

# Suspended heat recovery unit with a plate heat exchanger HRU-SlimAIR



## Description

The HRU-SlimAIR heat recovery units are designed for residential buildings. The HRVs have capacities of 250/350/500 m<sup>3</sup>/h @ 100 Pa, generated by energy-efficient EC fans. Thanks to a counterflow heat exchanger made of a plastic (PET), it achieves up to 90% heat recovery. An ERV version with an enthalpy exchanger that recovers moisture is also available. Built-in electric preheater protects heat exchanger against freezing, built-in RH sensors regulate indoor humidity level, wireless radio communication connects controllers and sensors, and all of it is enclosed inside a self-supporting, insulating EPP casing. HRU-SlimAIR can be installed in up to 3 positions, thanks to a special condensate drain system.

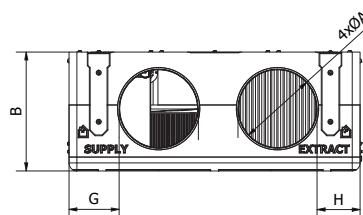
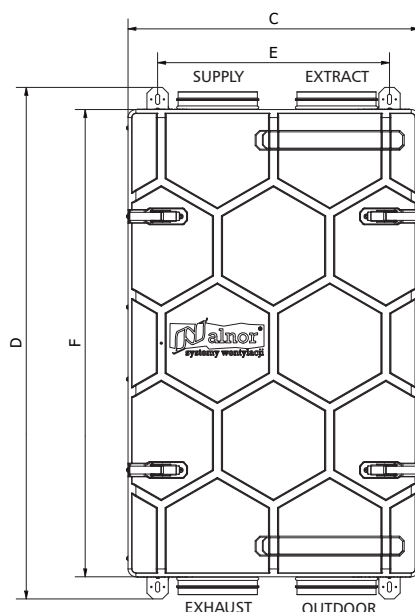


HRU-SlimAIR-250 is certified by **Passive House Institute** and can be used as a certified component in passive houses.

### Available versions:

- HRU-SlimAIR-250-H - PET counterflow heat exchanger
- HRU-SlimAIR-250E-H - enthalpy counterflow heat exchanger
- HRU-SlimAIR-350 - PET counterflow heat exchanger
- HRU-SlimAIR-350E - enthalpy counterflow heat exchanger
- HRU-SlimAIR-500 - PET counterflow heat exchanger
- HRU-SlimAIR-500E - enthalpy counterflow heat exchanger
- HRU-SlimAIR-...-CF - all model PremAIR can be equipped with the Constant Flow system

## Dimensions



	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]
SlimAIR-250	160	242	685	1172	505	1070	143	120
SlimAIR-350	200	300	735	1292	585	1180	126.5	108.5
SlimAir-500	200	300	898	1416	690	1300	153.7	163

# Suspended heat recovery unit with a plate heat exchanger HRU-SlimAIR

## Installation

### Suspended

HRU-SlimAIR-250 / HRU-SlimAIR-350 / HRU-SlimAIR-500



### Vertical

HRU-SlimAIR-250 / HRU-SlimAIR-350 / HRU-SlimAIR-500



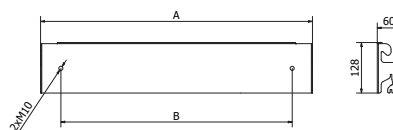
### Horizontal

only HRU-SlimAIR-250 / HRU-SlimAIR-350



### HRQ-SlimAIR-HANG

With the optional **HRQ-SlimAIR-HANG** mounting rack, the HRV unit can be suspended from the ceiling and mounted on the wall vertically. A single person can hang the unit using the mounting rack.



	A [mm]	B [mm]
HRQ-SlimAIR-250-HANG	509.5	386.5
HRQ-SlimAIR-350-HANG	587	464
HRQ-SlimAIR-500-HANG	689.5	586.6

Installation / Model	SlimAIR-250-H / SlimAIR-250-H-CF	SlimAIR-250E-H / SlimAIR-250E-H-CF	SlimAIR-350 / SlimAIR-350-CF	SlimAIR-350E / SlimAIR-350E-CF	SlimAIR-500 / SlimAIR-500-CF	SlimAIR-500E / SlimAIR-500E-CF
Suspended	✓	✓	✓	✓	✓	✓
Vertical	✓	✓	✓	✓	✓	✓
Horizontal	✓	✓	✓	✓	X	X

# Suspended heat recovery unit with a plate heat exchanger

## HRU-SlimAIR

### Technical data

	<i>SlimAIR-250-H / SlimAIR-250-H-CF</i>	<i>SlimAIR-250E-H / SlimAIR-250E-H-CF</i>	<i>SlimAIR-350 / SlimAIR-350-CF</i>	<i>SlimAIR-350E / SlimAIR-350E-CF</i>	<i>SlimAIR-500 / SlimAIR-500-CF</i>	<i>SlimAIR-500E / SlimAIR-500E-CF</i>
<i>Air flow [m³/h] @ 100 Pa</i>	250	250	350	350	500	500
<i>Maximal efficiency %<sup>1</sup></i>	89.9	85.6	94.0	91.0	95.2	89.0
<i>Efficiency % (acc. 1254/2014)<sup>2</sup></i>	85.0	75.3	85.6	76.9	85.0	75.4
<i>Maximal moisture efficiency %</i>	-	63.3	-	87.0	-	85.0
<i>Heat exchanger</i>	counterflow PET	counterflow enthalpy	counterflow PET	counterflow enthalpy	counterflow PET	counterflow enthalpy
<i>Voltage [V/Hz]</i>	230 / 50	230 / 50	230 / 50	230 / 50	230 / 50	230 / 50
<i>Maximum power consumption [W]</i>	91.5	90.3	123.0	146.0	207.0	247.0
<i>Sound power level L<sub>WA</sub>[dB (A)]</i>	50	50	49	49	51	51
<i>Weight [kg]</i>	25.5	25.5	36.0	36.0	44.0	44.0
<i>Filters</i>	ISO Coarse 70% / ISO ePM1 55% (optional)					
<i>Built-in pre-heater</i>	✓	✓	✗	✗	✗	✗
<i>Pre-heater</i>	✗	✗	✓ (optional)	✓ (optional)	✓ (optional)	✓ (optional)
<i>Built-in RH sensor</i>	✓	✓	✓	✓	✓	✓

<sup>1</sup> Maximal thermal efficiency acc. to EN13141-7 at minimum air flow

<sup>2</sup> Thermal efficiency in reference point acc. to EN 13141-7, in compliance with UE 1254/2014

# Heat Recovery Unit PremAIR, SlimAIR and MinistAIR Controllers and sensors

## Control

Ventilation units can be controlled in several ways:

Application for Android, iOS and via a browser (via the HRQ-GATE internet gateway)



Application



HRQ-GATE

The gateway is connected to the local network via the Ethernet port. Communication with the device is wireless. On-line control is possible after installing the application on Android and iOS or via a browser on a computer. The application graphically illustrates the operation of the device, allows you to change modes and read basic parameters.

### Controller LCD, flush-mounted (HRQ-BUT-LCD)



This version has an LCD display, allows you to select 1 of 7 operating modes, program the calendar and read additional operating parameters such as temperatures, current fan speeds or the by-pass status. It also allows you to configure ventilation speeds (according to user preferences).

### 4-button controller



HRQ-BUT-LM11



HRQ-BUT-LM04

This controller allows you to choose between 4 modes. The LM04 model has an AUTO button (instead of PARTY), recommended when there is at least 1 CO<sub>2</sub> or RH sensor in the system. Signalling of operation and errors by means of a LED diode.

The HRQ-SW3-I rotary switch is an option for wired control of the ventilation unit and allows you to choose between 3 speeds (AWAY, HOME, HOME+)



Control via CO<sub>2</sub> and RH sensors (we recommend as additional control).



HRQ-SENS-CO2



HRQ-SENS-RH



HRQ-SENS-I-CO2

(flush-mounted)

Each sensor also functions as a controller - it allows you to select from manual modes and, of course, engage AUTO mode. Indicates errors or dirty filters, but there is no filter status reset option.

### Motion sensor HRQ-SENS-PIR



The sensor is designed to detect the presence of a person by motion detection and increase the ventilation demand (70% for 15 minutes). In addition, through a relay, the sensor can switch on the light.

### Modbus gate (HRQ-MODBUS),



HRQ-MODBUS gate, which allows to control the device using the universal modbus protocol and RS485 data transmission.






























### NOTE!

Controller is not included in the kit. During purchase, choose the controller that is right for you. Multiple controllers can be connected at once - e.g. 4-button controller and an Internet gateway.

# Heat Recovery Unit PremAIR, SlimAIR and MinistAIR

## Controllers and sensors

Control options table:

Model	Photo	Communication with unit	Power supply	No of modes	AUTO mode*	Display	Calendar	Dirty filter signalization	Changing speed settings
HRQ-SW3-I		cable 	230V 	3	no	no	no	no	no
HRQ-BUT-LM11		wireless 	battery 	4	no	no	no	yes	no
HRQ-BUT-LM04		wireless 	battery 	4	yes	no	no	yes	no
HRQ-BUT-LCD		wireless 	230 V 	7	yes	yes	yes	yes	yes
HRQ-GATE		wireless 	230 V 	6	yes	yes	no	yes	no
HRQ-SENS-CO2		wireless 	230 V 	5	yes	no	no	yes	no
HRQ-SENS-I-CO2		wireless 	230 V 						
HRQ-SENS-RH		wireless 	battery 	4	yes	no	no	yes	no
HRQ-MODBUS		wireless 	230 V 	-	-	-	-	-	-
HRQ-MODBUS		wireless 	n/d	7	yes	no	no	yes	no

\* requires at least 1 CO<sub>2</sub> or RH sensor

# Heat Recovery Unit PremAIR, SlimAIR and MinistAIR Controllers and sensors

## Constant Flow (CF)

SlimAIR air handling units optionally can be equipped with the Constant Flow system, whose task is to maintain a constant air flow in the installation. CF works by reading the difference between the dynamic pressure around the fan and the static pressure in the duct in front of the fan. The CF system constantly monitors the pressure in the ducts and if the resistance increases, it increases the speed of the fans to maintain a constant flow, such as on the first day when the ventilation unit was commissioned. During exploitation, the installation pressure is naturally disrupted (dirty filters, condensation of water in the heat exchanger, temperature difference changing the air mass). CF counteracts to those changes, thanks to which the airflows remain sustainable, and only a sustainable system takes full advantage of the air handling unit's capabilities.

## Zoning

HRQ-2ZONE is a device designed for residential ventilation systems, dividing the air supply into two controlled and monitored zones. The air flow is controlled by motorized dampers, which are adjusted according to the demand sent by CO2 sensors installed in each zone. Such a system allows for the detection of the inhabitant's presence and provides the right amount of fresh air in the right place at the right time.

## Connecting the ground heat exchanger

Heat recovery unit has a possibility to connect the ground heat exchanger. This function allows you to control a valve that optionally supply air through the ground-to-air heating system. To do this, install a dedicated damper with the actuator (DATVTML).

## Cooperation with the kitchen hood

The cooker hood can be connected to the MVHR system via the X25 contact on the main board of the SlimAIR heat recovery units. It is a potential-free contact. Short-circuits of contact inputs will result in an exhaust fan stopping completely during the period the contact is closed.

## Demand Control Ventilation, DCV

The AUTO mode is the most energy-efficient and demand driven mode of SlimAIR units. Operation in the AUTO mode is possible when at least one carbon dioxide CO2 or relative humidity RH sensor operates in the system.

In AUTO mode, the sensor (or several sensors) generates the so-called ventilation demand based on ambient air measurements. This request is sent wirelessly to the control board, which sets the efficiency of the fans in the range defined by AWAY and HOME(+ offset) speeds. It means, that in the case of factory settings, the range will be 15-70%.

**The RH sensor** will guard against excessive moisture. If there is a sudden increase in relative humidity (more than 3% within 24 seconds) or the reading exceeds 85%, the sensor will send 100% demand to the control panel to effectively and quickly reduce the RH level.

**The CO2 sensor** will keep the carbon dioxide concentration below the specified level (the factory default is 800 ppm, you can choose between 700,800,900,1000 and 1100 ppm) thanks to the proportional PID algorithm.

This means that the request sent to the control board will change gradually over time until the CO2 concentration decreases. HRU-PremAIR-SENS-CO2 sensors have 2 AUTO modes: Comfort and Eco. Comfort is the basic setting (i.e. 800 ppm by default), while Eco increases the limit by 250 (i.e. 1050 by default).

The CO<sub>2</sub> sensor is available in the following versions:  
 surface **HRQ-SENS-CO**                      flush-mounted **HRQ-SENS-I-CO2**



In case of having several sensors, the unit control board will operate according to the highest indication (highest request). In the absence of any demand from the sensors, the ventilation unit will run at AWAY speed (lowest setting).

# Heat Recovery Unit PremAIR, SlimAIR and MinistAIR Controllers and sensors

## Mobile application PremAIR

Mobile application for controlling a home ventilation unit HRU-SlimAIR, HRU-PremAIR and HRU-MinistAIR by ALNOR. It allows to monitor and control the unit via local network and Internet as well:

- Mode selection (Away, Home, Party, Boost, Auto and Standby)
- Temperature readouts
- Registering and displaying remote CO<sub>2</sub> and RH sensors readouts
- Fans efficiencies
- Defrost mode
- By-pass mode
- Filters conditions

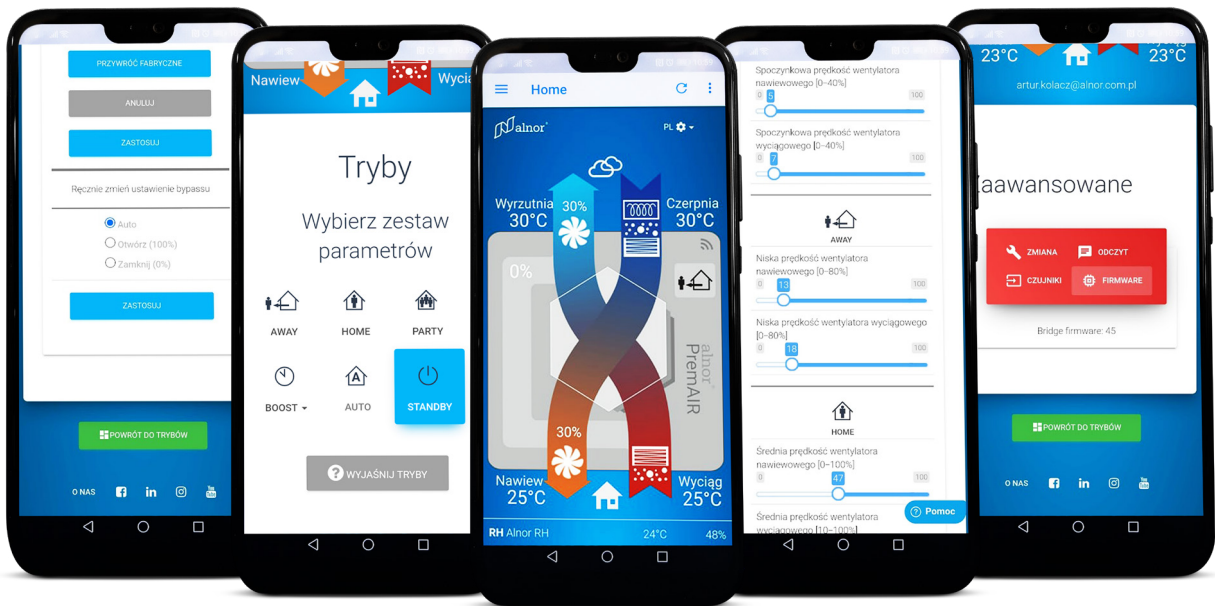
Available for download in Google Play and

App Store: PremAIR

Also via web browser: <https://premair.alnor.pl/>



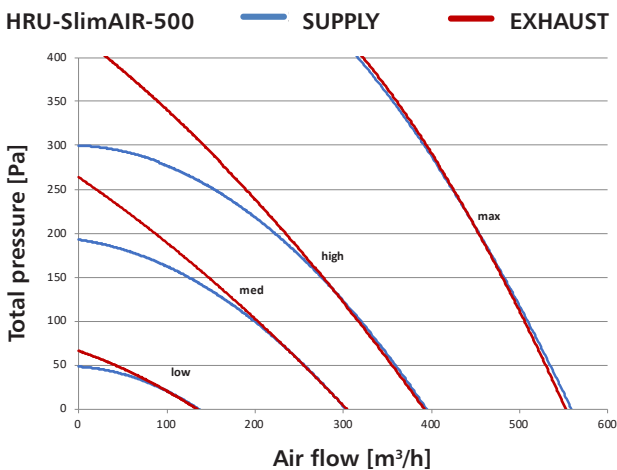
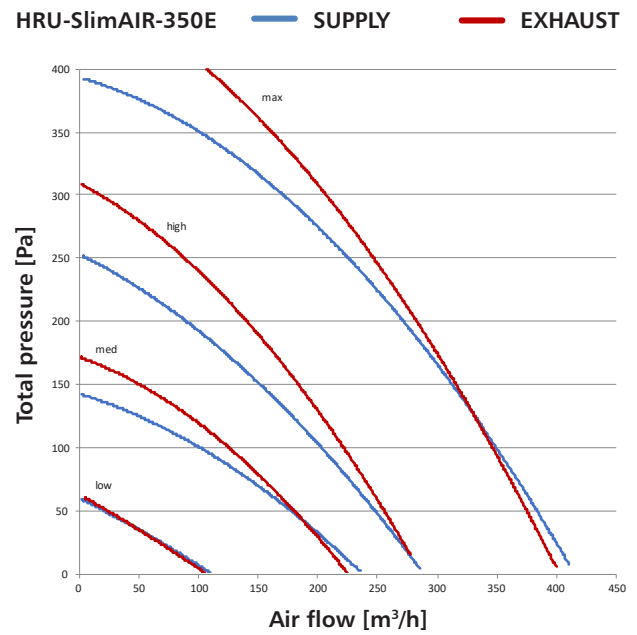
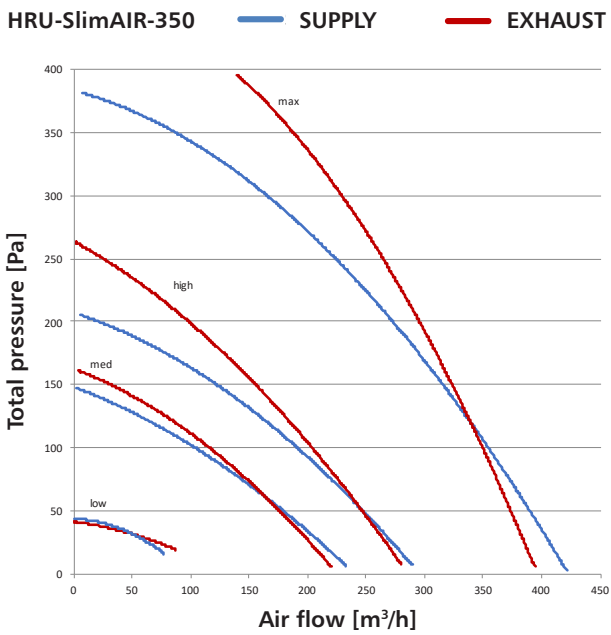
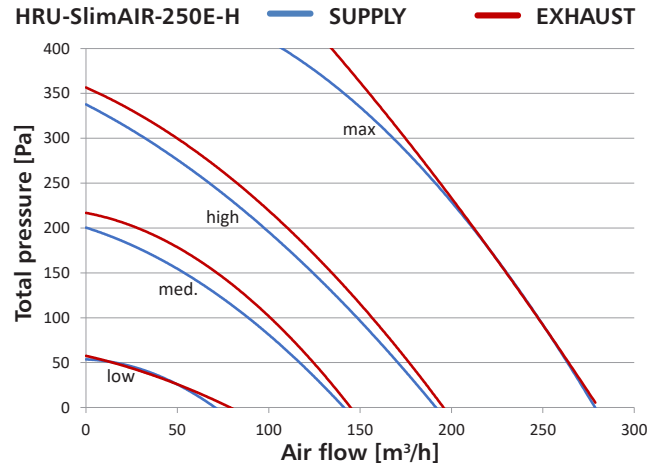
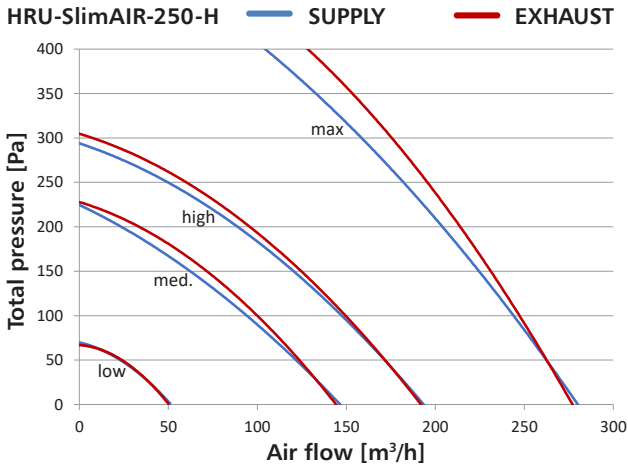
Screen shot:



Suspended heat recovery unit with a plate heat exchanger

# HRU-SlimAIR

## Air flow and efficiency

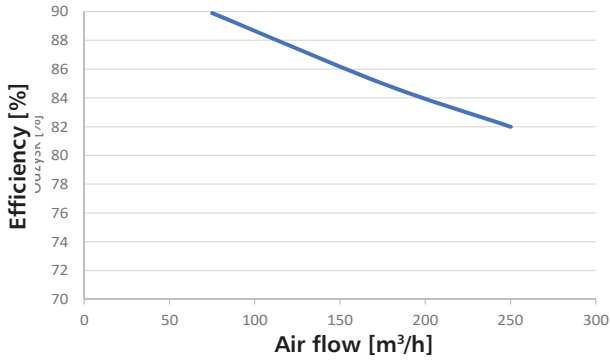




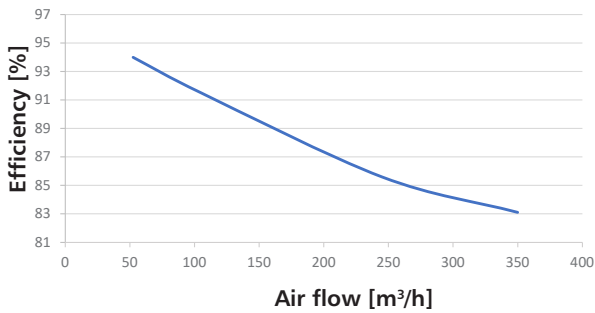
# Suspended heat recovery unit with a plate heat exchanger

## HRU-SlimAIR

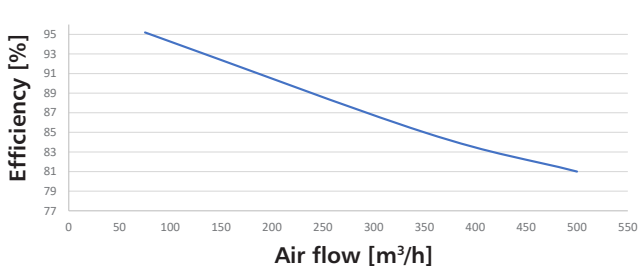
Performance curve  
HRU-SlimAIR-250-H



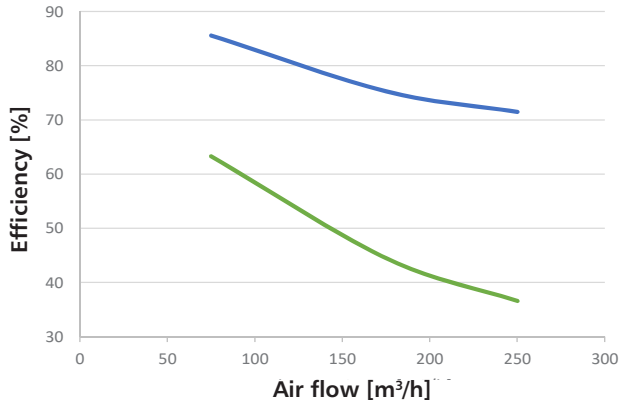
Performance curve  
HRU-SlimAIR-350



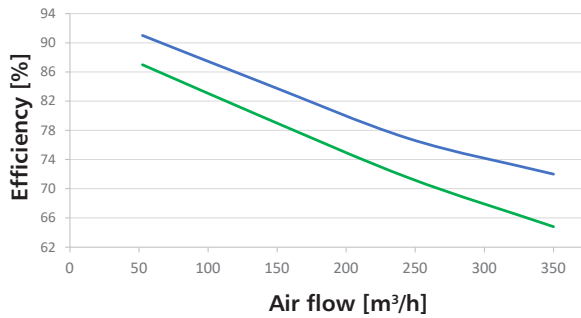
Performance curve  
HRU-SlimAIR-500



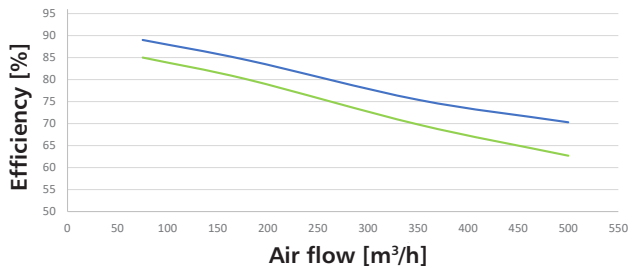
Performance curve Heat (—) and moisture recovery (—)  
HRU-SlimAIR-250E-H



Performance curve Heat (—) and moisture recovery (—)  
HRU-SlimAIR-350E



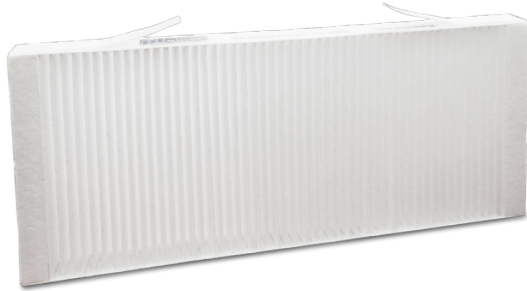
Performance curve Heat (—) and moisture recovery (—)  
HRU-SlimAIR-500E



Suspended heat recovery unit with a plate heat exchanger

# HRU-SlimAIR

## Filters



Pleated panel filter creates a larger media surface area for air filtration and ensures lower pressure drops. The filter is classified as in the ISO Coarse 70% or ISO ePM<sub>1</sub> 55% according to ISO 16890 standards.

Code	Filter clas	Dimensions [mm]
HRQ-SlimAIR-FILT-C70	ISO Coarse 70%	170x334x23
HRQ-SlimAIR-350-FILT-C70	ISO Coarse 70%	220x314x23
HRQ-SlimAIR-500-FILT-C70	ISO Coarse 70%	218x432x23
HRQ-SlimAIR-FILT-ePM155	ISO ePM <sub>1</sub> 55%	170x334x23
HRQ-SlimAIR-350-FILT-ePM155	ISO ePM <sub>1</sub> 55%	220x314x23
HRQ-SlimAIR-500-FILT-ePM155	ISO ePM <sub>1</sub> 55%	218x432x23

Filter replacement:  
bottom access



side access



# Suspended heat recovery unit with a plate heat exchanger **HRU-SlimAIR**

## Smart ventilation system *SmartAIR*



SmartAIR heat recovery system with zoning is the most intelligent, efficient system on the market. Why is it intelligent? The ventilation system works independently, based on readings from sensors. Besides knowing how many people are in the house, the system also knows where they are. Thus, it provides the right amount of air at the right time and place. A situation like this can be achieved by zoning, i.e. by dividing the house into day and night zones in accordance with the natural cycle of the day of the household members.

[Find out more about the HRQ-2ZONE](#)

## Complete *EPP* system



Choose thermally insulated EPP ducting. High mechanical strength, pre-insulated, and quick to assemble. You don't need an additional insulation layer. It comes in 15/43mm thicknesses.

### EPP manifolds (distribution boxes)

Manifolds FLX-PLO-EPP-R are designed for use in domestic mechanical ventilation systems. They collect 75mm semi-rigid ducting, which is then distributed to the rooms. Typical installations contain from 1 to 2 such manifolds for the supply air and the extract air. Expanded polypropylene (EPP), the material used for the manifolds, is also an insulating material.

Duct and fittings made of EPP in thickness 15 or 43 mm.

[Check the elements of the EPP System?](#)

## Duct-mounted humidifier



The adiabatic humidifier is designed for domestic mechanical ventilation systems with a maximum airflow 600 m<sup>3</sup>/h. Filtered water naturally evaporates on a special matrix, and then the humidified air is distributed to the ventilation duct system and to the connected rooms.

The humidification process is regulated by a wireless room controller and a duct sensor. Built-in PTC heater compensates for temperature losses caused by the evaporation process. The housing is made of EPP, while the matrix is made of fiber glass.

[Find out more about duct humidifier](#)

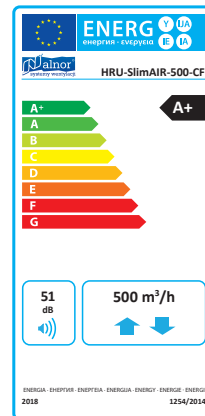
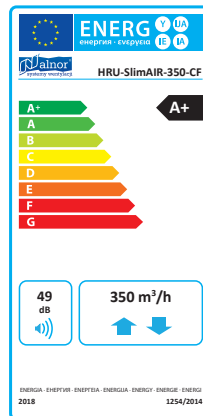
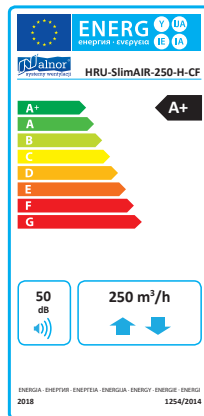
# Suspended heat recovery unit with a plate heat exchanger

# HRU-SlimAIR

## Ecodesign Data

### Energy class

Model	Sound power level $L_{WA}$ dB(A)* [dB]	Air flow rate [m³/h]	Energy class			
			Manual control	Clock control	Central demand control (1 sensor)	Local demand control (2 sensor)
HRU-SlimAIR-250-H	50	250	A	A	A	A+
HRU-SlimAIR-250-H-CF	50	250	A	A	A	A+
HRU-SlimAIR-250E-H	50	250	A	A	A	A
HRU-SlimAIR-250E-H-CF	50	250	A	A	A	A
HRU-SlimAIR-350	49	350	A	A	A	A+
HRU-SlimAIR-350-CF	49	350	A	A	A	A+
HRU-SlimAIR-350E	49	350	A	A	A	A
HRU-SlimAIR-350E-CF	49	350	A	A	A	A
HRU-SlimAIR-500	51	500	A	A	A	A+
HRU-SlimAIR-500-CF	51	500	A	A	A	A+
HRU-SlimAIR-500E	51	500	B	A	A	A
HRU-SlimAIR-500E-CF	51	500	B	A	A	A



# Suspended heat recovery unit with a plate heat exchanger

## HRU-SlimAIR

### Product fiche, Commission Regulation (EU) No 1253/2014, 1254/2014, Annex

Supplier's name or trade mark	ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji		
Model identifier	HRU-SlimAIR-250-H HRU-SlimAIR-250-H-CF			HRU-SlimAIR-250-H HRU-SlimAIR-250-H-CF			HRU-SlimAIR-250-H HRU-SlimAIR-250-H-CF			HRU-SlimAIR-250-H HRU-SlimAIR-250-H-CF		
Specific energy consumption (SEC) [kWh/(m <sup>2</sup> .a)] (cold, average, warm climate)	-73.63	<b>-36.71</b>	-12.93	-74.79	<b>-37.64</b>	-13.73	-76.99	<b>-39.39</b>	-15.22	-80.98	<b>-42.46</b>	-17.77
SEC class	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A+</b>	E
Declared typology	Bidirectional			Bidirectional			Bidirectional			Bidirectional		
Type of drive	Variable			Variable			Variable			Variable		
Type of heat recovery system	Recuperative			Recuperative			Recuperative			Recuperative		
Thermal efficiency <sup>1</sup>	85.00%			85.00%			85.00%			85.00%		
Maximum flow rate [m <sup>3</sup> /h] <sup>2</sup>	250			250			250			250		
Maximum electric power input [W]	91.5			91.5			91.5			91.5		
Sound power LWA [dB(A)]	50			50			50			50		
Reference flow rate [m <sup>3</sup> /s] <sup>3</sup>	0.049			0.049			0.049			0.049		
Reference pressure difference [Pa] <sup>4</sup>	50			50			50			50		
SPI [W/(m <sup>3</sup> /h)] <sup>5</sup>	0.23			0.23			0.23			0.23		
Control factor	1			0.95			0.85			0.65		
Declared maximum leakages <sup>6</sup>	External: 1.14% Internal: 2.45%			External: 1.14% Internal: 2.45%			External: 1.14% Internal: 2.45%			External: 1.14% Internal: 2.45%		
Position and description of visual filter warning	Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller		
Internet address for pre-/dis-assembly instructions	<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>		
The annual electricity consumption (AEC) [kWh/a/100m <sup>2</sup> ]	865	328	283	837	300	255	786	249	204	702	165	120
The annual heating saved (AHS) [kWh/a/100m <sup>2</sup> ]	8652	4423	2000	8699	4474	2011	8792	4494	2032	8979	4590	2075

<sup>1</sup> According to EN 13141-7:2010

<sup>2</sup> According to EN 13141-7:2010 with at pressure difference 100 Pa

<sup>3</sup> According to EN 13141-7:2010 at 70% of maximum flow at static pressure difference 50 Pa

<sup>4</sup> According to EN 13141-7:2010

<sup>5</sup> According to EN 13141-7:2010 at reference point - 70% of maximum air flow

<sup>6</sup> According to EN 13141-7:2010

Suspended heat recovery unit with a plate heat exchanger

**HRU-SlimAIR****Product fiche, Commission Regulation (EU) No 1253/2014, 1254/2014, Annex**

Supplier's name or trade mark	ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji		
Model identifier	HRU-SlimAIR-250E-H HRU-SlimAIR-250E-H-CF			HRU-SlimAIR-250E-H HRU-SlimAIR-250E-H-CF			HRU-SlimAIR-250E-H HRU-SlimAIR-250E-H-CF			HRU-SlimAIR-250E-H HRU-SlimAIR-250E-H-CF		
Specific energy consumption (SEC) [kWh/(m <sup>2</sup> .a)] (cold, average, warm climate)	-68.01	-34.05	-11.96	-69.43	-35.09	-12.79	-72.17	-37.07	-14.34	-77.24	-40.64	-17.04
SEC class	A+	A	E	A+	A	E	A+	A	E	A+	A	E
Declared typology	Bidirectional			Bidirectional			Bidirectional			Bidirectional		
Type of drive	Variable			Variable			Variable			Variable		
Type of heat recovery system	Recuperative			Recuperative			Recuperative			Recuperative		
Thermal efficiency <sup>1</sup>	75.30%			75.30%			75.30%			75.30%		
Maximum flow rate [m <sup>3</sup> /h] <sup>2</sup>	250			250			250			250		
Maximum electric power input [W]	90.3			90.3			90.3			90.3		
Sound power LWA [dB(A)]	50			50			50			50		
Reference flow rate [m <sup>3</sup> /s] <sup>3</sup>	0.049			0.049			0.049			0.049		
Reference pressure difference [Pa] <sup>4</sup>	50			50			50			50		
SPI [W/(m <sup>3</sup> /h)] <sup>5</sup>	0.21			0.21			0.21			0.21		
Control factor	1			0.95			0.85			0.65		
Declared maximum leakages <sup>6</sup>	External: 0.67% Internal: 0.79%			External: 0.67% Internal: 0.79%			External: 0.67% Internal: 0.79%			External: 0.67% Internal: 0.79%		
Position and description of visual filter warning	Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller		
Internet address for pre-/dis-assembly instructions	<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>		
The annual electricity consumption (AEC) [kWh/a/100m <sup>2</sup> ]	848	311	266	822	285	240	774	237	192	694	157	112
The annual heating saved (AHS) [kWh/a/100m <sup>2</sup> ]	8047	4114	1860	8124	4153	1878	8278	4232	1914	8586	4389	1985

<sup>1</sup> According to EN 13141-7:2010<sup>2</sup> According to EN 13141-7:2010 with at pressure difference 100 Pa<sup>3</sup> According to EN 13141-7:2010 at 70% of maximum flow at static pressure difference 50 Pa<sup>4</sup> According to EN 13141-7:2010<sup>5</sup> According to EN 13141-7:2010 at reference point - 70% of maximum air flow<sup>6</sup> According to EN 13141-7:2010

# Suspended heat recovery unit with a plate heat exchanger

## HRU-SlimAIR

### Product fiche, Commission Regulation (EU) No 1253/2014, 1254/2014, Annex

Supplier's name or trade mark	ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji		
Model identifier	HRU-SlimAIR-350 HRU-SlimAIR-350-CF			HRU-SlimAIR-350 HRU-SlimAIR-350-CF			HRU-SlimAIR-350 HRU-SlimAIR-350-CF			HRU-SlimAIR-350 HRU-SlimAIR-350-CF		
Specific energy consumption (SEC) [kWh/(m <sup>2</sup> .a)] (cold, average, warm climate)	-74.43	<b>-37.32</b>	-13.44	-75.52	<b>-38.20</b>	-14.19	-77.62	<b>-39.85</b>	-15.59	-81.40	<b>-42.76</b>	-18.00
SEC class	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A+</b>	E
Declared typology	Bidirectional			Bidirectional			Bidirectional			Bidirectional		
Type of drive	Variable			Variable			Variable			Variable		
Type of heat recovery system	Recuperative			Recuperative			Recuperative			Recuperative		
Thermal efficiency <sup>1</sup>	85.60%			85.60%			85.60%			85.60%		
Maximum flow rate [m <sup>3</sup> /h] <sup>2</sup>	350			350			350			350		
Maximum electric power input [W]	123			123			123			123		
Sound power LWA [dB(A)]	49			49			49			49		
Reference flow rate [m <sup>3</sup> /s] <sup>3</sup>	0.068			0.068			0.068			0.068		
Reference pressure difference [Pa] <sup>4</sup>	50			50			50			50		
SPI [W/(m <sup>3</sup> /h)] <sup>5</sup>	0.21			0.21			0.21			0.21		
Control factor	1			0.95			0.85			0.65		
Declared maximum leakages <sup>6</sup>	External: 1.18% Internal: 2.74%			External: 1.18% Internal: 2.74%			External: 1.18% Internal: 2.74%			External: 1.18% Internal: 2.74%		
Position and description of visual filter warning	Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller		
Internet address for pre-/dis-assembly instructions	<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>		
The annual electricity consumption (AEC) [kWh/a/100m <sup>2</sup> ]	848	311	266	822	285	240	774	237	192	694	157	112
The annual heating saved (AHS) [kWh/a/100m <sup>2</sup> ]	8689	4442	2009	8734	4465	2019	8824	4511	2040	9003	4602	2081

<sup>1</sup> According to EN 13141-7:2010

<sup>2</sup> According to EN 13141-7:2010 with at pressure difference 100 Pa

<sup>3</sup> According to EN 13141-7:2010 at 70% of maximum flow at static pressure difference 50 Pa

<sup>4</sup> According to EN 13141-7:2010

<sup>5</sup> According to EN 13141-7:2010 at reference point - 70% of maximum air flow

<sup>6</sup> According to EN 13141-7:2010

Suspended heat recovery unit with a plate heat exchanger

**HRU-SlimAIR****Product fiche, Commission Regulation (EU) No 1253/2014, 1254/2014, Annex**

Supplier's name or trade mark	ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji		
Model identifier	HRU-SlimAIR-350E HRU-SlimAIR-350E-CF			HRU-SlimAIR-350E HRU-SlimAIR-350E-CF			HRU-SlimAIR-350E HRU-SlimAIR-350E-CF			HRU-SlimAIR-350E HRU-SlimAIR-350E-CF		
Specific energy consumption (SEC) [kWh/(m <sup>2</sup> .a)] (cold, average, warm climate)	-68.49	<b>-34.04</b>	-11.67	-69.91	<b>-35.10</b>	-12.54	-72.64	<b>-37.13</b>	-14.16	-77.66	<b>-40.75</b>	-16.97
SEC class	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A</b>	E
Declared typology	Bidirectional			Bidirectional			Bidirectional			Bidirectional		
Type of drive	Variable			Variable			Variable			Variable		
Type of heat recovery system	Recuperative			Recuperative			Recuperative			Recuperative		
Thermal efficiency <sup>1</sup>	76.90%			76.90%			76.90%			76.90%		
Maximum flow rate [m <sup>3</sup> /h] <sup>2</sup>	350			350			350			350		
Maximum electric power input [W]	146			146			146			146		
Sound power LWA [dB(A)]	49			49			49			49		
Reference flow rate [m <sup>3</sup> /s] <sup>3</sup>	0.068			0.068			0.068			0.068		
Reference pressure difference [Pa] <sup>4</sup>	50			50			50			50		
SPI [W/(m <sup>3</sup> /h)] <sup>5</sup>	0.25			0.25			0.25			0.25		
Control factor	1			0.95			0.85			0.65		
Declared maximum leakages <sup>6</sup>	External: 0.71% Internal: 2.66%			External: 0.71% Internal: 2.66%			External: 0.71% Internal: 2.66%			External: 0.71% Internal: 2.66%		
Position and description of visual filter warning	Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller		
Internet address for pre-/dis-assembly instructions	<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>		
The annual electricity consumption (AEC) [kWh/a/100m <sup>2</sup> ]	868	331	286	840	303	258	789	252	207	703	166	121
The annual heating saved (AHS) [kWh/a/100m <sup>2</sup> ]	8147	4165	1883	8219	4201	1900	83.63	4275	1933	8651	4422	2000

<sup>1</sup> According to EN 13141-7:2010<sup>2</sup> According to EN 13141-7:2010 with at pressure difference 100 Pa<sup>3</sup> According to EN 13141-7:2010 at 70% of maximum flow at static pressure difference 50 Pa<sup>4</sup> According to EN 13141-7:2010<sup>5</sup> According to EN 13141-7:2010 at reference point - 70% of maximum air flow<sup>6</sup> According to EN 13141-7:2010



# Suspended heat recovery unit with a plate heat exchanger

## HRU-SlimAIR

### Product fiche, Commission Regulation (EU) No 1253/2014, 1254/2014, Annex

Supplier's name or trade mark	ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji		
Model identifier	HRU-SlimAIR-500 HRU-SlimAIR-500-CF			HRU-SlimAIR-500 HRU-SlimAIR-500-CF			HRU-SlimAIR-500 HRU-SlimAIR-500-CF			HRU-SlimAIR-500 HRU-SlimAIR-500-CF		
Specific energy consumption (SEC) [kWh/(m <sup>2</sup> .a)] (cold, average, warm climate)	-73.54	<b>-36.62</b>	-12.84	-74.71	<b>-37.56</b>	-13.65	-76.93	<b>-39.32</b>	-15.15	-80.95	<b>-42.42</b>	-17.73
SEC class	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A+</b>	E
Declared typology	Bidirectional			Bidirectional			Bidirectional			Bidirectional		
Type of drive	Variable			Variable			Variable			Variable		
Type of heat recovery system	Recuperative			Recuperative			Recuperative			Recuperative		
Thermal efficiency <sup>1</sup>	85.00%			85.00%			85.00%			85.00%		
Maximum flow rate [m <sup>3</sup> /h] <sup>2</sup>	500			500			500			500		
Maximum electric power input [W]	207			207			207			207		
Sound power LWA [dB(A)]	51			51			51			51		
Reference flow rate [m <sup>3</sup> /s] <sup>3</sup>	0.097			0.097			0.097			0.097		
Reference pressure difference [Pa] <sup>4</sup>	50			50			50			50		
SPI [W/(m <sup>3</sup> /h)] <sup>5</sup>	0.23			0.23			0.23			0.23		
Control factor	1			0.95			0.85			0.65		
Declared maximum leakages <sup>6</sup>	External: 1.3% Internal: 2.98%			External: 1.3% Internal: 2.98%			External: 1.3% Internal: 2.98%			External: 1.3% Internal: 2.98%		
Position and description of visual filter warning	Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller		
Internet address for pre-/dis-assembly instructions	<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>		
The annual electricity consumption (AEC) [kWh/a/100m <sup>2</sup> ]	868	331	286	840	303	258	789	252	207	703	166	121
The annual heating saved (AHS) [kWh/a/100m <sup>2</sup> ]	8652	4423	2000	8699	4447	2011	8792	4494	2032	8979	4590	2075

<sup>1</sup> According to EN 13141-7:2010

<sup>2</sup> According to EN 13141-7:2010 with at pressure difference 100 Pa

<sup>3</sup> According to EN 13141-7:2010 at 70% of maximum flow at static pressure difference 50 Pa

<sup>4</sup> According to EN 13141-7:2010

<sup>5</sup> According to EN 13141-7:2010 at reference point - 70% of maximum air flow

<sup>6</sup> According to EN 13141-7:2010

# Suspended heat recovery unit with a plate heat exchanger

## HRU-SlimAIR

### Product fiche, Commission Regulation (EU) No 1253/2014, 1254/2014, Annex

Supplier's name or trade mark	ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji			ALNOR Systemy Wentylacji		
Model identifier	HRU-SlimAIR-500E HRU-SlimAIR-500E-CF			HRU-SlimAIR-500E HRU-SlimAIR-500E-CF			HRU-SlimAIR-500E HRU-SlimAIR-500E-CF			HRU-SlimAIR-500E HRU-SlimAIR-500E-CF		
Specific energy consumption (SEC) [kWh/(m <sup>2</sup> .a)] (cold, average, warm climate)	-67.02	<b>-33.02</b>	-10.92	-68.54	<b>-34.17</b>	-11.85	-71.46	<b>-36.33</b>	-13.59	-76.83	<b>-40.21</b>	-16.60
SEC class	A+	<b>B</b>	E	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A</b>	E
Declared typology	Bidirectional			Bidirectional			Bidirectional			Bidirectional		
Type of drive	Variable			Variable			Variable			Variable		
Type of heat recovery system	Recuperative			Recuperative			Recuperative			Recuperative		
Thermal efficiency <sup>1</sup>	75.40%			75.40%			75.40%			75.40%		
Maximum flow rate [m <sup>3</sup> /h] <sup>2</sup>	500			500			500			500		
Maximum electric power input [W]	247			247			247			247		
Sound power LWA [dB(A)]	51			51			51			51		
Reference flow rate [m <sup>3</sup> /s] <sup>3</sup>	0.097			0.097			0.097			0.097		
Reference pressure difference [Pa] <sup>4</sup>	50			50			50			50		
SPI [W/(m <sup>3</sup> /h)] <sup>5</sup>	0.25			0.25			0.25			0.25		
Control factor	1			0.95			0.85			0.65		
Declared maximum leakages <sup>6</sup>	External: 1.18% Internal: 2.74%			External: 1.18% Internal: 2.74%			External: 1.18% Internal: 2.74%			External: 1.18% Internal: 2.74%		
Position and description of visual filter warning	Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller			Visual on status LED light on unit and on status LED light on controller		
Internet address for pre-dis-assembly instructions	<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>			<a href="http://www.ventilation-alnor.co.uk">www.ventilation-alnor.co.uk</a>		
The annual electricity consumption (AEC) [kWh/a/100m <sup>2</sup> ]	890	353	308	860	323	278	804	267	222	712	175	130
The annual heating saved (AHS) [kWh/a/100m <sup>2</sup> ]	8054	4117	1862	8130	4156	1879	8284	4234	1915	8590	4391	1986

<sup>1</sup> According to EN 13141-7:2010

<sup>2</sup> According to EN 13141-7:2010 with at pressure difference 100 Pa

<sup>3</sup> According to EN 13141-7:2010 at 70% of maximum flow at static pressure difference 50 Pa

<sup>4</sup> According to EN 13141-7:2010

<sup>5</sup> According to EN 13141-7:2010 at reference point - 70% of maximum air flow

<sup>6</sup> According to EN 13141-7:2010