User manual

Heat and energy recovery ventilators

HRU-FlatAIR

-80/ -100/ -120/ -125/ -150/ -200/ -225/-250

I/IOU/0044 v2

User Manual

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User Manual

1. About this manual

1.1. Ventilation system description

Complete ventilation system consists of:

• Heat recovery ventilation unit HRU-FlatAIR-80/ HRU-FlatAIR-100/ HRU-FlatAIR-120/ HRU-FlatAIR-125/ HRU- FlatAIR-150/ HRU-FlatAIR-200/ HRU-FlatAIR-225/ HRU-FlatAIR-250,

• Ducting with diffusers, plenum boxes, inlet and outlet valves, etc.Sterownik HRQ-BUT-LM11 (optional)

• Control button HRQ-BUT-LM04 (optional)

• Control button HRQ-BUT-LCD (optional)

• CO2 wireless sensor(s) HRQ-SENS-CO2 or HRQ-SENS-I-CO2 (optional)

• RH wireless sensor(s) HRQ-SENS-RH (optional)

• Internet bridge HRQ-GATE (optional)

• Silencers (optional)

Mechanical ventilation provides the best level of comfort inside the building. This type of ventilation makes it very easy to manage the amount of air exhausted from the house and supplied to it. Exhaust valves are installed in bathrooms and kitchens. Supply valves are installed in rooms and living rooms. All ducts shall be connected to the HRU-FlatAIR unit. Under normal operating conditions (closed bypass and deactivated antifreeze protection), the unit operates in two directions: supply and exhaust. Supply air is drawn from outside and passes through a plate heat exchanger to the supply valves. Exhaust air is taken from the room and directed outside through the heat exchanger.

In the heat exchanger, heat is transferred from the exhaust air to the supply air without mixing the two streams. Using standard controllers, such as the HRQ-BUT-LM11, one of the fan speeds (low, medium and high) can be manually set. If the device is equipped with additional hardware - the HRQ-GATE internet gateway and an active internet connection, you can set these three speeds via the ControlAIR mobile app. If, in addition, CO2 and relative humidity sensors are installed, the speed can be controlled automatically depending on the CO2 concentration and relative humidity level (auto mode must be activated).

1.2. How to use this manual

This manual is intended as a reference book by which qualified installers can install the HRQ-FlatAIR and all optional device as well. This device must be used according to its purpose. Make sure you have read and understood the manual before you install and/or use the device. Please be informed that we are constantly working on development and improvement of our products hence minor differences between this document and your unit are possible.

1.3. Original instructions

The original instructions for this manual have been written in English. Other language versions of this manual are a translation of the original instructions.

1.4. Admonitions

WARNING 'Warning' identifies a hazard that could lead to personal injury, including death.

NOTE 'Note' is used to highlight additional information.

2. Safety

2.1. General safety instructions

This product was designed and manufactured to ensure maximum safety during installation, operation and service. Always read these safety instructions before installing, maintaining or servicing the product, and strictly comply with these instructions. Parts of the device carry mains power, which is a potential lethal voltage. Disconnect power at supply line, circuit breaker or fuse before installing, servicing or removing the device. The device is designed for indoor use only. Do not expose the device to rain or moisture, to avoid short circuit. Short circuit may cause fire or electric shock hazard. Operate the device between 0°C and 40°C. For cleaning of the device use a soft damp cloth only. Never use any abrasive or chemical cleaner. Do not paint the device. This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall no be made by children without supervision.

2.2. Directives / Standards

• ERP 2018 - regulation 1253/2014 and 1254/2014

• Low Voltage Directive (LVD) 2014/35/EC i Electromagnetic Compatibility Directive (EMCD) 2014/30/EU

• EN 308 - Heat exchangers - Test procedures for establishing performance of air to air and flue gases heat recovery devices.

• EN 13141-7 Ventilation for buildings – performance testing of components/products for residential ventilation - Part 7.

• EN 3744 - Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure.

• EN ISO 5136 - Acoustics - Determination of sound power radiated into a duct by fans and other airmoving devices - In-duct method.

3. Technical data

3.1. General informations

1. Dimensions: 800x500x170 mm (HxWxD) - HRU-FlatAIR-80/ -100/ -125,
   932x550x203 mm (H×W×D) - HRU-FlatAIR-120/ -150/ -200 / -225 / -250 [Rys 1.]
2. Weight: 15 kg - for HRU-FlatAIR-100/ -125
   22 kg - for HRU-FlatAIR-150 / -200 / -225 / -250

3. Heat exchanger: plate counter flow or entalpic (optional)
4. Fans: EC fans
5. By-pass: built-in, automatic
6. Filters: ISO Coarse 70% / ISO ePM1 55% (optional)
7. Pre-heatear: built-in
8. Instalation: vertical, overhead

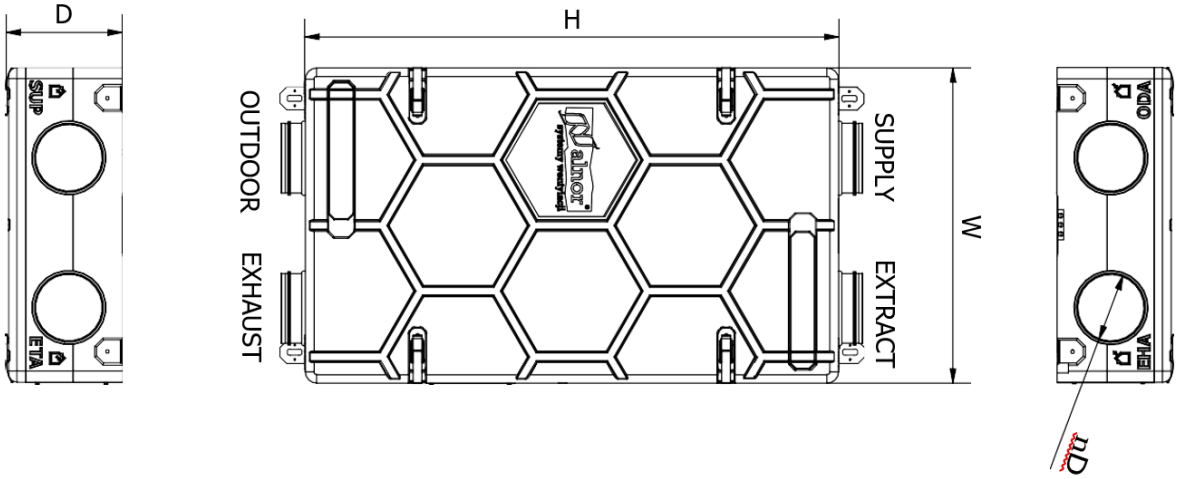


Figure 1 HRU-FlatAIR ductings

Name	H [mm]	W [mm]	D [mm]	Fi D [mm]
FlatAIR-80	800	500	170	100
FlatAIR-100				
FlatAIR-125				
FlatAIR-120	932	550	203	125
FlatAIR-150				
FlatAIR-200				
FlatAIR-225				
FlatAIR-250				

Table 1 Dimensions FlatAIR

3.2. Performance

- HRU-FlatAIR-80-H 80 m3/h (at 100 Pa) [Fig. 2]

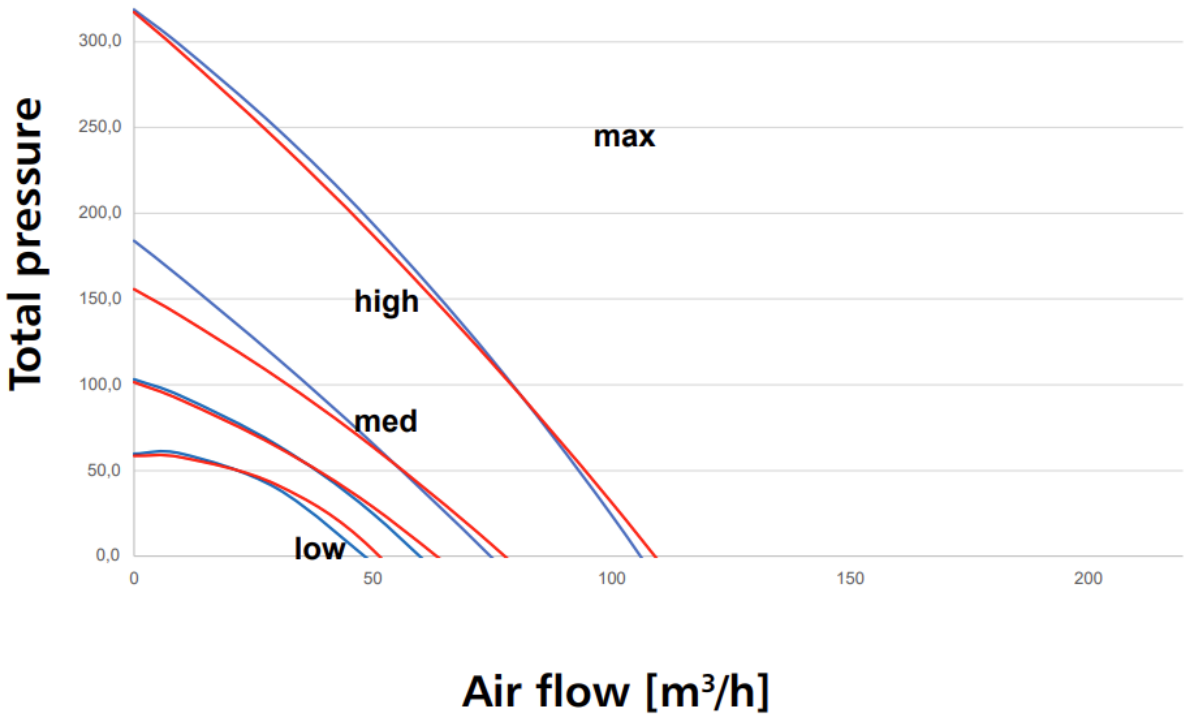


Figure 2 Total pressure for HRU-FlatAIR-80

• HRU-FlatAIR-80E-H 80 m3/h (at 100 Pa) [Fig. 3]

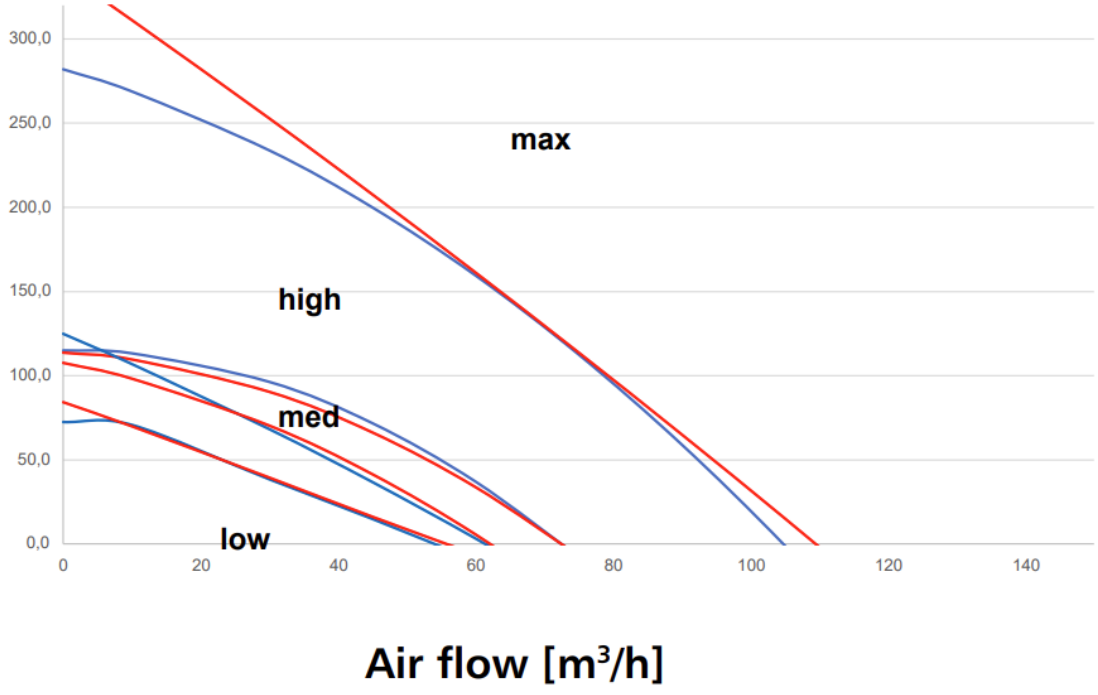


Figure 3 Total pressure for HRU-FlatAIR-80E

• HRU-FlatAIR-100-H 100 m3/h (at 100 Pa) [Fig. 4]

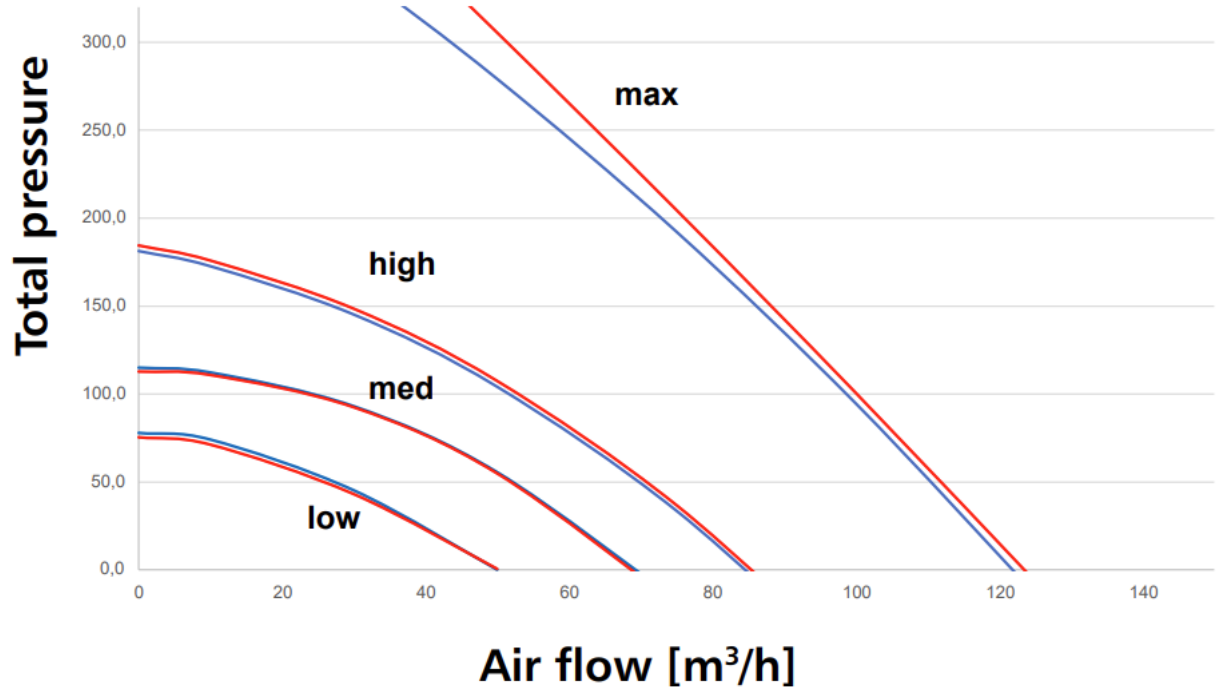


Figure 4 Total pressure for HRU-FlatAIR-100

• HRU-FlatAIR-100E-H 100 m3/h (at 100 Pa) [Fig. 5]

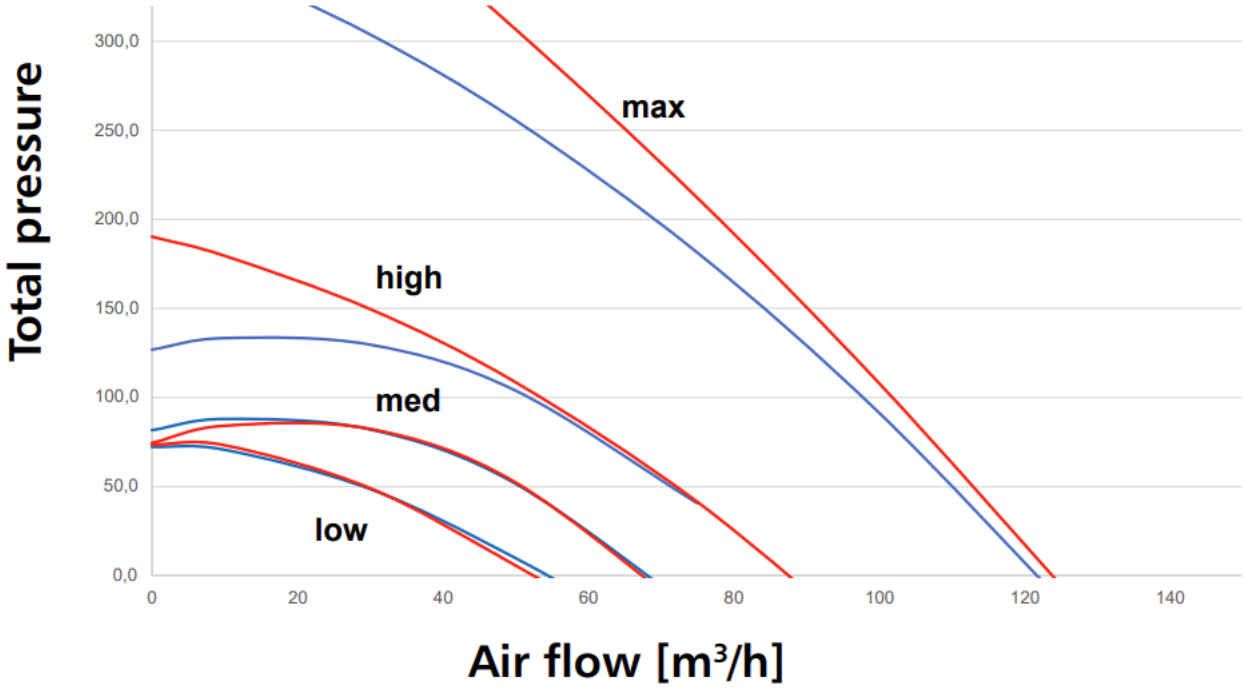


Figure 5 Total pressure for HRU-FlatAIR-100E

• HRU-FlatAIR-120-H 120 m3/h (at 100 Pa) [Fig. 6]

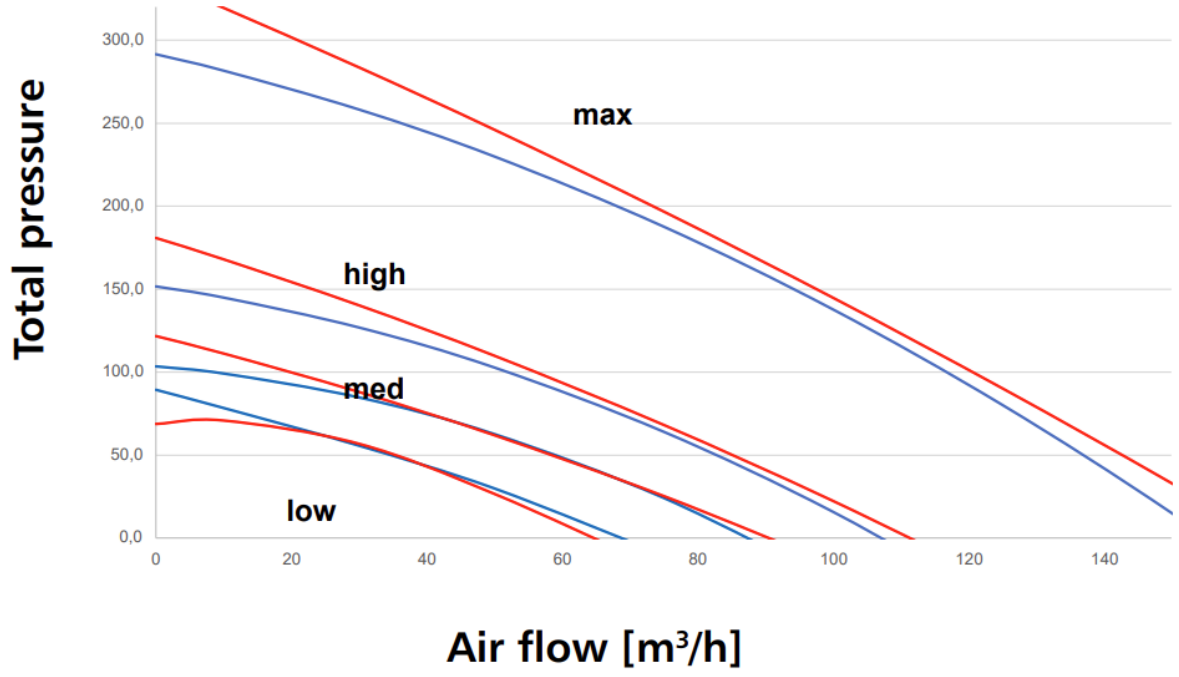


Figure 6 Total pressure for HRU-FlatAIR-120

- HRU-FlatAIR-120E-H 120 m3/h (at 100 Pa) [Fig. 7]

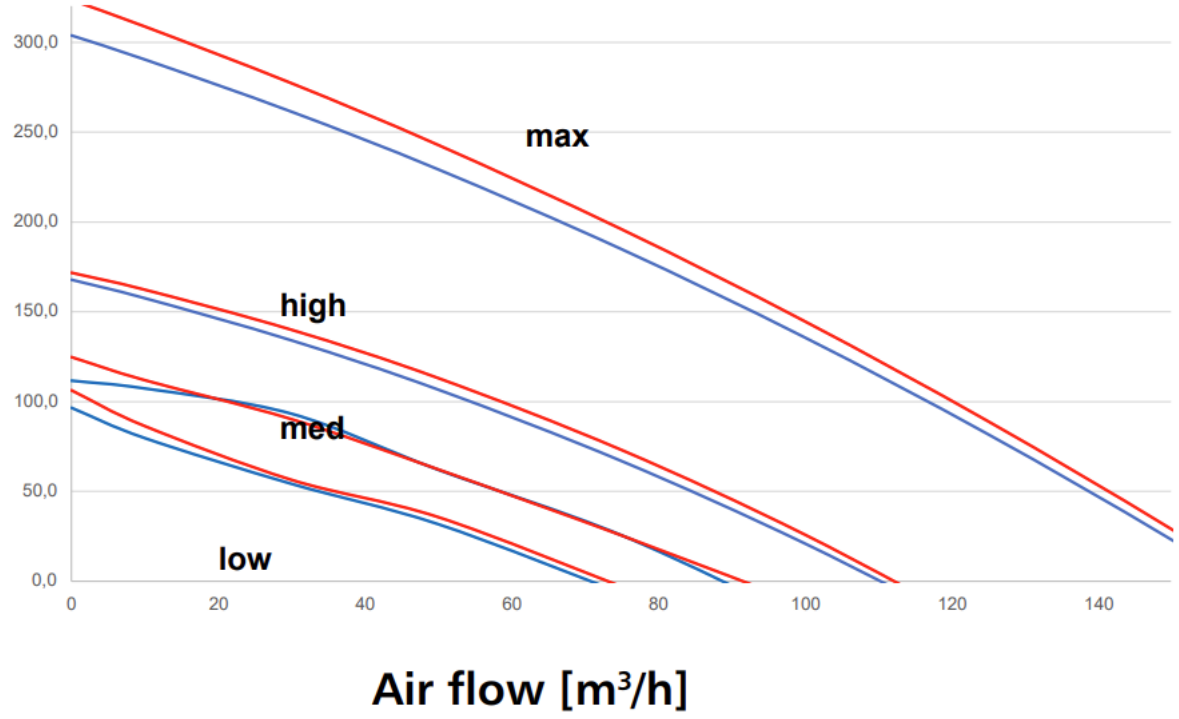


Figure 7. Total pressure for HRU-FlatAIR-120E

- HRU-FlatAIR-125-H 125 m3/h (at 100 Pa) [Fig. 8]

Figure 8. Total pressure for HRU-FlatAIR-125

- HRU-FlatAIR-125E-H 125 m3/h (at 100 Pa) [Fig. 9]

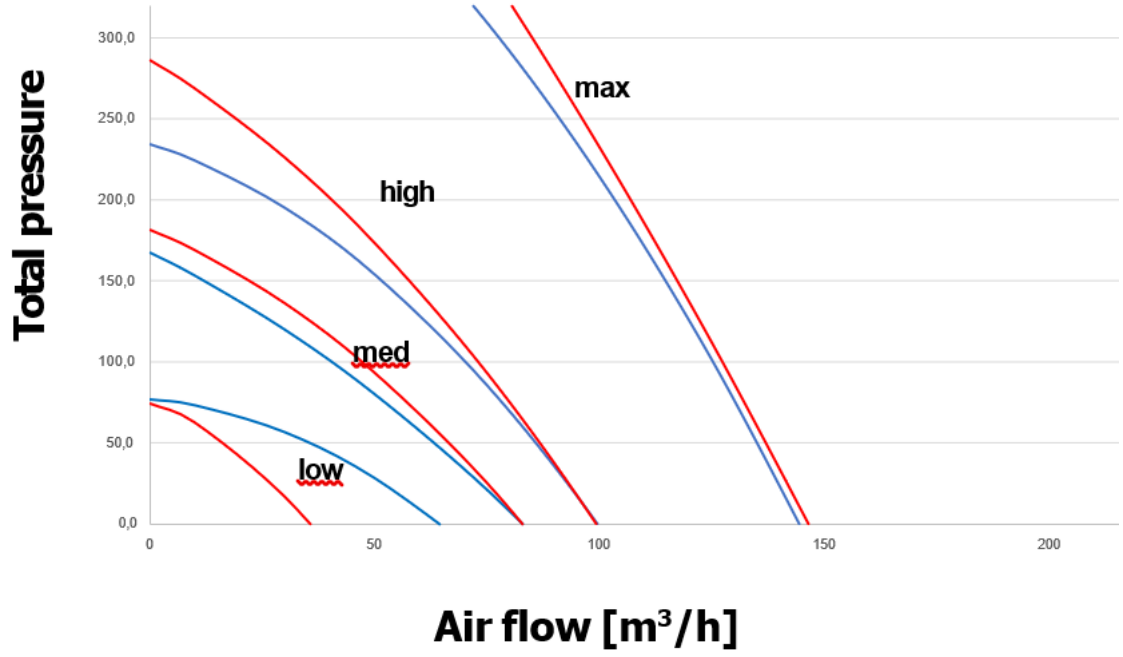


Figure 9. Total pressure for HRU-FlatAIR-125E

- HRU-FlatAIR-150-H 150 m3/h (at 100 Pa) [Fig. 10]

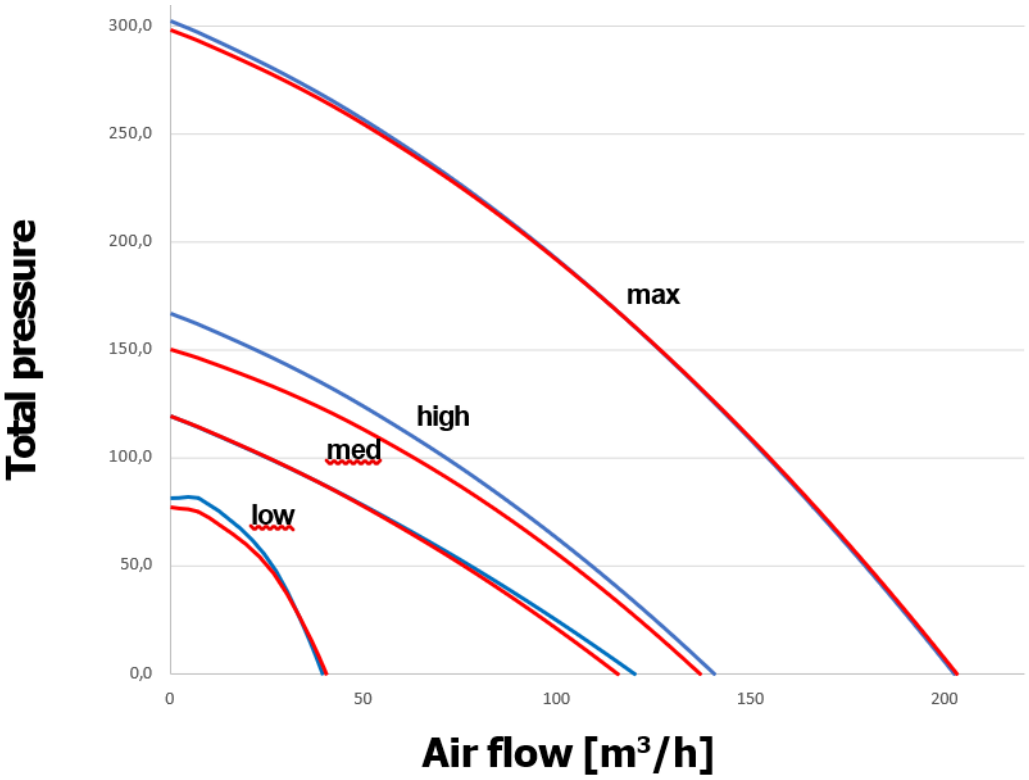


Figure 10. Total pressure for HRU-FlatAIR-150

- HRU-FlatAIR-150E-H 150 m3/h (at 100 Pa) [Fig. 11]

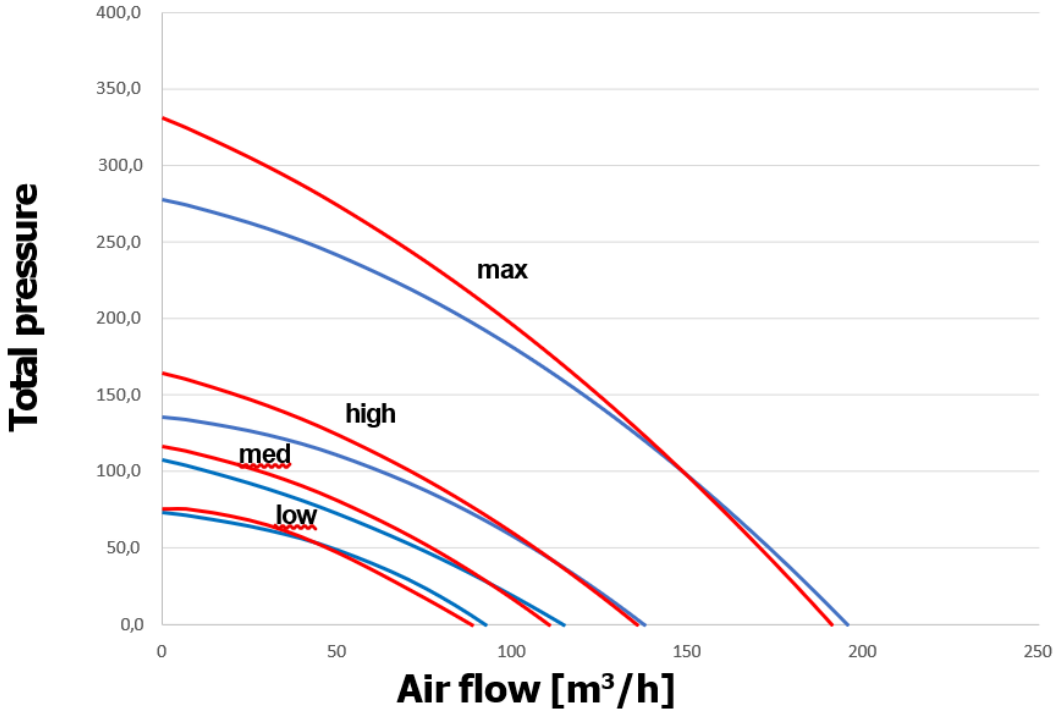


Figure 11. Total pressure for HRU-FlatAIR-150E

- HRU-FlatAIR-200-H 200 m3/h (at 100 Pa) [Fig. 12]

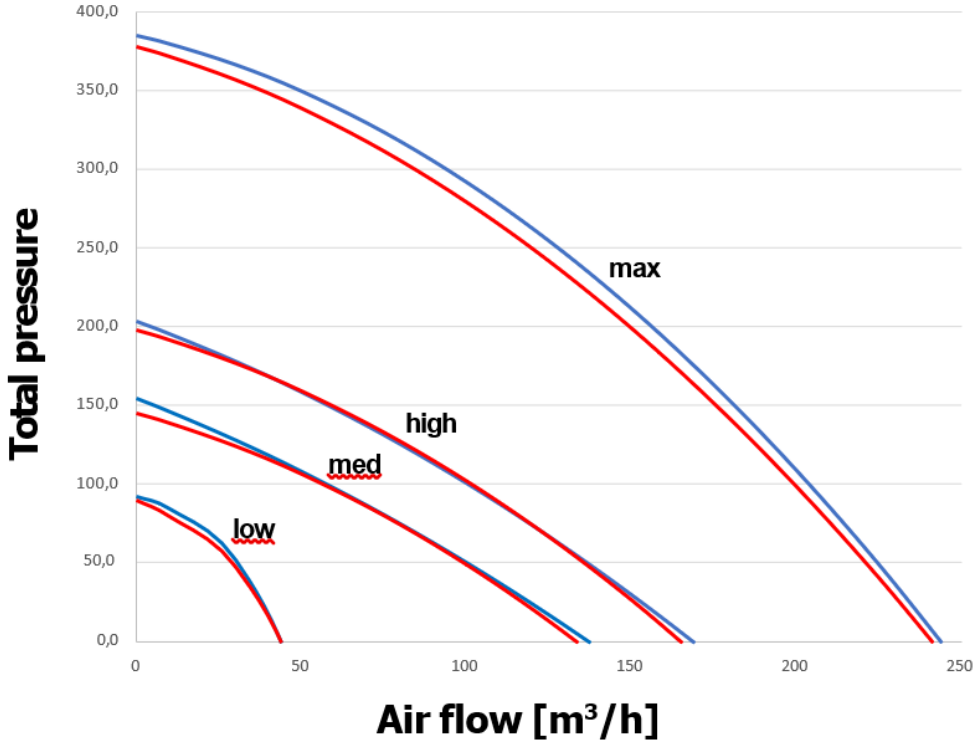
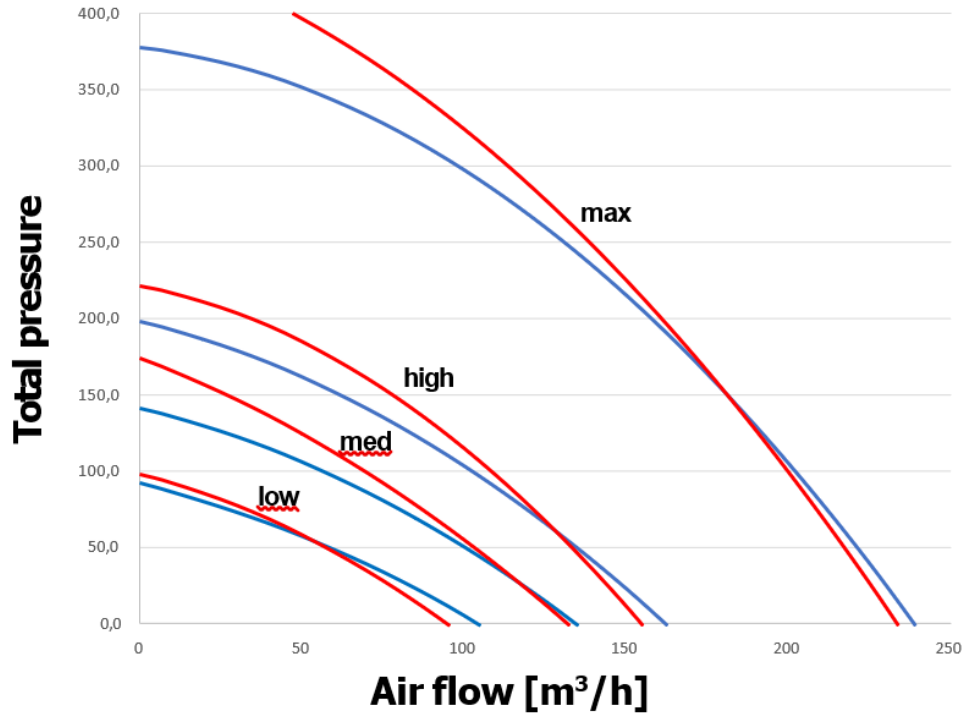


Figure 12. Total pressure for HRU-FlatAIR-200

- HRU-FlatAIR-200E-H 200 m3/h (at 100 Pa) [Fig. 13]



Rysunek 13. Total pressure for HRU-FlatAIR-200E

- HRU-FlatAIR-225-H 225 m3/h (at 100 Pa) [Fig. 14]

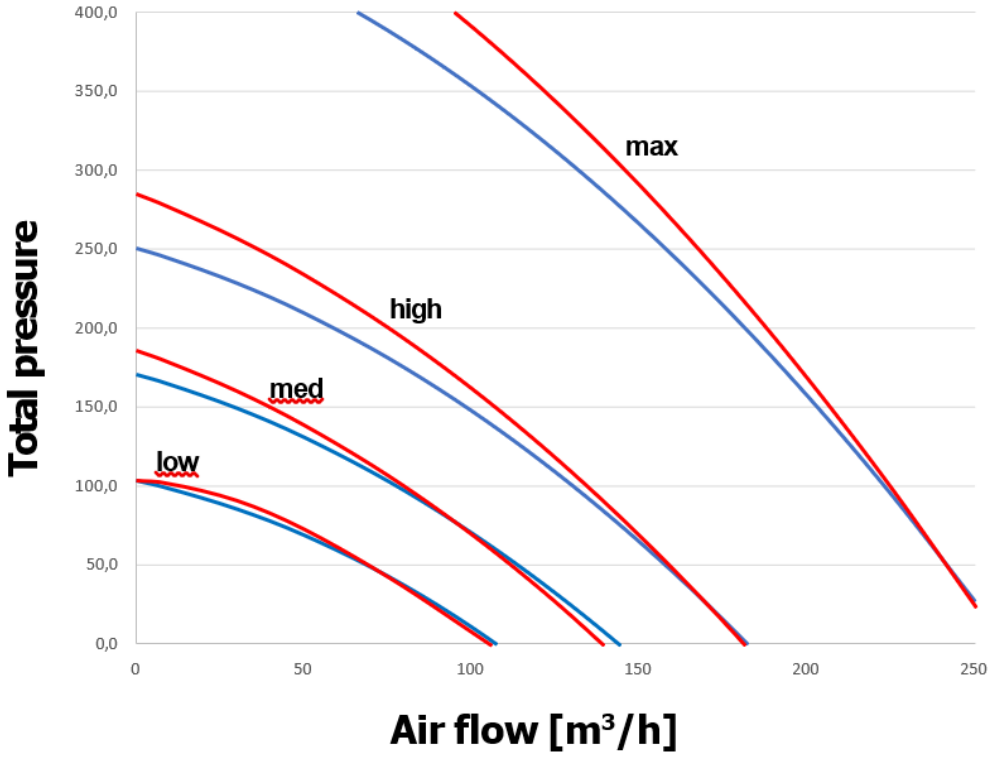


Figure 14. Total pressure for HRU-FlatAIR-225

• HRU-FlatAIR-225E-H 225 m3/h (at 100 Pa) [Fig. 15]

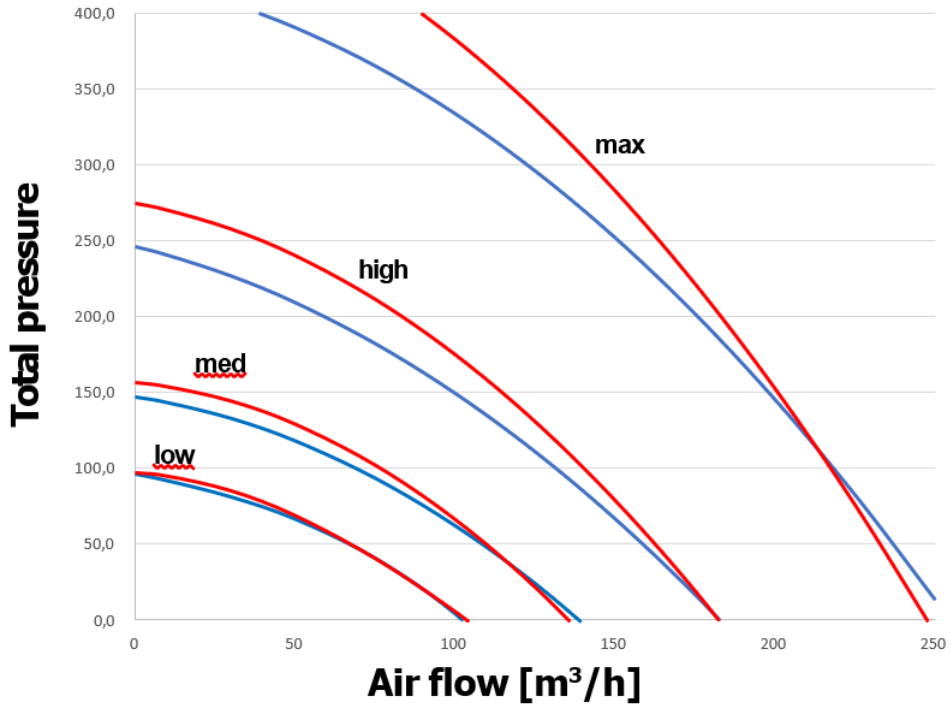


Figure 15. Total pressure for HRU-FlatAIR-225E

• HRU-FlatAIR-250-H 250 m3/h (at 100 Pa) [Fig. 16]

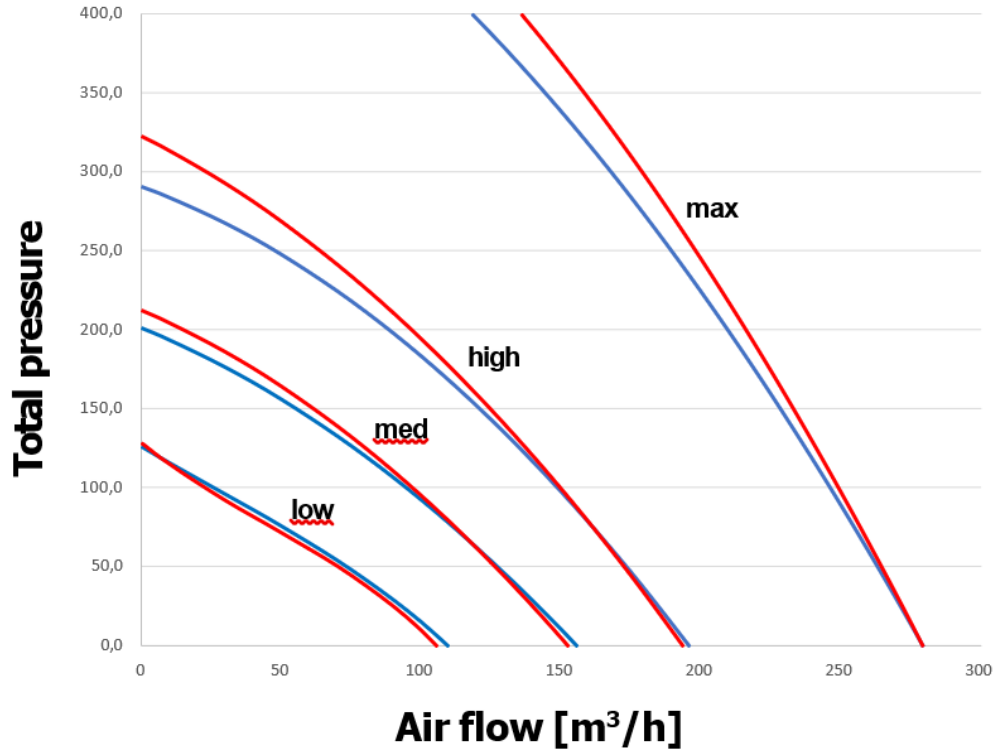


Figure 16. Total pressure for HRU-FlatAIR-250

- HRU-FlatAIR-250E-H 250 m3/h (at 100 Pa) [Fig. 17]

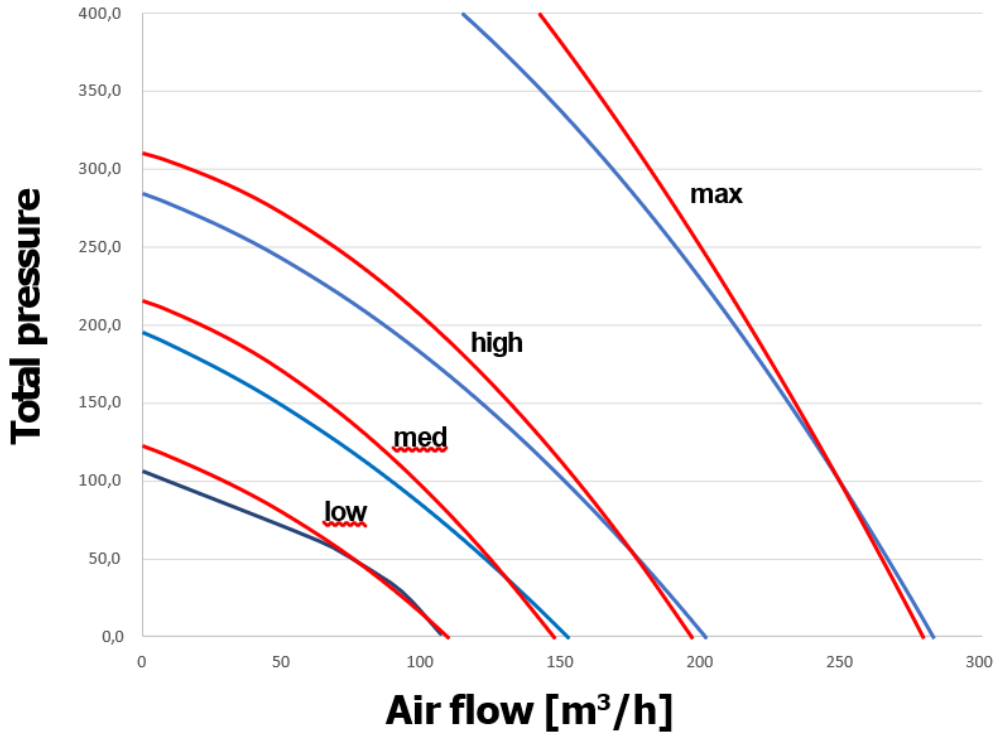


Figure 17. Total pressure for HRU-FlatAIR-250E

3.3. Tightness of the unit

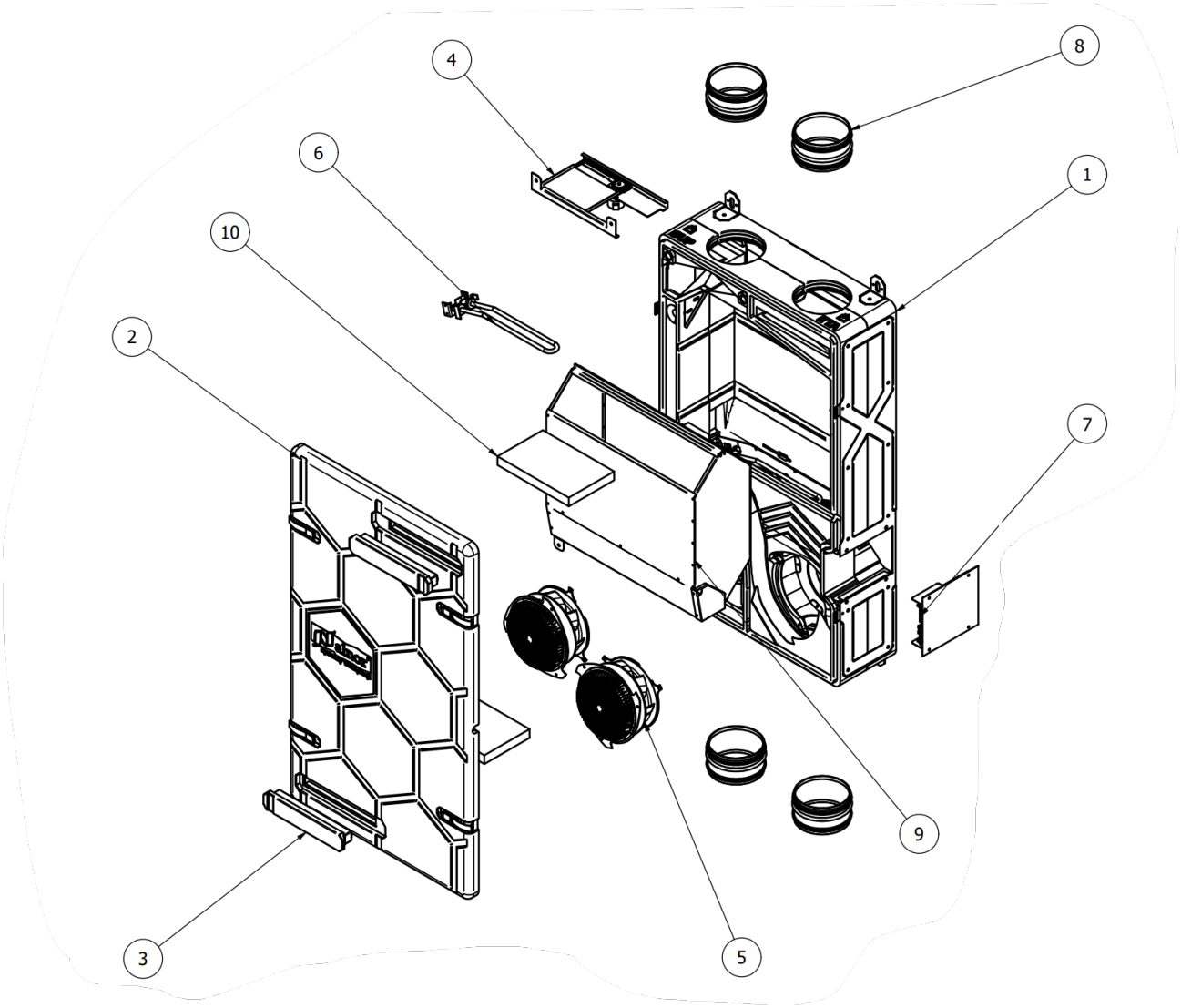
Internal tightness:

- HRU-FlatAIR-80-H: maximum leakage 1,50% (class A1 wg EN 13141-7)
- HRU-FlatAIR-80E-H: maximum leakage 4,27% (class A2 wg EN 13141-7)
- HRU-FlatAIR-100-H: maximum leakage 1,50% (class A1 wg EN 13141-7)
- HRU-FlatAIR-100E-H: maximum leakage 4,27% (class A2 wg EN 13141-7)
- HRU-FlatAIR-120-H: maximum leakage 1,50% (class A1 wg EN 13141-7)
- HRU-FlatAIR-120E-H: maximum leakage 4,27% (class A2 wg EN 13141-7)
- HRU-FlatAIR-125-H: maximum leakage 1,40% (class A1 wg EN 13141-7)
- HRU-FlatAIR-125E-H: maximum leakage 3,42% (class A2 wg EN 13141-7)
- HRU-FlatAIR-150-H: maximum leakage 2,98% (class A1 wg EN 13141-7)
- HRU-FlatAIR-150E-H: maximum leakage 3,81% (class A2 wg EN 13141-7)
- HRU-FlatAIR-200-H: maximum leakage 2,86% (class A1 wg EN 13141-7)
- HRU-FlatAIR-200E-H: maximum leakage 2,86% (class A1 wg EN 13141-7)
- HRU-FlatAIR-225-H: maximum leakage 2,83% (class A1 wg EN 13141-7)
- HRU-FlatAIR-225E-H: maximum leakage 2,54% (class A1 wg EN 13141-7)
- HRU-FlatAIR-250-H: maximum leakage 2,54% (class A1 wg EN 13141-7)
- HRU-FlatAIR-250E-H: maximum leakage 2,29% (class A1 wg EN 13141-7)

External tightness:

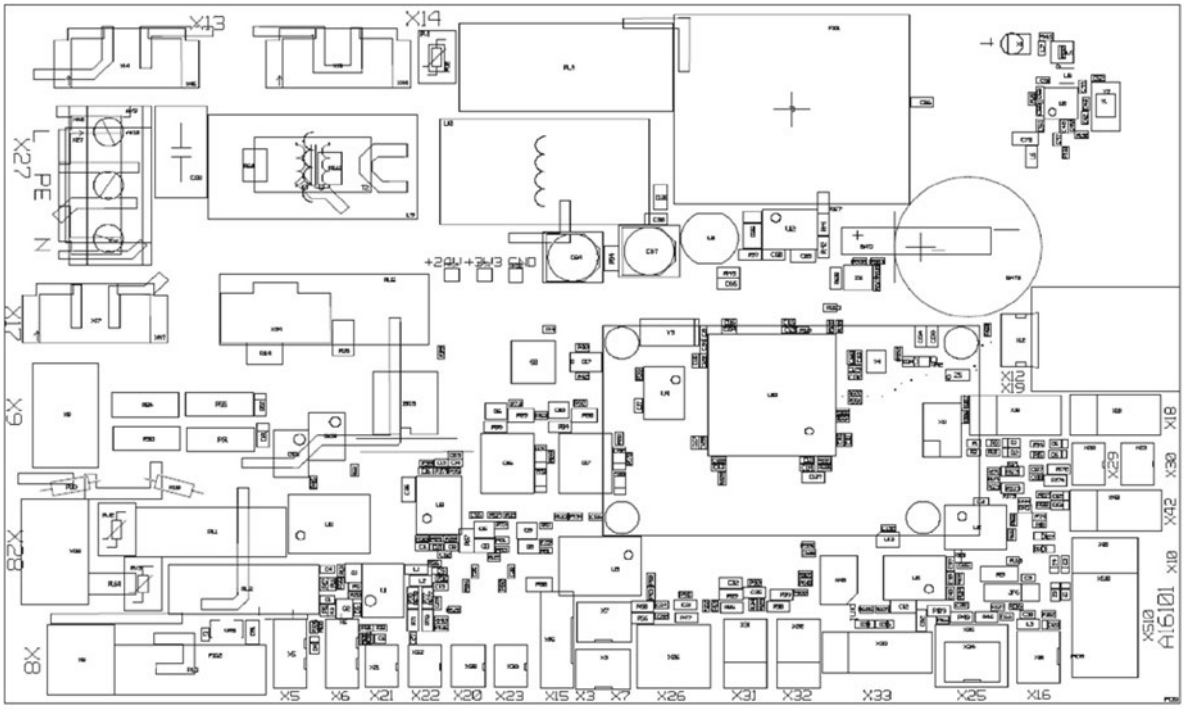
- HRU-FlatAIR-100-H: maximum leakage 4,00% (class A2 wg EN 13141-7)
- HRU-FlatAIR-125-H: maximum leakage 3,00% (class A2 wg EN 13141-7)
- HRU-FlatAIR-150-H: maximum leakage 3,38% (class A2 wg EN 13141-7)
- HRU-FlatAIR-200-H: maximum leakage 2,54% (class A1 wg EN 13141-7)
- HRU-FlatAIR-225-H: maximum leakage 2,25% (class A1 wg EN 13141-7)
- HRU-FlatAIR-250-H: maximum leakage 2,03% (class A1 wg EN 13141-7)

3.4. Construction



Number	Description
1	Panel housing
2	Cover of the air handling unit
3	Air filter cap
4	Bypass (bypass) damper
5	Fan
6	Preheater
7	PCB control board
8	Nipple connector
9	Heat exchanger with drip tray
10	ISO Coarse 70% air filter

3.5. Diagram of the main board (PCB)



Description	Socket number	
Fan 1 (supply) - signal	X6	
Fan 2 (extract) - signal	X5	
Fan 1 (supply) - line	X13	
Fan 2 (extract) - line	X14	
Temperature 1 supply	X23	
Temperature 2 extract	X11 (built-in RH)	
Temperature 3 exhaust	X20	
Temperature 4 outdoor	X22	
Temperature 5-additional outdoor sensor	X21	
Stepper motor	X15	
Power supply	X27	
Preheater	X17	
3-speed switch input	X9	1 - open (low speed)
		1-2 closed (medium speed)
		1-3 closed (high speed)
Fireplace / kitchen hood input	X25	1-2 closed (extract fan off)
Pressure transmitter (supply) optional	X18	
Pressure transmitter (exhaust) optional	X42	

4. Installation

4.1. Unboxing

Complete set includes:

- Heat recovery unit (with all components from fig. 20) - 1 pcs
- User's manual
- Basic installation kit: 4x double threaded screw, 4x wall plug, 4x washer, 4x nut
- Cardboard box with the frame diagram printed on one of the box flaps.

4.2. Vertical unit installation

The unit is suitable for vertical wall installation. The installation kit supplied with the unit can be used for this purpose. It is also possible to buy a frame (optional) for easier installation, especially for one person, in vertical or horizontally suspended position. Mounting elements are included with the frame.

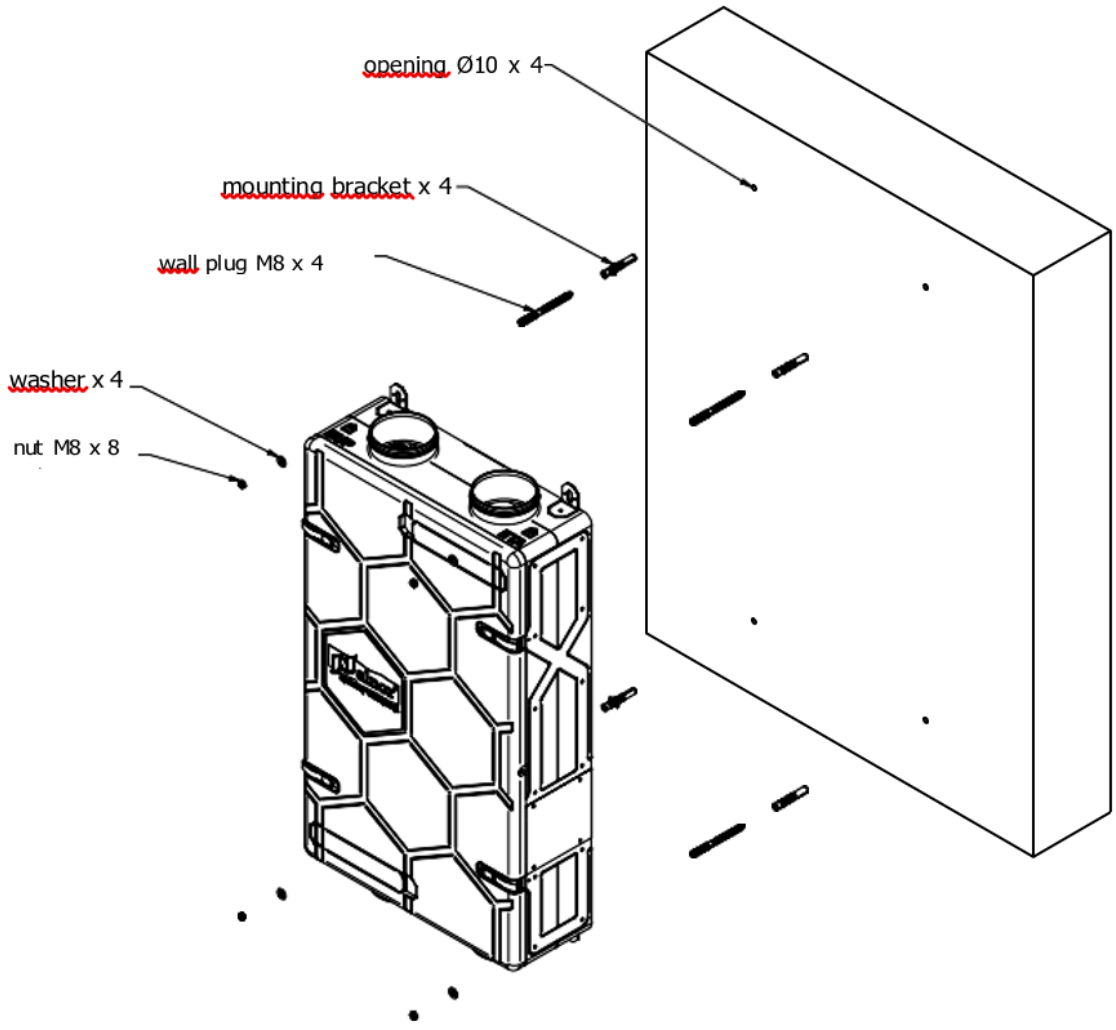


Figure 18. Mounting the unit vertically with a standard mounting kit

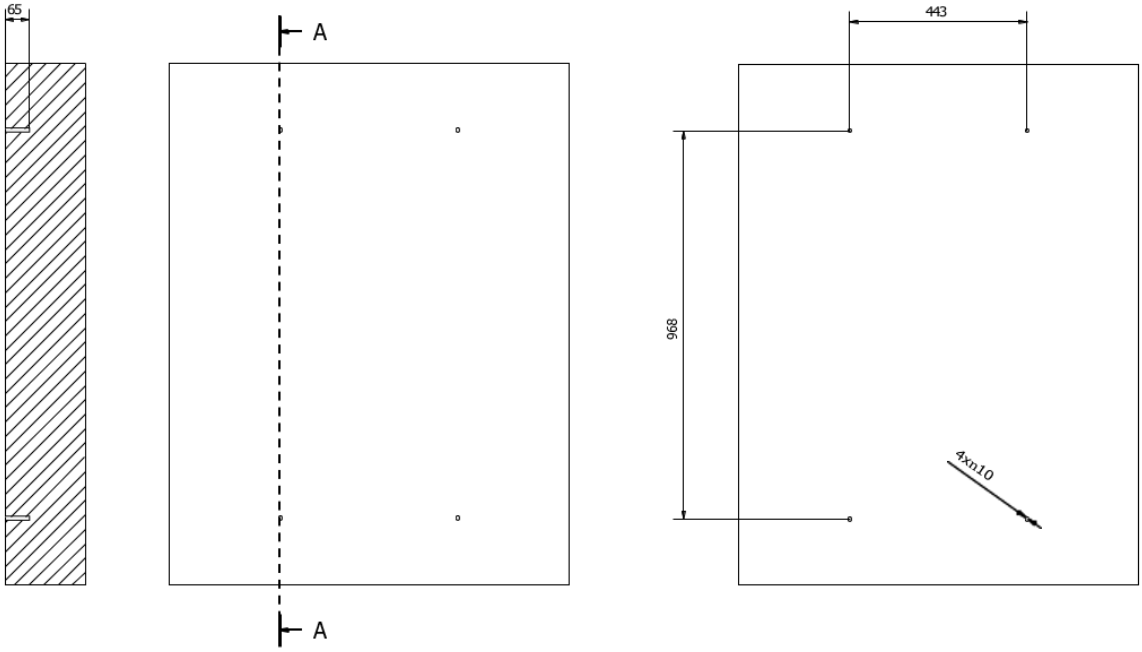


Figure 19. Dimensions of holes for standard fasteners

4.3. Suspended unit installation

The unit is designed to be suspended from the ceiling. The installation kit supplied with the unit can be used for this purpose. It is also possible to buy a frame (optional) for easier installation, especially for one person. Assembly parts are included with the frame.

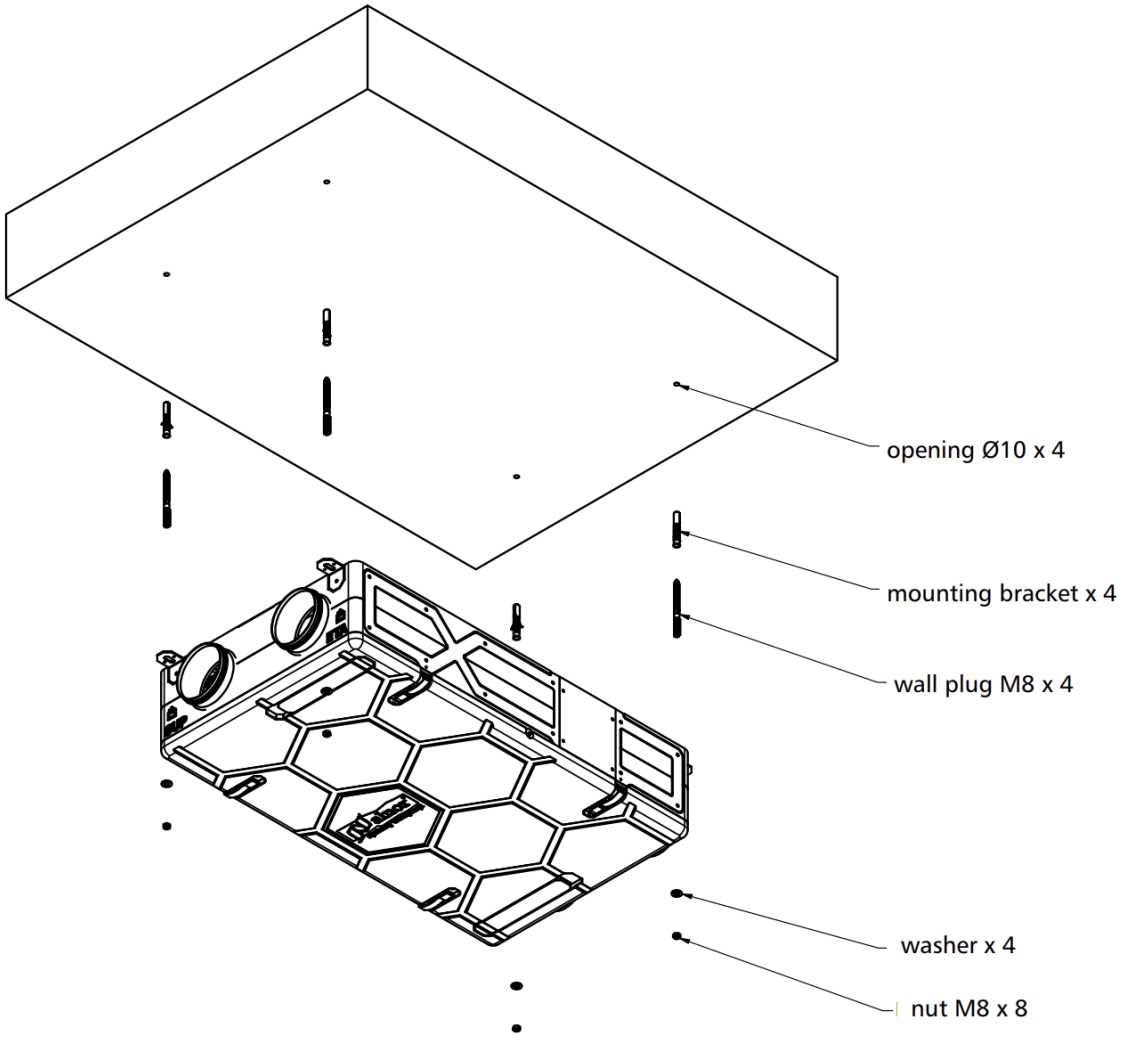
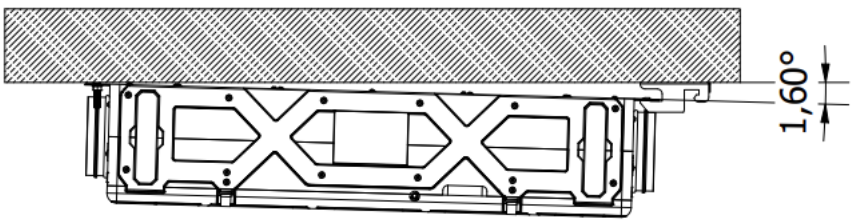


Figure 20. Installation of an overhead unit

NOTE:

The supplied dowels are designed for concrete walls, solid bricks or cellular concrete. For other materials, use the appropriate wall plugs, screws, which can be purchased from a hardware store.

We recommend tilting the lower edge of the unit (regardless of the type of installation) by max. 3°, this has a positive effect on the removal of condensate from the unit.



4.4. Ducting installation

1. Usually the ducts are connected directly to Ø125 connectors, or Ø100 for HRU-FlatAIR-80/ -100/ -125.
   It is recommended to install additional silencers
   (on the supply and exhaust sides) to ensure high level of acoustic comfort. Description of connections:
   SUPPLY – warm fresh air incoming to house
   EXHAUST – cool stale air exhausted to outside
   EXTRACT – warm stale air extracted from house
   OUTDOOR – cool fresh air taken from outdoor
2. If you want use different duct connectors it is possible to unmount NSL male connectors and easily install replacement fittings (for example elbow, offset bend, etc.). NSL connector are snap-on mounted, to unmount them you need to pull them up using a some force.
   Optional fittings connected to HRU must be in male-ended according to ALNOR's dimension standards (see our SPIRAL® catalogue with dimension tolerances). To provide the best tightness we suggest to use ALNOR's products with gasket. We are not responsible for tightness if fitting are purchased from other companies.

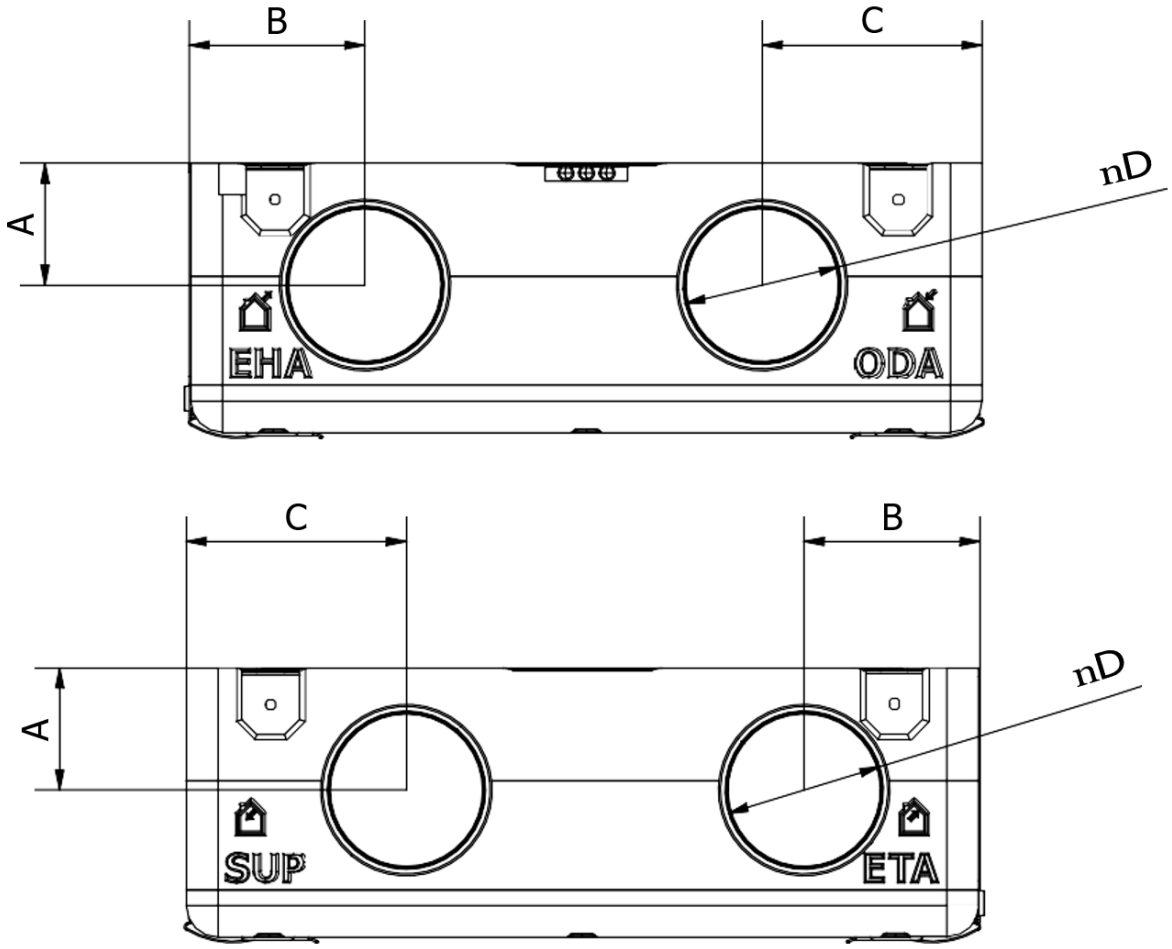


Figure 21. Dimensions of nozzles for assembly taking into account the space for insulation

	ØD [mm]	A [mm]	B [mm]	C [mm]

FlatAIR-80	100	77	111	139
FlatAIR-100	100	77	111	139
FlatAIR-120	125	95	131	157,5
FlatAIR-125	100	77	111	139
FlatAIR-150	125	95	131	157,5
FlatAIR-200	125	95	131	157,5
FlatAIR-250	125	95	131	157,5
FlatAIR-250	125	95	131	157,5

4.5. Maintenance space

The figure shows the minimum maintenance clearances needed to change filters, check the control circuit, remove the heat exchanger. Filters can be changed from two positions, side and front. Caps are made for each position so that the filter can be replaced without opening the front cover.

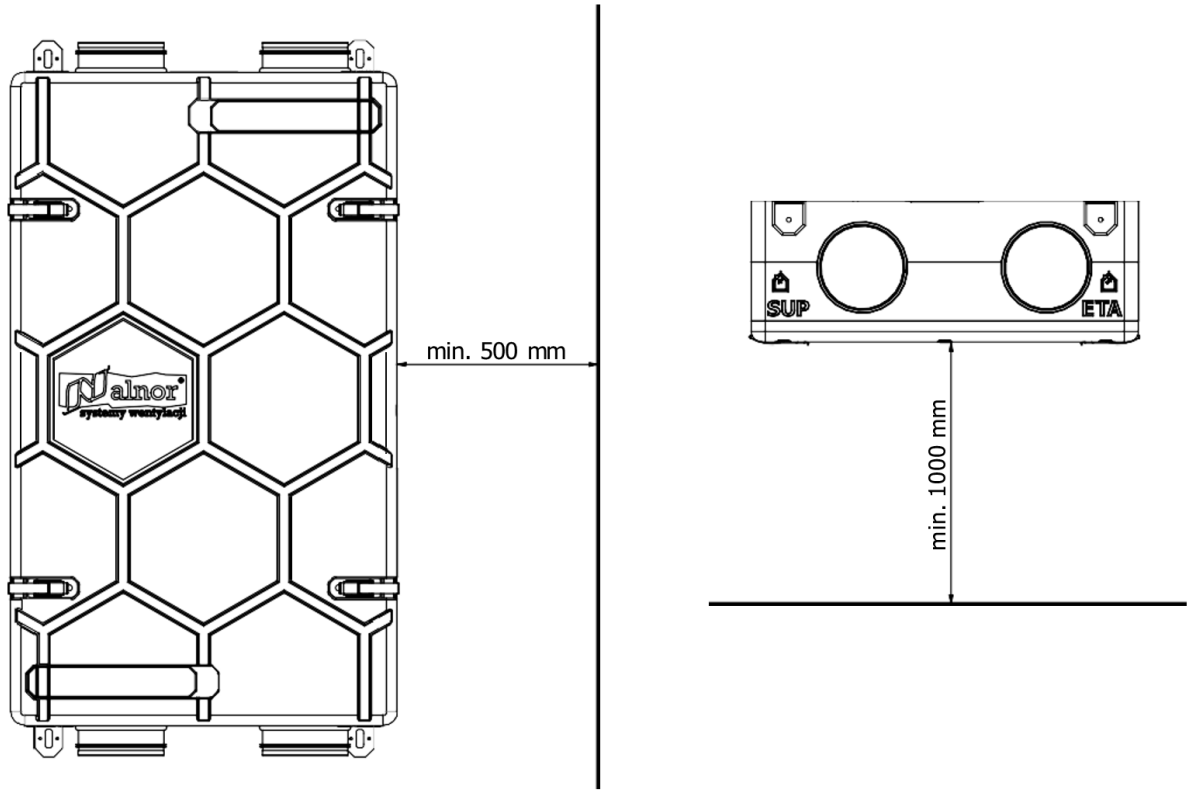


Figure 22. Maintenance space

4.6. Installation of condensate drain in units with enthalpy exchanger

In the case of a unit with an enthalpy exchanger, it is possible to dispense with the installation of a condensate drain under certain operating conditions. The relative humidity in the rooms must not exceed 60%. Otherwise, condensate will form in the heat exchanger and must be drained off. Failure to drain the resulting condensate may result in damage to the unit. If the condensate drain is not used, the drain hole must be sealed with the cap included in the set.

5. First start-up

5.1. Connection to electric power

Heat Recovery Unit has in standard power cable (length 3m and 4,5 m for HRU-FlatAIR-800/1000) to plug unit in socket. After connection to electric power HRU begin starting procedure. Firstly bypass is closing (bypass will try close even it is physically closed. Do not worry about mechanical strength because it is not unsafe for bypass damper and motor).

Closing bypass takes about 2 minutes. After that fans start with default speed.

5.2. LED status

Control circuit cover is equipped with 2-colour LED light (Green & Red) which informs user about actual status or faults of HRU-FlatAIR and serves as an feedback for the installer.

NOTE:

When both the green and red LED are ON, this will be referenced as orange but can be seen as an orange/green/yellow color!

Function	Indication pattern
Binding mode is active (continuously green)(1)	
Pre-heater active (long flashes of green LED)	
Frost protection active (long flashes of green LED)	
Bypass active	
Timer mode active	
External sensor demand active (it has the highest demand)	
Internal RH mode active (it has the highest demand)	
Normal mode (green LED flashes)	
Exhaust fan error	
Supply fan error	
Both fans error	
Emergency temperature stop	
Exhaust temperature sensor fault	
Inlet temperature sensor fault	
Supply temperature sensor fault	
Outlet temperature sensor fault	
RH sensor fault	
Pressure sensor one	
Pressure sensor two	
Exhaust Modbus error	
Supply Modbus error	
General Modbus error	
NTC Flow Measurement T1 error	
NTC Flow Measurement T2 error	
Communication error with Multizoning Component	
Filter dirty	
Additional outdoor temperature sensor fault	

(1) When the button is pressed the binding mode is ended

5.3. Binding mode

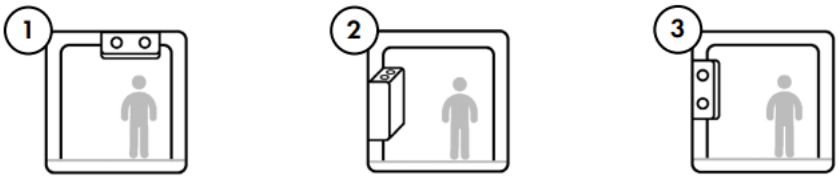
Every time you switch electric power off and on again HRU-FlatAIR engages a binding mode (it lasts for 10 minutes, LED light is continuously green). When unit is in binding mode you can pair remote accessories (HRQ-BUT 4 button control, HRQ-SENS CO2 sensor, and RH sensor or BRDG Bidge – pairing procedure of all components are described in individual manuals attached to each product). After 10 minutes unit switches to normal operation mode (LED flashes green).

5.4. Wireless connectivity

The air handling unit has a built-in radio module located on the main board of the unit.It is responsible for wireless communication using radio waves (RF) with a frequency of 868.3 MHz. Up to 20 radio-connected devices are supported at one time.

An antenna located in the automation compartment is connected to the radio module at the factory. If there is no communication with additional devices, it is recommended to take the antenna located in the automation chamber outside and place it in such a way that it is perpendicular to the ground. If this solution does not work or is not feasible, it is recommended to install the HRQ-REPEATER at the point of signal loss.

Recommended position of the radio antenna:



Installation	Suspended	Vertical	Horizontal
Optimal location	Built-in optimal location	Induction to the outside in vertical position	Induction to the outside in vertical position

6. Normal operation

6.1. Control operation

Depending on chosen controller, various types of control and different modes are available. Detailed information is included in the manuals for controllers.

Following symbols are printed on all control devices and are connected with fans speed:

- STANDBY Standby mode – fans are off
- AWAY Away mode - Low fan speed
- HOME Home mode – Medium fan speed
- HOME+ Home+mode – High fan speed

• TIMER Timer mode – High fan speed for, for a limited time

• PARTY Boost mode - highest fan speed (default 100%)

• AUTO Auto Tryb auto - zakres pomiędzy niską a wysoką prędkością wentylatora, zależnie od zapotrzebowania przesłanego przez zewnętrzne czujniki

NOTE:

For auto mode you need to have minimum one VMS sensor paired with HRU.

NOTE:

We advise against switching of both fans. It can cause humidity accumulation and mouldiness and fungus growth. Even when house is empty and there is no CO2 and humidity production by people, still all building materials emit many different pollutions. We advise to set low speed during your home absence.

In normal operation mode there are several variants for controlling fans speed:

1. HRQ-BUT-LM04 or HRQ-BUT-LM11 (4 button controllers) – with this devices you can control fans speed manually by choosing one of three speeds: low (15%), medium (50%), high (70%), boost (100%). Detailed description of all HRQ-BUT button functions can be found in manuals attached to each box.

2. HRQ-SENS sensors (RH sensor or CO2 sensor) – with these sensors you can control speed manually (by choosing low, medium or high speed) or automatically. In **Auto mode** sensors measure RH (relative humidity) and CO2 concentration and then calculate speed fluently between low and high speed. In Auto mode the highest demand (maximum value of all sensors) is maintained for at least 10 minutes. With HRQ-SENS sensors you can also choose speed manually by capacitive button. It works the same like in HRQ-BUT button. Detailed description of all HRQ-SENS sensor functions can be found in manuals attached to each box.

3. Mobile application – to use mobile application you need to have HRQ-GATE bridge paired with the unit and properly configured Internet access. With PremAir application you can: change fans speed, check HRU status (normal mode, frost protection mode on, etc.) check faults, check temperatures and many more. To status (normal mode, frost protection mode on, etc.) check faults, check temperatures and many more. To check all options of application download it for free from Google Play or App Store by typing in „PremAir".

6.2. Default fan settings

- Factory settings of HRU-FlatAIR-80:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				FlatAIR-80	FlatAIR-80E	FlatAIR-80-CF	FlatAIR-80E-CF
#63	Low Supply	30	24	29	26,5	30	30
#64	Low Exhaust			26	24	30	30
#65	Medium Supply	50	40	34	34,5	50	50
#66	Medium Exhaust			30	32,5	50	50
#67	High Supply	70	56	44	43	70	70
#68	High Exhaust			38,5	40	70	70
#149	Boost Supply	100	80	67	63	100	100
#150	Boost Exhaust			58,5	59,5	100	100

- Factory settings of HRU-FlatAIR-100:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				FlatAIR-100	FlatAIR-100E	FlatAIR-100-CF	FlatAIR-100E-CF
#63	Low Supply	30	30	29	30	30	30
#64	Low Exhaust			28	28	30	30
#65	Medium Supply	50	50	40	41	50	50
#66	Medium Exhaust			38	38	50	50
#67	High Supply	70	70	52	51,5	70	70
#68	High Exhaust			49,5	48,5	70	70
#149	Boost Supply	100	100	76,5	75	100	100
#150	Boost Exhaust			72,5	73	100	100

- Factory settings of HRU-FlatAIR-120:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				FlatAIR-120	FlatAIR-120E	FlatAIR-120-CF	FlatAIR-120E-CF
#63	Low Supply	30	36	23,5	22	30	30
#64	Low Exhaust			21,5	20	30	30
#65	Medium Supply	50	60	30	27,5	50	50
#66	Medium Exhaust			27	26	50	50
#67	High Supply	70	84	35,5	35	70	70
#68	High Exhaust			33	33	70	70
#149	Boost Supply	100	120	53,5	51,5	100	100
#150	Boost Exhaust			49	49	100	100

- Factory settings of HRU-FlatAIR-125:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				FlatAIR-125	FlatAIR-125E	FlatAIR-125-CF	FlatAIR-125E-CF
#63	Low Supply	30	37,5	35	35	30	30
#64	Low Exhaust			33	33	30	30
#65	Medium Supply	50	62,5	48,5	47	50	50
#66	Medium Exhaust			46,5	45	50	50
#67	High Supply	70	87,5	60	60,5	70	70
#68	High Exhaust			56,5	57,5	70	70
#149	Boost Supply	100	125	100	90	100	100
#150	Boost Exhaust			85	87	100	100

- Factory settings of HRU-FlatAIR-150:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				FlatAIR-150	FlatAIR-150E	FlatAIR-150-CF	FlatAIR-150E-CF
#63	Low Supply	30	45	26	27	30	30
#64	Low Exhaust			26	28	30	30
#65	Medium Supply	50	75	33,5	31,5	50	50
#66	Medium Exhaust			30	33,5	50	50
#67	High Supply	70	105	39,5	37	70	70
#68	High Exhaust			35,5	39,5	70	70
#149	Boost Supply	100	150	54,5	51,5	100	100
#150	Boost Exhaust			50,5	54	100	100

- Factory settings of HRU-FlatAIR-200:

TAG	Speed			Fan speed value

		Air flow efficiency [%}	Air flow efficiency [m3/h]	FlatAIR-200	FlatAIR-200E	FlatAIR-200-CF	FlatAIR-200E-CF
#63	Low Supply	30	60	24	28,5	30	30
#64	Low Exhaust			22	29	30	30
#65	Medium Supply	50	100	31,5	36	50	50
#66	Medium Exhaust			31	38	50	50
#67	High Supply	70	140	46	43	70	70
#68	High Exhaust			42	45	70	70
#149	Boost Supply	100	200	64	63,5	100	100
#150	Boost Exhaust			59	66,5	100	100

- Factory settings of HRU-FlatAIR-225:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				FlatAIR-225	FlatAIR-225E	FlatAIR-225-CF	FlatAIR-225E-CF
#63	Low Supply	30	67,5	31	30	30	30
#64	Low Exhaust			31	31	30	30
#65	Medium Supply	50	112,5	40	38	50	50
#66	Medium Exhaust			40	40	50	50
#67	High Supply	70	157,5	49	48,5	70	70
#68	High Exhaust			49,5	52	70	70
#149	Boost Supply	100	225	68	66	100	100
#150	Boost Exhaust			69	70	100	100

- Factory settings of HRU-FlatAIR-250:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				FlatAIR-250	FlatAIR-250E	FlatAIR-250-CF	FlatAIR-250E-CF
#63	Low Supply	30	75	31	30	30	30
#64	Low Exhaust			31	31,5	30	30
#65	Medium Supply	50	125	42,5	40	50	50
#66	Medium Exhaust			42,5	43	50	50
#67	High Supply	70	175	53	51	70	70
#68	High Exhaust			53	55	70	70
#149	Boost Supply	100	250	74	72	100	100
#150	Boost Exhaust			75	77	100	100

6.3. Temperature measurement

The temperature sensors have measurement capabilities ranging from -20°C to 60°C..

Supply sensor

The supply sensor measures the temperature of the air entering the building after it passes through the heat exchanger.

Extract sensor

The exhaust sensor measures the temperature of exhaust air from the building before it enters the heat exchanger.

Internal relative humidity level sensor (exhaust)

The sensor is used to measure the total relative humidity from the exhaust rooms. When this value increases within a short time interval by 5% (adjustable within the range 0-25%), the purging system is activated, i.e. the speed increases to HOME+. In such a case, the unit operates at an increased speed until the relative humidity is reduced by at least 5% in relation to the starting moment or the humidity is reduced by 5% in relation to the highest value measured during purging. When the conditions are adjusted to the initial condition, the unit will remain in purging mode for 15 minutes. If the average value of the measurements performed has not decreased by 5% when compared to the measurement before the speed increased, the unit will still operate at the HOME+ speed until next measurement. This cycle may last up to 1.5 hours.

Exhaust sensor

The exhaust sensor measures the temperature of the air exhausted from the building after it passes through the heat exchanger.

Outdoor temperature sensor (intake)

The outdoor temperature sensor measures the temperature of air drawn from outside before it enters the heat exchanger or bypass chamber.

6.4. Frost protection

Frost protection is achieved by reducing the supply fan's revolutions to the minimum level of the fan. The whole process goes gradually, depending on the outdoor temperature drop. When the outdoor temperature continues to decrease and the fan has reached the set minimum revolutions, the extract fan will start to gradually increase its revolutions. The advantages of this method are a lower airflow unbalance in the system and the possibility for the unit to work with the pre-heater during the defrosting phase.

The algorithm works when:

The outdoor temperature < (Defrosting set point for frost protection #40[-20]) + (Offset for frost protection defrost #114[22]) where #40 should be as low as possible as it is responsible for the frost temperature. The advantage of this method is lower imbalance of the flow system and the possibility of cooperation with the pre-heater during defrosting operation.

NOTE:

When the power is turned on, the frost protection is blocked for 5 minutes.

NOTE:

Frost protection mode is effective up to -2°C

When the heat recovery unit is equipped with a built-in heater or an external preheater is connected to the system, if the temperature at the air inlet (Toutdoor) drops below -2°C (Toutdoor < -2) the heater will be switched on.

6.5. Preheaters

6.5.1. Built-in pre-heater

The heater is a component of equipment installed to protect the exchanger from freezing. The operating characteristics of the heater are shown in the following formulas and conditions:

1. The pre-heater is turned on when all of the following conditions are met:

- ($T_{outdoor}$ + $T_{exhaust}$) / 2 < (Pre-heater setpoint #46[0˚C]).
- $T_{outdoor}$ < (Frost protection Pre-heater setpoint #39[-3˚C]).
- The supply fan is on (necessary for heater cooling).

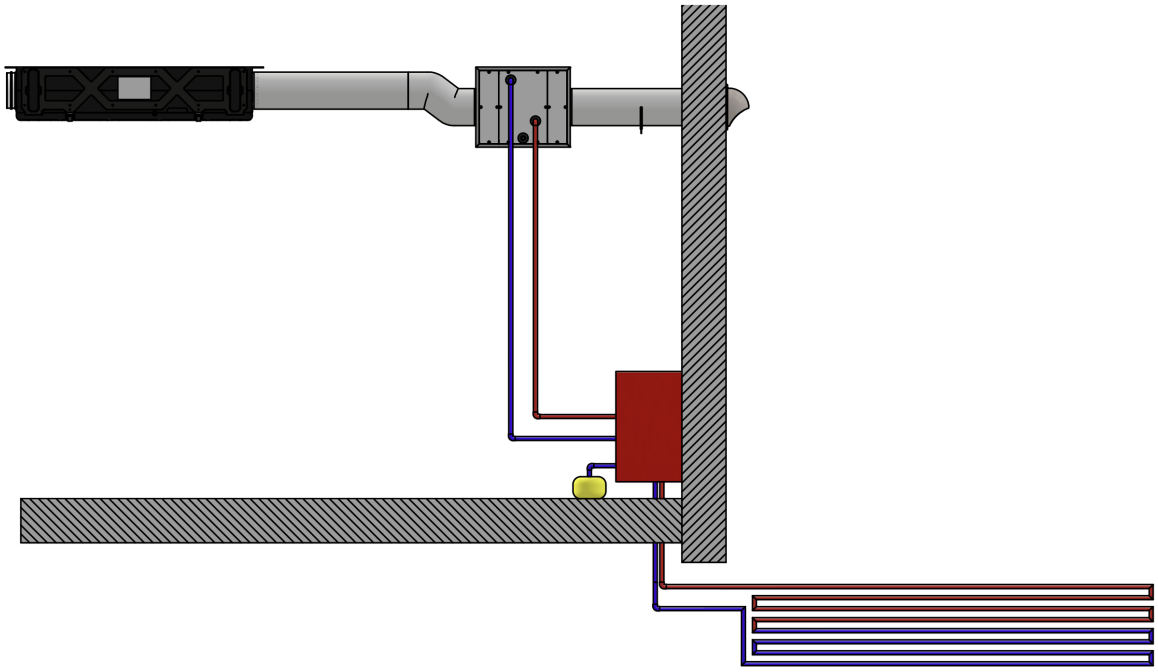
2. The pre-heater is turned off when at least one of the following conditions is met:

- ($T_{outdoor}$ + $T_{exhaust}$) / 2 > (Pre-heater setpoint #46[0°C]) + (Pre-heater off temp difference #47[+3°C])
- The supply air fan is turned off,
- The temperature sensor on the outdoor air X23 is faulty,
- Unit is in start-up (5min).

6.5.2. CHDW-G-200 water preheater (optional)

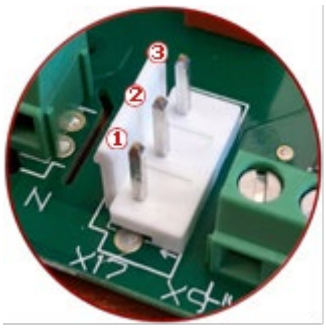
The heat recovery unit has the ability to plug in a water preheater. The preheat function is designed to protect the heat exchanger from freezing. The device, through an internal algorithm, is responsible for switching on the liquid circulation pump in the system. The preheater shall be mounted on the supply air duct after the unit at a distance of not less than 0,5 m.. An external air temperature sensor HRQ-SENS-5000 should be brought out, which should be mounted in the intake duct before the heater/cooler. Connect the additional outdoor temperature sensor to the X21 connector, and then use the service program or LCD display to change the TAG (#273) to 2 and the TAG value (#140) to 5.

Along with the installation of the CHDW-G-200 water preheater, it is recommended to remove the filter on the intake duct in the device.



The water preheater is controlled by sending a signal to the pump responsible for circulating the medium. The connection can be made in two ways:

1. The pump is powered directly from the recuperator motherboard via the X17 socket.



To do this, disconnect the built-in preheater. Use the JST NVR-03 female plug with connectors SVH-41T-P1.1JST to connect the signal plug from the pump.

1	N
2	PE
3	L

2. The pump is externally powered. The recuperator sends the signal responsible for starting the pump from the X16 socket.

Use JST XHP- 2 male plug and JST SXH-001T-P0.6 connectors to connect the signal plug from the pump

1(+)	0-10V output
2(-)	Ground

Using one of the above options, be sure and, if necessary, change the TAG (#159) Pre-heater output selection to the following values:

X17 control	X16 control
2	1

Once the components are connected, the heater operates when the following conditions are met:

1. The preheater is activated when all of the following conditions are met:
- (Toutdoor + Texhaust) / 2 < 0˚C (Pre-heater setpoint #46).
- Toutdoor < -3˚C (Frost protection Pre-heater setpoint #39).
- The supply fan is on (needed for cooling of the heater).
2. The preheater is turned off when at least one of the following conditions is met:
- (Toutdoor+ Texhaust) / 2 > 0°C (Pre-heater setpoint #46) +3°C (Pre-heater off temp difference #47)
- Toutdoor>(Frost protection pre-heater setpoint (#39)+Pre-heater off temp hysteresis (#225)

- The supply fan is off

6.6. By-pass

6.6.1. Passive heating

Passive Heating can be used to heat a building with outdoor air when the room temperature is lower than the outside temperature and lower than the temp setpoint.

For example, in the spring, after a cool night, a cooled down building may be heated by outdoor air, which has been heated by the sun throughout the day.

Passive heating may also be referred to as ‚Free heating', as no conventional energy consumption needed.

Heating is possible when all of the following conditions are met:

• The outdoor temperature ≥ the extract temperature (room temperature) + 5˚C (Free ventilation outside offset #118).

Heating is not possible when one of the following conditions is met:

• The outdoor temperature ≤ the extract temperature (room temperature) + 5˚C (Free ventilation outside offset #118 -0.5˚C).

- The extract temperature (room temperature) ≤ +20˚C (Free ventilation heating setpoint #117).

Heating is deactivated when one of the following conditions is met:

- Heating is not possible.
- The extract temperature (room temperature) ≥ +20˚C (Free ventilation heating setpoint #117 + 0.5˚C).

When heating is activated the bypass is fully (100%) opened.

Then, based on the temperature reading, it closes smoothly if the temperature exceeds the set level.

6.6.2. Passive cooling

Passive Cooling can be used to cool a building with outdoor air when the room temperature is higher than the outside temperature and higher than the temp setpoint.
For example, in the summer, during a cool night, the a heated up building may be cooled by outdoor air. Passive cooling may also be referred to as ‚Free cooling', as no conventional energy consumptions is needed, or ‚Night ventilation' as this type of ventilation mostly happens at night.

Cooling is possible when all of the following conditions are met:

- The outdoor temperature ≤ The extract temperature (room temperature) - 5˚C (Free ventilation outside offset #118).

Cooling is not possible when one of the following conditions is met:

- The outdoor temperature ≥ The extract temperature (room temperature) - 5˚C (Free ventilation outside offset #118) +0.5˚C.

Cooling is activated when all of the following conditions are met:

- Cooling is possible.
- The extract temperature (room temperature) ≥+20˚C (Free ventilation heating setpoint #117) + 4˚C (Free ventilation offset cool setpoint #132).

Cooling is deactivated when one of the following conditions is met:

- Cooling is not possible.
- The extract temperature (room temperature) ≤ +20˚C (Free ventilation heating setpoint #117) + 4˚C (Free ventilation offset cool setpoint #132) -0.5˚C.

When cooling is activated the bypass is fully (100%) opened.

Then, based on the temperature reading, it closes smoothly if the temperature exceeds the set level.

6.7. Emergency stop

The emergency stop becomes active when all following conditions are true:

•The emergency stop is not blocked

•Tsupply < +5˚C (Emergency stop temperature #20)

NOTE:

The emergency shutdown can only be disabled by turning off the power (power cut).

6.8. Automatic return to AUTO mode

The function of automatic return to auto mode (#60) is usually deactivated. When this option is activated, the device automatically returns to auto mode after the set time.

NOTE:

Auto mode works only when at least one of the VMS sensors (CO2 or RH) is paired with the control panel.

6.9. Filters

The air handling unit is equipped with two ISO COARSE 70% class filters (former designation G4). It is also possible to install an ISO ePMI 55% filter (former designation F7), as an accessory.

NOTE:

Note that additional filters may increase the decrease in pressure drop the ventilation system.

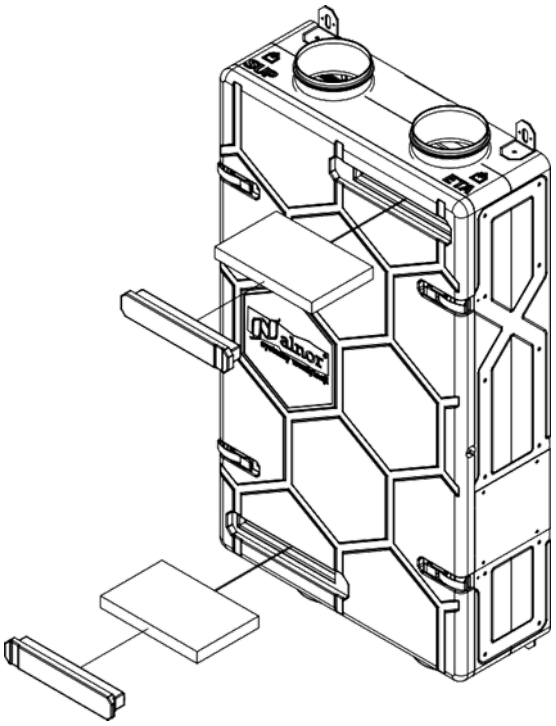


Figure 23: Filter replacement

If the device gives a message about replacing the filters, replace them. Filter replacement is very easy and can be done without additional tools.

NOTE:

Reset the filter counter:

- HRQ-BUT-LM04: Reset the dirty filter message by pressing and holding both the AWAY and AUTO buttons for at least 4 seconds.
- HRQ-LM11: Reset the dirty filter message by pressing and holding both the AWAY and PARTY buttons for at least 4 seconds.
- Application (accessory): use the "Replace filters" button.

6.10. Cleaning the heat exchanger

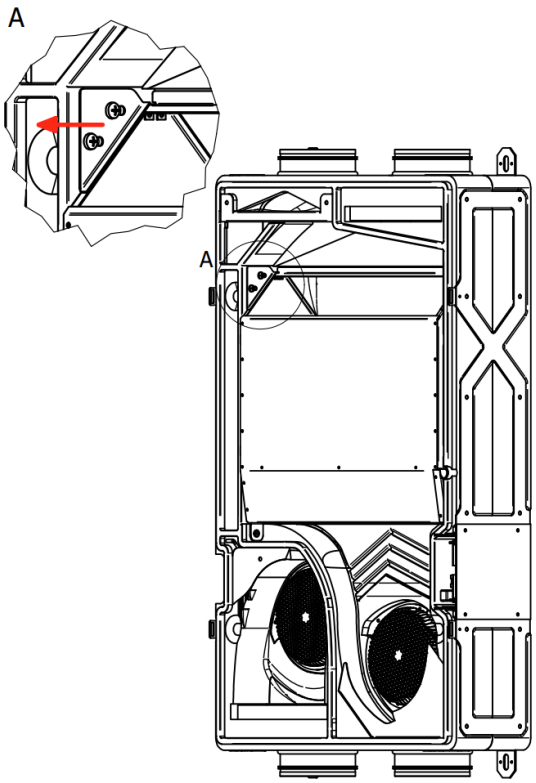
The heat exchanger should be cleaned at least once a year. The amount of dust built up on the heat exchanger depends on: the frequency of filter changes and the quality of the air inside and outside. The heat exchanger can be washed with warm water and mild detergent (pH 6 to 8).

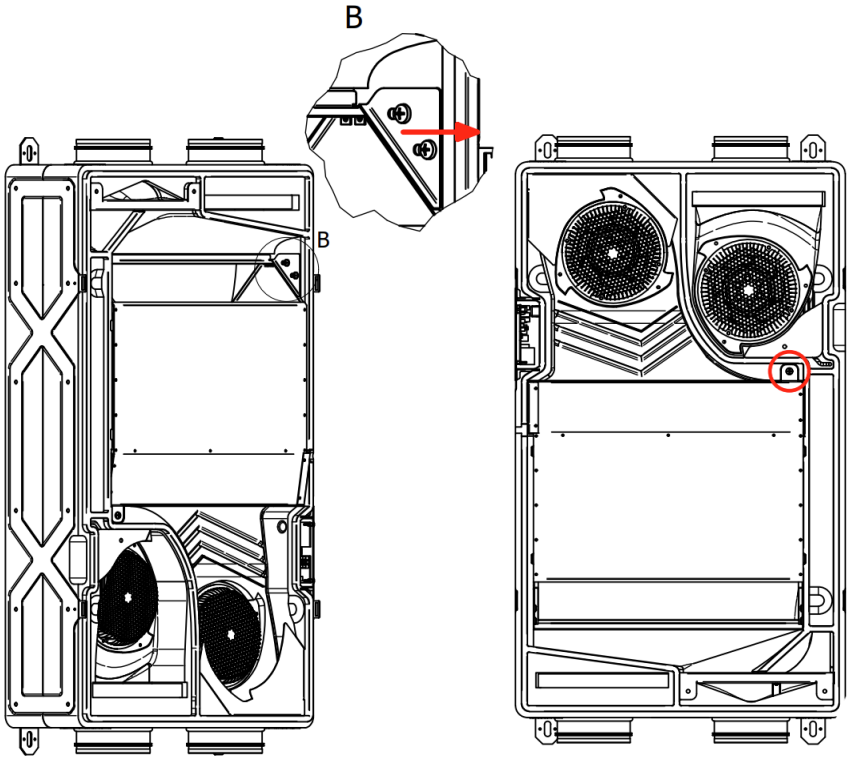
Replacement instructions for the exchanger:

1. Disconnect the control panel from the power supply,
2. Open the four catches on the recuperator cover,
3. Remove the cover,
4. Unscrew the mounting screw of the drip tray,
5. Loosen the screws securing the exchanger protections - left and right,
6. Remove the exchanger by pulling the belt,
7. Insert a clean or new exchanger,

8. Tighten the exchanger with the safety devices and tighten the screws,
9. Tighten the mounting screw of the drip tray,
10. Replace the cover and inspect its fit to the body,
11. Fasten the hooks,
12. Connect the control panel back to the power supply.

Removing the HRU-FlatAIR-80/ -100/ -120/ -125/ -150 / -200 / -225 / -250 exchanger





6.11. 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). Damper works by electric actuator DM-ML-06-230. For quick mounting of the actuators we recommend specially designed stands DA-SUP-S and DA-SUP-M.

Matching actuators for DA-SUP-S	Matching actuators for DA-SUP-M
Alnor DM-ML-06	Alnor DM-ML-06
Belimo CM	Alnor DM-ML-08
Belimo LM	Belimo CM
Belimo TR	Belimo NM

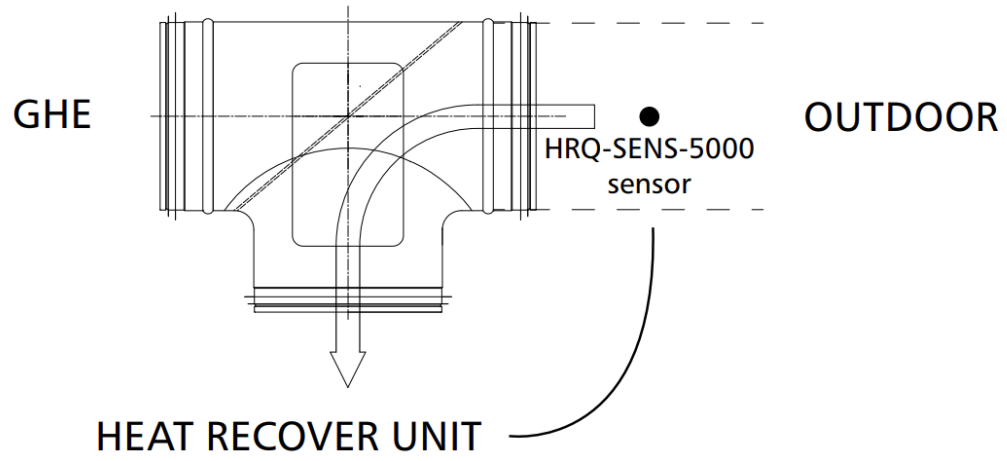
When installing the actuator to the damper, make sure that:

When you mount the actuator to the damper, you should remember to:

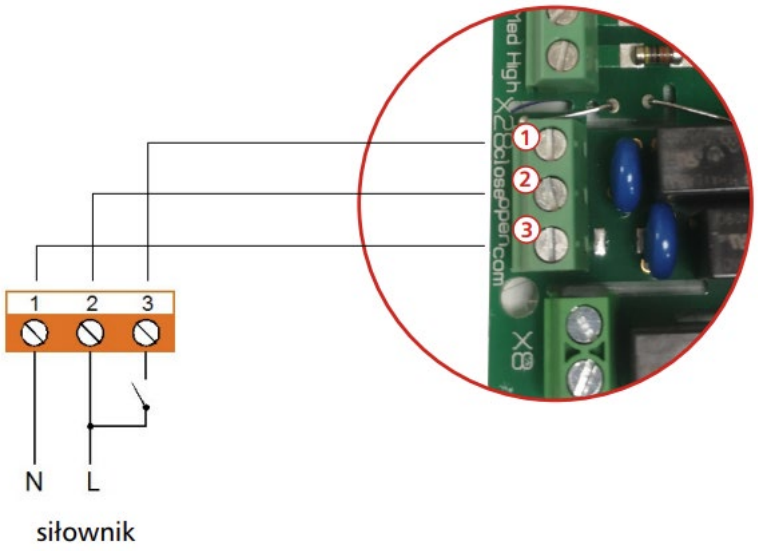
• the damper was open in the HRU-OUTDOOR direction (not GHE).

• The HRQ-SENS-5000 external air temperature sensor should be routed and connected to the outdoor duct, placed before the air damper with the actuator. Connect the temperature sensor to connector X21 on the unit control board and change the TAG (#273) to 2

• if the actuator can be mounted in the left-right position, make sure it is mounted correctly as described below.



In order for the valve to operate correctly, the dumper with a DM-ML-06-230 electric actuator should be connected to X28 in the following order:

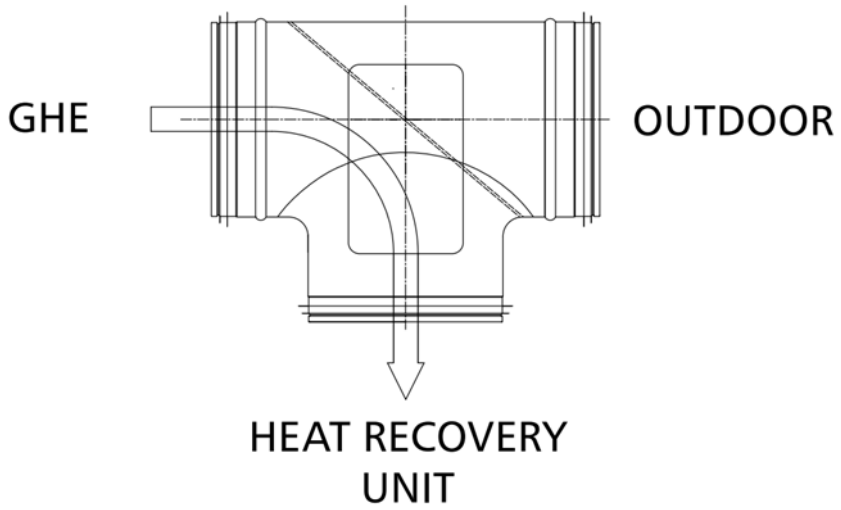


X28	
1	L out 2(RL1)
2	L out 1(RL2)
3	N

The output to control the geothermal heat exchanger valve, can be configured using **Geothermal Heat Exchanger Valve Output (#195)** from 0 to1 and disable Frost protection by changing **Frost sensor (#140)** value to 0.

The automatics controls the valve based on the temperature at the outdoor (Temperature 4 outdoor). If the Temperature 4 outdoor is lower than the **Geothermal Heat Exchanger Outdoor Temperature Below (#193)** or higher than the **Geothermal Heat Exchanger Outdoor Temperature Above (#194)** the valve will be opened and the air going to the unit will be taken from the ground heat exchanger. If the temperature sensor (Temperature 4 outdoor) is broken or if the above condition is not met the valve will remain closed.

Values **Geothermal Heat Exchanger Outdoor Temperature Below (#193)** and **Geothermal Heat Exchanger Outdoor Temperature Above (#194)** are set in deafult mode for 5°C and 25°C. They can be edited from the service tool and the LCD Display controller.



Checking the correctness of operation:

Temperature 4 outdoor >5°C (#193) and <25°C (#194) valve position HRU-OUTDOOR

Temperature 4 outdoor <5°C (#193) and >25°C (#194) valve position HRU-GHE

6.12. Connection of kitchen hood / fireplace

The cooker hood can be connected to the MVHR system via the X25 contact on the main board of the FlatAIR 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.

6.13. Connecting the post heater, post cooler, post cooler with heating option

The device has the option of connecting a water post heater, post cooler or a post cooler with the function of a heater. The post heating/cooling function is designed to improve the comfort temperature in ventilation rooms. Through an internal algorithm, the heat recovery unit is responsible for controlling the actuator mounted on the three way valve. The p ost heater/cooler shall be mounted on the supply air duct after the unit at a distance of not less than 1 m. It is possible to mount an external air temperature sensor HRQ SENS 500, which should be mounted in the air ductafter the post heater/cooler. The temperature sensor should be connected to the X23 connector. This allows us to monitor the actual air temperature after the post heater/cooler. When using a heater or heater-cooler operating in heating or cooling mode only, a 3-way valve must be used. On the other hand, if the heater-cooler operates alternately in heating and cooling mode, a 6-way valve is required.

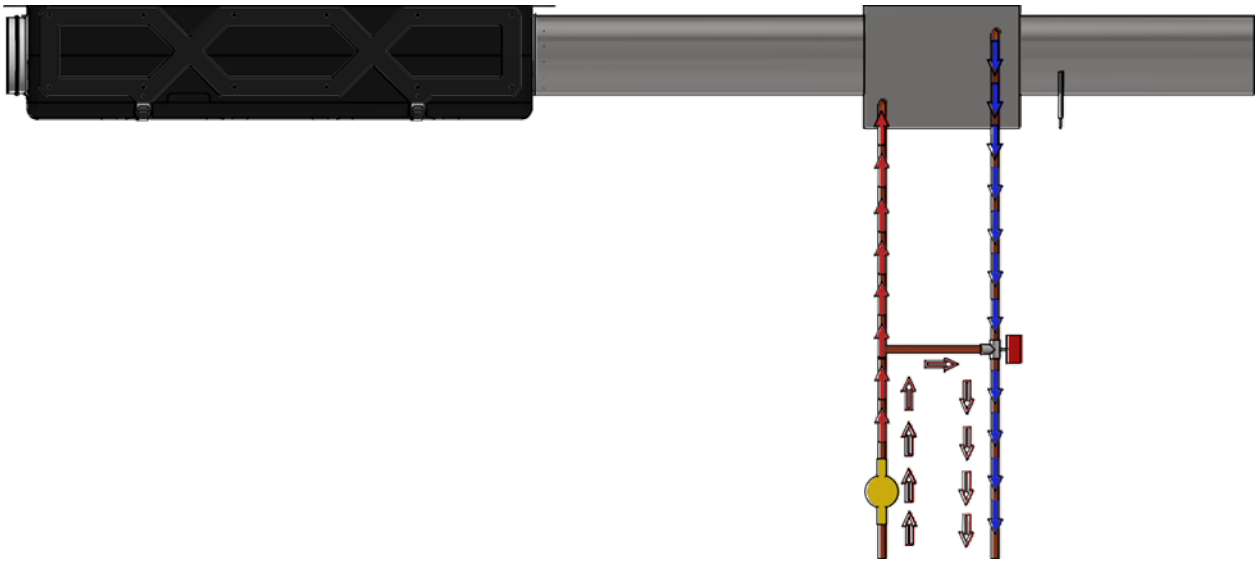


Figure 24: Heater/cooler connection diagram

Heat recovery unit controls the valve based on the readings of Temperature 2 (extract air) inside the rooms, according to the formula:

• Post heating:

Temperature 2 (extract air) < Room temperature heating setpoint(#117)

• Post cooling:

Temperature 2 (extract air) > Room temperature heating setpoint (#117) + Room temperature offset cooling setpoint(#132)

• Post heating/cooling:

Combination of the above formulas + detected heating/cooling season

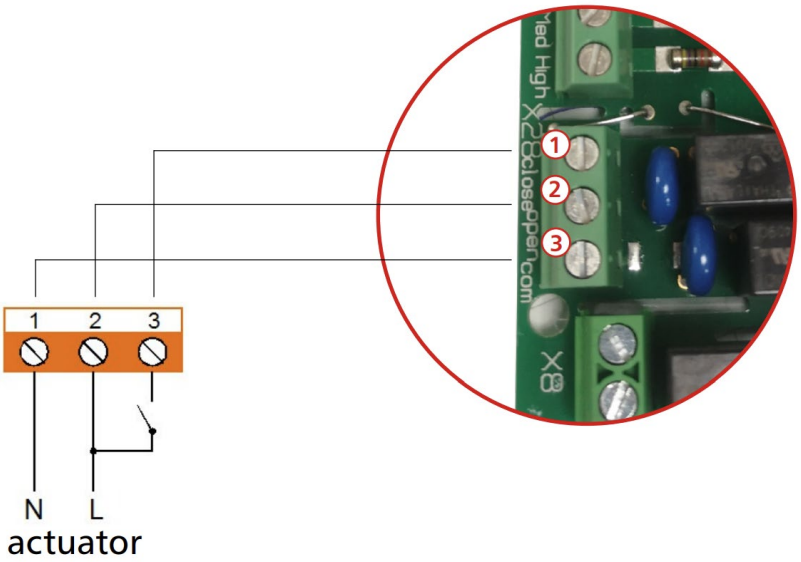
The unit has an algorithm forcing the time interval between heating-cooling and cooling-heating modes. The standard interval time setting is 60 min.

In order to prevent damage to the post heater, the supply fan remains switched on for 60 s after the secon- dary heating function has been completed.

To control the three-way valve, use:

Function	Post heater or heater/cooler	Actuators	Three-way or six-way valves
Heater	HDW-160	Belimo TRY230 2Nm Powered by 230VAC	R3015-1-B1 (DN15, kvs-1.0)
Heater	HDW-200	Belimo TRY230 2Nm Powered by 230VAC	R3015-1P6-B1 (DN15, kvs-1.6)
Heater	CHDW-160	Belimo TRY230 2Nm Powered by 230VAC	R3015-P63-B1 (DN15, kvs-0,63)
Cooler	CHDW-160	Belimo TRY230 2Nm Powered by 230VAC	R3015-1-B1 (DN15, kvs-1,0)
Heater-cooler	CHDW-160	Belimo LR230A 5Nm Powered by 230VAC	R3015-1-P63-B2 (DN15, kvs1,0/0,63)

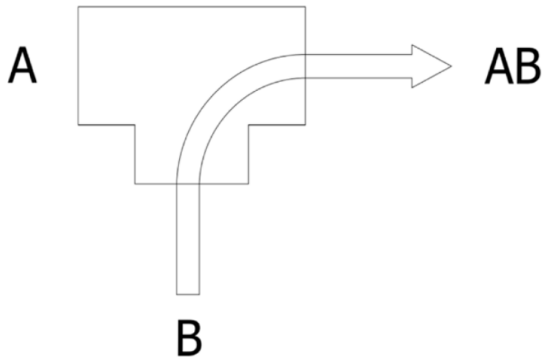
In order for the system to work properly, connect the valve with an electric actuator to the X28 connector in order:



X28	
1	L out 2(RL1)
2	L out 1(RL2)
3	N

Before installing the actuator on the three-way valve, pay special attention to their initial position setting.

Example connection of three-way valve R3015-1-B1 (DN15, kvs-1.0) with Belimo TRY230 actuator:



A – Heater/cooler output
B – Heater/cooler bypass
AB – Return to heating/ cooling system

The three-way valve should be manually set in a position that allows liquid flow only in the B –>AB direction (diagram above).

The next step is to set the actuator in the closed position. To do this, manually set the actuator in a position that the only possible movement of the actuator is to the left (in the direction of opening the A –> AB permeability).

Then make changes to the control plate according to the following manual: (changes can be made from the HRQ-BUT-LCD display, or Alnor service program)

6.13.1. Heat recovery unit control

Parameter name (#TAG):	Post Heater (Value to fill)	Post Cooling (Number to fill)	Post Heater/Cooler (Value to fill)
Post heater / cooler select output X28 (#164)	3	3	3
Post heater / cooler mode (#167)	1	2	3
Room temperaturę heating setpoint (#117)	20	20	20
Room temperaturę offset cooling setpoint (#132)	-	2	2

6.13.2. External unit control

In addition, it is possible to connect the system to an external control source (e. g. heat pump or chiller). An external control source sends a signal to the recuperator about the current state of heating/cooling.

For this purpose, in addition to connecting the actuator of the three- way valve, it is necessary to connect the signal cable to the potential-free output X25, which will inform the unit in which operating mode the external device is, eg. post heating/cooling is. The installer i salso obligated to define the output state.

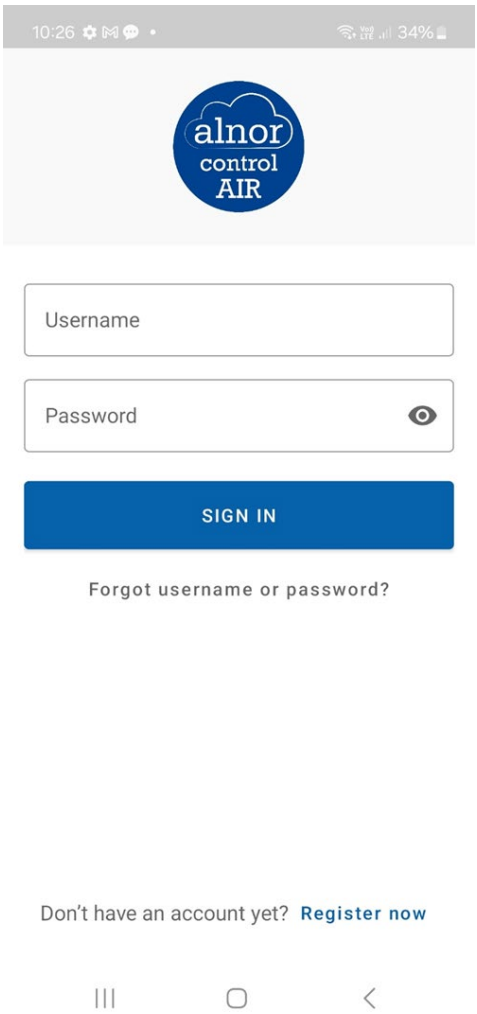
Description (#TAG):	Post Heating (Value to fill)	Post Cooling (Value to fill)	Post Heater/Cooler (Value to fill)
Post heater/cooler select output X28 (#164)	3	3	3
Post heater/cooler mode (#167)	1	2	3
Post heater/cooler mode input (#166)	1.NZ = heating, NO = cooling 2.NO = heating NZ = cooling	1.NZ = heating, NO = cooling 2.NO = heating NZ = cooling	1.NZ = heating, NO = cooling 2.NO = heating NZ = cooling
Generic switch exhaust fan demand type (#151)	0	0	0
Room temperature heating setpoint (#171)	20	20	20
Room temperature offset cooling setpoint (#132)	-	2	2

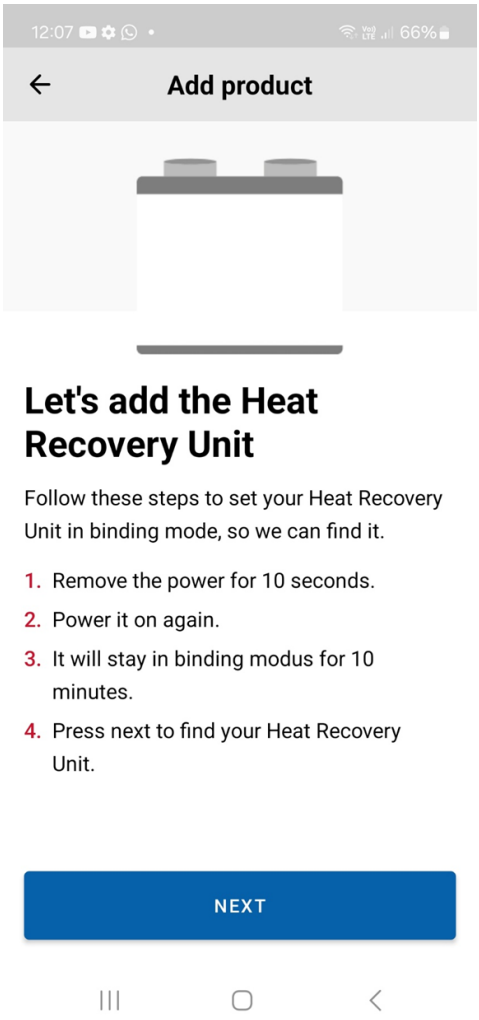
*- To turn off post heating/cooling functionality set (#167) – 0.

7. ControlAIR application

Available for download in the stores: Google Play and App Store: PremAIR

Screenshots:





8. Reprocessing

There is a crossed-out waste bin symbol on the device.

It means that after the product is used up, it must not be disposed of in the municipal waste garbage can, but must be taken to an electrical and electronic waste collection point, or returned to the distributor when a replacement is purchased. It is the user's responsibility to dispose of the device properly after use. Failure to do so may result in penalties established by waste disposal regulations. Proper collection of waste and its further recycling, processing and environmentally compatible disposal of used equipment prevents unnecessary damage to the environment and possible associated health risks, and promotes recycling of the materials used in the equipment. Further information on waste collection and disposal can be found at your local waste disposal facility or at your appliance dealer's store. Manufacturers and

importers meet their obligation to recycle, process and environmentally compatible disposal either directly or by participating in collective programs.

9. Troubleshooting

Problem	Reason	Solution
Unit status LED (Table 1) flashes 1x red and 1x orange	Exhaust fan error	Contact your Service Technician
Unit status LED (Figure 25, Table 1) flashes 1x red and 2x orange	Supply fan error	Contact your Service Technician
Unit status LED (Table 1) flashes 2x red and 1x orange	Emergency temperature stop. Supply air temperature below +5˚C. Possible reasons:	Reset unit by switch plug off for 10sec and switch it on.
	Wrong duct connection	Check the connection of the dusting according to instructions in section 4.4
	Room temperature below +15˚C	Check the room temperature
Unit status LED (Table 1) flashes 2x red and 2x orange	Exhaust temperature sensor error	Contact your Service Technician
Unit status LED (Table 1) flashes 2x red and 3x orange	Inlet temperature sensor error	Contact your Service Technician
Unit status LED (Table 1) flashes 2x red and 4x orange	Supply air temperature sensor error	Contact your Service Technician
Unit status LED (Table 1) flashes 2x red and 5x orange	Exhaust temperature sensor error	Contact your Service Technician
Unit status LED (Table 1) flashes 1x green and 1x red	Dirty filters	Replace the filters and reset the dirty filter message (see section 6.4)
Unit status LED (Table 1) flashes 3x red and 3x orange	Humidity sensor error	Contact your Service Technician
Unit status LED (Table 1) flashes 4x red and 1x orange	Modbus error on the extract	Contact your Service Technician
Unit status LED (Table 1) flashes 4x red and 2x orange	Modbus error on the supply	Contact your Service Technician
Unit status LED (Table 1) flashes 4x red and 3x orange	General Modbus error	Contact your Service Technician
Unit status LED (Table 1) flashes 5x red and 1x orange	Error of NTC sensor T1	Contact your Service Technician
Unit status LED (Table 1) flashes 5x red and 2x orange	Error of NTC sensor T2	Contact your Service Technician
Unit status LED (Table 1) flashes 6x red and 1x orange	Connection error with control panel	Contact your Service Technician
Unit status LED (Table 1) flashes 1x red and 3x orange	Error of both fans	Contact your Service Technician
The supply fan shuts down in the for temperatures below +1˚C. The exhaust fan operates normally.	The defrost function is active.	This is the correct mode of operation of the unit to protect the heat exchanger from freezing.
Unpleasant smell in the supply air	Intake valve is too close to exhaust valve.	Change the location of the intake and exhaust valve.
	Summer siphon dry.	Fill the summer siphon.

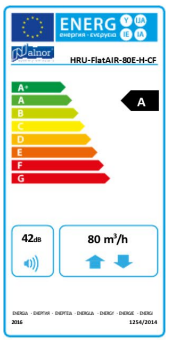
Water drain from unit	Incorrect connection of the duct system	Check the connection of the channels - chapter 4.4
	Condesate drain elastic pipe wrong connection	Check the siphon connection - chapter 4.2
	Wrong unit leveling	Check the leveling of the control panel - chapter 4.2
Water is "bubbling" in the unit	The siphon is not connected	Connect the trap according to the guidelines in section 4.2
	The siphon is dry	Fill the siphon with water according to the guidelines in section 4.2
Passive cooling is insufficient	-	Passive cooling does not mean air conditioning (active cooling). To increase passive cooling, increase the speed of the fans.
Water is "bubbling" in the headquarters	The siphon is not connected	Connect the trap according to the guidelines in section 4.2
	The siphon is empty	Fill the trap according to the guidelines in section 4.2
Passive cooling is insufficient	-	Passive cooling does not mean air conditioning (active cooling). To increase passive cooling change speed fans speed to higher speed.

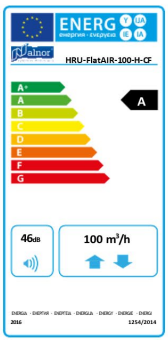
10. Energy label

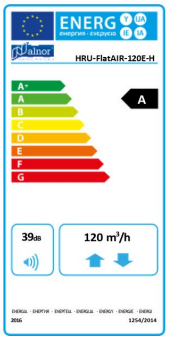
Model	Sound power level LWA dB(A)	Air flow rate [m3/h]	Energy class			
			Manual control	Clock control	Central demand control (1 sensor)	Local demand control (2 sensors)
HRU-FlatAIR-80-H	42	80	A	A	A	A+
HRU-FlatAIR-80-H-CF	42	80	A	A	A	A+
HRU-FlatAIR-80E-H	42	80	A	A	A	A+
HRU-FlatAIR-100-H	46	100	A	A	A	A+
HRU-FlatAIR-100-H-CF	46	100	A	A	A	A+
HRU-FlatAIR-100E-H	46	100	A	A	A	A+
HRU-FlatAIR-100E-H-CF	46	100	A	A	A	A+

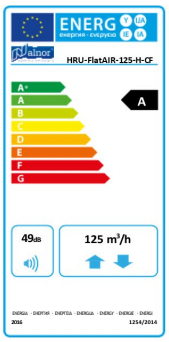
HRU-FlatAIR-120-H	39	120	A	A	A	A+
HRU-FlatAIR-120-H-CF	39	120	A	A	A	A+
HRU-FlatAIR-120E-H	39	120	A	A	A	A+
HRU-FlatAIR-120E-H-CF	39	120	A	A	A	A+
HRU-FlatAIR-125-H	49	125	A	A	A	A+
HRU-FlatAIR-125-H-CF	49	125	A	A	A	A+
HRU-FlatAIR-125E-H	49	125	B	B	B	A+
HRU-FlatAIR-125E-H-CF	49	125	B	B	B	A+
HRU-FlatAIR-150-H	44	150	A	A	A	A+
HRU-FlatAIR-150-H-CF	44	150	A	A	A	A+
HRU-FlatAIR-150E-H	44	150	B	B	B	A+
HRU-FlatAIR-150E-H-CF	44	150	B	B	B	A+
HRU-FlatAIR-200-H	46	200	A	A	A	A+
HRU-FlatAIR-200-H-CF	46	200	A	A	A	A+
HRU-FlatAIR-200E-H	46	200	B	B	B	A+
HRU-FlatAIR-200E-H-CF	46	200	B	B	B	A+
HRU-FlatAIR-225-H	46	225	A	A	A	A+
HRU-FlatAIR-225-H-CF	46	225	A	A	A	A+
HRU-FlatAIR-225E-H	46	225	B	B	B	A+
HRU-FlatAIR-225E-H-CF	46	225	B	B	B	A+

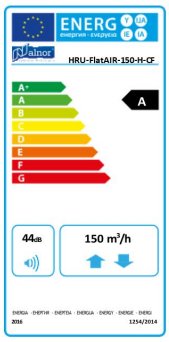
HRU-FlatAIR-250-H	48	250	A	A	A	A+
HRU-FlatAIR-250-H-CF	48	250	A	A	A	A+
HRU-FlatAIR-250E-H	48	250	B	B	B	A+
HRU-FlatAIR-250E-H-CF	48	250	B	B	B	A+

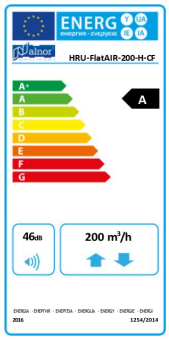


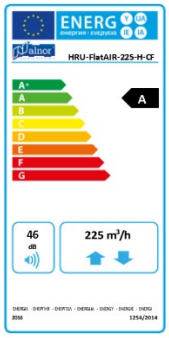


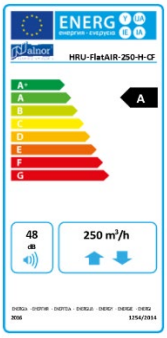












11. Declaration of conformity

Alnor Systemy Wentylacji Sp. z o.o.,
Aleja Krakowska 10, 05-552 Wola Mrokowska,
tel.: + 48 22 737 40 00, fax.: + 48 22 737 40 04,
e-mail: alnor@alnor.com.pl, www.alnor.com.pl.

EU DECLARATION OF CONFORMITY

No 079/01/24

1. Product type / model:
   Residential air handling unit with heat recovery of the HRU-FlatAIR series

2. Name and address of the manufacturer:
   ALNOR-SYSTEMY WENTYLACJI SP. Z O.O.
   00-719 Warszawa ul. Zwierzyniecka 8b POLAND

CE 24

3. This declaration of conformity is issued under the sole responsibility of the manufacturer.

4. The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:
   Low Voltage Directive LVD 2014/35/EU
   Radio Equipment Directive 2014/53/EU
   Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment ROHS III 2015/863
   Commission Regulation (EU): 1253/2014, 1254/2014

5. References to the relevant harmonised standards used, or references to the specifications in relation to which conformity is declared:
   EN 60335-1:2012/A11:2013/A13:2017/A14:2019/A2:2009, PN-EN 60335-2-80:2007/A2:2009E, ETSI EN 300 220-1 V3.1.1:2017, ETSI EN 300-220-2 V3.2.1:2018, ETSI EN 301 489-1 v2.1.1:2017 ETSI EN 301 489-3 v2.1.1:2019, EN 60730-1: 2016

Signed for and on behalf of: (name, function)

Wola Mrokowska, 05.06.2024
(place and date of issue)

.....
Piotr Grzechowiak,
testing and certification coordinator
(signature)

Konto bankowe PLN nr: 87 1050 1025 1000 0023 2865 9772 • konto EUR nr: 10 1050 1025 1000 0023 2865 9897
SWIFT: INGBPLPW ING Bank Śląski Oddział w Warszawie.
Sąd Rejonowy dla m. st. Warszawy, XIII Wydział Gospodarczy Krajowego Rejestru Sądowego KRS 0000038889 • wysokość kapitału zakładowego: 334 500 PLN.
Adres siedziby: ul. Zwierzyniecka 8B, 00-719 Warszawa • REGON 010685817 • NIP 521-10-68-747.

12. Warranty conditions – Heat Recovery Unit

1) The warranty is granted for a period of 24 months from the date of commissioning the device, however not longer than 27months from the date of sale.
2) During the warranty period, the Manufacturer is obliged to remove any defects and malfunctions of the device free of charge due to causes inherent in the product or caused by the Manufacturer.
3) The commissioning of the heat recovery unit requires installation by an authorized installer with confirmation of assembly on the warranty card or in the appropriate acceptance protocol of the heat recovery unit.
4) The warranty is valid under the condition of regular inspection of the device and ventilation system throughout the warranty period. The cycle is valid: 1 review for 6 months of system operation. In the event of failure to perform subsequent reviews of the heat recovery unit and ductwork by an authorized service technician, confirmed by an appropriate entry and a stamp on the warranty card, the guarantee automatically expires.
5) The warranty applies to the possible replacement of parts of the device, but it does not apply to the provision of services. The warranty is valid only in the case of electrical installation and connection are carried out by a qualified electrician, which is each time confirmed by an appropriate acceptance protocol and a stamp on the warranty card. The warranty becomes void if installation of the device was made by an authorized persons.
6) The warranty does not apply to heat recovery units installed in ventilation systems made only from flexible ducts or in systems in which the main ductwork is made of flexible ducts.
7) The warranty does not apply to heat recovery units instal- led in ventilation ductwork using uninsulated ducts. This does not apply to installations made of plastic ventilation ducts placed in concrete floor screeds.
8) The manufacturer is not liable for faulty operation of the installation or the heat recovery unit caused by a faulty installation of the ventilation system. In particular, if the ventilation system does not have appropriate design documentation or as built documentation containing all the parameters of the ventilation system operation, such as air flows, compressor, installation performance, confirmed by appropriate measurement protocols and the ventilation system acceptance protocol. Lack of technical documentation of the ventilation system will void the warranty
9) The warranty covers the goods for which the Complainant presented a valid warranty card and proof of purchase.
10) Any irregularities in the device operation should be repor- ted to the seller / serviceman.

11) The warranty does not cover: mechanical damage to the equipment and defects caused by them, damage and defects resulting from: Misuse, abuse or improper maintenance, failure to follow operating instructions about assmeby, storage and transportation. Unauthorized repairs and alterations. Force majeure actions, e.g. lightning strikes, floods, electric network overvoltage, extreme weather conditions, damages resulting from the activities of animals or insects. Damage caused by improper protection of installation while carrying out other construction works, repair or assembly, including damage involving contamination of the HRV' s interior. Damage caused by improper workmanship or connecting the electricity network. Damage resulting from the contamination of the device, damages resulting from the operation of the device with extremely contaminated filters or as a result of the device's operation without filters and as a result of highly contaminated ventilation ductwork. Damage resulting from the installation of the device in a ventilation system made incorrectly or not having the appropriate technical documentation confirmed by appropriate measurement protocols and the acceptance protocol of the installation or in the appropriate HRV receipt report.
12) The warranty does not cover the travel costs of the service technician appointed by the manufacturer if the unit cannot be disassembled.
13) The obligatory paid service inspection includes the following activities: replacement / cleaning of HRV filters, control of the HRV operation, control of the condition of ventilation ducts, cleaning the exhaust and supply grille, system operation control.
14) Complaints about any missing items in the delivered goods or hidden defects must be reported in writing. The user should effectively report any equipment malfunction or disclosure of its defect in an efficient manner in order to avoid serious damage. The costs of removing dama- ges caused as a result of further operation of the device which is not fully functional is the responsibility of the User.
15) Warranty repair does not include the activities provided in the user's manual for which the user is obliged to per- form on their own and at their own expense, i.e. to start the equipment, check the operation and maintenance (filter replacement, cleaning of diffusers).
16) The warranty does not cover other materials used for possible covering of the ductwork by the buyer, in parti- cular if in the process of installation the free access to regulatory devices such as electrical components, dampers or other regulation elements of the installation was not guaranteed.
17) The warranty becomes void if any modification, or altera- tion has been made to the product by the user and when using spare parts not recommended by the manufacturer.
18) All disputes arising in relation to the granted warranty shall be settled by the court competent for the Seller.
19) The proof of purchase and the user's manual should be kept for the warranty period, i.e. for 24 months, and without damage.
20) The warranty card damaged or with visible traces of mo- difications is invalid. The warranty without the seal of the company installing the device is invalid.

No.	Date of notification	Date of service	Maintenance service	Signature & stamp of serviceman
Unit model: ..... Serial number: ..... Sale date: .... Signature and stamp of the Distributor Start up date: .... Signature and stamp of the Installer				
6 months			Please, circle the correct answer: Cleaning HRV filters YES/NO Cleaning extract louvers and inlet diffusers YES/NO Ventilation ductwork checkup YES/NO Additional regulation YES/NO Other	
12 months			Please, circle the correct answer: Cleaning HRV filters YES/NO Cleaning extract louvers and inlet diffusers YES/NO Ventilation ductwork checkup YES/NO Additional regulation YES/NO Other	
18 months			Please, circle the correct answer: Cleaning HRV filters YES/NO Cleaning extract louvers and inlet diffusers YES/NO Ventilation ductwork checkup YES/NO Additional regulation YES/NO Other	
24 months			Please, circle the correct answer: Cleaning HRV filters YES/NO Cleaning extract louvers and inlet diffusers YES/NO Ventilation ductwork checkup YES/NO Additional regulation YES/NO Other	