User manual

Heat and energy recovery ventilators HRU-SlimAIR -250/ -300/ -350/ -400/ -500/ -800/ /-1000

I/IOU/0050 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-SlimAIR-250/ HRU-SlimAIR-350/ HRU-SlimAIR-500/ HRU-SlimAIR-800/ HRU-SlimAIR-1000

• 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)

• Mounting frame HRQ-SlimAIR-HANG/ HRQ-SlimAIR-350-HANG/ HRQ-SlimAIR-500-HANG/ HRQ-SlimAIR-800/1000-HANG (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 HRUSlimAIR 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 Polish. 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 data

1.Dimensions: 242x1070x685 mm (H W×× D) - HRU-SlimAIR-250

242x1070x685 mm (H W×× D) - HRU-SlimAIR-300

300x1180x735 mm (H W×× D) - HRU-SlimAIR-350

300x1180x735 mm (H W×× D) - HRU-SlimAIR-400

300x1300x898 mm (H W×× D) - HRU-SlimAIR-500

390x1400x1080 mm(HxWxD) - HRU-SlimAIR-800

390x1400x1080 mm(HxWxD) - HRU-SlimAIR-1000

[Figure 1.]

2.Weight: 25.5 kg - for HRU-SlimAIR-250

25.5 kg - for HRU-SlimAIR-300

36 kg - for HRU-SlimAIR-350

36 kg - for HRU-SlimAIR-400

44 kg - for HRU-SlimAIR-500

65 kg - for HRU-SlimAIR-800

75 kg - for HRU-SlimAIR-1000

[Figure 1.]

3. Heat exchanger: counter flow or enthalpic (optional)
4. Fans: fans with electronically commutated EC type motor
5. By-pass: built-in, automatic
6. Filters:ISO Coarse 70% (G4), optional ISO ePM1 55% (F7)
7. Pre-heater: built-in (optional)
8. Installation: vertical, horizontal, overhead
horizontal - not every unit

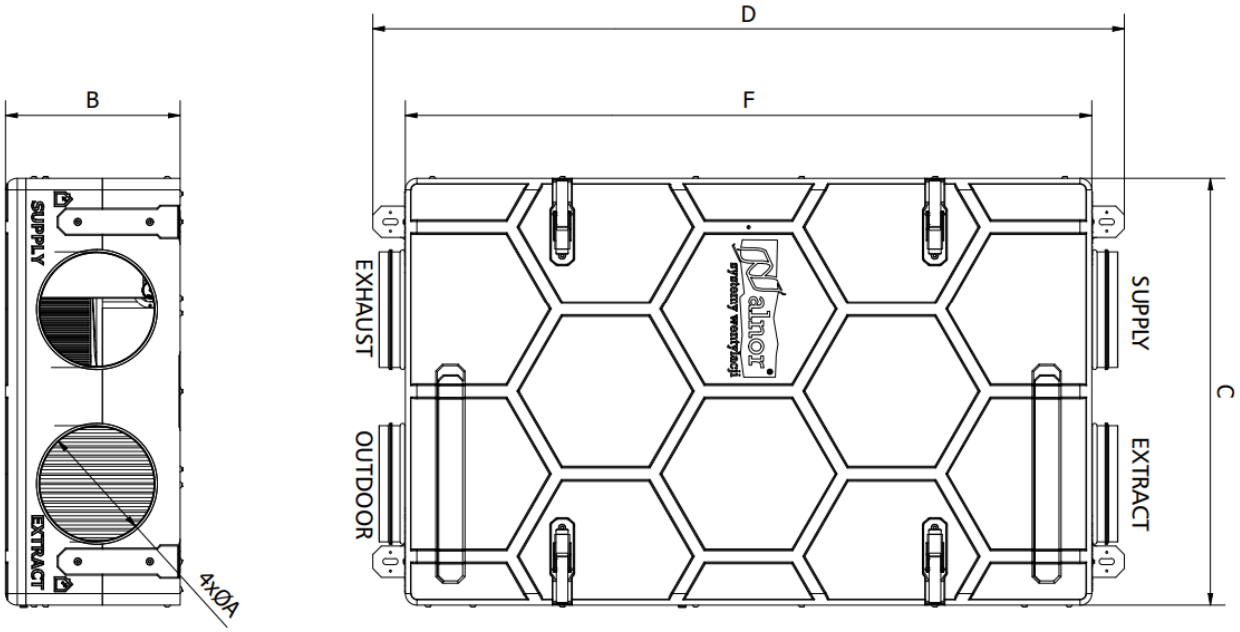


Figure1 HRU-SlimAIR ducting description

Name	A [mm].	B [mm].	C [mm].	D [mm].	F [mm].
SlimAIR-250	160	242	685	1172	1070
SlimAIR-300	160	242	685	1172	1070
SlimAIR-350	200	300	735	1292	1180
SlimAIR-400	200	300	735	1292	1180
SlimAIR-500	200	300	898	1416	1300
SlimAIR-800	250	387	1081	1531	1397
SlimAIR-1000	250	387	1081	1531	1397

Table1 Dimensions of HRU SlimAIR

3.2. Performance

- HRU-SlimAIR-250-H 250m3/h (at 100 Pa)

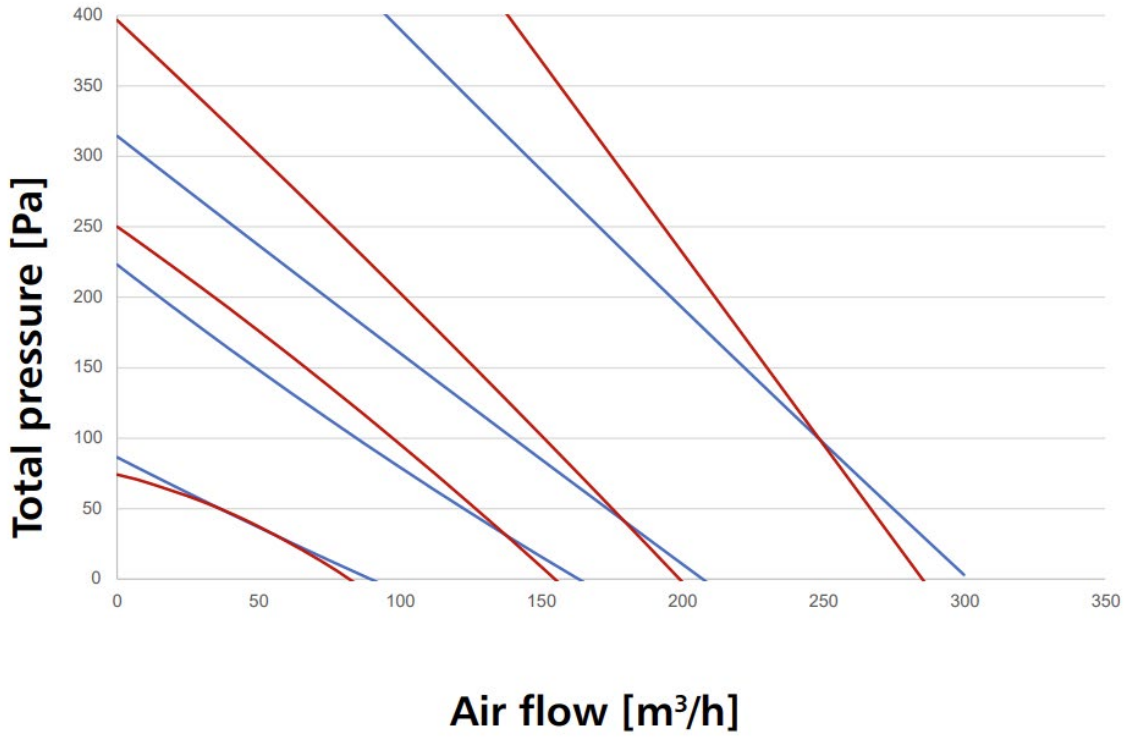


Figure2 Total pressure for HRU-SlimAIR-250-H

- HRU-SlimAIR-250E-H 250m3/h (at 100 Pa)

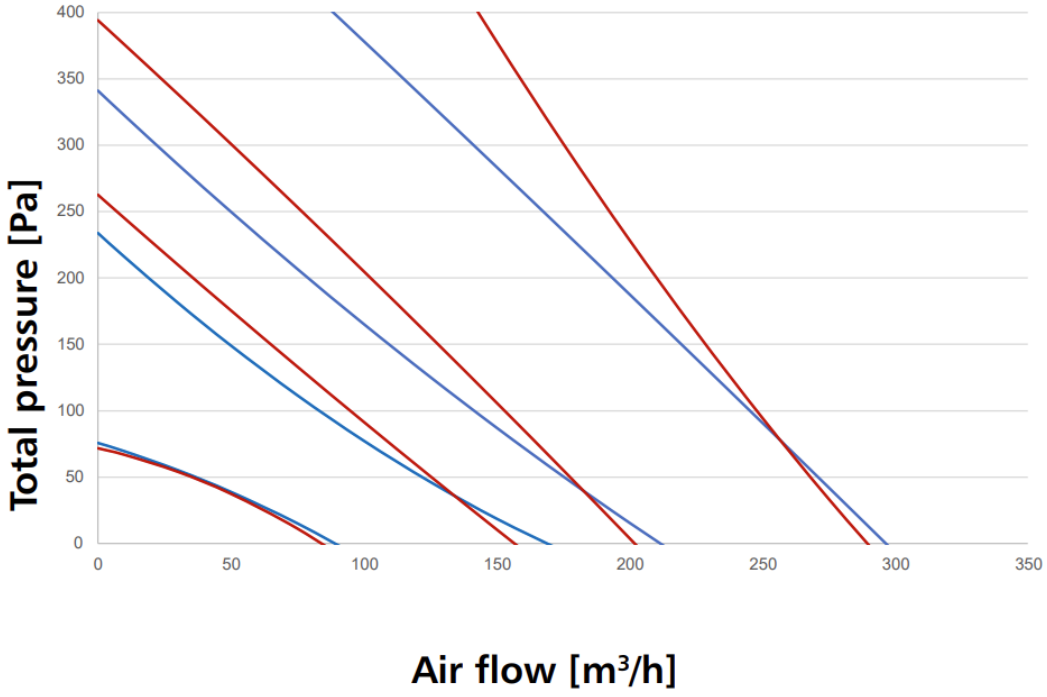


Figure 3 Total pressure for HRU-SlimAIR-250E-H

- HRU-SlimAIR-300-H 300m3/h (at 100

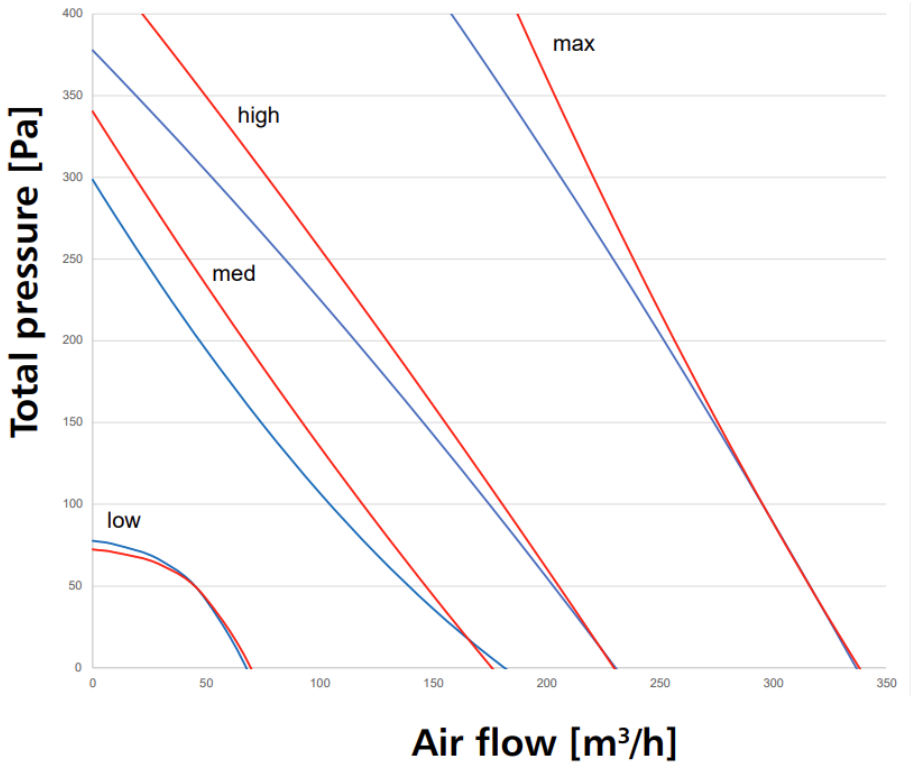


Figure 4 Total pressure for HRU-SlimAIR-300-H

- HRU-SlimAIR-300E-H 300m3/h (at 100 Pa)

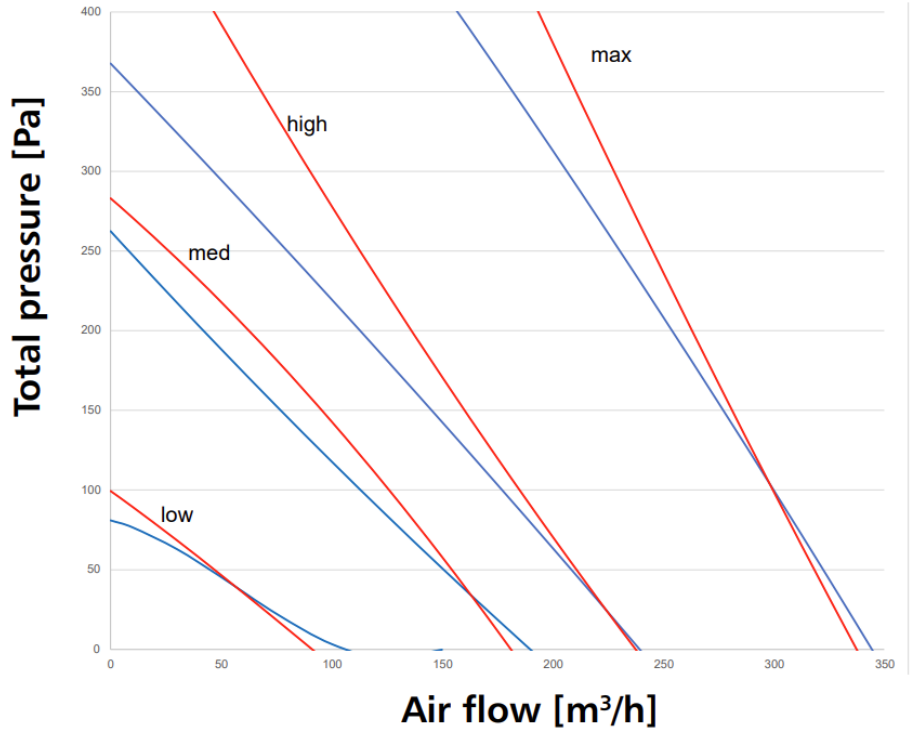


Figure 5 Total pressure for HRU-SlimAIR-300E-H

- HRU-SlimAIR-350-H 350m3/h (at 100 Pa)

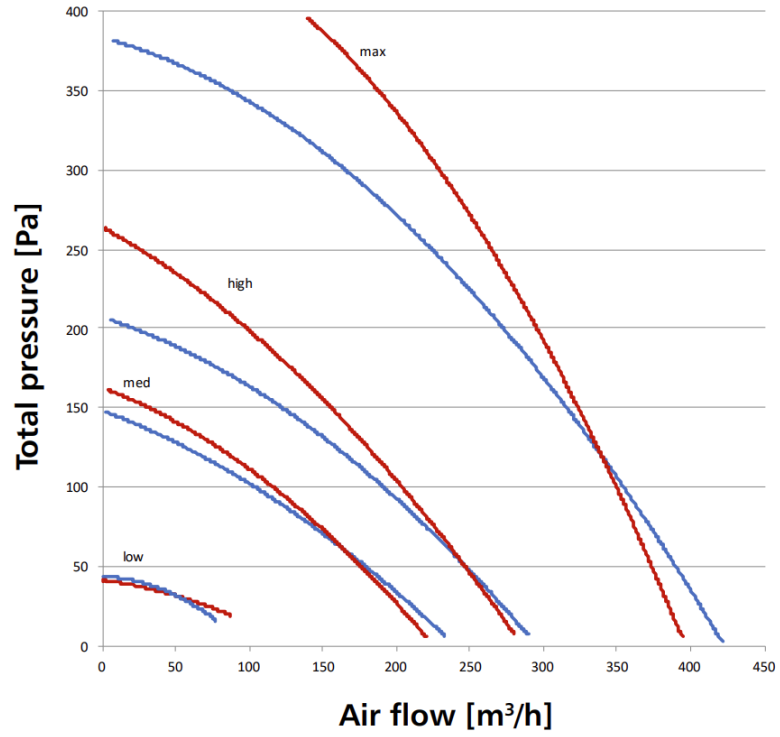


Figure 6 Total pressure for HRU-SlimAIR-350-H

- HRU-SlimAIR-350E-H 350m3/h (at 100 Pa)

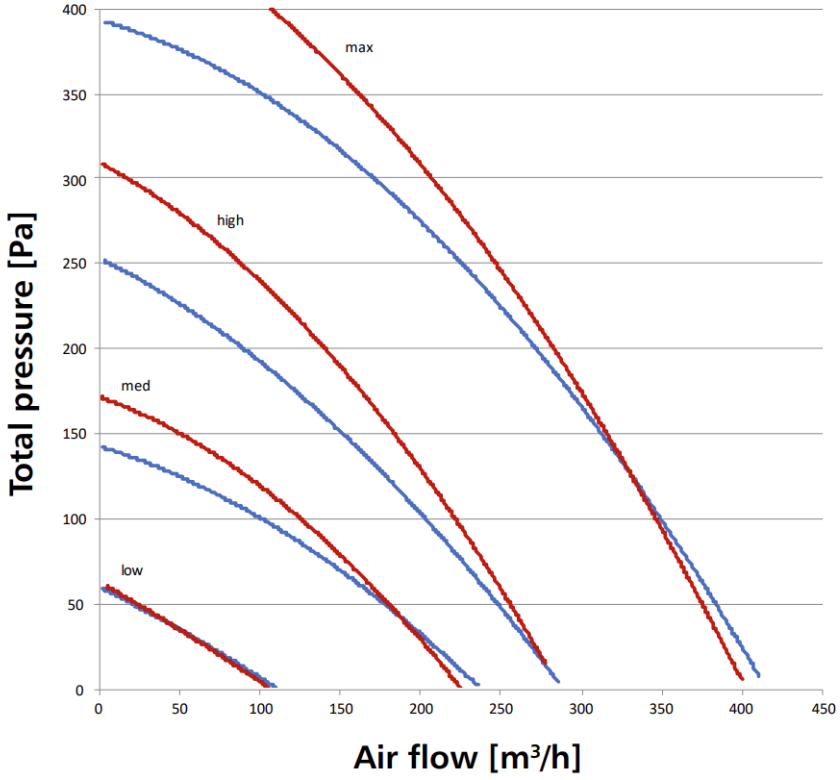


Figure 7 Total pressure for HRU-SlimAIR-350E-H

- HRU-SlimAIR-400-H 400m3/h (at 100 Pa)

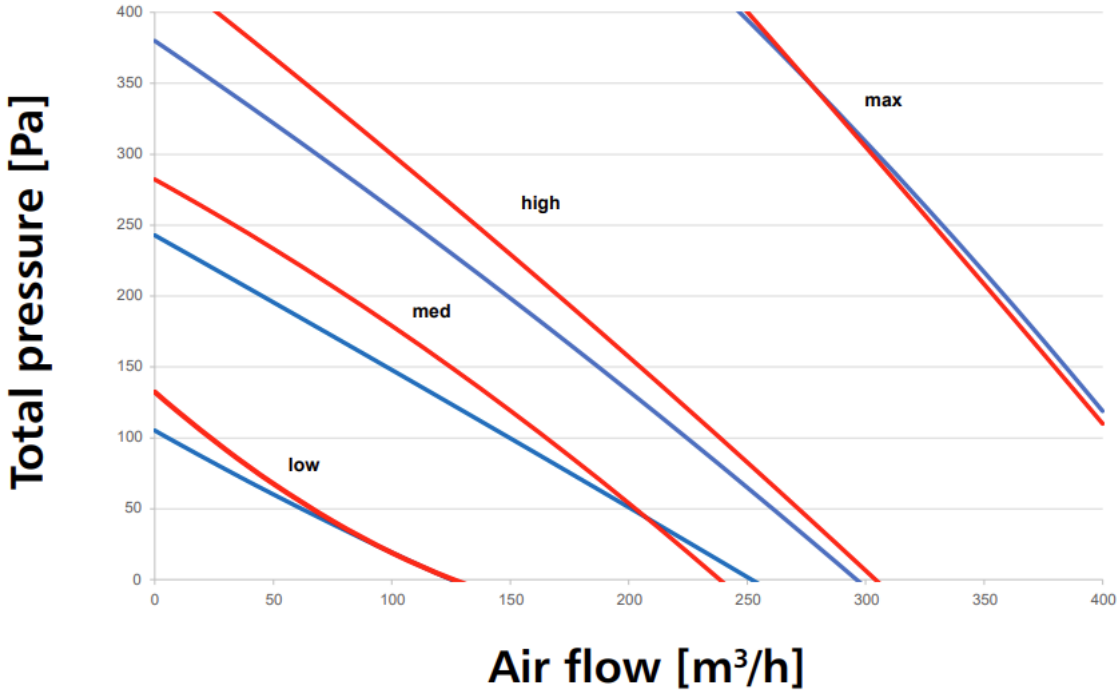


Figure 8 Total pressure for HRU-SlimAIR-400-H

- HRU-SlimAIR-400E-H 400m3/h (at 100 Pa)

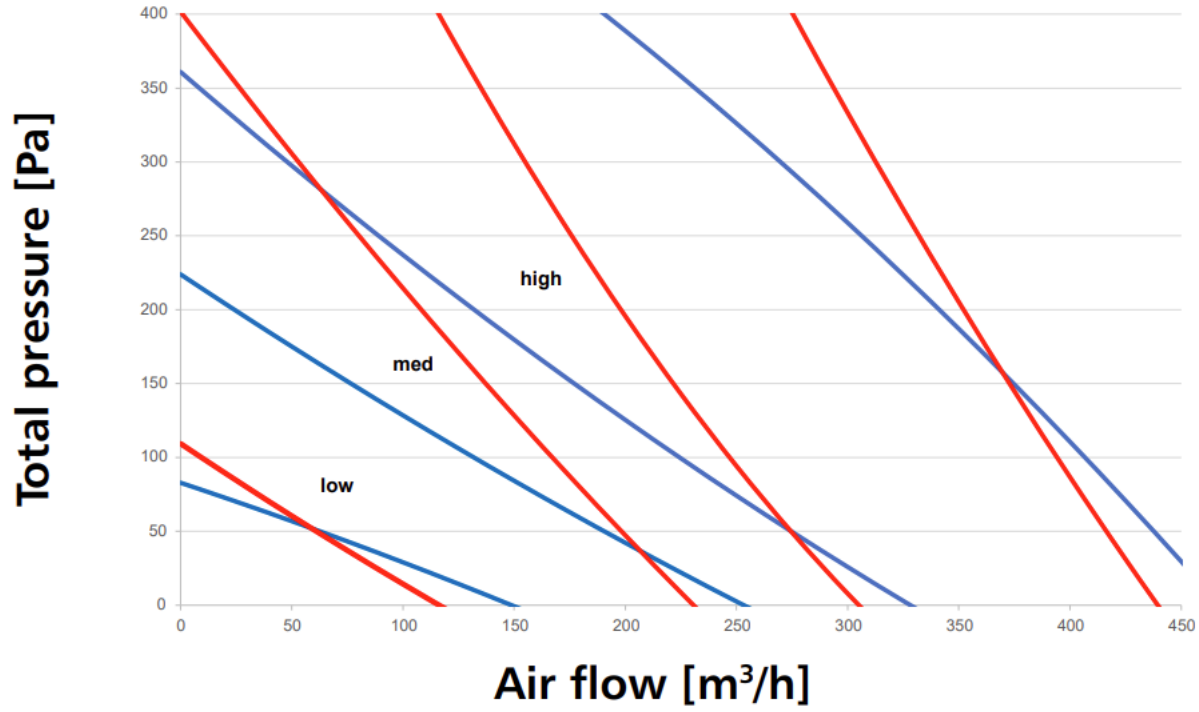


Figure 9 Total pressure for HRU-SlimAIR-400E-H

- HRU-SlimAIR-500-H 500m3/h (at 100 Pa)

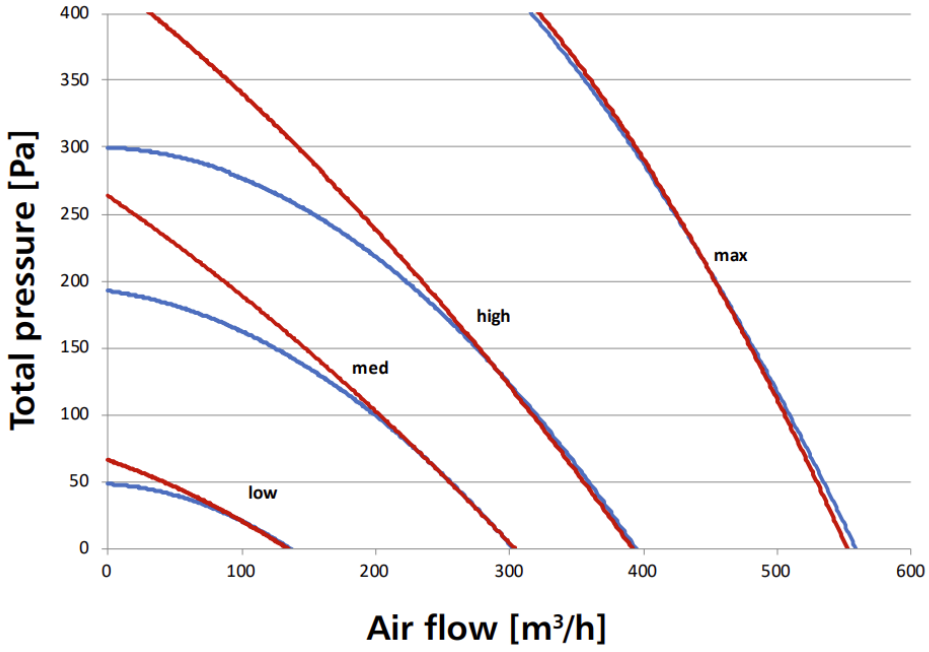


Figure 10 Total pressure for HRU-SlimAIR-500-H

- HRU-SlimAIR-500E-H 500m3/h (at 100 Pa)

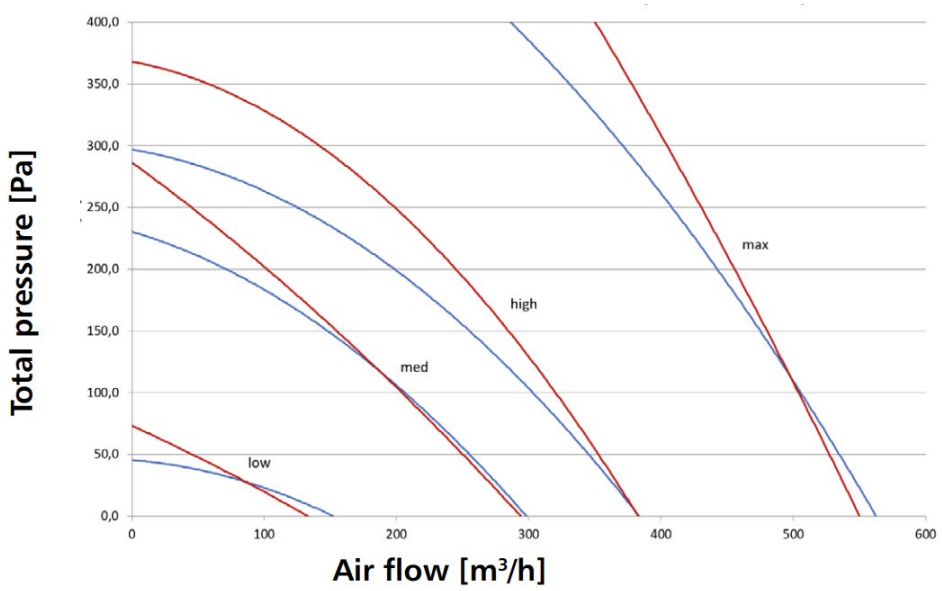


Figure 11 Total pressure for HRU-SlimAIR-500E-H

- HRU-SlimAIR-800-H 800m3/h (at 100 Pa)

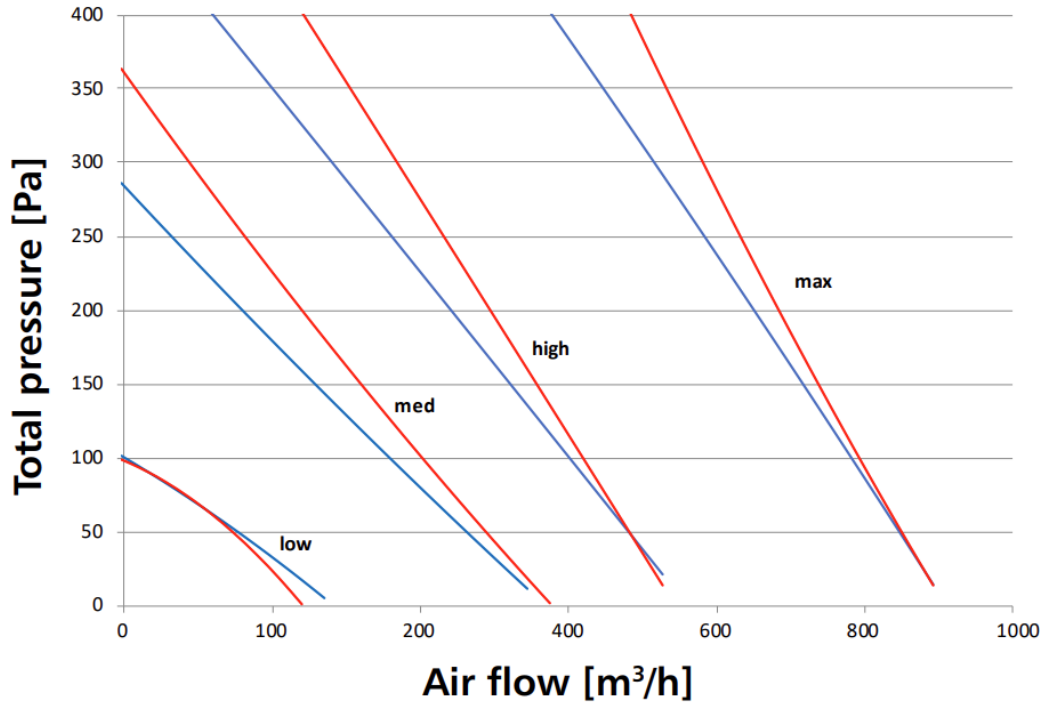


Figure 12 Total pressure for HRU-SlimAIR-800-H

HRU-SlimAIR-800E-H 800m3/h (at 100 Pa)

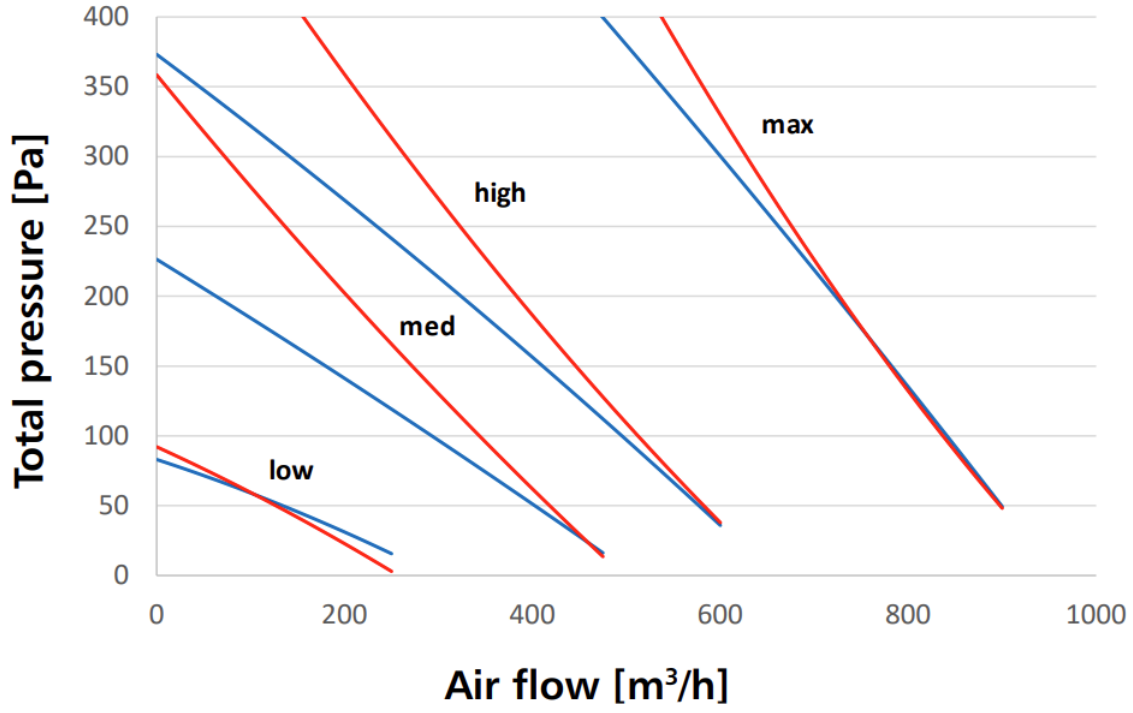


Figure 13 Total pressure for HRU-SlimAIR-800E-H

- HRU-SlimAIR-1000 1000m3/h (at 100 Pa)

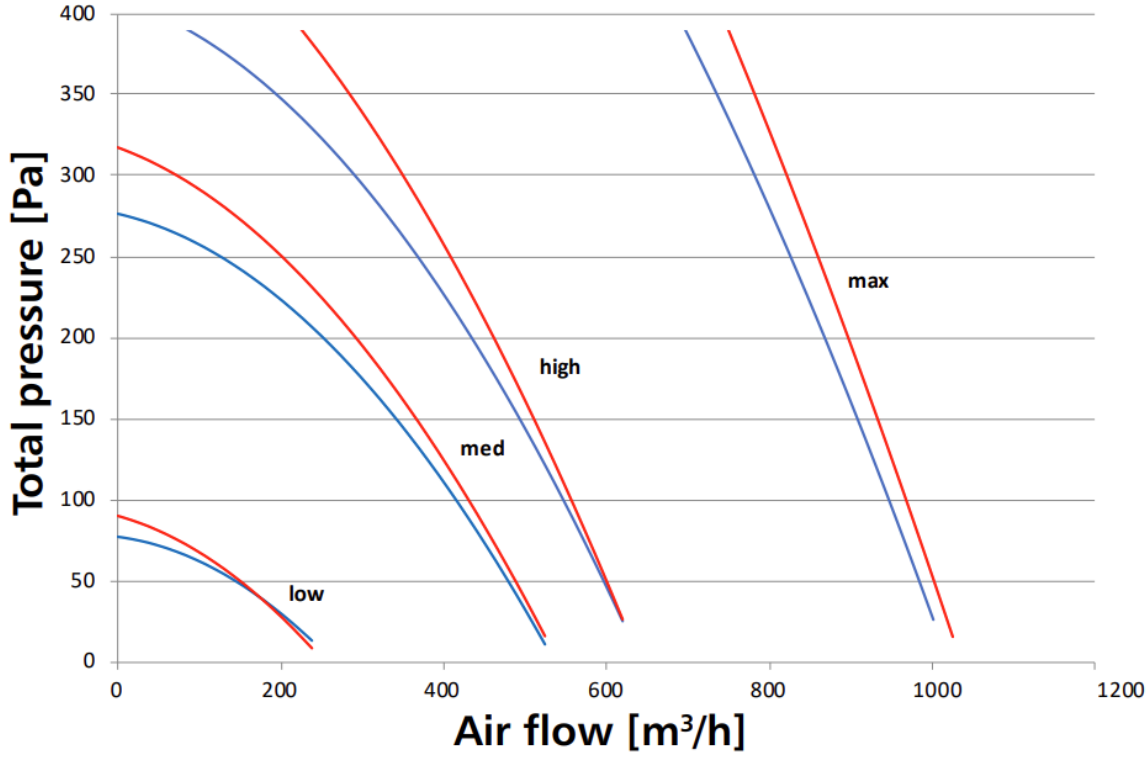


Figure 14: Total pressure for HRU-SlimAIR-1000

- HRU-SlimAIR-1000E 1000m3/h (at 100 Pa)

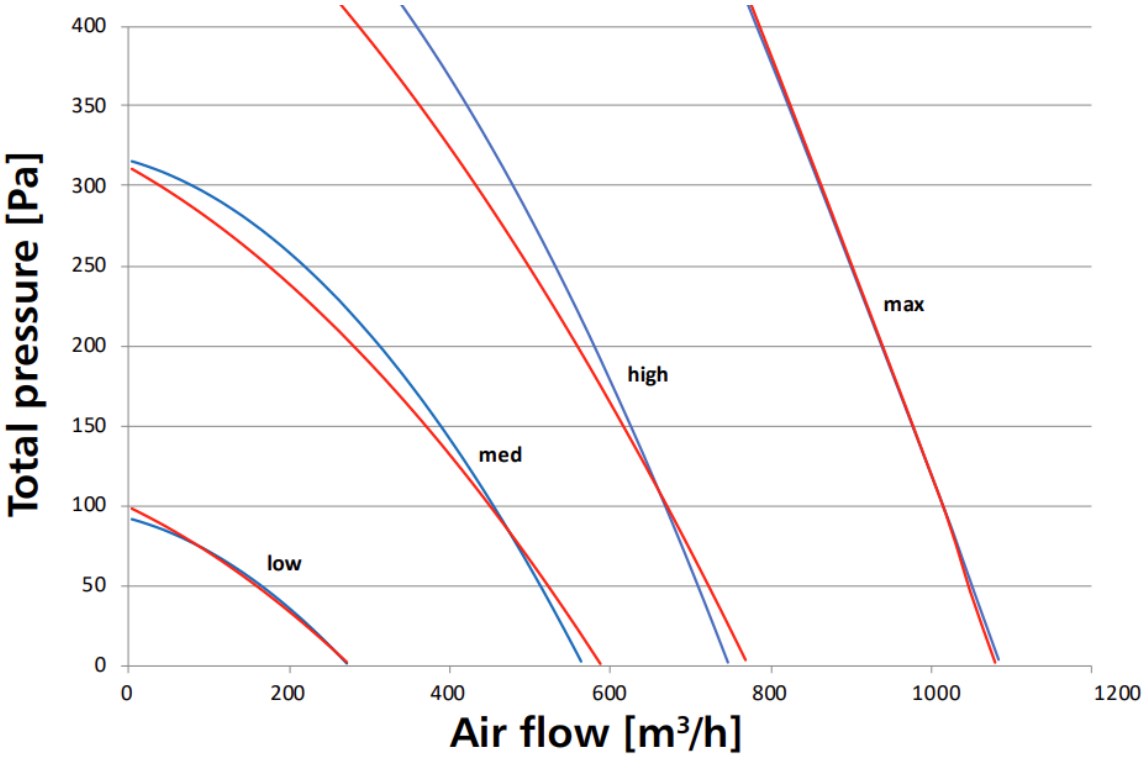


Figure 15: Total pressure for HRU-SlimAIR-1000E.

3.3. Tightness of the unit

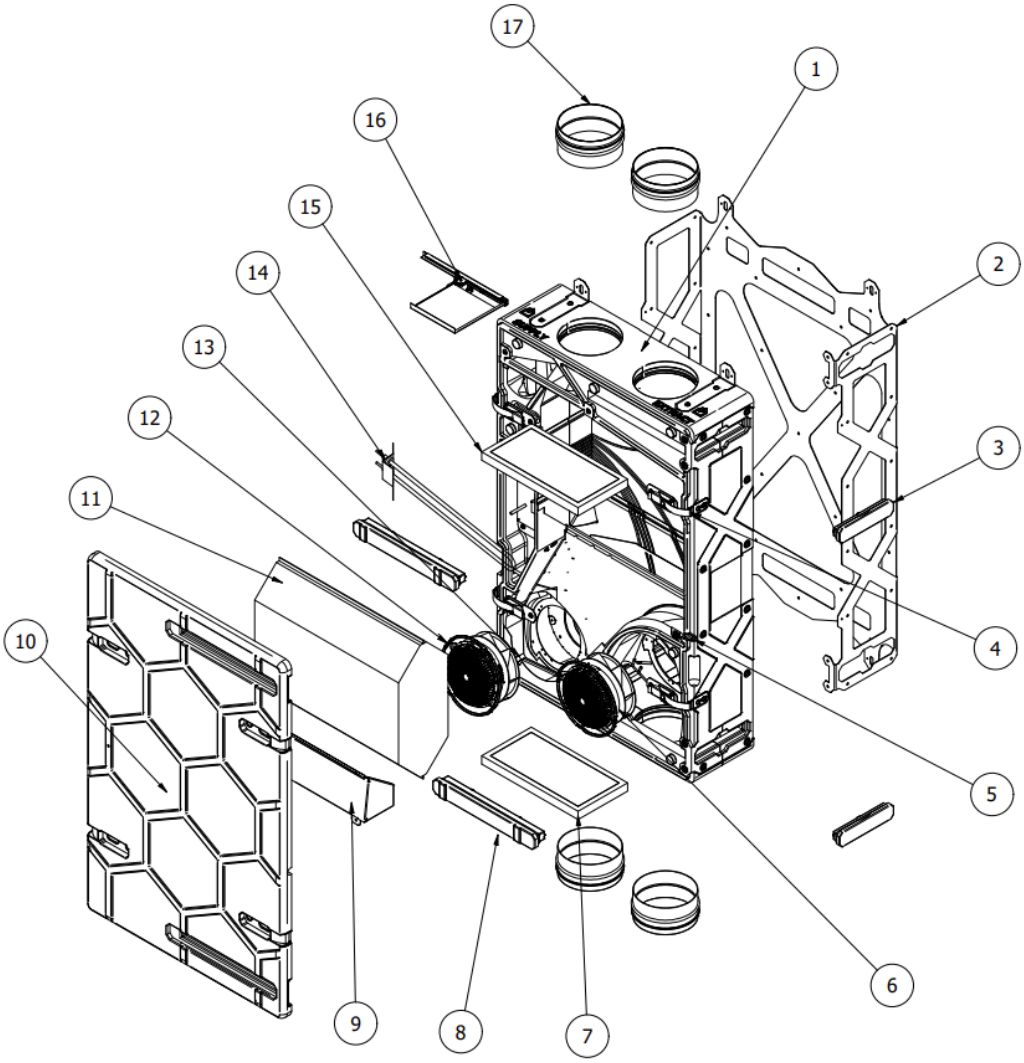
Internal tightness:

- HRU-SlimAIR-250-H: max. leakage 2.34% (class A1 according to EN 13141-7).
- HRU-SlimAIR-250E-H: max. leakage 0.79% (class A1 according to EN 13141-7).
- HRU-SlimAIR-300-H: max. leakage 3.38% (class A2 according to EN 13141-7).
- HRU-SlimAIR-300E-H: max. leakage of 1.91% (class A1 according to EN 13141-7).
- HRU-SlimAIR-350-H: max. leakage 2.74% (class A1 according to EN 13141-7).
- HRU-SlimAIR-350E-H: max. leakage 2.66% (class A1 according to EN 13141-7).
- HRU-SlimAIR-400-H: max. leakage 2.74% (class A1 according to EN 13141-7).
- HRU-SlimAIR-400E-H: max. leakage 2.66% (class A1 according to EN 13141-7).
- HRU-SlimAIR-500-H: max. leakage 2.98% (class A1 according to EN 13141-7).
- HRU-SlimAIR-500E-H: max. leakage 2.74% (class A1 according to EN 13141-7).
- HRU-SlimAIR-800-H max. leakage 2.60% (class A1 according to EN 13141-7).
- HRU-SlimAIR-800E-H: max. leakage of 1.64% (class A1 according to EN 13141-7).
- HRU-SlimAIR-1000: max. leakage 2.08% (class A1 according to EN 13141-7).
- HRU-SlimAIR-1000E: max. leakage 2.57% (class A1 according to EN 13141-7).

External tightness:

- HRU-SlimAIR-250-H: max. leakage 2.68% (class A1 according to EN 13141-7).
- HRU-SlimAIR-300-H: max. leakage of 1.34% (class A1 according to EN 13141-7).
- HRU-SlimAIR-350-H: max. leakage of 1.18% (class A1 according to EN 13141-7).
- HRU-SlimAIR-400-H: max. leakage 2.28% (class A1 according to EN 13141-7).
- HRU-SlimAIR-500-H: max. leakage of 1.30% (class A1 according to EN 13141-7).
- HRU-SlimAIR-800-H: max. leakage 0.33% (class A1 according to EN 13141-7).
- HRU-SlimAIR-1000: max. leakage of 0.26% (class A1 according to EN 13141-7).

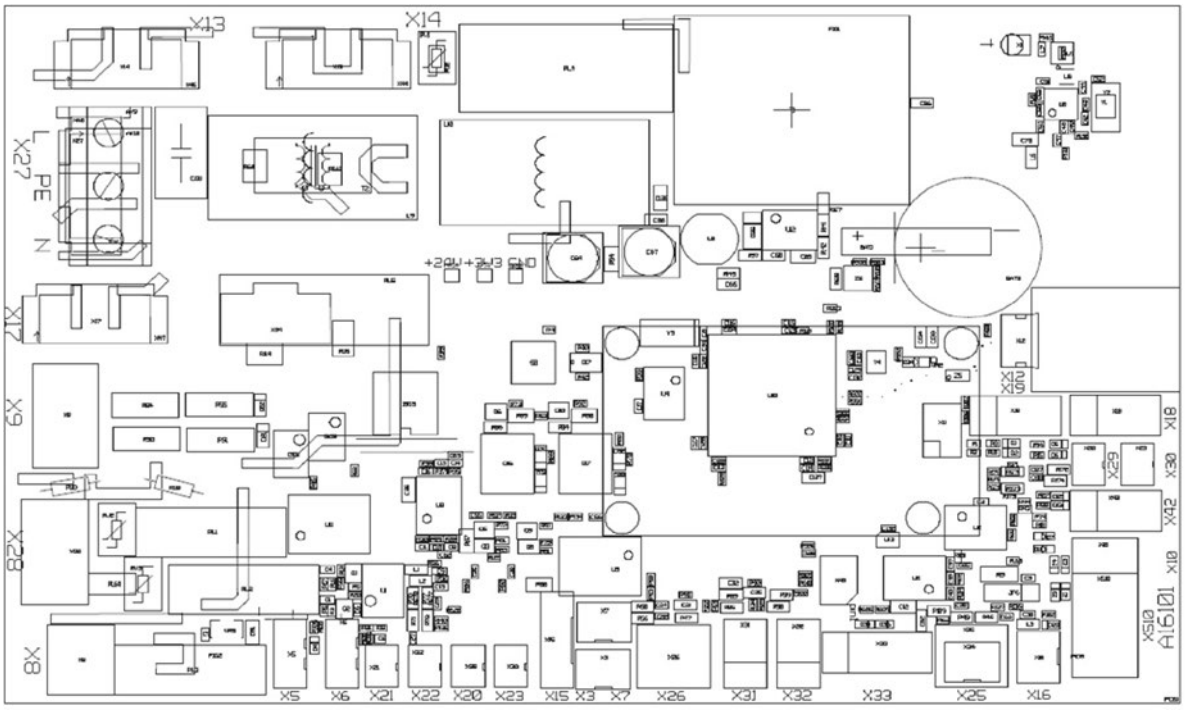
3.4. Construction



Number	Description
1	HRU casing
2	Mounting frame
3	Side air filter cover (2 pcs.)
4	Clamp
5	Condensate drain plug (overhead, side)
6	Supply fan
7	Supply filter
8	Front air filter cover (2 pcs.)
9	Condensate drain tray
10	Front cover of the unit
11	Heat exchanger
12	Exhaust fan
13	Condensate drain plug (bottom)
14	Built-in heater (optional)

15	Exhaust filter
16	Bypass damper
17	NSL connector (4 pcs.)

3.5. Diagram of the main board(PCB)



Description	Socket number	
Fan 1 (supply) - signal	X6	
Fan 2 (exhaust) - signal	X5	
Fan 1 (supply) - line	X13	
Fan 2 (exhaust) - line	X14	
Temperature of 1 supply air	X23	
Temperature 2 of the exhaust air	X11 (internal RH sensor)	
Temperature 3 of the discharged air	X20	
Temperature 4 outdoor	X22	
Temperature 5 - additional external sensor	X21	
Stepper motor	X15	
Power supply	X27	
Preheater	X17	
3-speed switch	X9	1 - open (low speed)
		1-2 closed (average speed)
		1-3 closed (exhaust fan off)
Hood / fireplace exhaust contact	X25	1-2 closed (exhaust fan off)

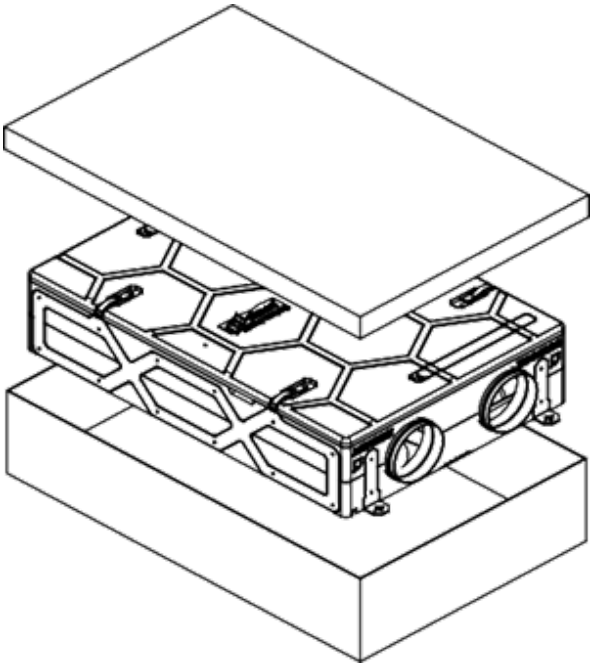
Pressure transmitter (supply) optional	X18
Pressure transmitter (exhaust) optional	X42

4. Installation

4.1. Unpacking

Complete set includes:

- Heat recovery unit (with all components from fig. 16) - 1 pcs
- User's manual
- Basic installation kit: 4x double threaded screw, 4x wall plug, 4x washer, 4x nut (not included in HRU-SlimAIR-800-H oraz HRU-SlimAIR-1000)
- Cardboard box with the frame diagram printed on one of the box flaps.



4.2. Vertical unit instalation

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.

We recommend that the installation of the HRU-SlimAIR-800/-1000 be carried out with 10 mm diameter screws and/or M10 screws. For this purpose, it is necessary to obtain the appropriate mounting elements that will enable the unit to be properly and securely fixed.

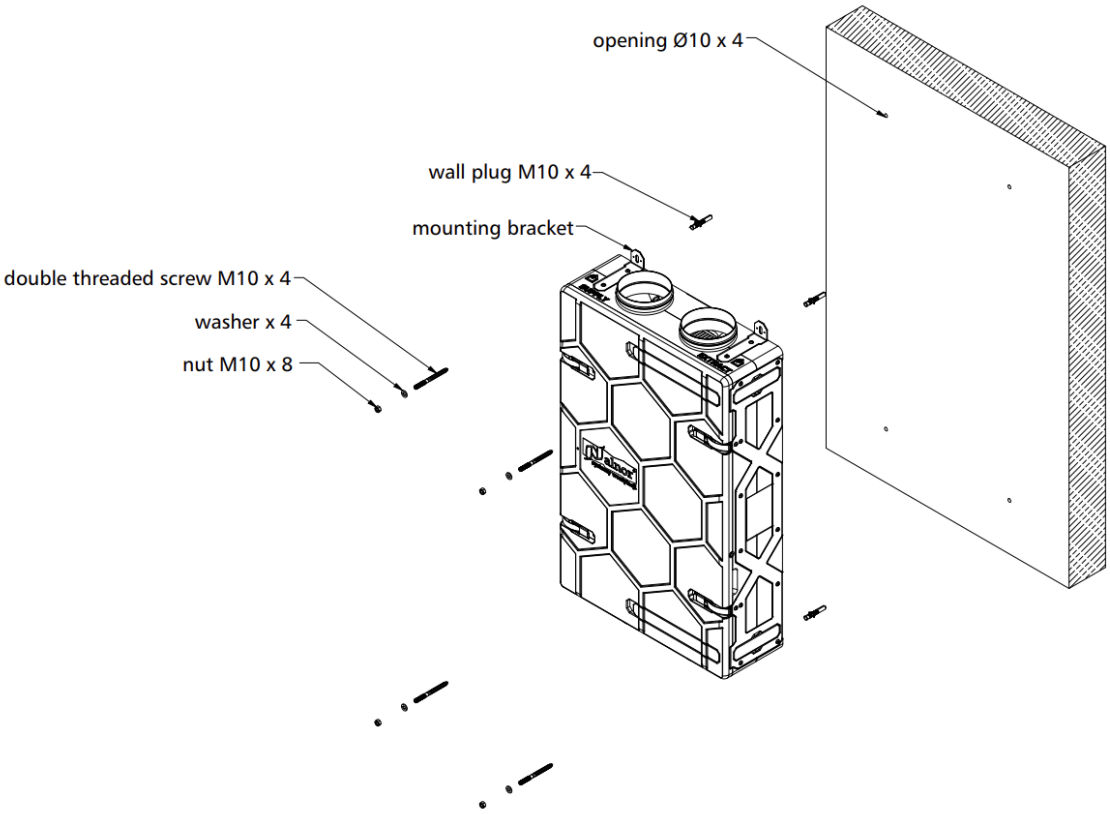


Figure 18: Vertical unit installation with standard installation kit

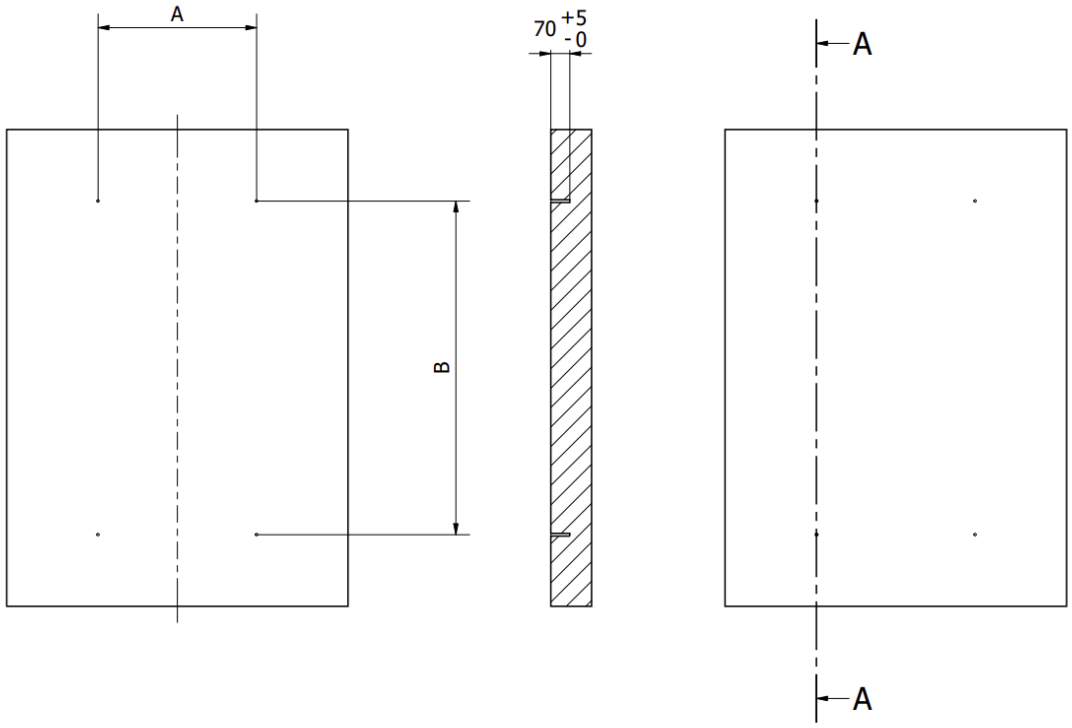
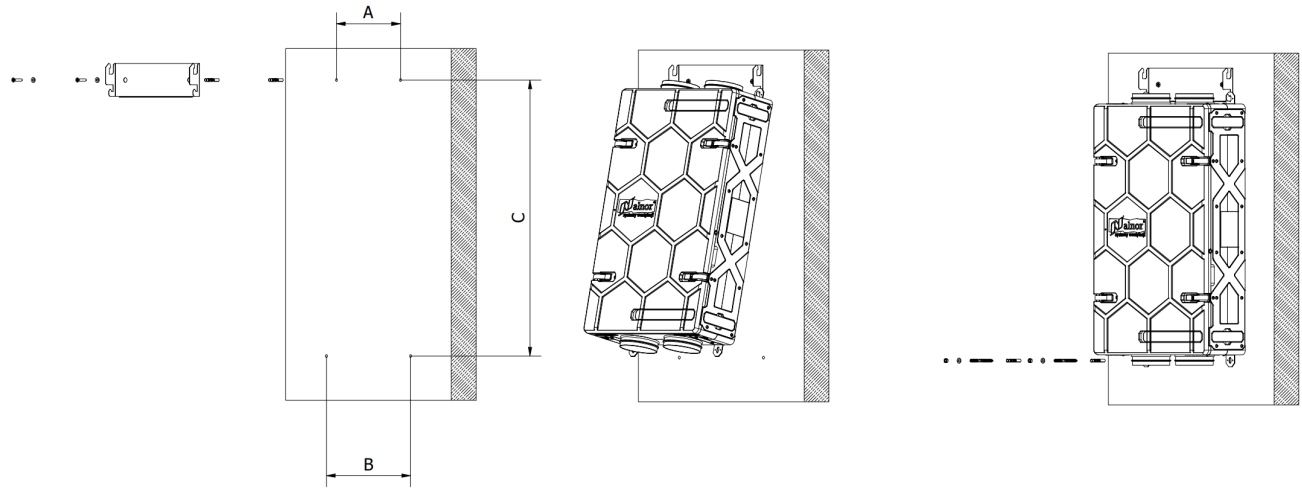


Figure 19: Dimensions of openings for standard mounting elements

Version	A [mm].	B [mm].
SlimAIR-250	508	1119
SlimAIR-L-250	530	1119
SlimAIR-300	508	1119
SlimAIR-L-300	530	1119
SlimAIR-350	585	1231
SlimAIR-400	585	1231
SlimAIR-500	690	1350
SlimAIR-800	830	1465
SlimAIR-1000	830	1465



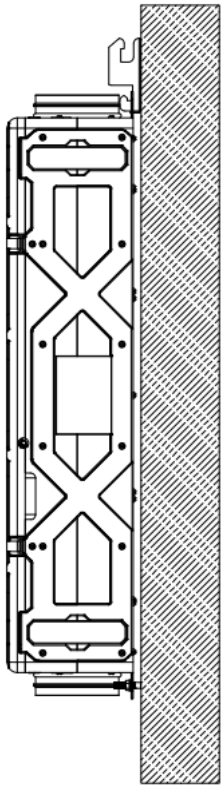


Figure 20: Mounting the unit on the mounting frame

Version	A [mm].	B [mm].	C [mm].
HRU-SlimAIR-250-HANG	386	508	1179
HRU-SlimAIR-350-HANG	464	585	1283
HRU-SlimAIR-500-HANG	586	690	1404
HRU-SlimAIR-800/1000-HANG	730	830	1520

4.3. Horizontal unit installation

The unit is designed to operate in a horizontal position on the wall. For this purpose, use the installation kit supplied with the unit.

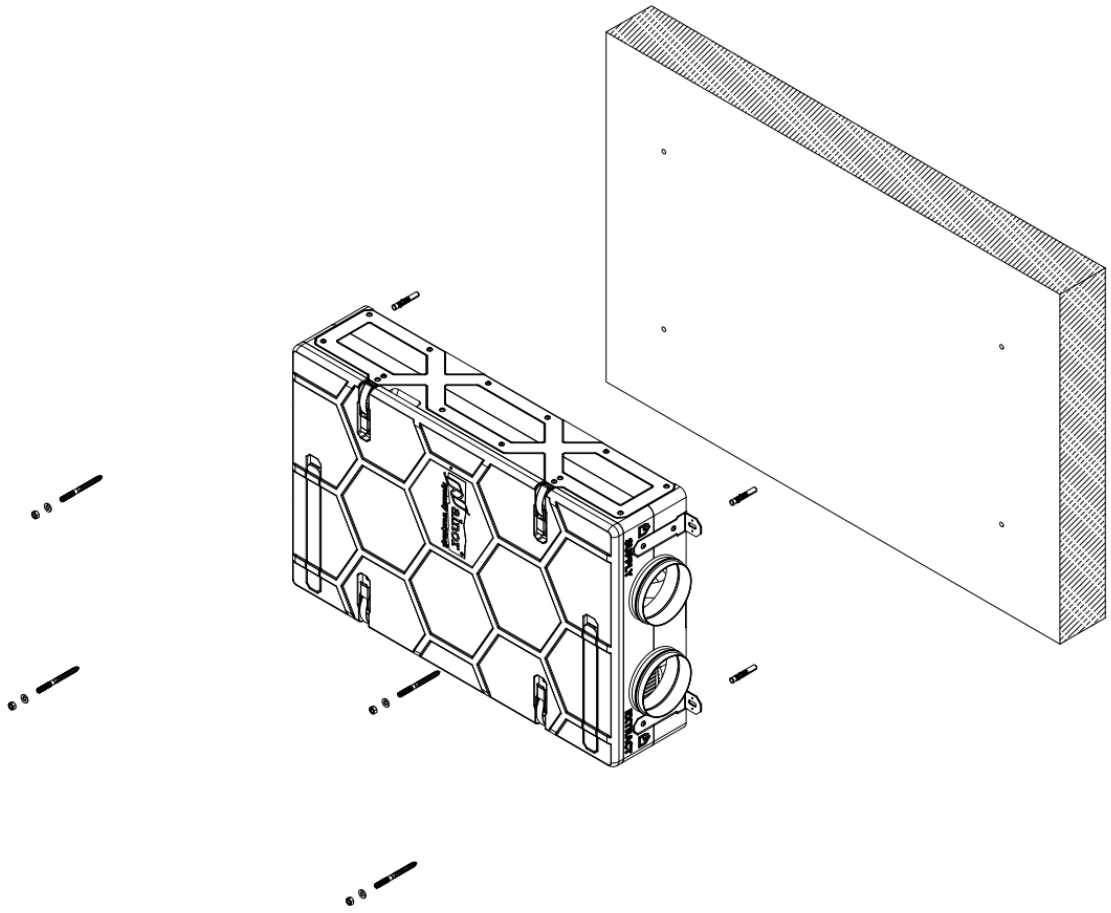


Figure 21: Horizontal unit installation

NOTES:

To ensure proper drainage of condensate from the heat exchanger during the winter in horizontal installation, use the angle of inclination of the unit according to (Fig. 22).

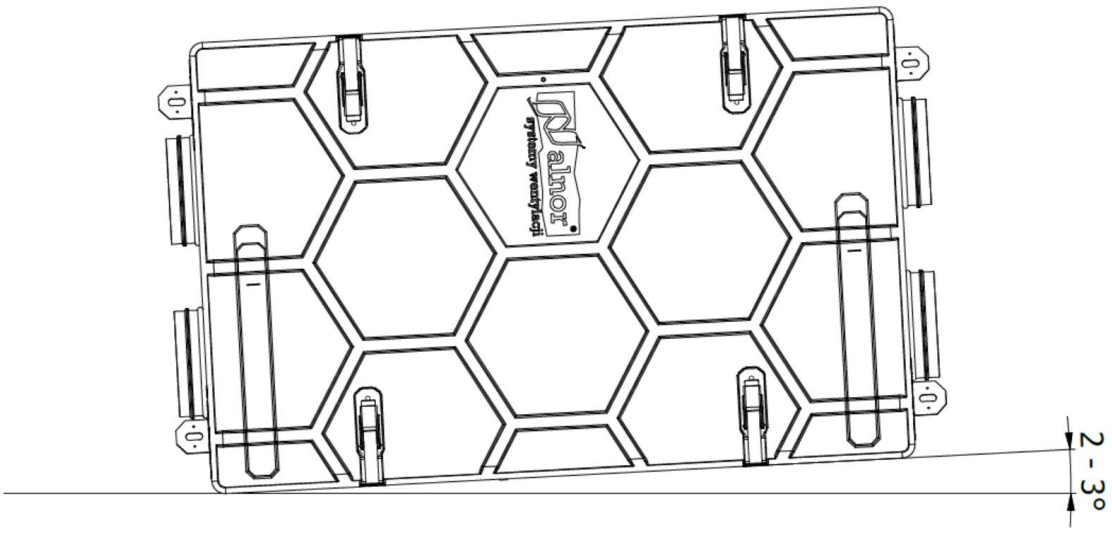


Figure 22: The required angle of inclination in horizontal instalation.

4.4. Unit installation – horizontally suspended

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.

We recommend that the installation of the HRU-SlimAIR-800/-1000 be carried out with 10 mm diameter screws and/or M10 screws. For this purpose, it is necessary to obtain the appropriate mounting elements that will enable the unit to be properly and securely fixed.

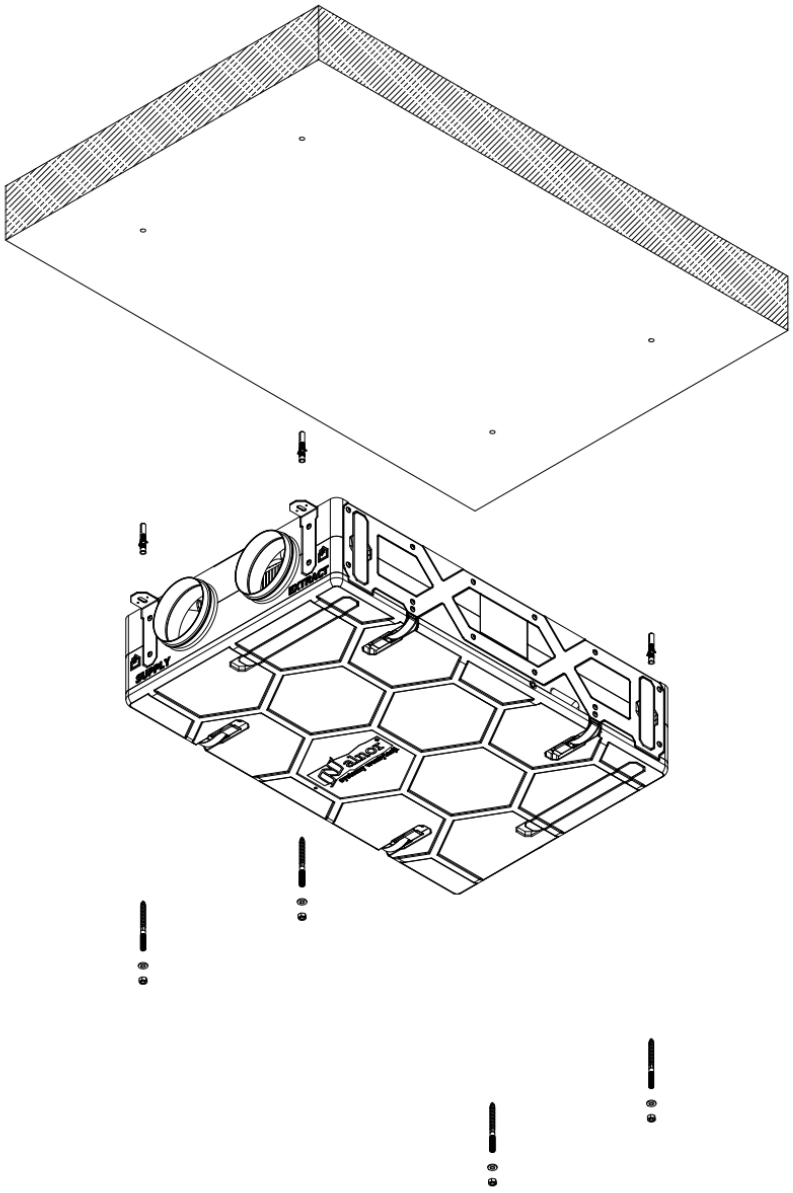


Figure 23: Unit installation – horizintally suspended

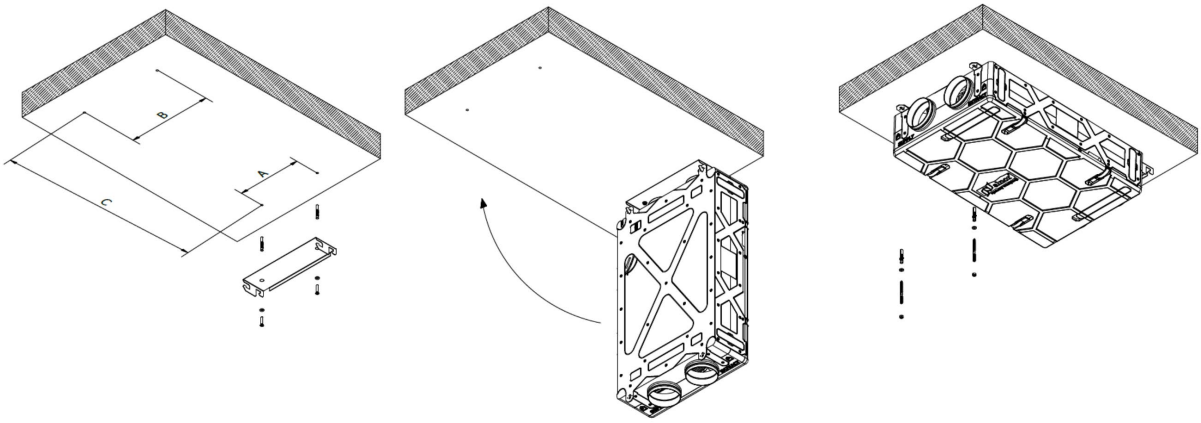
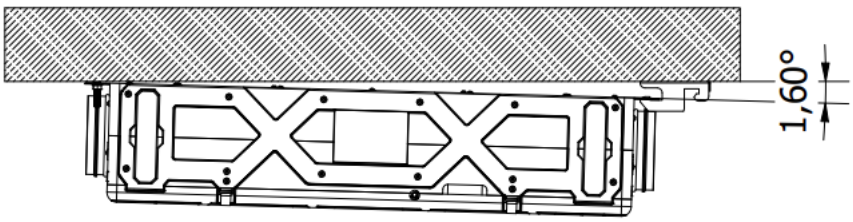


Figure 24: Unit horizontally suspended on the installation frame

Version	A [mm].	B [mm].	C [mm].
HRU-SlimAIR-250-HANG	386	508	1179
HRU-SlimAIR-350-HANG	464	585	1283
HRU-SlimAIR-500-HANG	586	690	1404



NOTES:

Hang the unit on the frame from the OUTDOOR/EXHAUST side. This results from maintaining the correct slope on the condensate drain side. Incorrect installation can lead to incorrect drainage of condensate.

NOTES:

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

Installation of the heat recovery unit does not require an angle. If there is space for it, an inclination of max. 3° from the bottom edge of the unit (irrespective of the type of installation) will have a positive effect on the condensate removal from the unit.

If there is no space for a condensate drain trap, it is recommended to purchase a condensate pump, which can be purchased from HVAC wholesalers.

NOTES:

If, despite the use of the recommended tilt angle, the unit still has problems draining condensate from the heat exchanger during the winter season, it is recommended to set venting in the Time Program

function. The venting function consists of setting the run (HOME+) in the "Time Program" for 15 minutes once every 24 hours of operation.

4.5. Duct installation

1. Normally, ducts are connected directly to Ø160 connectors for SlimAIR-250 or Ø200 for SlimAIR-350 and SlimAIR-500, Ø 250 for SlimAIR-800 and SlimAIR-1000. Despite the very low sound power level of HRU-SlimAIR, in some cases it is recommended to install additional silencers (on the supply and exhaust sides) to ensure a high level of acoustic comfort. Connection description:
   SUPPLY (FAN) - warm, fresh air entering the house
   EXHAUST (EXHAUST) - cool stale air dumped outside
   EXTRACT (EXHAUST) - warm, stale air exhausted from the house
   OUTDOOR (FEBRUARY) - cool, fresh air drawn from outside
2. If you intend to use other duct fittings, NSL nipples can be removed and replacement fittings (e.g. elbows, offsets, etc.) can be easily installed. The NSL nipple is snap-fit, and to remove them, you need to pull them off with enough force. Replacement connectors connected to the control panel must have nipple ends according to ALNOR's dimensional standards (check dimensional tolerances in our SPIRAL® system catalog). To ensure the best seal, we recommend using ALNOR products with a gasket. We are not responsible for tightness if you purchase fittings from other companies.

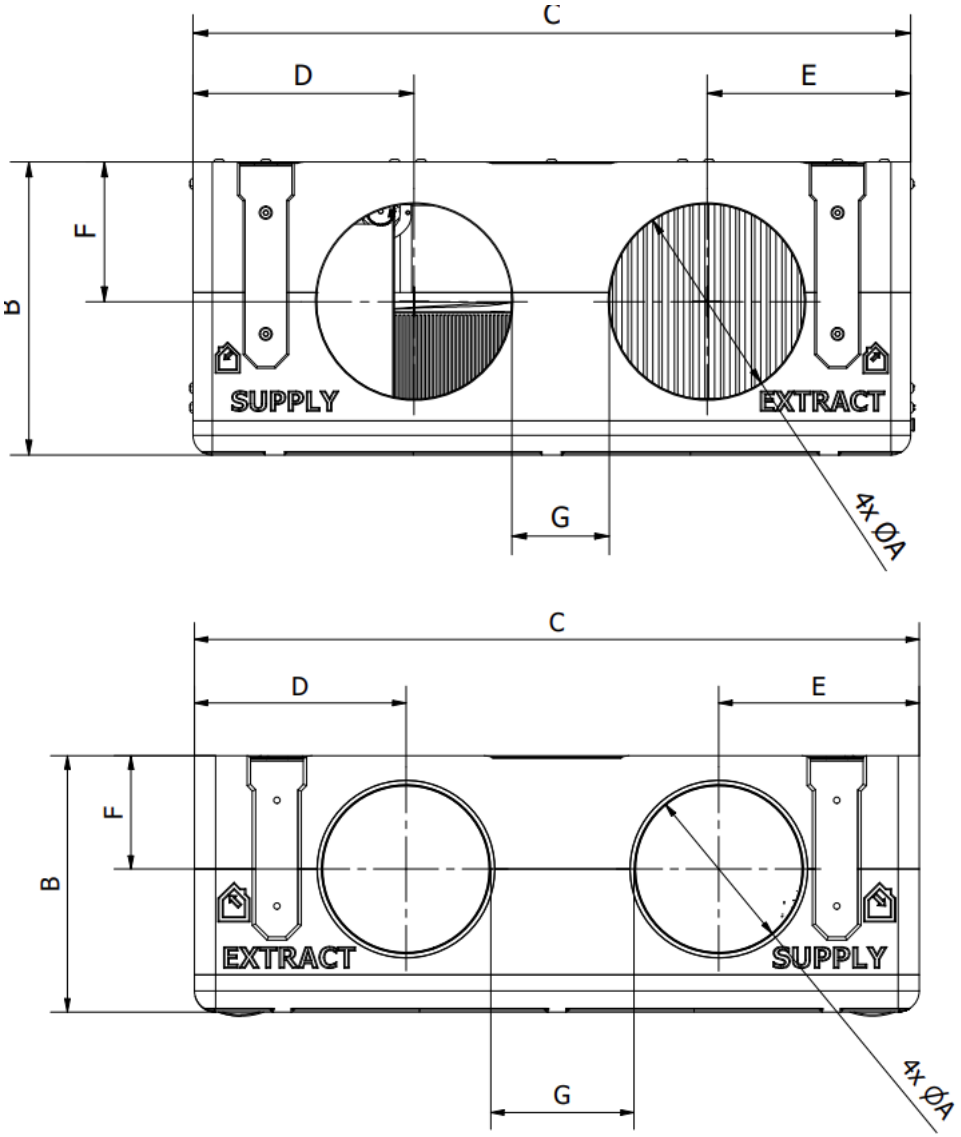
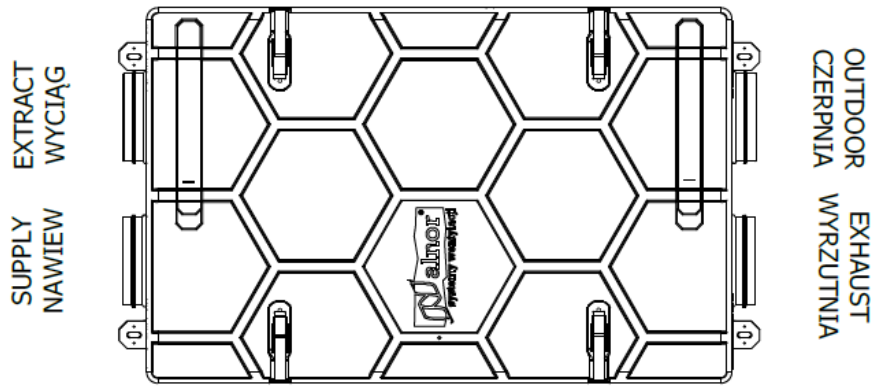


Figure 24: Dimensions of nozzles for assembly taking into account the space for insulation

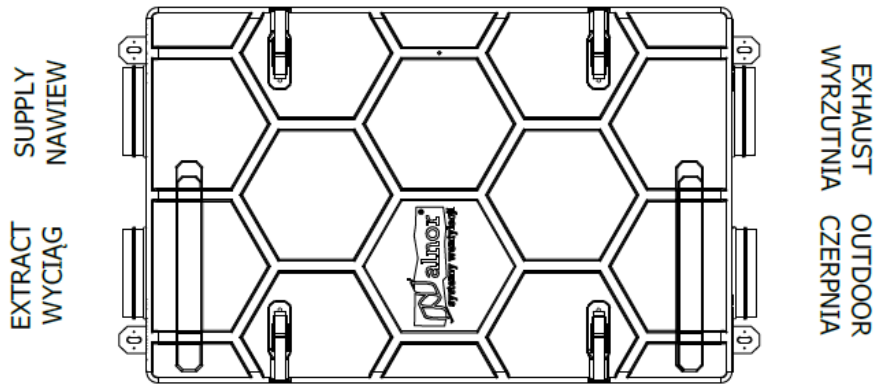
Version	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
SlimAIR-250	160	242	685	223	200	107	102
SlimAIR-300	160	242	685	223	200	107	102
SlimAIR-350	200	300	735	226,5	208,5	143	100
SlimAIR-400	200	300	735	226,5	208,5	143	100
SlimAIR-500	200	300	898	253,7	262,5	133,7	181,8
SlimAIR-800	250	387	1081	320	310	182	197
SlimAIR-1000	250	387	1081	320	310	182	197
SlimAIR-L-250	160	242	685	200	189,5	107	135,5
SlimAIR-L-300	160	242	685	200	189,5	107	135,5

3. SlimAIR-250/300 heat recovery unit is also available in a mirror/left version. The choice of configuration is possible before purchasing the unit.

HRU-SlimAIR



HRU-SlimAIR-L



4.6. 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.

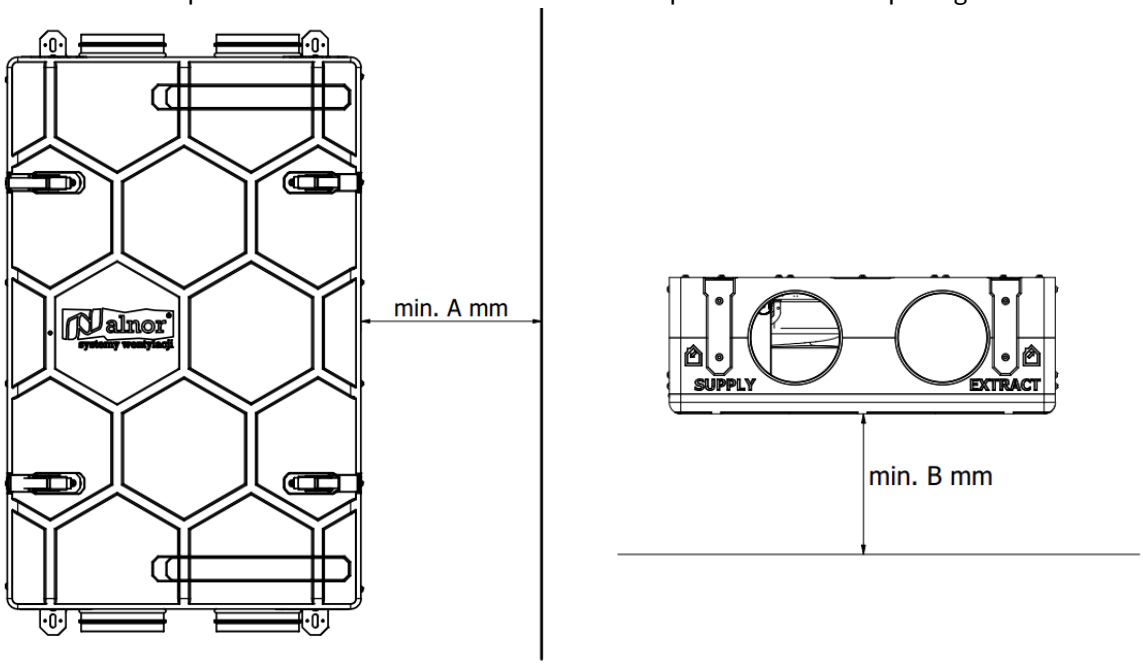
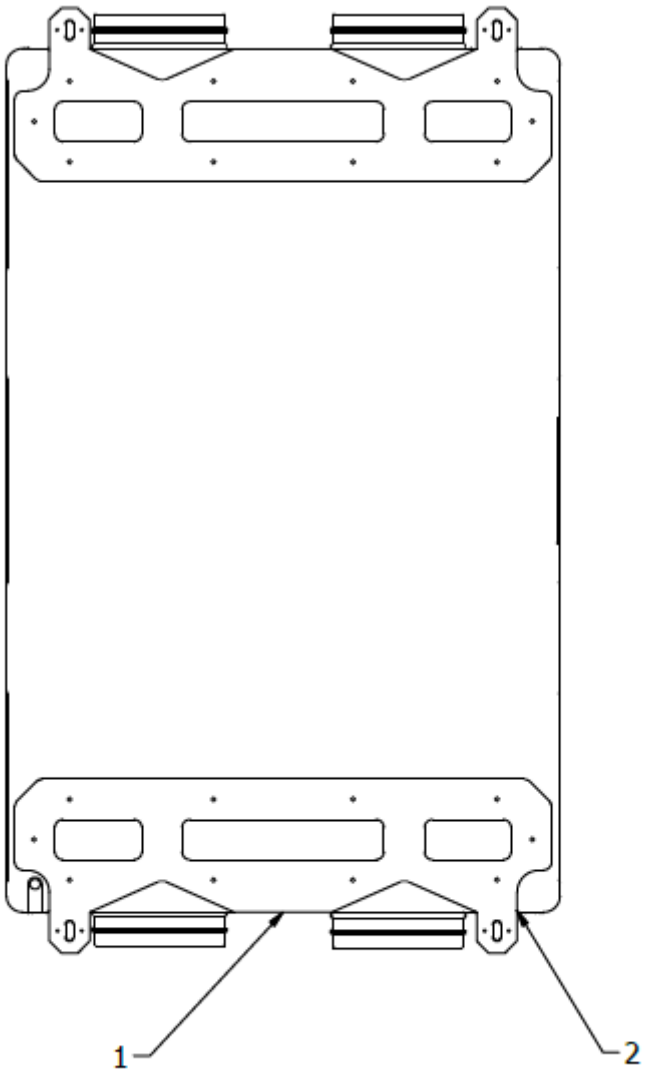


Figure 24: Maintenance space

Version	A [mm].	B [mm].
SlimAIR-250	500	1000
SlimAIR-300	500	1000
SlimAIR-350	500	1000
SlimAIR-400	500	1000
SlimAIR-500	500	1000
SlimAIR-800	500	1000
SlimAIR-1000	500	1000



1 -Service port

2 - Service port w HRU-SlimAIR-250/300-H

4.7. 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. Assignment mode

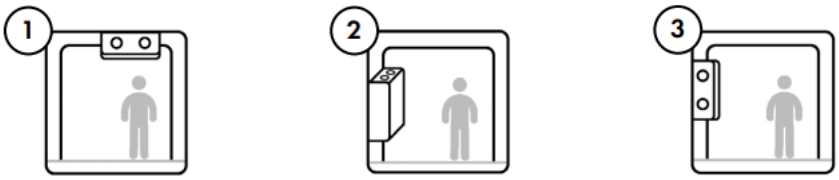
Every time the power supply is turned off and on again, it activates the assignment mode (it lasts for 10 minutes, the LED lights up green with a continuous light). During the assignment mode, the control panel can be paired (HRQ-BUT 4-button controller, HRQ-BUT-LCD, HRQ-SENS-CO2 sensor, HRQ-SENS-RH humidity sensor or bridge/gate - pairing of all components is described in the respective instructions supplied with the product). After 10 minutes, the device switches to normal operation mode (the LED flashes green).

5.5. 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-SlimAIR-250:

TAG	Speed	Air flow efficiency [%]	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-250	SlimAIR-250E	SlimAIR-250-CF	SlimAIR-250E-CF
#63	Low Supply	15	37,5	24	22	15	15
#64	Low Exhaust			23	20	15	15
#65	Medium Supply	50	125	45	45	50	50
#66	Medium Exhaust			44	44	50	50
#67	High Supply	70	175	57	56	70	70
#68	High Exhaust			54	56	70	70
#149	Boost Supply	100	250	78	77	100	100
#150	Boost Exhaust			75	77	100	100

- Factory settings of HRU- SlimAIR-L-250:

TAG	Speed	Air flow efficiency [%]	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-L-250	SlimAIR-L-250E	SlimAIR-250-CF-L	SlimAIR-L-250E-CF
#63	Low Supply	15	37,5	26	25	15	15
#64	Low Exhaust			28	27	15	15
#65	Medium Supply	50	125	45	44	50	50
#66	Medium Exhaust			48	47	50	50
#67	High Supply	70	175	55,5	54,5	70	70
#68	High Exhaust			60	60	70	70
#149	Boost Supply	100	250	76	74	100	100
#150	Boost Exhaust			82,5	84	100	100

- Factory settings of HRU-SlimAIR-300:

TAG	Speed	Air flow efficiency [%]	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-300	SlimAIR-300E	SlimAIR-300-CF	SlimAIR-300E-CF
#63	Low Supply	15	45	29	27	15	15
#64	Low Exhaust			25	24	15	15
#65	Medium Supply	50	150	49,5	47,5	50	50
#66	Medium Exhaust			48	49,5	50	50
#67	High Supply	70	210	62	59	70	70
#68	High Exhaust			60	61,5	70	70
#149	Boost Supply	100	300	85	82	100	100
#150	Boost Exhaust			83,5	85,5	100	100

- Factory settings of HRU- SlimAIR-L-300:

TAG	Speed	Air flow efficiency [%]	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-300	SlimAIR-300E	SlimAIR-300-CF	SlimAIR-300E-CF
#63	Low Supply	15	45	22	30	15	15
#64	Low Exhaust			24	30	15	15

#65	Medium Supply	50	150	39	51	50	50
#66	Medium Exhaust			48	48	50	50
#67	High Supply	70	210	50	63	70	70
#68	High Exhaust			64	60	70	70
#149	Boost Supply	100	300	71	87	100	100
#150	Boost Exhaust			90	83	100	100

- Factory settings of HRU-SlimAIR-350:

TAG	Speed	Air flow efficiency [%]	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-350	SlimAIR-350E	SlimAIR-350-CF	SlimAIR-350E-CF
#63	Low Supply	15	52,5	14,5	12,5	15	15
#64	Low Exhaust			15	15	15	15
#65	Medium Supply	50	175	28	25	50	50
#66	Medium Exhaust			31	31	50	50
#67	High Supply	70	245	33	31	70	70
#68	High Exhaust			37,5	41	70	70
#149	Boost Supply	100	350	47	46	100	100
#150	Boost Exhaust			52,5	60	100	100

- Factory settings of HRU-SlimAIR-400:

TAG	Speed	Air flow efficiency [%]	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-400	SlimAIR-400E	SlimAIR-400-CF	SlimAIR-400E-CF
#63	Low Supply	15	60	18,5	22	15	15
#64	Low Exhaust			16	20	15	15
#65	Medium Supply	50	200	39,5	45	50	50
#66	Medium Exhaust			40	44	50	50
#67	High Supply	70	280	51	56	70	70
#68	High Exhaust			52	56	70	70
#149	Boost Supply	100	400	80	77	100	100
#150	Boost Exhaust			78,5	77	100	100

- Factory settings of HRU-SlimAIR-500:

TAG	Speed	Air flow efficiency [%]	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-500	SlimAIR-500E	SlimAIR-500-CF	SlimAIR-500E-CF
#63	Low Supply	15	75	19,5	17,5	15	15
#64	Low Exhaust			20	20	15	15
#65	Medium Supply	50	250	34	29,5	50	50
#66	Medium Exhaust			35,5	36,5	50	50
#67	High Supply	70	350	45	39	70	70
#68	High Exhaust			47	49,5	70	70
#149	Boost Supply	100	500	62	58,5	100	100

#150	Boost Exhaust			66	72,5	100	100

- Factory settings of HRU-SlimAIR-800:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-800	SlimAIR-800E	SlimAIR-800-CF	SlimAIR-800E-CF
#63	Low Supply	15	120	28,5	25,5	15	15
#64	Low Exhaust			27,5	26	15	15
#65	Medium Supply	50	400	53	49	50	50
#66	Medium Exhaust			54	53,5	50	50
#67	High Supply	70	560	68	63	70	70
#68	High Exhaust			68,5	66,5	70	70
#149	Boost Supply	100	800	92,5	88,5	100	100
#150	Boost Exhaust			95,5	93	100	100

- Factory settings of HRU-SlimAIR-1000:

TAG	Speed	Air flow efficiency [%}	Air flow efficiency [m3/h]	Fan speed value			
				SlimAIR-1000	SlimAIR-1000E	SlimAIR-1000-CF	SlimAIR-1000E-CF
#63	Low Supply	15	150	17	23	15	15
#64	Low Exhaust			13	22	15	15
#65	Medium Supply	50	500	37	43	50	50
#66	Medium Exhaust			32,5	40	50	50
#67	High Supply	70	700	50	56	70	70
#68	High Exhaust			45,5	52	70	70
#149	Boost Supply	100	1000	72	69	100	100
#150	Boost Exhaust			64,5	70	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. External preheaters

6.5.2.1. Preheater HRQ-SlimAIR-HDE-250-4,5(optional)

The preheater is an additional accesory and can be installed to protect agaist freezing. To install the heater you need HRQ-SlimAIR-HDE-200-4,5 (electric heater with a special plug). The HRU-SlimAIR-1000 needs the HRQ-SlimAIR-HDE-200-4,5 heater with the special plug for the unit and a plug for connecting the three-phase power supply. Figure 34 shows an example of the connection of the heater. We advise putting a filter in front of the heater to counteract fouling of the heaters and prolong the life of the product.

When the equipment is connected, the preheater operates when the following conditions are met: Pre-heater is turned on when all of the following conditions are met: - (Tout + Texh) / 2 < 0˚C (Pre-heater setpoint #46):

- Tout < -3˚C (Frost protection Pre-heater setpoint #39)
- Supply fan is on (required for heater cooling).

The preheater is turned off when at least one of the following conditions is met:

- (Tout +Texh) / 2 > 0°C (Pre-heater setpoint #46) + -3°C (Pre-heater off temp difference #47)
- Tout>(Frost protection pre-heater setpoint (#39)+Pre-heater off temp hysteresis (#225)
- Supply fan is off.

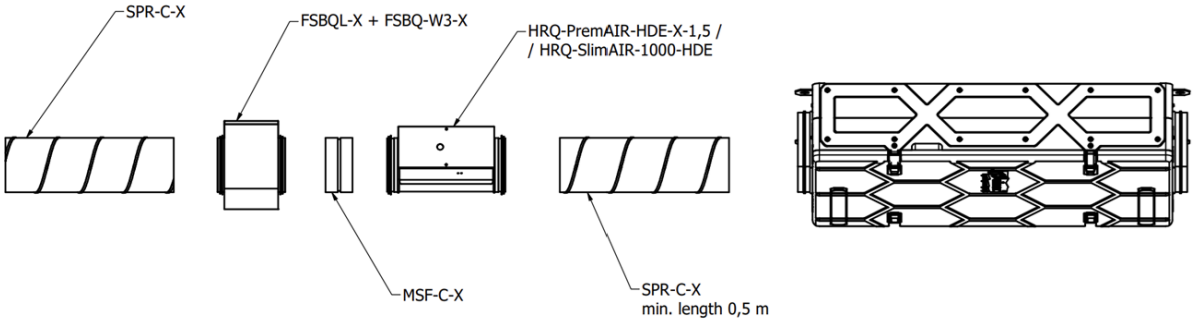
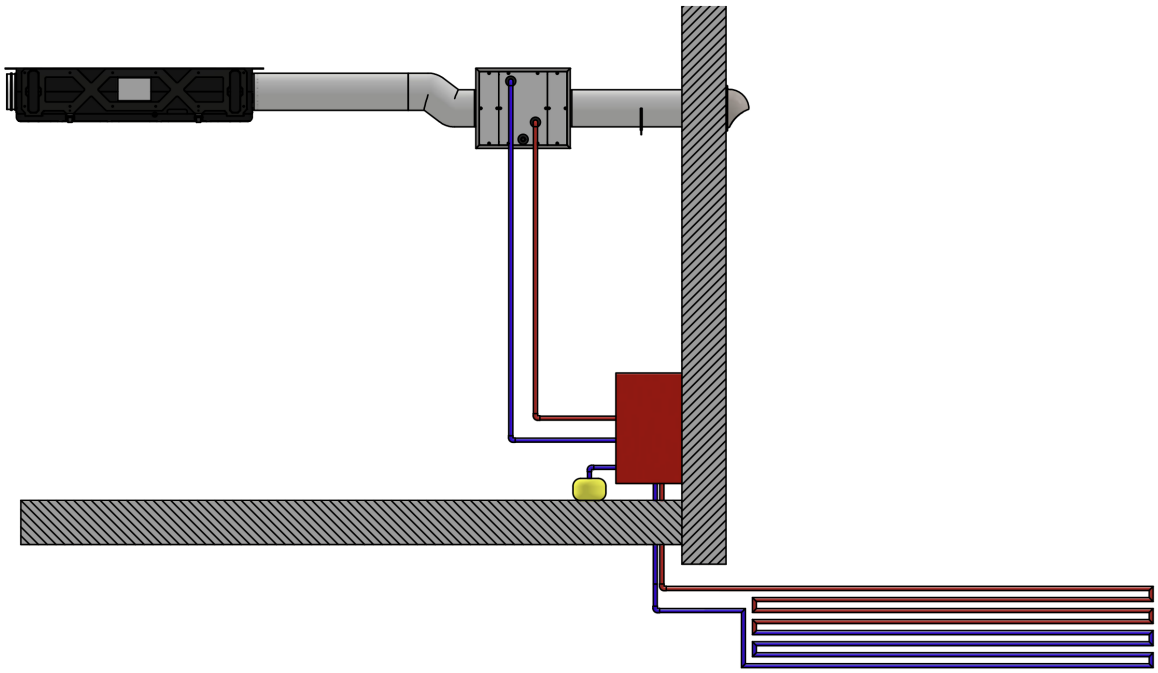


Figure 25: Preheater connection

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

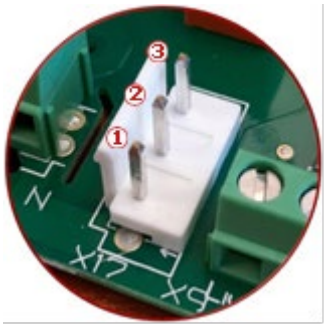
The heat recovery unit has the ability to plug in a water preheater. The preheat function is designed to protect the heat exchanger from freezing. The device, through an internal algorithm, is responsible for switching on the liquid circulation pump in the system. The preheater shall be mounted on the 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:

- (Tout + Texh) / 2 < 0˚C (Pre-heater setpoint #46).

- Tout < -3˚C (Frost protection Pre-heater setpoint #39).

- The supply fan is on (needed to cool the heater).

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

- (Tout + Texh) / 2 > 0°C (Pre-heater setpoint #46) +3°C (Pre-heater off temp difference #47)

- Tout>(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.

NOTES:

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

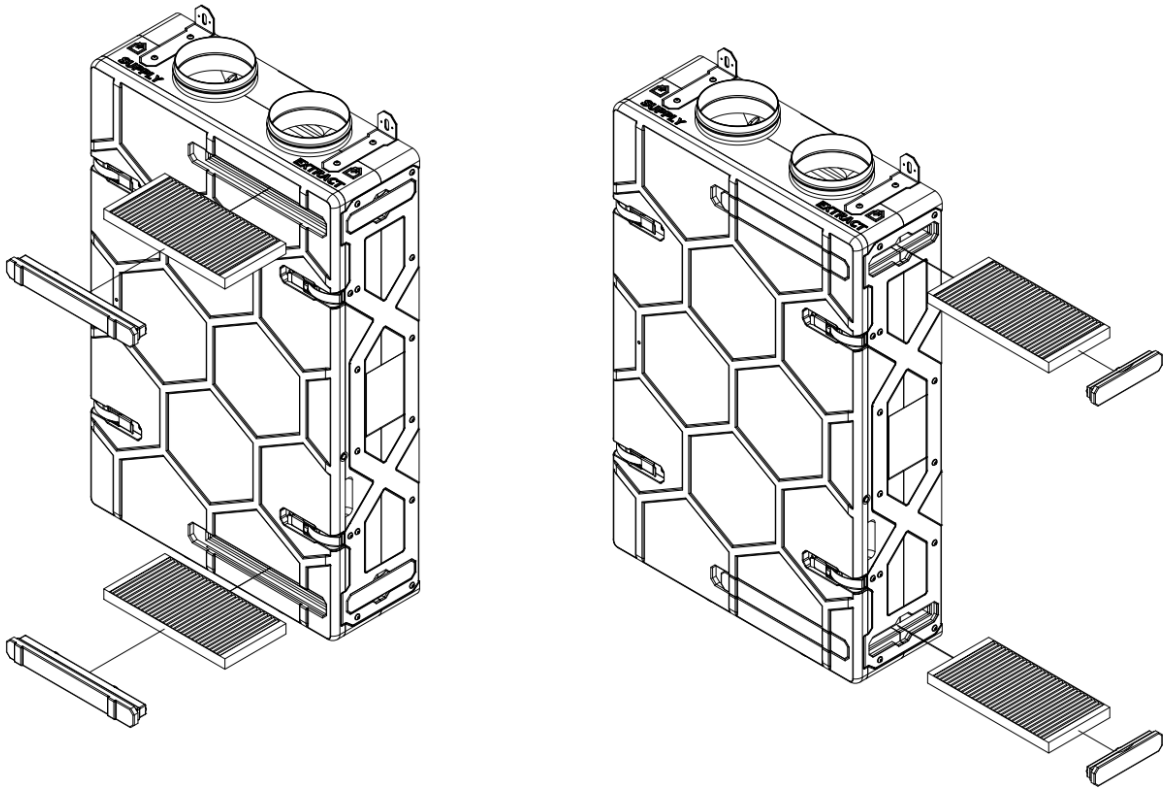


Figure 26: Filter replacement

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

NOTES:

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. Heat exchanger cleaning

Heat exchanger ought to be cleansed minimum once a year. The amount of dust layered on the heat exchanger depends on: frequency of filters change and indoor and outdoor air quality. Heat exchanger can be washed with warm water with mild detergent (pH from 6 to 8).

Replacement instructions for clening the heat exchanger:

1. Switch power off
2. Open four clamps placed on side walls and remove cover
3. Unscrew condensate tray (2 torx M4 screws)
4. Turn over heat exchanger lock
5. Remove heat exchanger by pulling strap
6. Place clean or new heat exchanger
7. Screw on heat exchanger lock
8. Close front cover (check if cover is evenly touching the rest of housing)
9. Close four clamps placed on side walls
10. Switch power on

Remove the heat exchanger HRU-SlimAIR-250 / HRU-SlimAIR-300 / HRU-SlimAIR-350 / HRU-SlimAIR-400

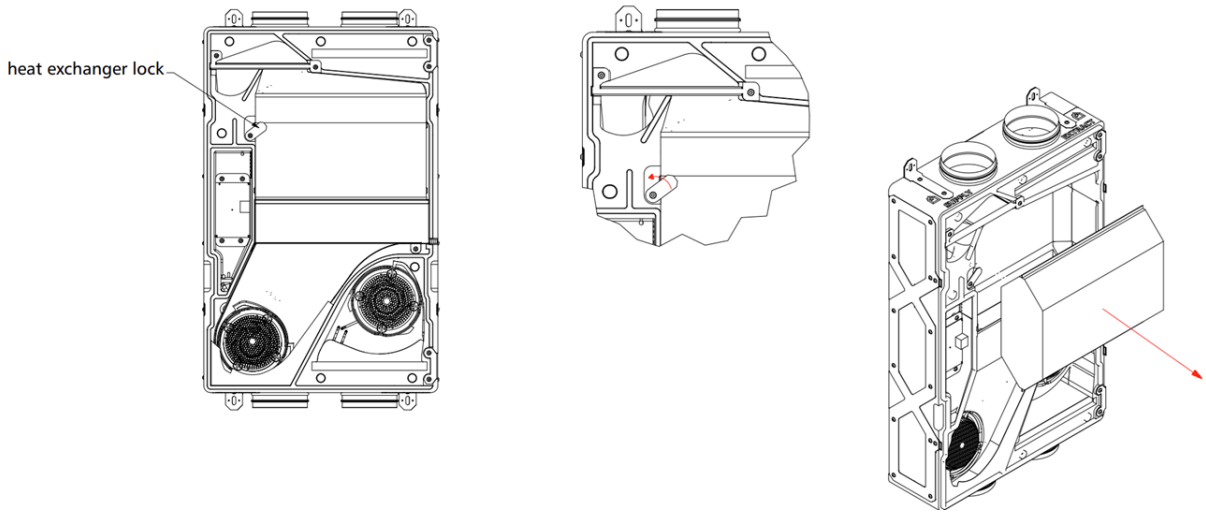


Figure 26 - HRUSlimAIR-250/300/350/400 heat exchanger replacement

Removing the HRU-SlimAIR-500 exchanger

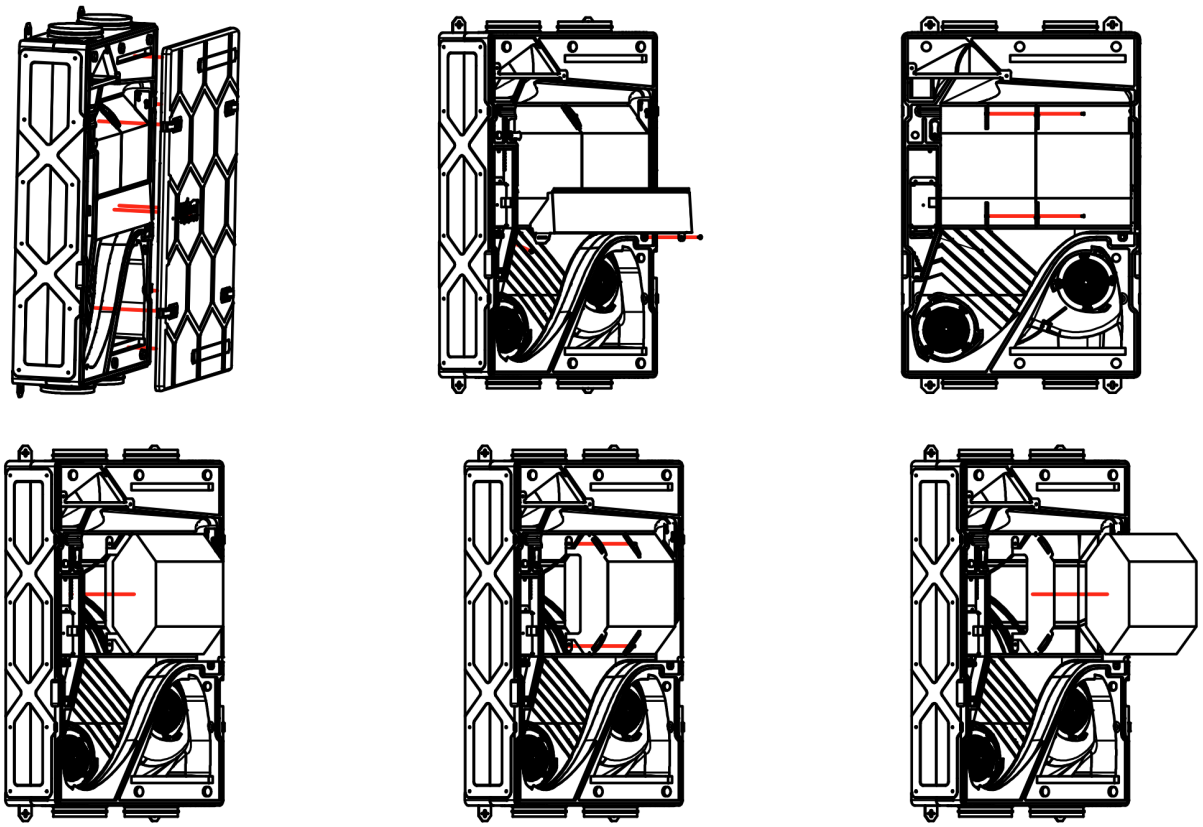


Figure 27: HRUSlimAIR-500 heat exchanger replacement

Removal of the heat exchanger HRU-SlimAIR-800 / HRU-SlimAIR-1000

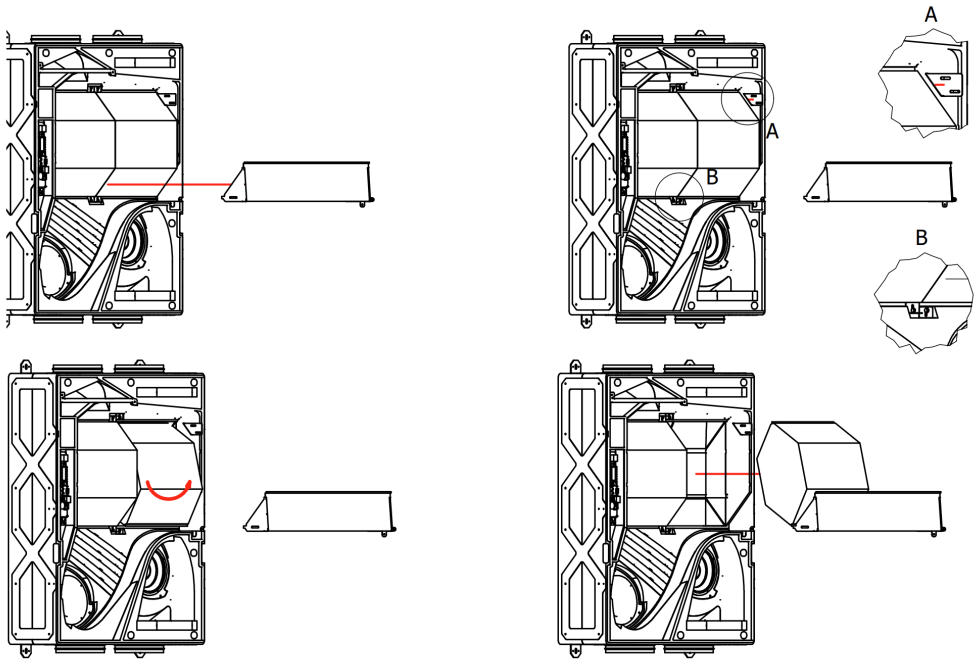


Figure 28: HRUSlimAIR-800/1000 heat exchanger replacement

NOTES:
In HRU-SlimAIR-500/ -800/ -1000, the heat exchangers should be pulled out individually.

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

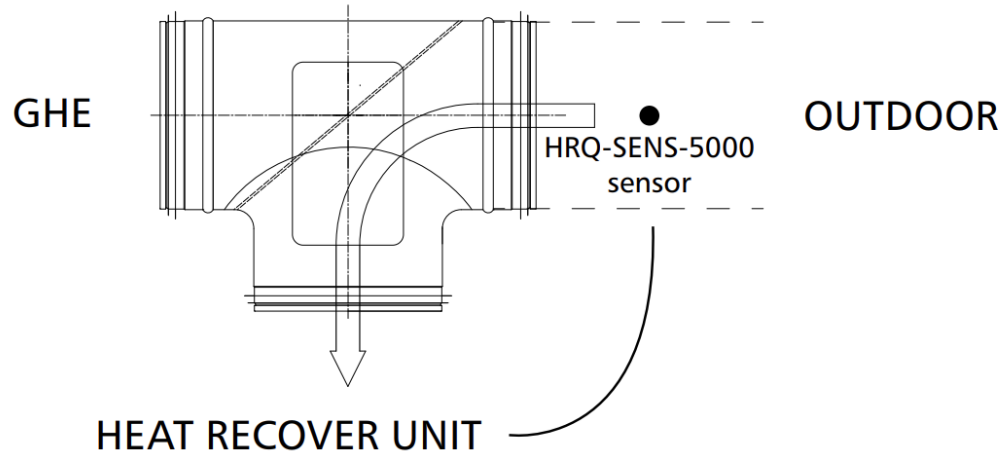
When installing the actuator to the damper, make sure that:

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

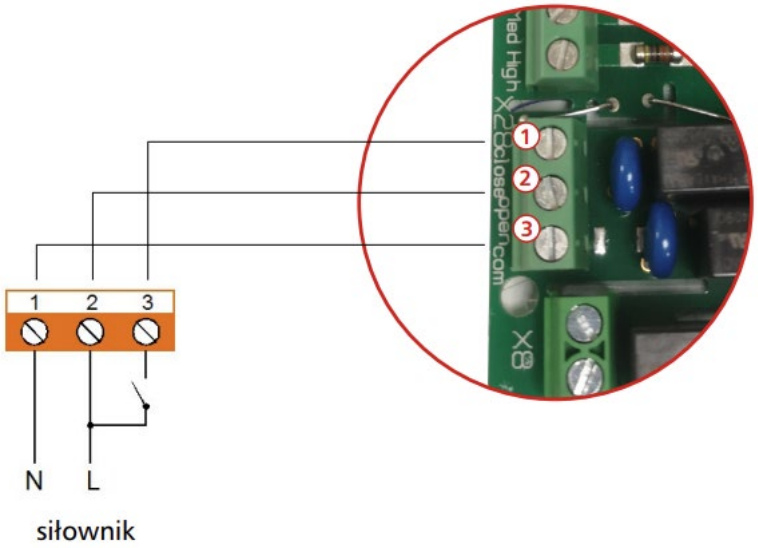
• the damper was open in the HRU-OUTDOOR direction (not GHE).

• 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:

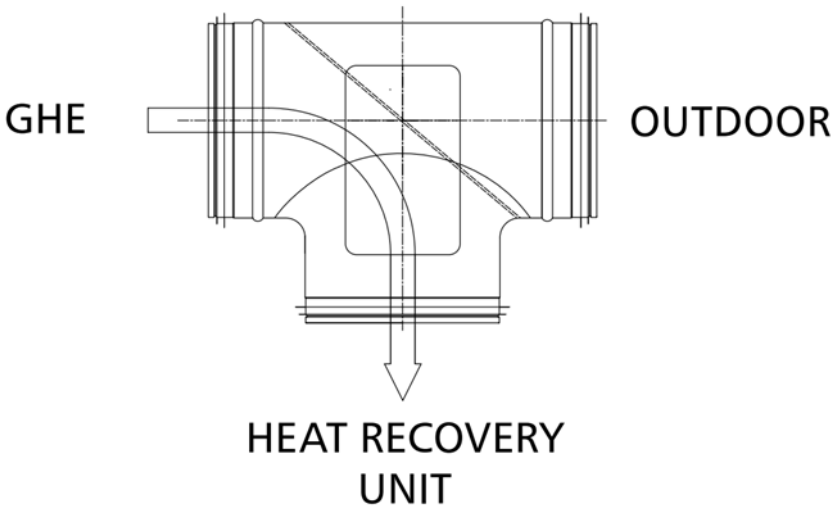


X28	
1	L out 2(RL1)
2	L out 1(RL2)
3	N

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.

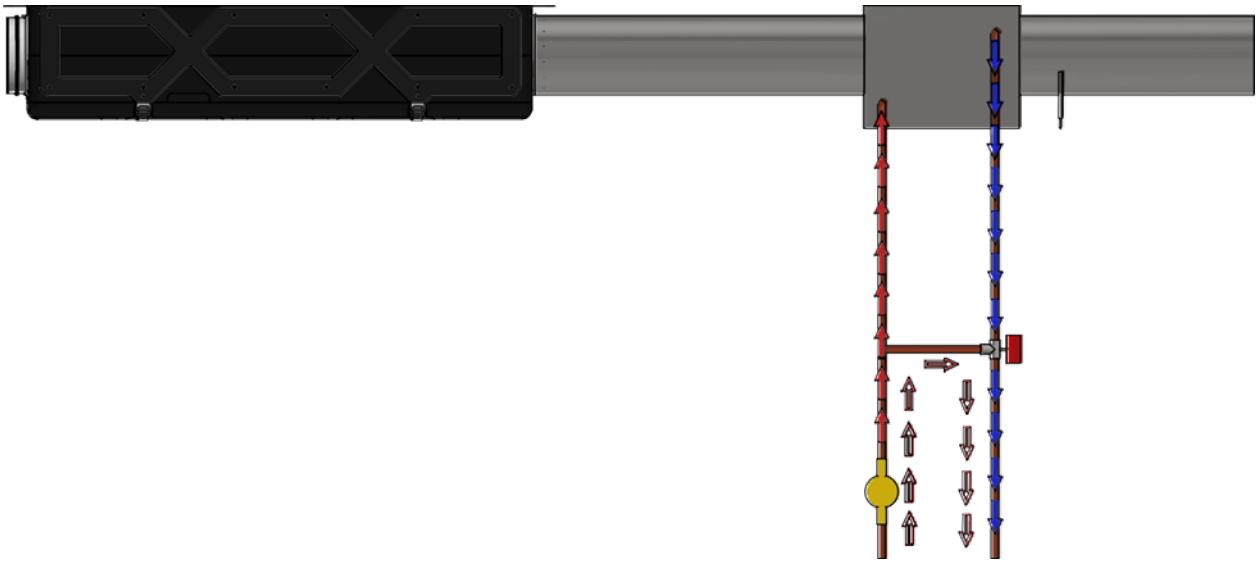


Figure 24: Heater/cooler connection diagram

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.

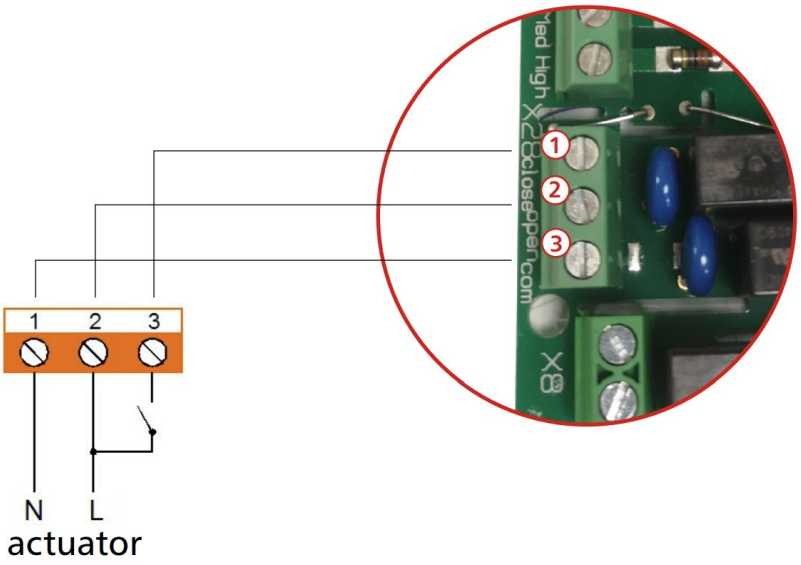
In order to prevent damage to the post heater, the supply fan remains switched on for 60 s after the secon- dary heating function has been completed.

To control the three-way valve, use:

Function	Post heater or heater/cooler	Actuators	Three-way or six-way valves	Compatibility Unit airflow
Heater	HDW-160	Belimo TRY230 2Nm Powered by 230VAC	R3015-1-B1 (DN15, kvs-1.0)	250, 300
Heater	HDW-200	Belimo TRY230 2Nm Powered by 230VAC	R3015-1P6-B1 (DN15, kvs-1.6)	350, 400, 500
Heater	HDW-250	Belimo TRY230 2Nm Powered by 230VAC	R3015-1P6-B1 (DN15, kvs-1.6)	800, 1000
Heater	CHDW-160	Belimo TRY230 2Nm Powered by 230VAC	R3015-P63-B1 (DN15, kvs-0,63)	250, 300
Heater	CHDW-200	Belimo TRY230 2Nm Powered by 230VAC	R3015-1P6-B1 (DN15, kvs-1,6)	350, 400, 500

Cooler	CHDW-160	Belimo TRY230 2Nm Powered by 230VAC	R3015-1-B1 (DN15, kvs-1,0)	250, 300
Cooler	CHDW-200	Belimo TRY230 2Nm Powered by 230VAC	R3015-1P6-B1 (DN15, kvs-1,6)	350, 400, 500
Heater-cooler	CHDW-160	Belimo LR230A 5Nm Powered by 230VAC	R3015-1-P63-B2 (DN15, kvs1,0/0,63)	250, 300
Heater-cooler	CHDW-200	Belimo LR230A 5Nm Powered by 230VAC	R3015-1P3-1-B2 (DN15, kvs1,3/1,0)	350, 400, 500

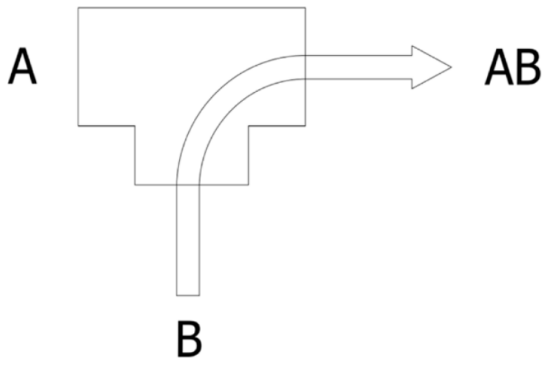
In order for the system to work properly, connect the valve with an electric actuator to the X28 connector in order:



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.

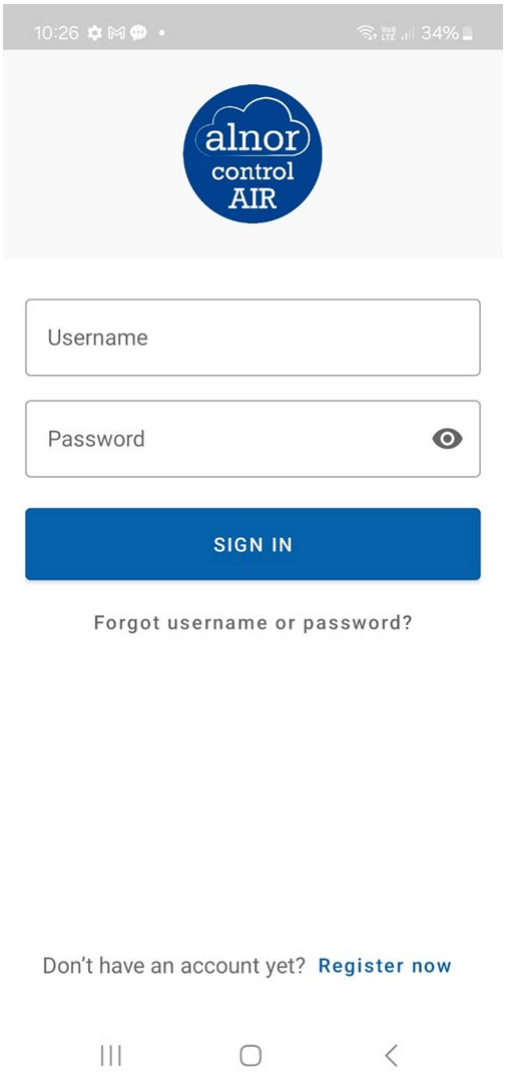
Description (#TAG):	Post Heating (Value to fill)	Post Cooling (Value to fill)	Post Heater/Cooler (Value to fill)
Post heater/cooler select output X28 (#164)	3	3	3
Post heater/cooler mode (#167)	1	2	3
Post heater/cooler mode input (#166)	1.NZ = heating, NO = cooling 2.NO = heating NZ = cooling	1.NZ = 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

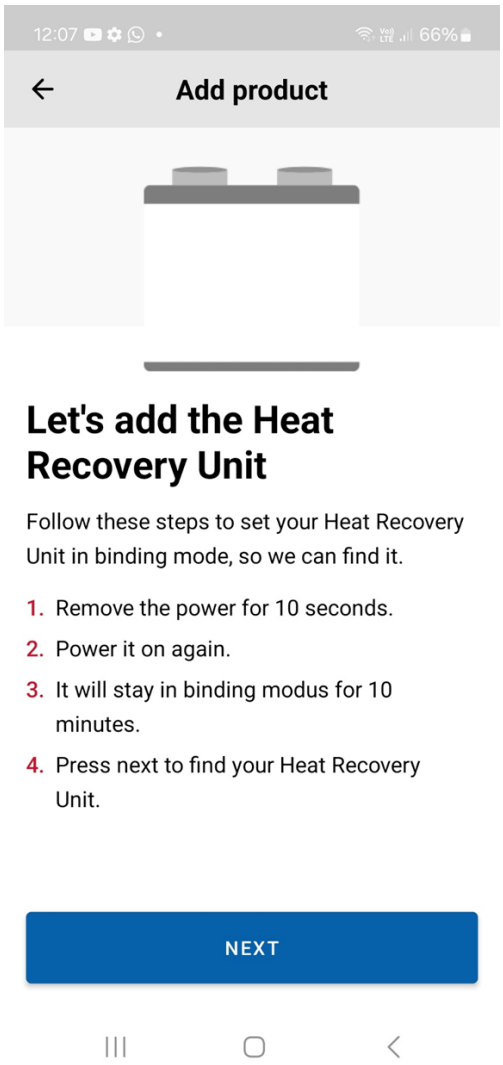
*- To turn off post heating/cooling functionality set (#167) – 0.

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 class

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-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-L-250-H	50	250	A	A	A	A
HRU-SlimAIR-L-250-H-CF	50	250	A	A	A	A

HRU-SlimAIR-L-250E-H	50	250	A	A	A	A
HRU-SlimAIR-L-250E-H-CF	50	250	A	A	A	A
HRU-SlimAIR-300-H	49	300	B	A	A	A
HRU-SlimAIR-300-H-CF	49	300	B	A	A	A
HRU-SlimAIR-300E-H	49	300	B	A	A	A
HRU-SlimAIR-300E-H-CF	49	300	B	A	A	A
HRU-SlimAIR-L-300-H	49	300	B	A	A	A
HRU-SlimAIR-L-300-H-CF	49	300	B	A	A	A
HRU-SlimAIR-L-300E-H	49	300	B	A	A	A
HRU-SlimAIR-L-300E-H-CF	49	300	B	A	A	A
HRU-SlimAIR-350-H	49	350	A	A	A	A+
HRU-SlimAIR-350-H-CF	49	350	A	A	A	A+
HRU-SlimAIR-350E-H	49	350	A	A	A	A
HRU-SlimAIR-350E-H-CF	49	350	A	A	A	A
HRU-SlimAIR-400-H	48	400	B	A	A	A
HRU-SlimAIR-400-H-CF	48	400	B	A	A	A
HRU-SlimAIR-400E-H	48	400	B	A	A	A
HRU-SlimAIR-400E-H-CF	48	400	B	A	A	A
HRU-SlimAIR-500-H	51	500	A	A	A	A+
HRU-SlimAIR-500-H-CF	51	500	A	A	A	A+
HRU-SlimAIR-500E-H	51	500	A	A	A	A
HRU-SlimAIR-500E-H-CF	51	500	B	A	A	A
HRU-SlimAIR-800-H	54	800	A	A	A	A+
HRU-SlimAIR-800-H-CF	54	800	A	A	A	A+
HRU-SlimAIR-800E-H	54	800	A	A	A	A
HRU-SlimAIR-800E-H-CF	54	800	B	A	A	A

HRU-SlimAIR-1000-CF	57	1000	B	A	A	A
HRU-SlimAIR-1000E	57	1000	B	A	A	A
HRU-SlimAIR-1000E-CF	57	1000	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 022/04/24

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

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

CE 19

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:**
   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, 08.07.2024

(place and date of issue)

Piotr Grzechowiak,
testing and certification coordinator
(signature)

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 and stamp of service technician
Unit model: ..... Serial No.: ..... 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 the unit 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 the unit 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 the unit 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 the unit filters YES/NO Cleaning extract louvers and inlet diffusers YES/NO Ventilation ductwork checkup YES/NO Additional regulation YES/NO Other	