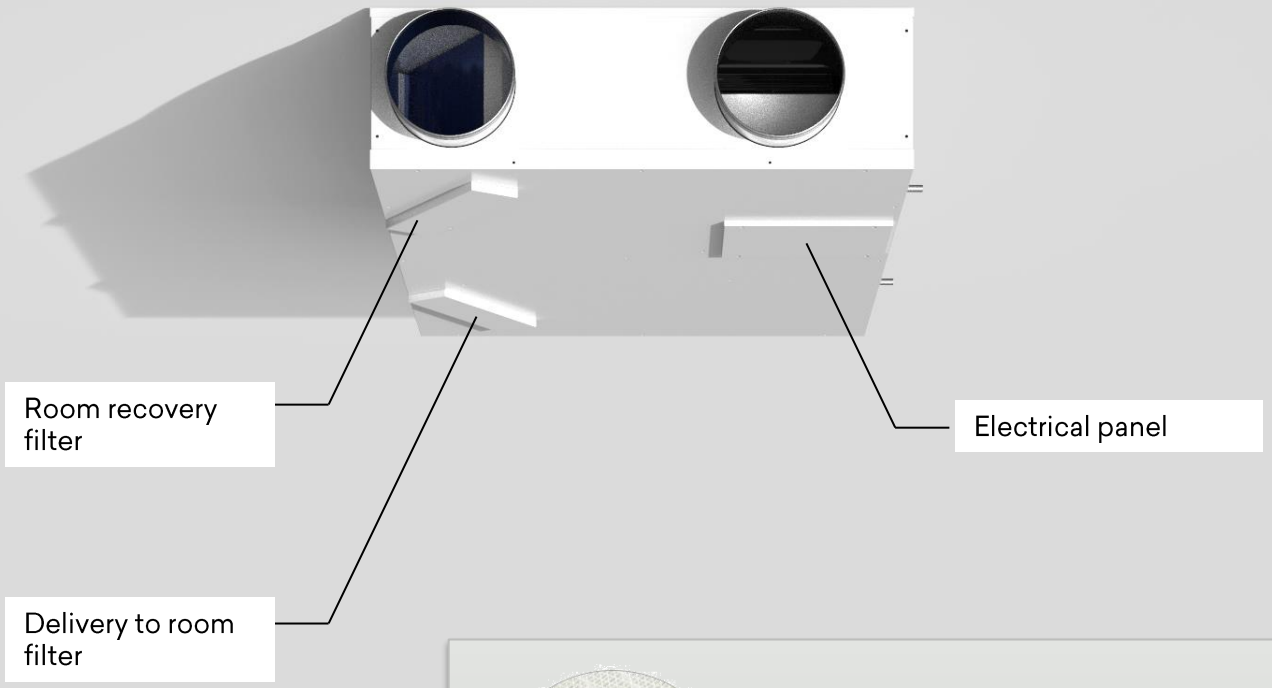
SIPHONS

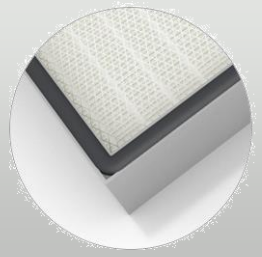
2 siphons supplied together with the unit

Siphon for horizontal installation

HRA-i SLIM

ACCESSIBILITY



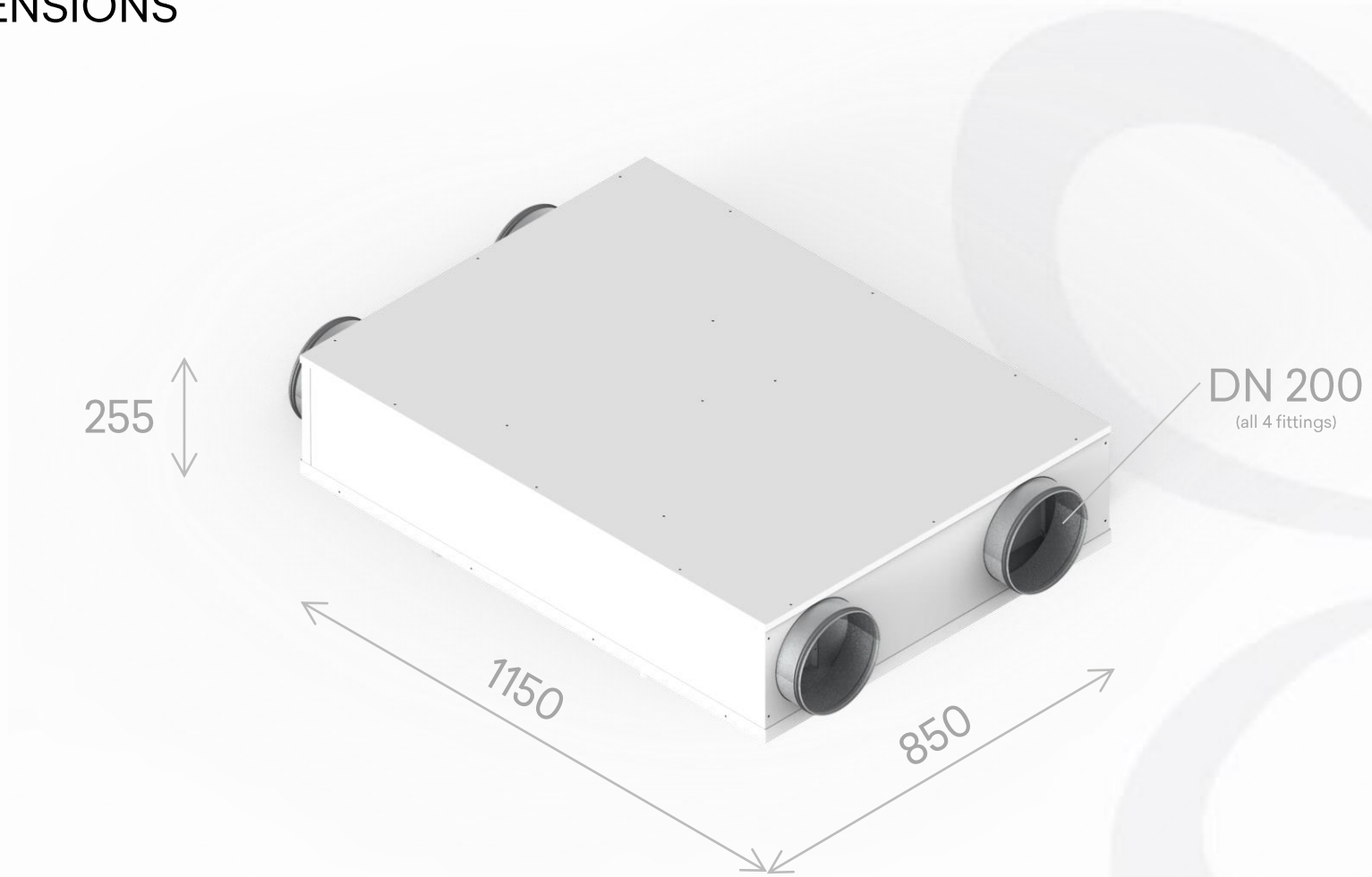


Filter efficiency: ePM1 80%

captures 80% of the particulate with 1-micron size

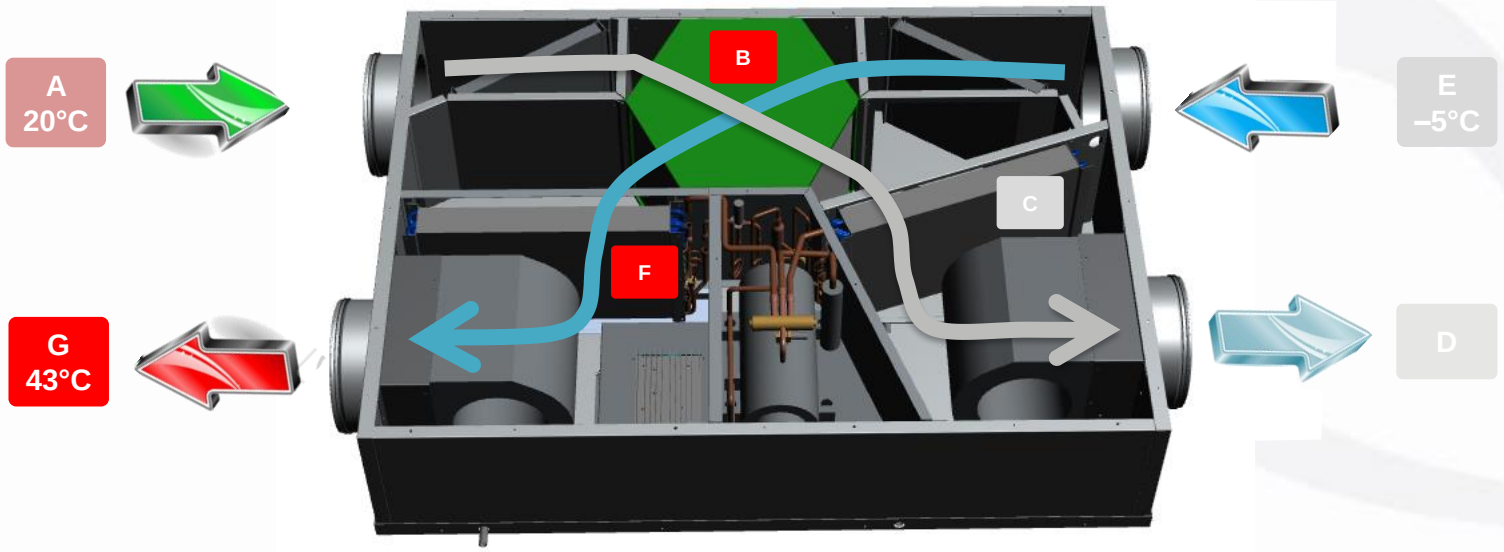
HRA-i SLIM

DIMENSIONS



HRA-i SLIM

WINTER OPERATION

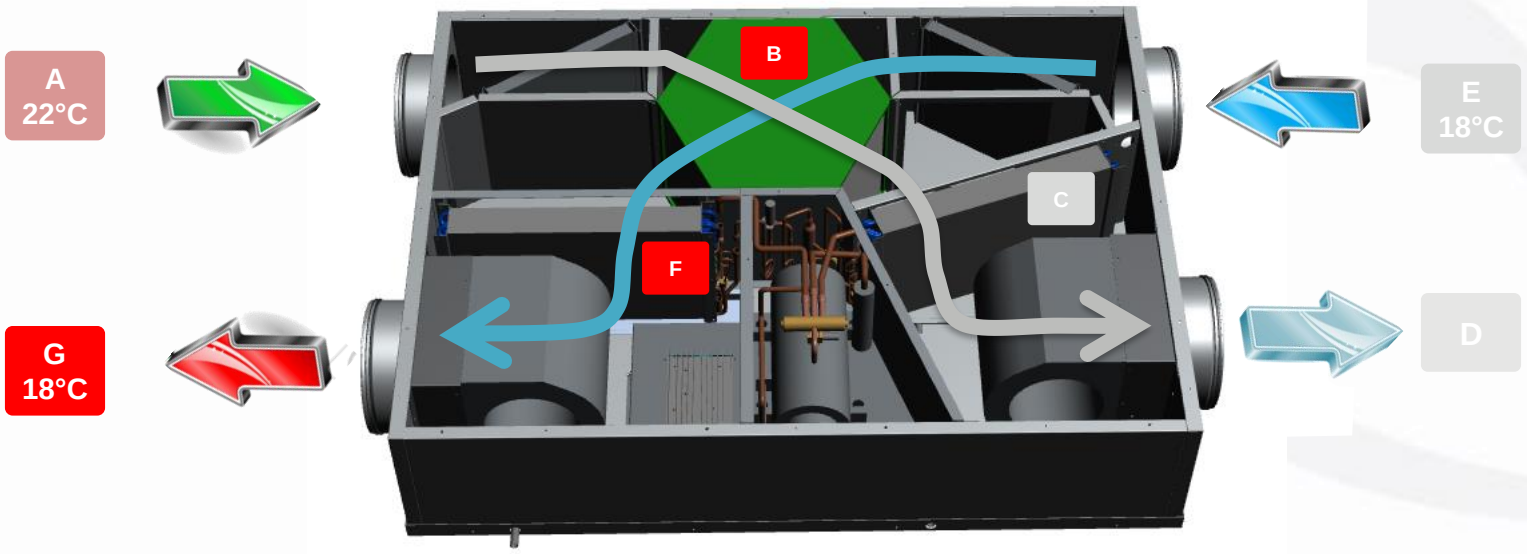


The stale air “A”, extracted from the bathroom and kitchen at a temperature of 20°C, flows through the static heat exchanger “B” and releases roughly 90% of its heat to the renewal air coming from the outside “E”, then the air flows through the evaporator “C” of the heat pump which recovers the residual energy.

The renewal air “E” drawn from the outside flows through the static heat exchanger “B” and subtracts the energy of the expulsion air, then the energy recovered from the evaporator “C” is multiplied by the heat pump and transferred to the renewal air through the condenser “F” and is introduced into the rooms at the correct temperature.

HRA-i SLIM

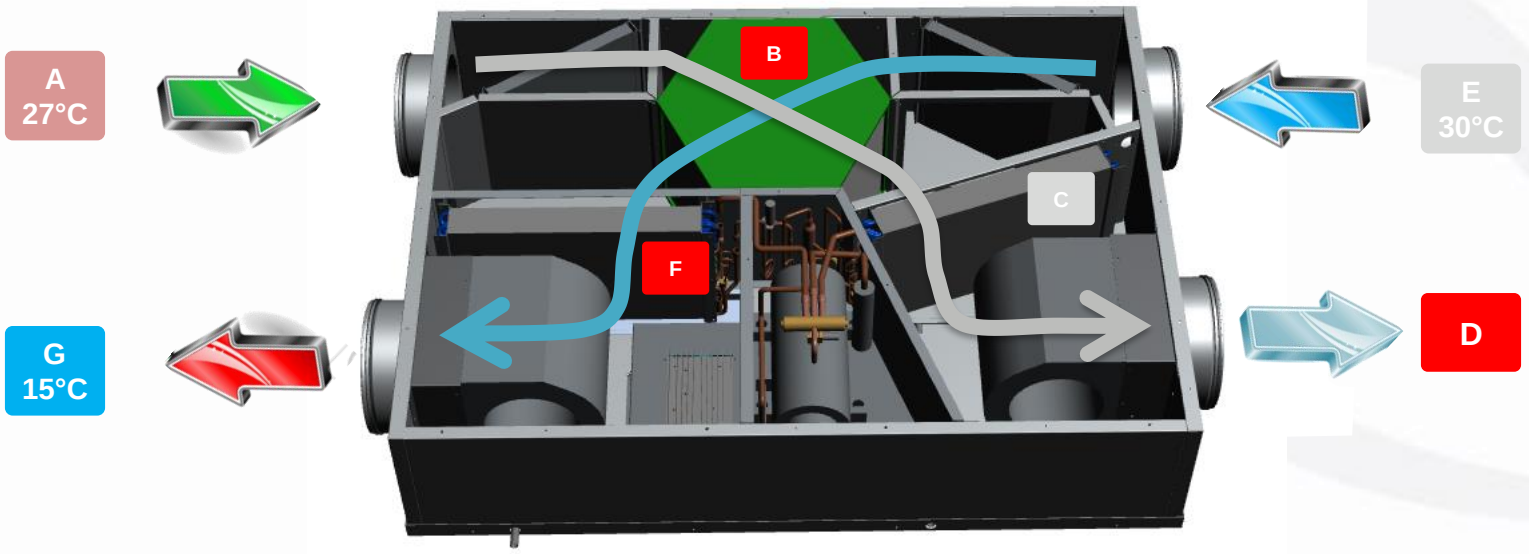
IN-BETWEEN SEASON OPERATION



When the outdoor temperature is milder, than the indoor one, the unit's control unit deactivates the compressor and introduces renewal air with a free energy content. This function is called FREE COOLING.

HRA-i SLIM

COOLING OPERATION



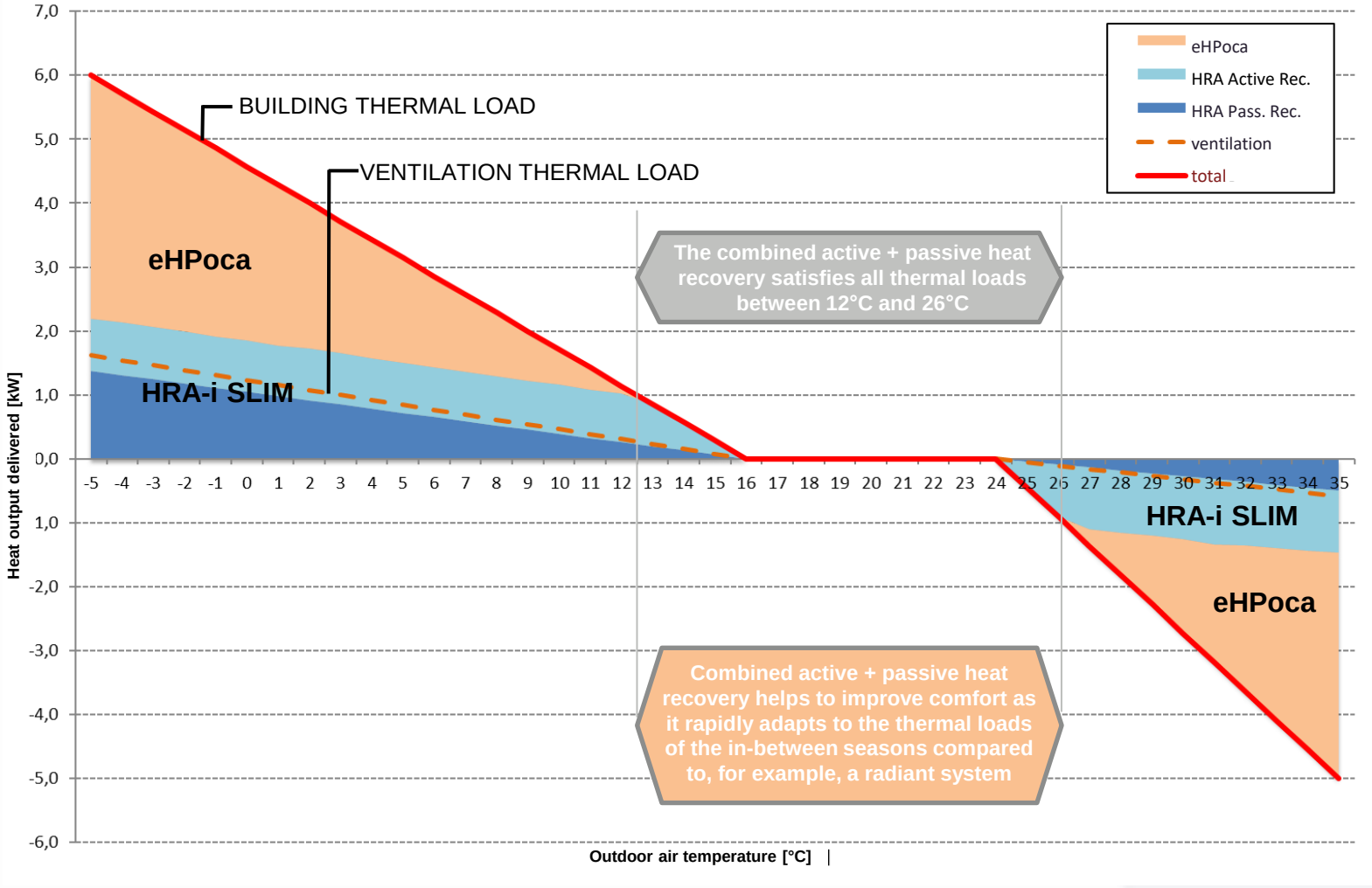
In summer the unit ventilates the rooms and recovers up to 90% of the energy through the heat exchanger “B”.

The cooling cycle is inverted, allowing – besides the recovery of the energy from the extracted air flowing through condenser “C” – also the dehumidification of the air that flows through evaporator “F” and is introduced into the room.

Through the heat pump the unit dehumidifies the air, thus preventing humid air from entering the room and helping to fulfil the cooling requirements of the room itself.

HRA-i SLIM

EFFICIENCY AND COMFORT

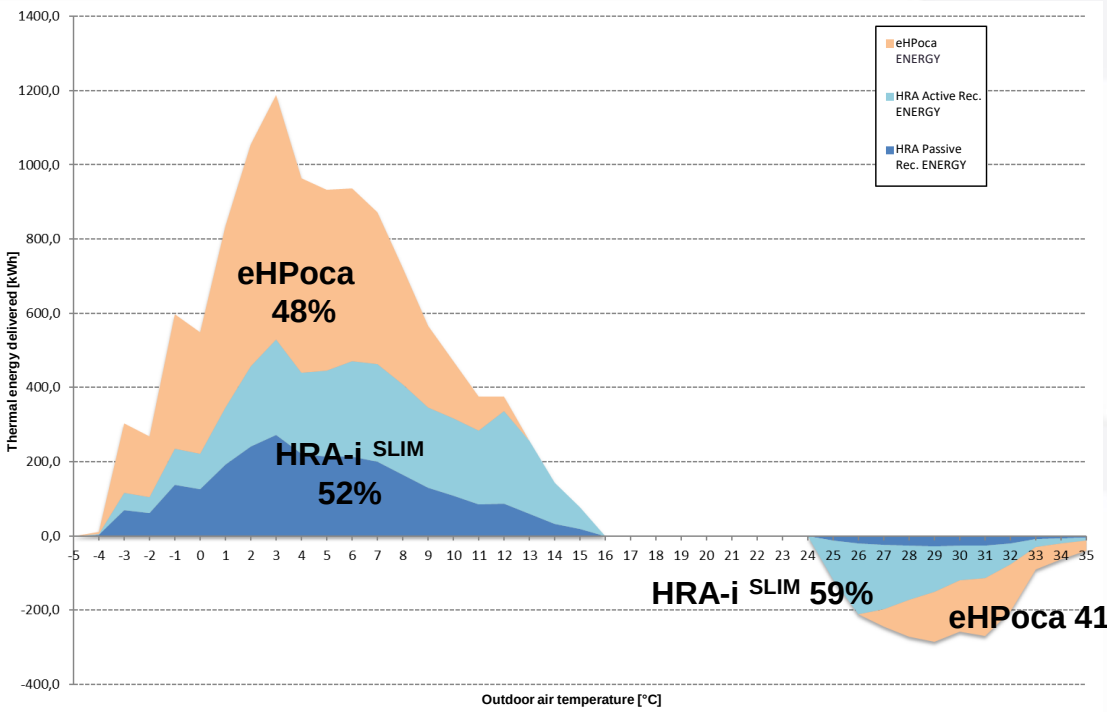


T°C	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
BIM	0	2	56	52	123	120	195	264	320	281	297	328	339	316	283	274	262	329	300	252	272	331	342	304	333	320	301	320	321	296	260	232	180	149	126	95	85	56	22	14	8

Distribution of the hours of occurrence of the specific temperature for MILAN

HRA-i SLIM

EFFICIENCY AND COMFORT



The energy recovered and multiplied by HRA-i SLIM can satisfy most **of the total energy requirements**.
The lower the transmission load the higher the contribution percentage of HRA-i SLIM.
The thermal source of the HRA-i SLIM heat pump is the extraction air at 20°C during winter, a condition that makes the heat pump extremely efficient.
The significant contribution in terms of the supplied energy ensures a substantial improvement of the **seasonal efficiency** of the complete system.

HRA-i SLIM

ADVANTAGES

RENEWS AND PURIFIES THE AIR

THERMODYNAMIC HEAT RECOVERY WITH INVERTER COMBINED WITH PASSIVE HEAT RECOVERY

GENERATES AN INITIAL POWER STEP IN BOTH THE HEATING AND COOLING MODES

SATISFIES MOST OF THE BUILDING'S THERMAL ENERGY REQUIREMENTS

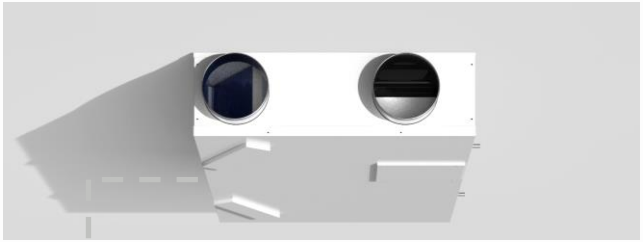
HELPS TO DEHUMIDIFY ROOMS IN SUMMER

IMPROVES INDOOR COMFORT

PURIFIES THE AIR WITH FILTRATION OF ePM1 80%

HRA-i SLIM

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



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

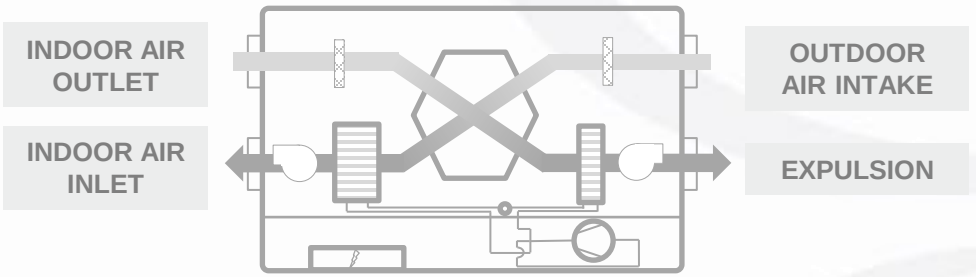
SMART Touch thermostat
With integrated **Wi-Fi**

HRA-i SLIM

AERAULIC CONNECTIONS:

STANDARD

VIEW FROM ABOVE
the unit is installed horizontally



Single configuration for fittings,
which cannot be inverted on-site

HRA-i SLIM

innova

PERFORMANCES:

		HRA-I SLIM		
Size		14 H	20 H	30 H
AIR FLOW RATE				
Nominal fresh air flow rate	m³/h	185	235	318
Static pressure available	Pa	135	100	100
HEATING PERFORMANCE				
Recovery efficiency (1)	%	87	85	83
Total heat capacity (1)	kW	3,58	3,98	5,15
Space heating capacity without fresh air load (1) (4)	kW	2,01	1,98	2,45
Static recovery heat output (1)	kW	1,53	1,69	2,23
Thermodynamic recovery heat capacity (1)	kW	2,05	2,29	2,92
Total input power (1)	kW	0,64	0,75	0,95
Total COP (1)		5,6	5,3	5,4
COOLING PERFORMANCE				
Total cooling capacity (2)	kW	2,18	2,46	2,99
Space cooling capacity without fresh air load (2)	kW	1,03	1,12	1,37
Static recovery cooling power (2)	kW	0,43	0,48	0,62
Thermodynamic recovery cooling capacity (2)	kW	1,75	1,98	2,37
Total input power (2)	kW	0,59	0,68	0,84
Total EER (2)		3,7	3,6	3,6

(1) Outdoor air temperature –5°C, relative humidity 80%. 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
(4) Space heating capacity = Total heating capacity - Ventilaion load
Ventilation load = capacity to heat nominal fresh air flow of the unit from -5°C outdoor air to 20°C indoor air
Example for HRA-I SLIM 30H: Space heating capacity = Total heating capacity – Fresh air load = 5,15 - (Q x c x DT) = 5,15 - (320x0.34 x 25/1000) = 5,15 - 2.72 = 2,45 kW
Q = nominal air flow ; DT = delta T = indoor air temp. - outdoor air temp.

HRA-i SLIM

innova

PERFORMANCES:

		HRA-I SLIM		
Size		14 H	20 H	30 H
GENERAL CHARACTERISTICS				
Fan		Centrifugo a portata costante		
Number of fans	Nr	2		
Static heat recovery device		Piastre controcorrente - polipropilene		
Summer by-pass		no		
Compressor		Rotary Inverter DC		
Filters		Filtri piani - 2 x ePM1 80%		
Sound pressure (3)	dB(A)	37	38	40
REFRIGERATOR FITTINGS				
Refrigerant		R410a		
ELECTRICAL DATA				
Max fans power input	kW	0,28	0,28	0,28
Max power input compressors	kW	1,4	1,4	1,4
Max total input power	kW	1,7	1,7	1,7
Max current absorbed	A	7,8	7,8	7,8
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 SLIM

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.

ACCESSORIES SUPPLIED SEPARATELY:

ELECTRICAL HEATING BATTERY

Electrical heater power 1 kW, diameter DN200

Complete with electrical panel and safety device.

To be installed on the air delivery with substitution/integration logic

INTEGRATION LOGIC

If night-time operation is **not** selected, the heater will activate together with the compressor, if:

- the unit is operating in heat pump mode (heating mode);
- the temperature in the room is ≤ 24°C;
- the temperature in the room is below 2°C with respect to the set set-point;
- the temperature of the internal battery is ≤ 44°C;
- ventilation is on and stable;
- there are no alarms or faults concerning ventilation, the room temperature probes and the battery temperature.

During normal operation, with heating activated, the heater will deactivate if:

- the battery temperature of the internal heat exchanger is ≤ 47°C;
- the room temperature is higher than the set set-point;
- the temperature of the internal battery is above 25°C;
- ventilation stops or is faulty;
- the discharge temperature of the compressor increases abnormally;
- the frequency of the compressor increases abnormally.

SUBSTITUTION LOGIC

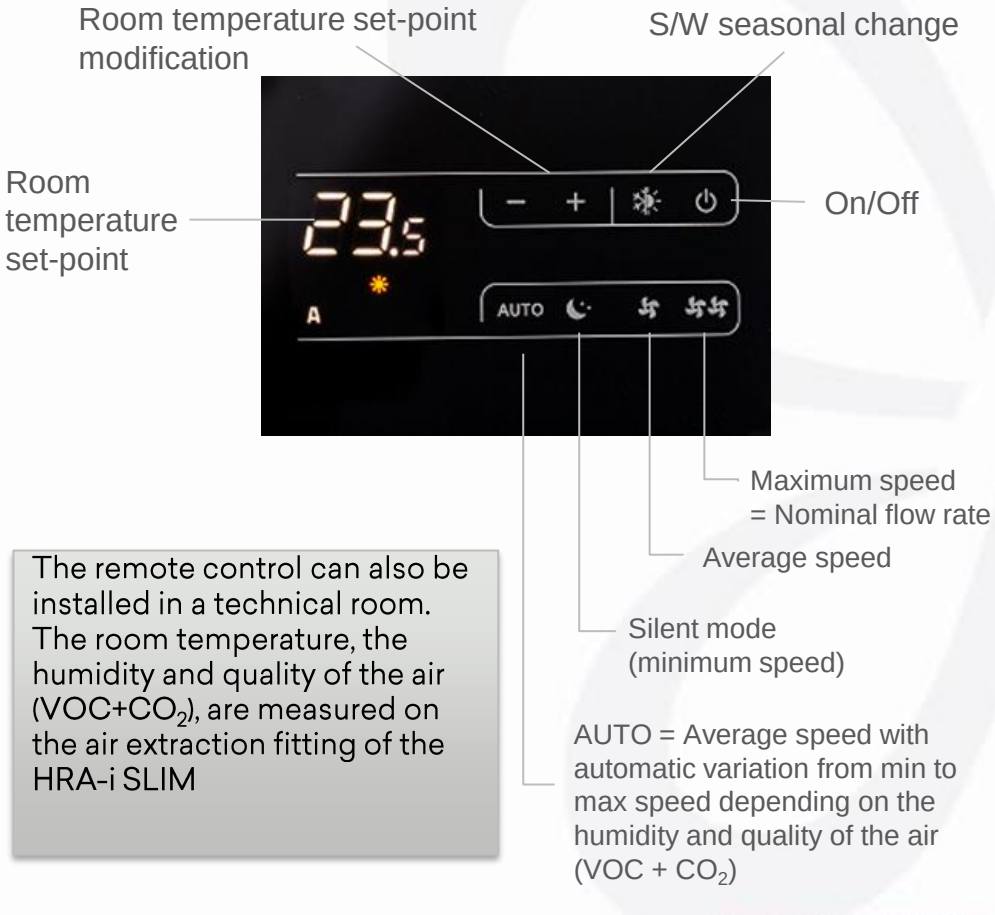
If the device must be operated in silent mode, it can be activated with the "heater alone", without the compressor, by simply setting the **night-time operation** by pressing the relevant button. In this case, the heater will activate if:

- the unit is operating in heat pump mode (heating mode);
- the room temperature (measured by the internal probe) is below 1°C with respect to the set set-point;
- the room temperature is ≤ 27°C;
- there are no alarms or faults concerning ventilation, the room temperature probes and the battery temperature.

HRA-i SLIM

CONTROL AND ADJUSTMENT DETAILS

Base functions:



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

HRA-i SLIM

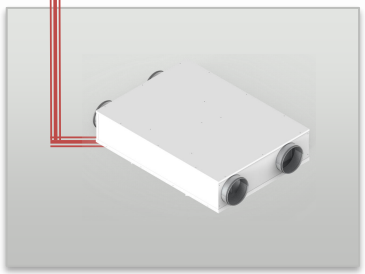
CONNECTIVITY:

ECA032 black
ECB032 white

Modbus

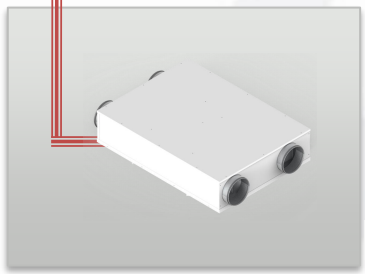
Modbus

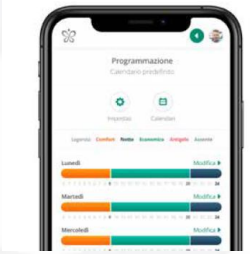
BUTLER
(or BMS)



ECA031 black
ECB031 white

Wi Fi



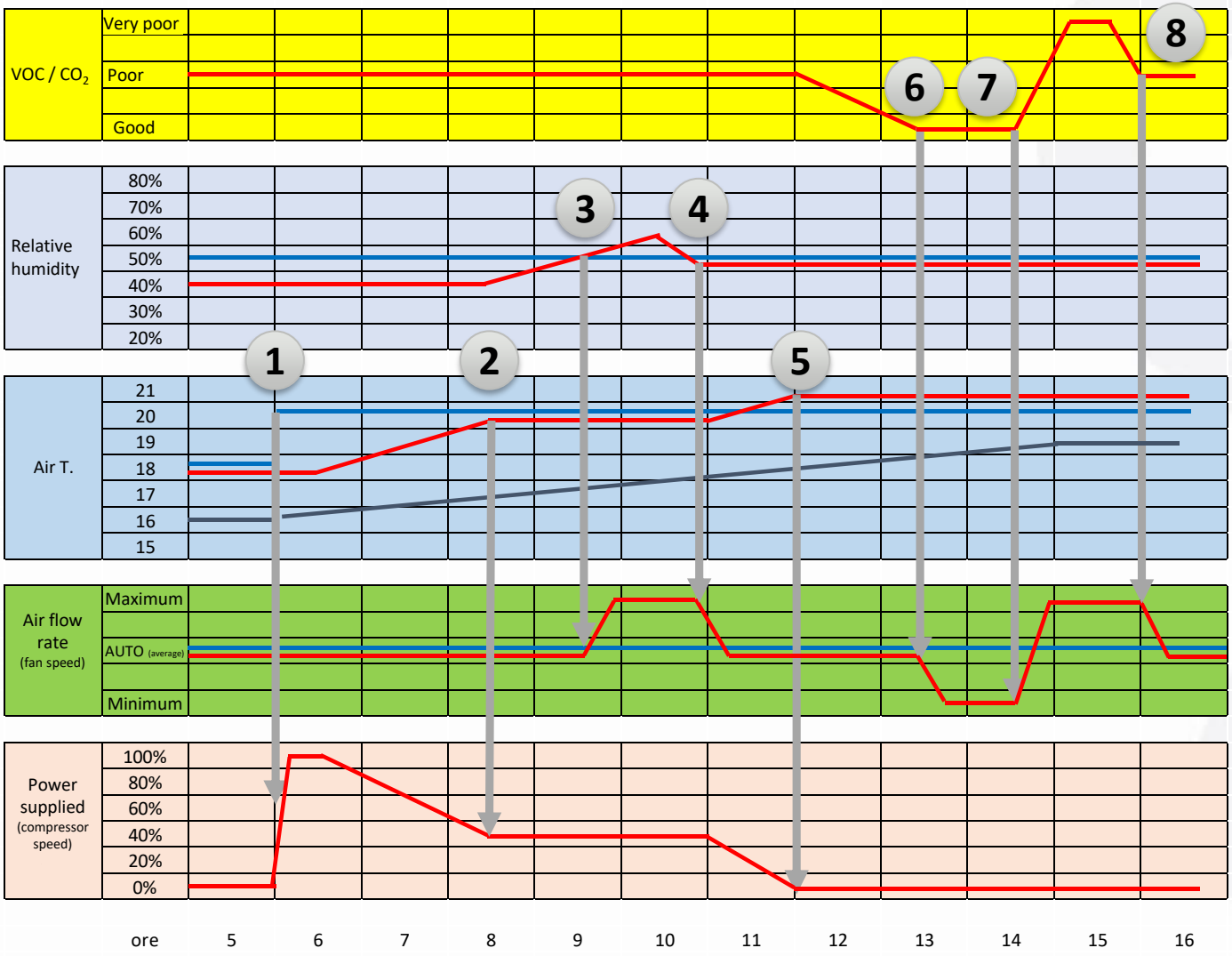


APP

www.innovaenergie.com

HRA-i SLIM

WINTER OPERATING LOGIC



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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

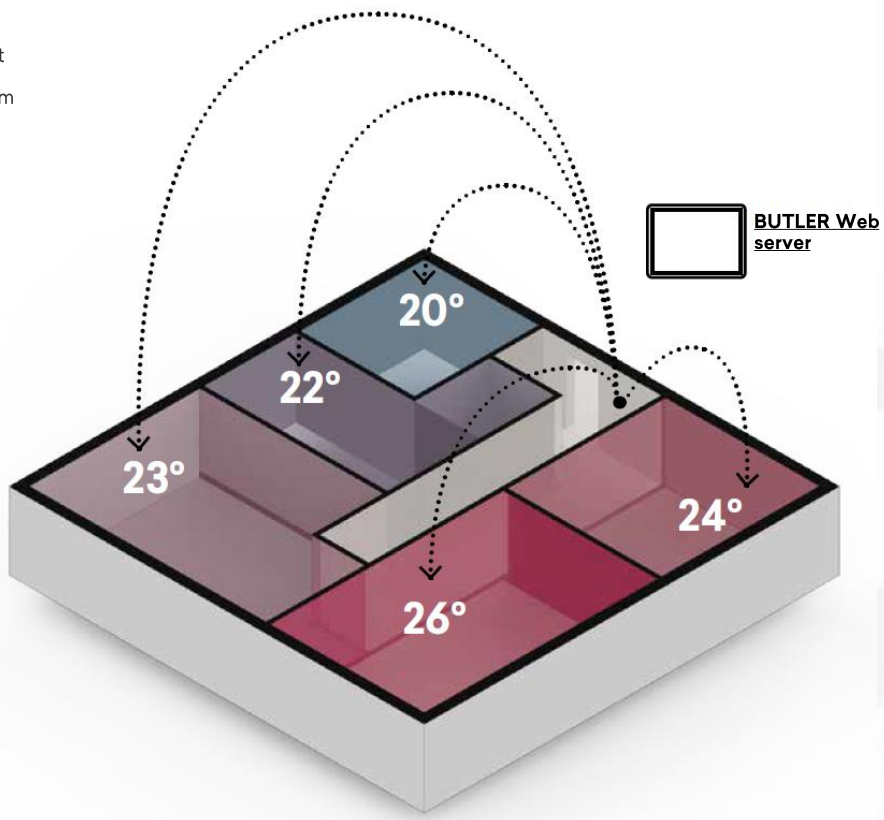
- To access the menu, press the start button ⏻ for 10 seconds
- The control unit will switch on and display the room temperature
- Keeping it pressed again will cause **Ad** to appear
- To move within the menu, use the + and − icons
- To select the menu items and to confirm the changes, press ⏻
- To 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		

BUTLER,
the advanced control of the system

Room control unit

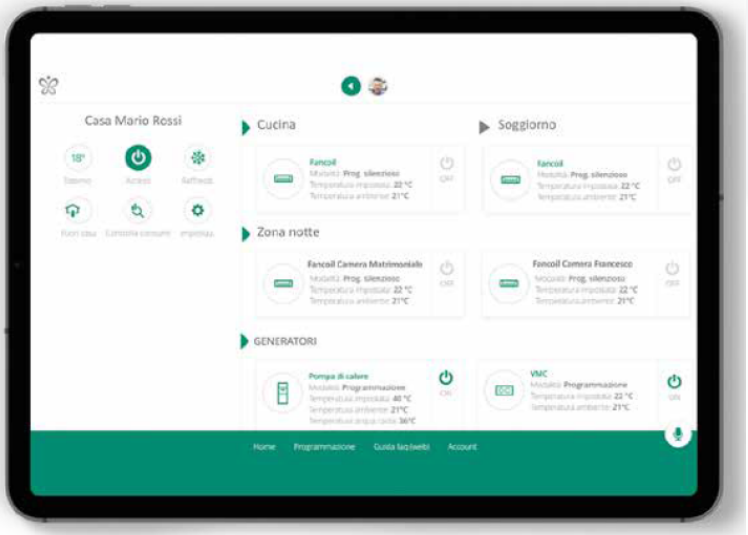
Room-by-room control: with BUTLER it is possible to set a weekly time-slot calendar, create scenarios for each room or by zones, and modify the settings so that the house can be at the right level of comfort at the required time.



BUTLER,
the advanced control of the system

Main functions

- **Supervision and control through local network or remotely**
  The system can be managed through smartphone, tablet or computer
- **Summer and winter customised programming**
  For each season it is possible to have different programmes
- **Setting of three temperature levels on INNOVA fancoil network**
  For each room or zone it is possible to select 3 different work temperatures, which can be modified at any time
- **Weekly hourly programming**
  In each room it is possible to set different operating times; the same applies to MVHR and fancoils
- **Network interface like the one on PCs**
  Once the bus network has been made between the heat pump and the fancoils, the connection with the Web server is the same as that for a normal computer
- **Remote assistance**
  With the user's consent, BUTLER can automatically access the INNOVA cloud for diagnostics and assistance in case of need



Weekly scheduling

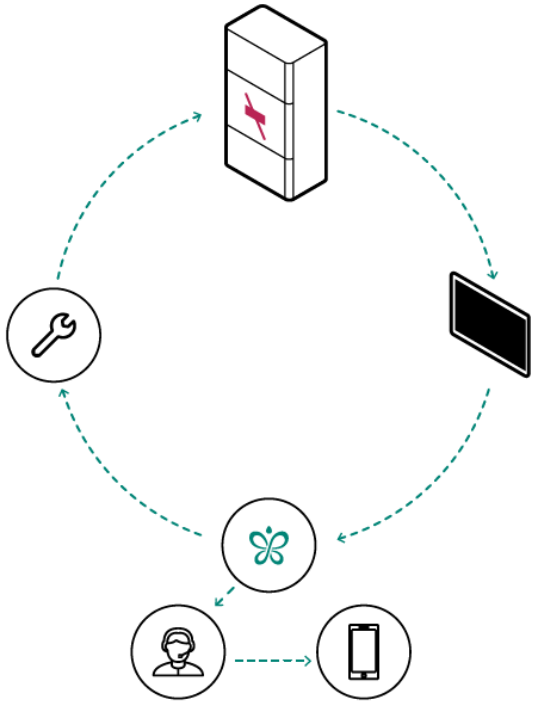
Domestic hot water settings

www.innovaenergie.com

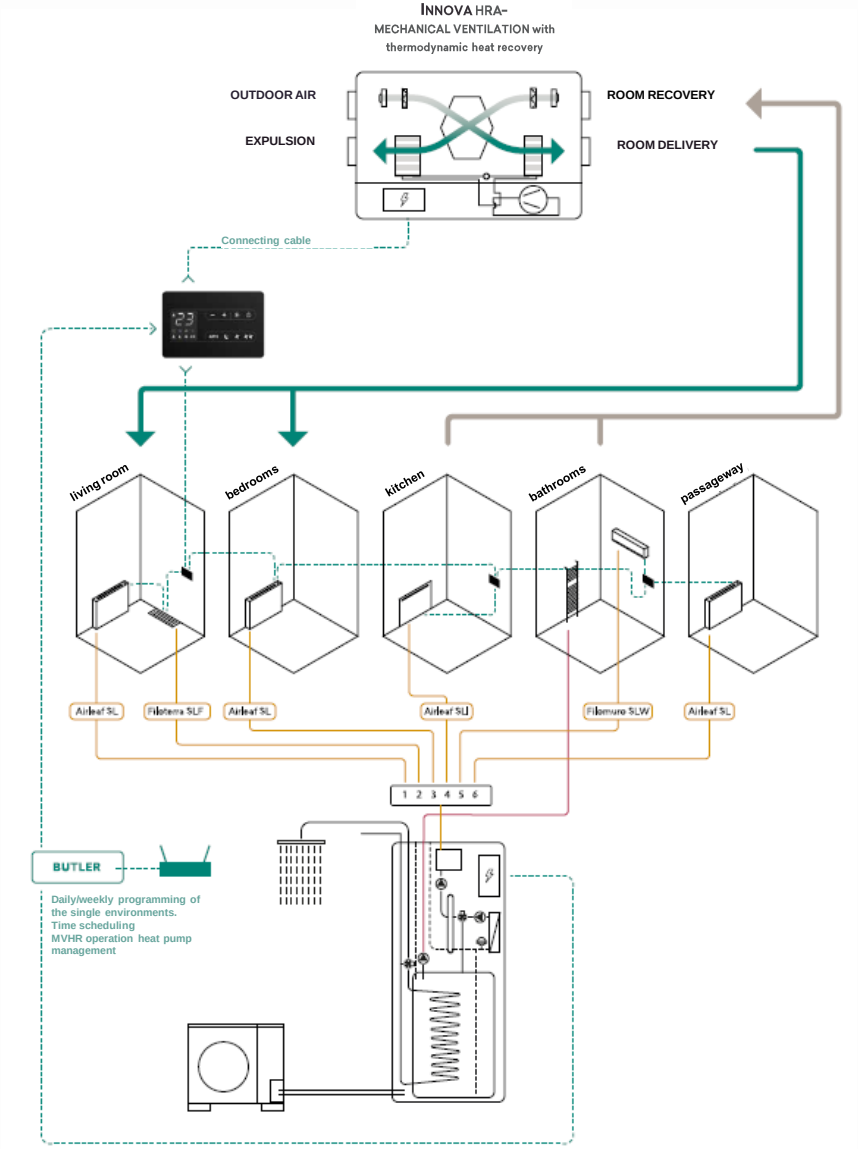
BUTLER,
the advanced control of the system

Remote assistance

With the user's consent, BUTLER can automatically access the INNOVA cloud for diagnostics and assistance in case of need. Thanks to the Internet connection, it is possible to verify remotely the correct operation of INNOVA products connected to the BUTLER. EAny operating anomalies can be transmitted automatically from the BUTLER to the assistance centre which can intervene by modifying the functional parameters or decide to physically intervene by providing a quick and timely service.



BUTLER,
the advanced control of the system



Total control

The advantage of choosing a complete INNOVA system is that, for any need, we are the only reference both for routine maintenance and for assistance purposes.
A comprehensive and high-quality system.

End of the presentation
Thank you for your attention