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VENTBOX 150 Thin

Heat recovery units for apartments

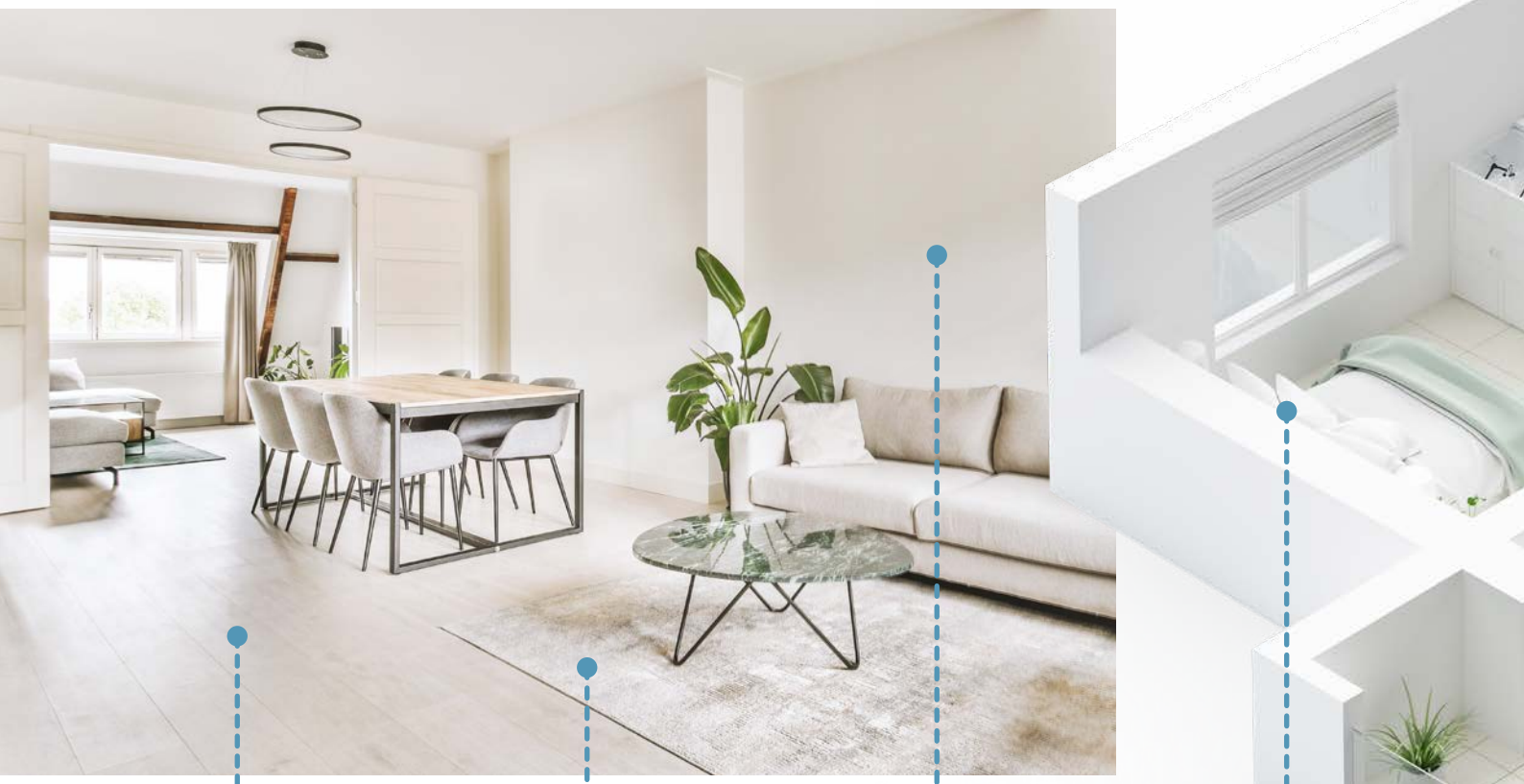
cool, temperate climate
phA
CERTIFIED COMPONENT
Passive House Institute

news

KORADO®

10/2024

CENTRALISED HEAT RECOVERY UNIT VENTBOX 150 Thin



Flats and apartment buildings up to 100 m²

Due to its universal design and compact dimensions, the unit can be installed on the wall, floor, or ceiling. Installation is also possible in very small mounting spaces.

Fresh air without allergens and pollen

The system efficiently filters air, removing allergens, pollen, and impurities. Therefore, the air at your home is healthy and clean.

Radon-Free Living

The unit can be equipped with a radon sensor for continuous monitoring of radon concentration in the house, allowing for timely automatic response to potential hazards.

Intensive exhaust option

Elevate your air quality with the units' BOOST feature, enabling intensive extraction.

Moisture removal

CHRV systems feature an integrated mechanism to eliminate excess humidity, contributing to a more comfortable and healthier environment.

Summer and Winter functions

Units compare the temperature of indoor and outdoor air, regulating the **by-pass** damper to prevent the warming of external air from exhaust air.

Low consumption

The units are designed with a focus on energy efficiency, boasting low energy consumption to help you save on operational costs.

Mobile app control

LICON units can be controlled and monitored through a mobile application, providing you with a convenient way to adjust settings according to your needs.

VENTBOX 150 Thin

The **VENTBOX 150 Thin** central heat recovery system provides a revolutionary and user-friendly solution for optimising the air quality in your home. This modern unit is designed with the latest technology and engineering developments in mind to provide optimum performance and comfort for residential and smaller family homes. Features of this unit include air purification from allergens and pollen, efficient exhaust air and water vapour extraction, low energy consumption, reduced excessive CO_2 and can be controlled via a web interface. With the VENTBOX 150 Thin you can be sure that your home will always have fresh and healthy air.

Specifications

Version	Optimum	Premium
Recommended area	up to 100 m²	
Energy class	A	
Dimensions (h × w × d)	192 × 593 × 1 248 mm	
Weight	20 kg	
Voltage	230 V / 50 Hz	
Electric current without preheating	0.3 A	
Electric current including preheating	3.7 A	
Max. input power without preheating	72 W	
Max. preheating input power	1 024 W	
IP coverage	30	
Air flow	30–150 m³/h	
Maximum airflow in boost setting	200 m³/h	
Displacement pressure	50–350 Pa	
Acoustic energy L_{WA}	105 m³/h / 50 Pa / 46.9 dB	
Heat transfer efficiency / Flow rate	78 % / 150 m³/h 83 % / 105 m³/h 88 % / 50 m³/h	
Electrical input (without preheating)	55 W / 150 m³/h 29 W / 105 m³/h 17 W / 50 m³/h	
∅ of the connection necks	125 mm	
Type of pipe for condensate drainage	HT DN 32 mm	
Specific power consumption SPI*	0.29 W / m³/h	
Ordering code**	VB1-0150-TC-OHR(L)	VB1-0150-TC-PHR(L)

* at reference airflow 105 m³/h and disposition pressure of 50 Pa
** for ordering codes see p. 18.

Optimum version

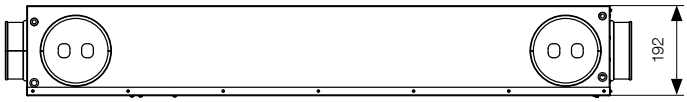
This is an innovative and powerful heat recovery unit designed to optimally achieve **maximum performance while ensuring economic efficiency**. The unit is equipped with all the necessary technical equipment to ensure efficient operation and optimization of all performance parameters.

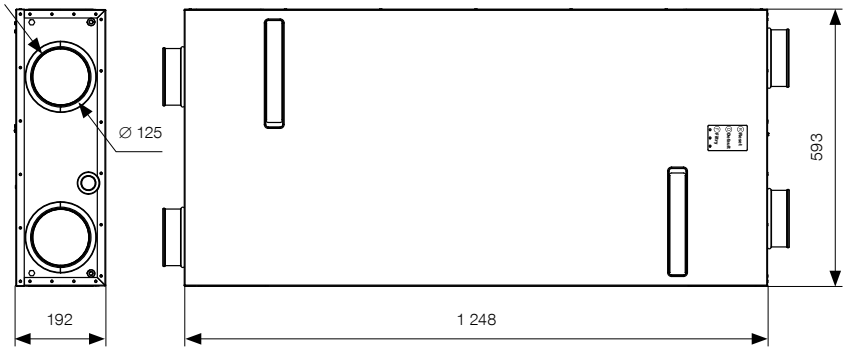
Premium version

The unit is additionally equipped with **unrivalled motors with constant flow function**. These unique fans compensate for pressure losses (e.g. in case of flow blockage at the inlet). With these premium EC motors, the unit can operate more efficiently and economically; this has a positive effect on the overall dynamics and also the economy when using the heat recovery system. Compensation for changes in pressure losses in the system, e.g. when the filters gradually become clogged. Ensuring uniform ventilation and high efficiency of heat recovery. The unit is more sophisticated.

Thanks to its universal design, the **VENTBOX 150 Thin** unit has very little installation space requirements and can be installed in almost any position required, whether on the wall, floor, or ceiling. Installation is also possible in very small installation spaces where a standard heat recovery unit would not fit, like the ceiling above the kitchen, or in a wall/recess in a WC or bathroom.

Dimensions of the unit





Dimensions in mm. **Attention!** These are not mounting dimensions. Technical changes reserved.

Basic specifications

- VENTBOX 150 Thin ventilation unit with white galvanised sheet metal on one side
- control and information panel
- 2× analog inputs
- 1× digital input
- holes for connection of necks
- connection hole covers
- outlet for condensate discharge
- plate counterflow heat exchanger HRV
- fans with efficient EC motor
- connector for connecting fire sensor or electrical fire alarm system (EPS)
- temperature sensors
- separate temperature sensor for preheating
- filter SUPPLY (Optimum/Premium) M5 (ePM10 55 %)*/F7 (ePM1 70 %)* – pollen
- EXHAUST filter (Optimum/Premium) M5 (ePM10 55 %)*/F7 (ePM1 70 %)* – pollen
- 230 V mains power cable
- wedge for directing air flow
- anchoring/fixing sheet metal hinges with included fasteners
- mounting template
- energy label, package leaflet
- assembly and installation instructions

Optional specification

- enthalpy counterflow heat exchanger ERV (see p. 7)
- continuous variable manual control (see p. 17)
- CO_2 sensors
- relative humidity (RH) sensor
- radon concentration sensors
- TVOC and HCHO (volatile substances and formaldehyde) sensor
- filter clogging indicator based on filter pressure drop
- filter clogging indicator based on time interval
- INPUT filters (Optimum) F7 (ePM1 70 %)* – pollen
- EXHAUST filters (Optimum) F7 (ePM1 70 %)* – pollen
- insulation box (place the unit in a place with lower temperature)

* the figure in (%) tells how many particles in a given filter class the filter “captures”

Basic software functions

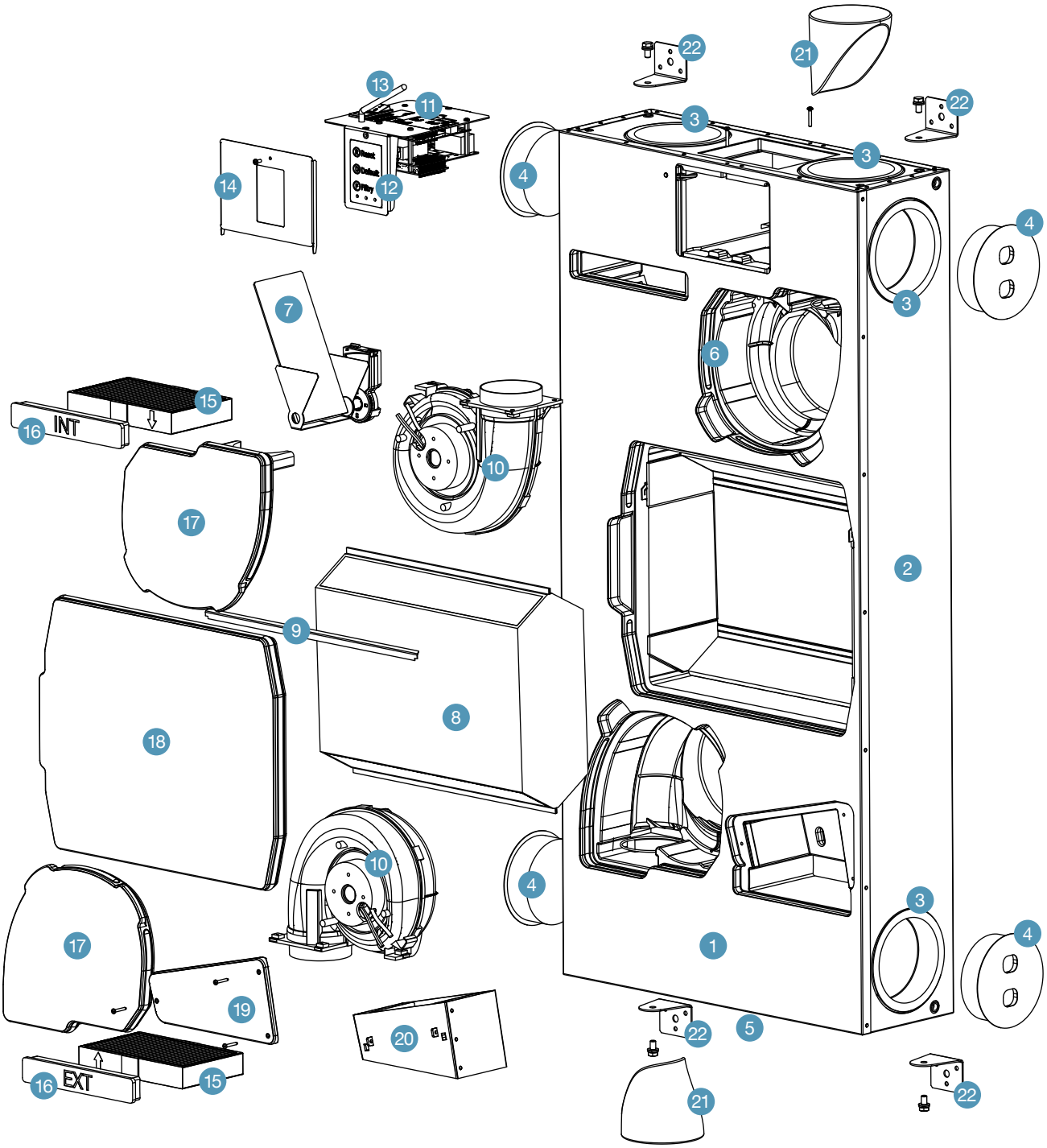
- automatic frost protection
- by-pass function (exchanger by-pass)
- control via a web interface (see p. 10)
- weekly time mode
- Modbus RTU communication
- measuring energy consumption
- BOOST shock ventilation
- language versions CZ, EN, DE, FR

Up to 9 sensors can be connected in total.

Horizontal mounting (see p. 12)
Installation under the ceiling (e.g. drop ceiling) – always the left variant of the heat recovery unit! Floor mounting (e.g. attic) – always the right variant of the heat recovery unit!

Vertical mounting (see p. 13)
Wall mounting – mounting of both right and left variants of the heat recovery unit

UNIT BREAKDOWN



1. back cover of the device (casing not removable)
2. casing of the device
3. air duct connection necks ∅ 125 mm
4. connection caps
5. outlet for condensate discharge
6. unit body
7. by-pass damper including actuator (see p. 10)
8. plate counterflow heat exchanger HRV
9. fixing rail
10. fans with efficient EC motor
11. control electronics and power supply of the unit
12. control and information panel
13. external Wi-Fi antenna
14. control electronics cover
15. air filters
16. filter closing caps
17. fan cover
18. heat exchanger cover
19. preheating cover
20. preheating
21. wedge for directing the airflow (when using side outlets)
22. anchoring/fixing sheet metal hinges with included fasteners

ACCESSORIES

Enthalpy counterflow heat exchanger

The enthalpy counterflow heat exchanger (ERV) is an optional part of the heat recovery system which, in addition to heat recovery, also allows moisture recovery, thus supporting the maintenance of optimal indoor air humidity and thus improving the user comfort of apartments and residential buildings. These systems bring many benefits, including energy efficiency, reduced heating costs, and improved indoor air quality.

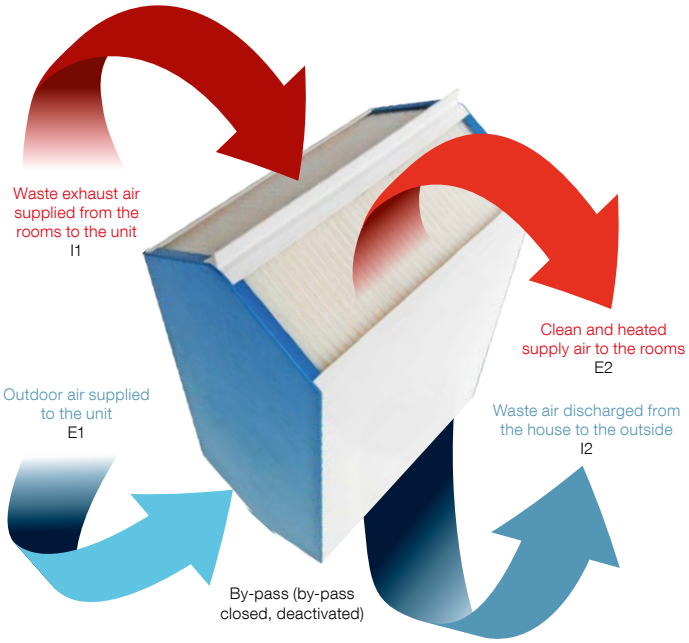
Main features and benefits

- **Heat exchange** – an enthalpy heat exchanger allows heat energy to be transferred from warmer exhaust air to cooler outdoor air, thereby increasing the temperature of the air entering the building in winter. This helps to reduce heating costs because the fresh air is heated passively during the exchange.
- **Moisture exchange** – in addition to heat, the enthalpy heat exchanger allows moisture transfer. This is important for maintaining optimum humidity indoors. The moisture in the exhaust air is transferred to the supply air, which can be useful in areas with extreme climatic conditions.
- **Reduction of losses and pollution** – the enthalpy heat exchanger also serves to separate the supply and extract air, preventing the transfer of pollution, dirt and unwanted odours from the outside into the building. This improves the indoor air quality.
- **Energy savings** – operation without the need to preheat the incoming air down to -5 °C.

The enthalpy heat exchanger can be ordered separately or later; after a very simple installation, the entire unit is upgraded with advanced technology. **Ordering code:** P-019

By default, the unit is supplied with a counterflow heat exchanger (HRV).

Working principle of the counterflow exchanger



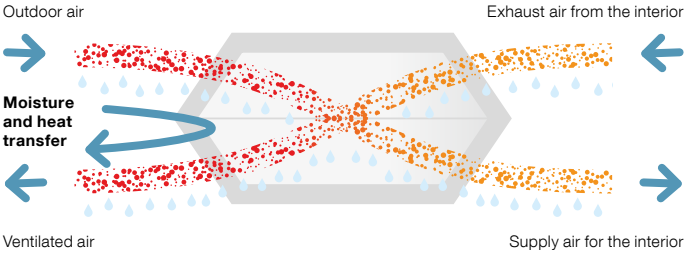
Specifications with enthalpy exchanger

Weight of the entire unit	21.5 kg
Heat transfer efficiency/ Flow rate	70 %/150 m³/h 74 %/105 m³/h 82 %/50 m³/h
Moisture transfer efficiency/Flow rate	48 %/150 m³/h 53 %/105 m³/h 63 %/50 m³/h

Pleasant indoor climate during both summer and winter

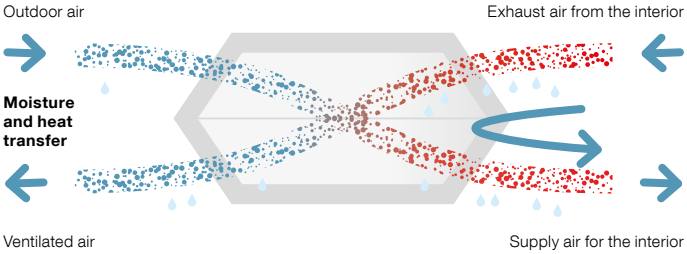
What happens in summer?

Relatively humid air seems warmer in summer than it actually is, so heat and moisture are removed from the warm and humid outside air before fresh air is brought into the house.



How does it work in winter?

In winter, valuable heat is recovered and remains inside. With humidity recuperation, more of the necessary moisture is transferred to the dry outside air.



FILTERS

Fresh and clean air for good health
Original filters ensure a fresh and clean air supply to living rooms and significantly reduce the number of unhealthy particles.

More efficient operation reduces operating costs
With the original filters, developed specially for the specific purposes of VENTBOX ventilation units, they achieve lower energy consumption. They guarantee perfect operation and maximum energy efficiency, resulting in cost savings.

Low noise increases living comfort
Thanks to the original filters, VENTBOX heat recovery units are almost inaudible. They contribute to the already very quiet controlled ventilation operation and increase the comfort of living.

Particle sizes and filter classifications
As of 1 July 2018, the ISO 16890 filter standard is in force throughout Europe. It divides filters into four classes according to their ability to filter different sizes of particles in the air. To be classified in a particular class, a filter must capture at least 50% of the particles of a given size.

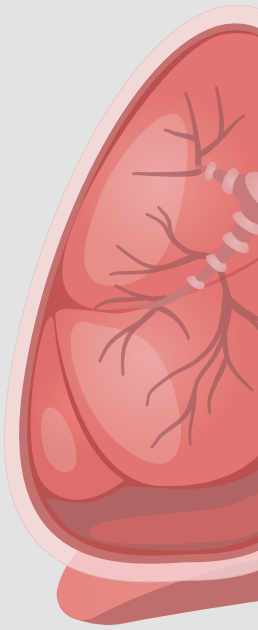
The service life of the filters is always dependent on the quality of the environment in which the VENTBOX is operated. In some locations, the service life may be significantly shorter than normal (e.g. due to high dust levels). We therefore recommend paying close attention to their service. 6 months is the normal filter lifetime, while 12 months is the maximum filter lifetime. New filters can be easily ordered at **www.licon.cz** in the **Heat recovery unit** section.

Types of filters

	M5	F7
Filtration class – inlet	ePM10	ePM1
Percentage capture of particles in a given filtration class – inlet	55 %	70 %
Filtration class – exhaust	ePM10	ePM1
Percentage capture of particles in a given filtration class – exhaust	55 %	70 %
Dimensions (h × w × d)	204 × 127 × 29 mm	204 × 127 × 29 mm
Ordering code	P-012	P-013

Efficiency of filters

EN 779	ISO ePM1 bacteria, soot etc.	ISO ePM2,5 mold spores, pollen, bacteria etc.	ISO ePM10 pollen, agricultural and stone dust etc.	ISO Coarse coarse dirt – sand, fluff, fine hair, etc.
G2	–	–	–	>60 %
G3	–	–	–	>80 %
G4	–	–	–	>90 %
M5	–	–	>50 %	–
M6	–	50–65 %	>60 %	–
F7	>50 %	70–80 %	>85 %	–
F8	>80 %	>80 %	>90 %	–
F9	>80 %	>95 %	>95 %	–

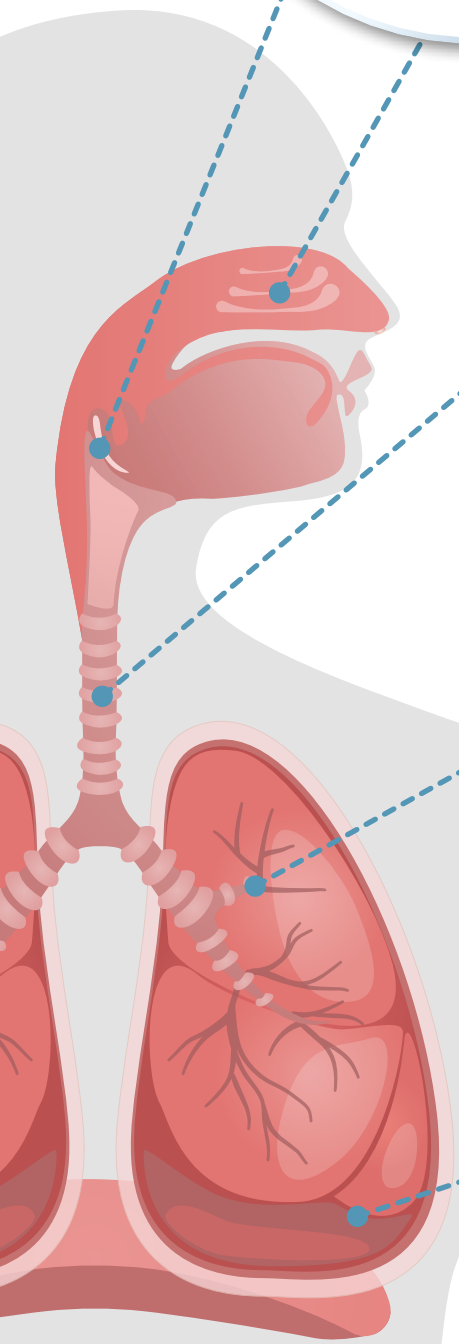


ISO Coarse
enters the nose and neck (coarse dirt)

> 10 µm sand, fluff, flying seeds, fine hair etc., most of which is already caught by filters classified in class G2. We use this filter in VENTBOX 300/400 units on the supply air mainly and also to reduce clogging of the downstream filter.

ISO ePM10
enters the upper respiratory tract

≤ 10 µm pollen, stone dust, agricultural dust, etc., these particles are captured with an efficiency of 55 % by the filter with the original M5 designation. The minimum specified filter efficiency for these particles is > 50 %. With the F7 filter, they are probably captured up to 90 %.



ISO ePM2.5
penetrates into the lungs

≤ 2.5 µm mould spores, pollen, bacteria, toner powder, etc., these particles are captured by the F7 filter, probably with an efficiency of about 80 %.

ISO ePM1
enters the bloodstream

≤ 1 µm bacteria, soot, etc., these particles are captured with an efficiency of 70 % by the filter with the original F7 designation. The min. specified filter efficiency for these particles is more than 50%.

CONTROLS AND FUNCTIONS

Unit control via web interface

The home screen is used to view information, control and set up the VENTBOX 150 Thin. The middle part displays the current power of the unit; information and status icons are below, then the current values are measured by the room sensors used by the unit (provided that the sensors are connected to the heat recovery unit). The lower part contains buttons for operating and setting the heat recovery unit.

User functions that you can control

- ventilation shutdown – Standby mode (unit is not disconnected from a power supply)
- switching between automatic and manual mode (A/M)
- one-time reduction of ventilation power when leaving the building (holiday)
- short-term increase of ventilation intensity (BOOST mode)
- by-pass flap switching (summer only)
- user device settings

Control and information panel

The VENTBOX 150 Thin can normally be operated via the web interface, but all basic service operations can also be performed manually (by pressing the appropriate button) on the control panel located on the front of the device:

R a short press of the button **R** to perform a **reboot**, which preserves all user and service settings of the device.

D a longer press of the button (5 s) **D** to enter the **factory settings**, where the ventilation unit runs permanently at reduced power. At the same time, all user settings will be lost, including weekly program settings and network connections if previously made. The settings for the type of exchanger (ERV/HRV) and fan corrections remain unchanged. The ventilation unit goes back to AP mode including the login password set by the manufacturer.

F press the button (2 s) **F** to set the new **filter change** interval. Use this only for filter changes!

Information LED

- **green** – power
  – flashing – connected to power (Standby mode)
  – lit – device in operation
- **blue** – filters – lit or flashing request for filter change
- **red** – error – must check "Error messages"

By-pass mode

By-pass mode is one of the key components of VENTBOX central heat recovery units. This mode is enabled by a by-pass flap equipped with a servo drive. In case of manual or automatic activation and based on defined temperatures in the web interface, the by-pass flap allows by-passing the heat exchanger. The air extracted from the interior is deflected by the by-pass flap, so that it does not pass through the heat exchanger, after which it is directly discharged outside the building and does not transfer thermal energy to the outdoor air brought into the unit. By-pass mode is commonly used during summer operation, especially at night when the outdoor air is naturally cooler. This allows the temperature of the interior spaces to be effectively reduced without the need for active cooling. The by-pass thus provides an effective way to ensure optimal thermal comfort in the interior during the warm summer months.

Activation conditions

By-pass is activated automatically if the temperature in the interior rises above the desired value set in the web interface. Once the desired temperature in the interior is reached, the by-pass mode is deactivated and the unit switches back to the standard recovery mode. The web interface can also define the lowest possible temperature of the air supplied to the interior.

The principle of the by-pass model

In active mode, warm air from the interior is directly discharged outside without heat exchange. The heat exchanger is deactivated in this mode with the help of a by-pass flap, which prevents unwanted heating of the fresh air being supplied. Fresh cool air is blown into the interior.

Protection and filtration

For the correct function and protection of the system, the by-pass flap is supplemented with a by-pass filter. This protects the fan from dust with impurities that may be contained in the air diverted from the interior when there is no air flow through the standard exhaust filter. The by-pass filter is necessary to ensure long-term reliability and efficiency of the recovery unit.

Advantages of the by-pass flap

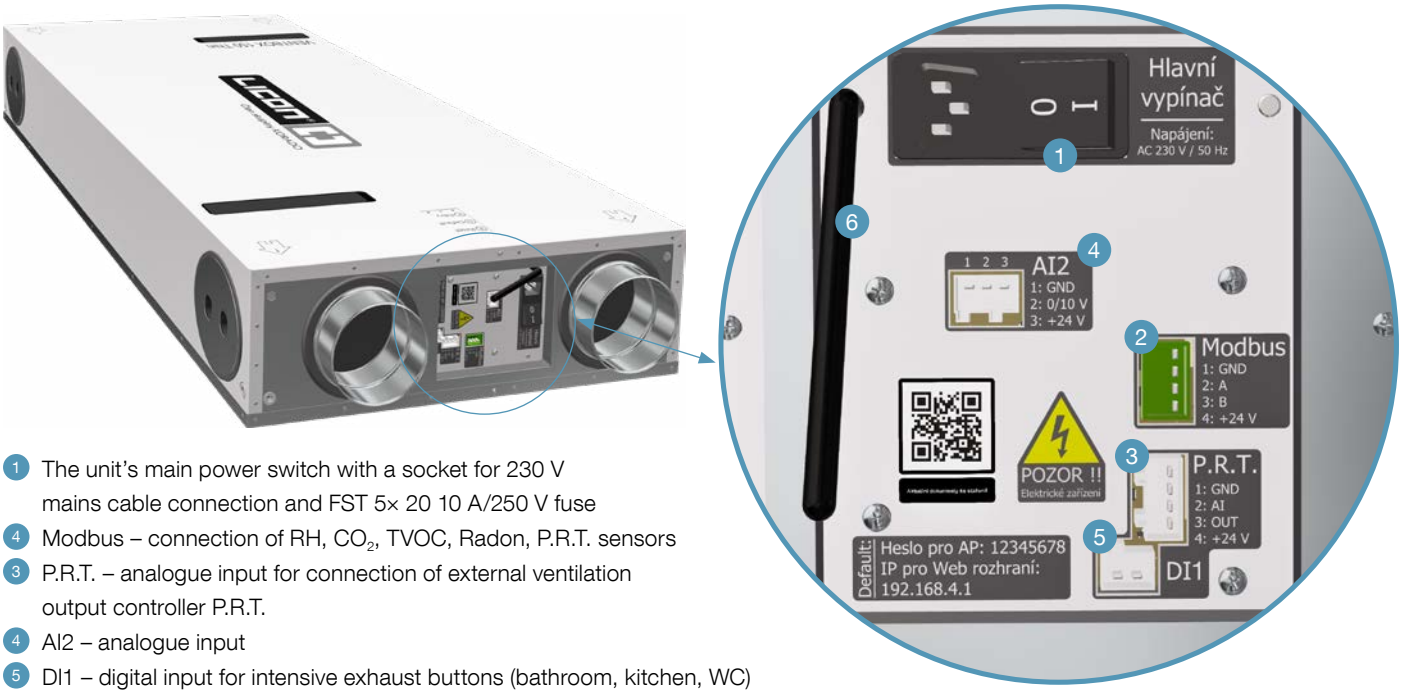
Energy savings – reduces the need for active interior cooling in the summer.

Increased comfort – allows the use of naturally cooler outdoor air to improve the indoor climate.

ELECTRICAL CONNECTION

The electrical power connection of the VENTBOX 150 Thin is by means of a 1.5 metre power cable. All connector connections are located on the **Control Panel**, which is located between the interior necks. This is also the location of the unit's main switch.

Control panel with connection for connectors

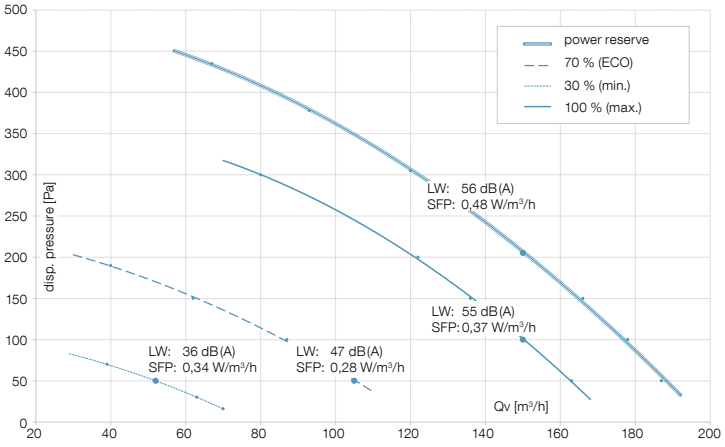


1. The unit's main power switch with a socket for 230 V mains cable connection and FST 5× 20 10 A/250 V fuse
4. Modbus – connection of RH, CO_2, TVOC, Radon, P.R.T. sensors
3. P.R.T. – analogue input for connection of external ventilation output controller P.R.T.
4. AI2 – analogue input
5. DI1 – digital input for intensive exhaust buttons (bathroom, kitchen, WC)
6. Antenna used for wireless communication (connection to Wi-fi network)

VENTILATION PERFORMANCE

Unit power [%]	External pressure [Pa]	Airflow [m³/h]	Power input [W]	SFP [W/m³/h]	Heat recovery efficiency	
					Heat ηt [%]	Humidity ηx [%]
With standard heat exchanger according to EN 13141-7						
30	**50**	50	17	0.34	87.5	–
70	**50**	105	29	0.28	82.5	–
100	**100**	150	55	0.37	78.0	–
100	**200**	150	72	0.48	78.2	–
With enthalpy heat exchanger according to EN 13141-7:2011						
30	**50**	50	17	0.34	81.5	63.2
70	**50**	105	29	0.28	74.2	53.2
100	**100**	150	55	0.37	69.6	47.8
100	**200**	150	71	0.47	69.7	47.8

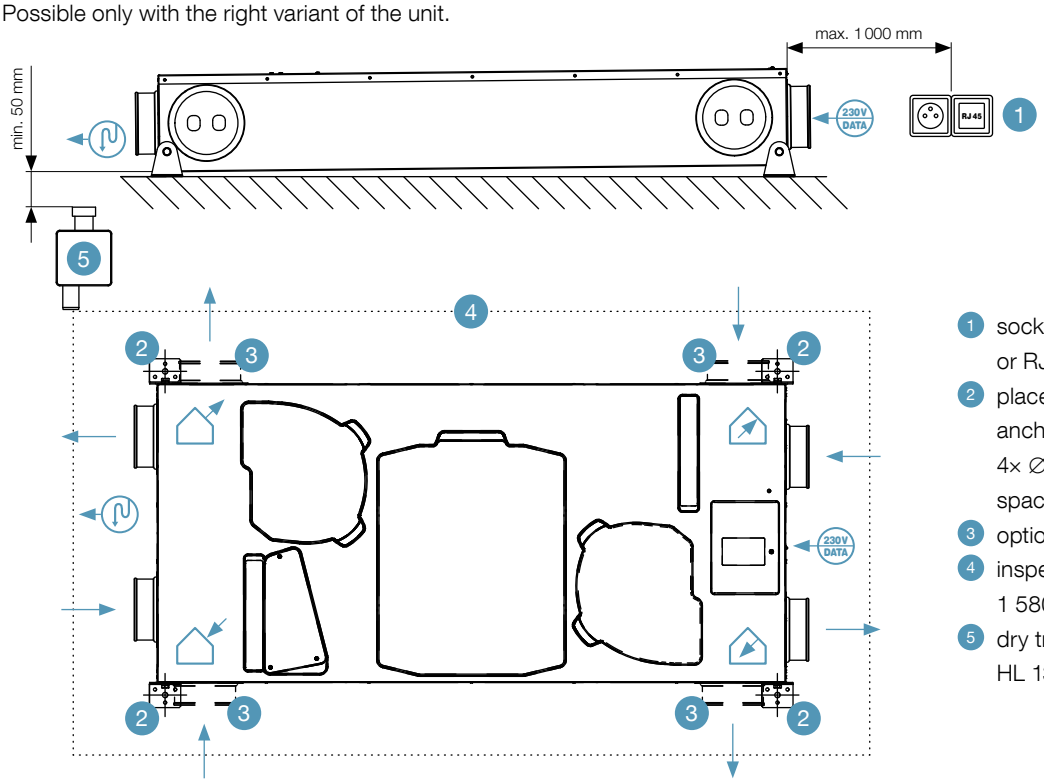
VENTBOX 150 Optimum – available ventilation capacity



ASSEMBLY

Floor mounting

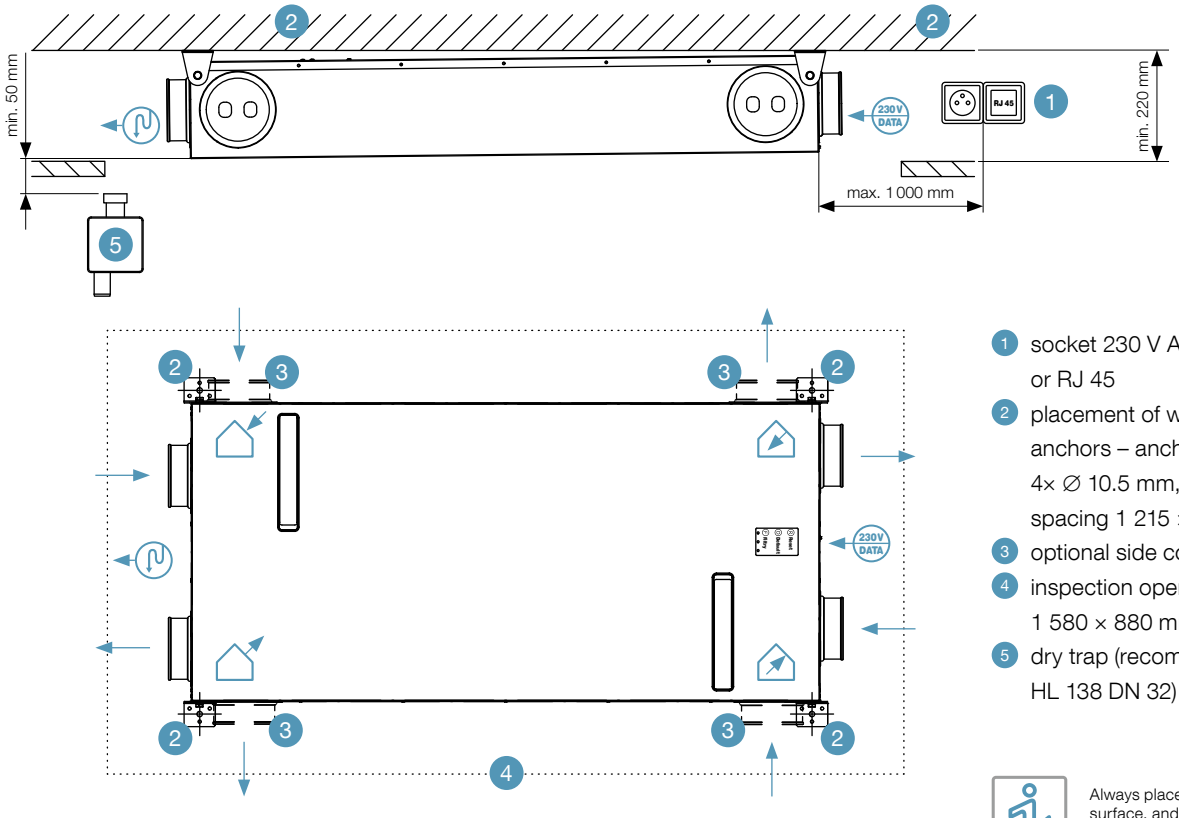
Caution! Possible only with the right variant of the unit.



1. socket 230 V AC/50 Hz, or RJ 45
2. placement of wall mounting anchors – anchor holes 4× ∅ 10.5 mm, mounting spacing 1 215 × 642 mm
3. optional side connections
4. inspection opening 1 580 × 880 mm
5. dry trap (recommended HL 138 DN 32)

Installation under the ceiling

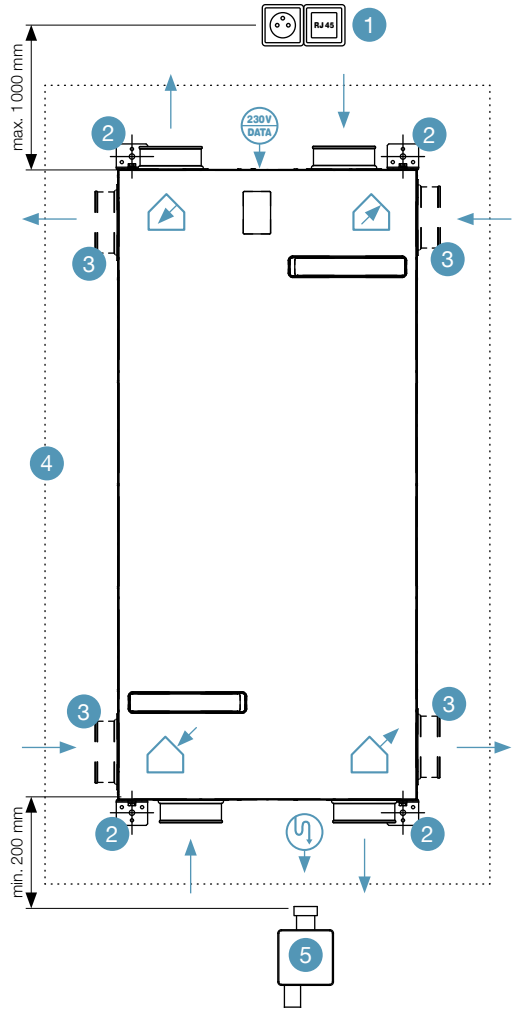
Caution! Possible only with the left variant of the unit.



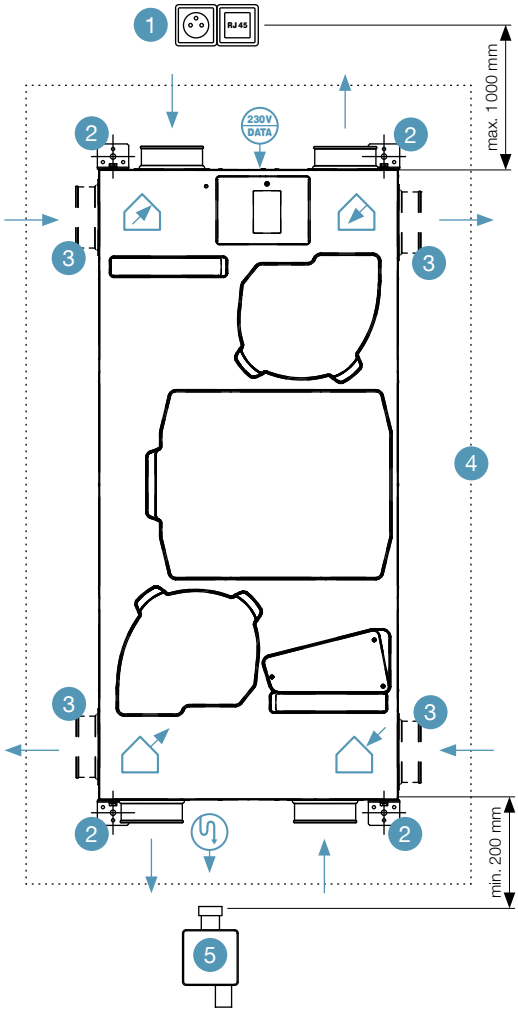
1. socket 230 V AC/50 Hz, or RJ 45
2. placement of wall mounting anchors – anchor holes 4× ∅ 10.5 mm, mounting spacing 1 215 × 642 mm
3. optional side connections
4. inspection opening 1 580 × 880 mm
5. dry trap (recommended HL 138 DN 32)

Always place the unit on a level surface, and ensure it is correct orientation and overall gradient!

Wall mounting – left variant



Wall mounting – right variant



1. socket 230 V AC/50 Hz, or RJ 45
2. placement of wall mounting anchors – anchor holes 4× ∅ 10.5 mm, mounting spacing 1 298 × 536 mm
3. optional side connections
4. min. inspection opening 1 580 × 880 mm
5. dry trap (recommended HL 138 DN 32)

Dimensions in mm. Technical changes reserved.

Legend

Supply E1
of fresh outdoor air to the unit

Exhaust I2
of used air from the unit to the outside

Distribution E2
of fresh air from the unit to living areas

Exhaust I1
of used air from living areas to the unit

Power socket (230 V AC/ 50 Hz), peripherals

Condensate discharge (HT waste pipe – DN 32 mm)

Air duct connection

REQUIREMENTS FOR OTHER PROFESSIONS

Electrical requirements

Mandatory preparation

Fixed power cables 3×2.5 with circuit breaker 16 A char. B from the switchboard to the heat recovery unit

- Terminate with an AC 230 V/50 Hz socket no further than 1 m from the power socket of the heat recovery unit (the power socket of the heat recovery unit is located between the necks facing the interior).
- Marking of the circuit breaker with the label “heat recovery”.
- **Do not block – bulk remote control!**

Optional preparation

UTP cable from the home Wi-fi router to the heat recovery unit

- Terminate with RJ 45 socket at the location of the heat recovery unit. This is used only in case of a weak Wi-fi signal, for possible connection of a Wi-fi router, and for Wi-fi signal amplification (it is not used for physical connection of the heat recovery unit).

Intensive exhaust buttons “WC, Bathroom, Kitchen”

- Bring UTP cable or J-Y(ST)Y 2×2×0.8 to all rooms with exhaust requirement (WC, bathroom, kitchen and other optional rooms).
- Connect all wires from the intensive exhaust buttons in parallel and connect them to the recovery unit.
- Terminate with a free cable with a reserve of min. 2 m, not farther than 0.5 m from the data terminal of the heat recovery unit and mark “WC button, Bathroom, Kitchen”, etc.
- In the rooms, install a push button with a return to the original position.

CO_2 and RH sensors and continuous control panel (P.R.T.)

- Bring UTP cable or J-Y(ST)Y 2×2×0.8 for sensors and P.R.T. to the required rooms, the wires must be connected in series according to the requirements of the technical design of the RS 485 bus – sensors communicate using Modbus RTU!
- Terminate the cable with a margin of min. 2 m, at the furthest 0.5 m from the data terminal of the heat recovery unit (data terminals are always located between the necks facing the interior).

Recommendations

- The CO_2 sensor for bedrooms or living rooms should be placed at the height of the switches.
- Humidity sensors for bathrooms should be placed on the wall 10 cm below the ceiling.
- Always leave a margin of at least 0.3 m on the continuous cables that connect the individual sensors in series.

Requirements for water installation

Mandatory preparation

HT waste pipe – DN 32 mm

- Fit with a dry siphon and terminate it near the outlet of the condensate drain from the recovery unit (the condensate drain is always located between the outlet of the recovery unit that faces the exterior).
- Keep in mind the required “inspection opening” and the possibility of disconnecting the recovery unit from the waste.
- It is necessary to ensure that the outlet has free flow, considering the overall gradient of the waste system (min. 3 %).

Vertical wall mounting

- Terminate the drain at least 20 cm below the bottom edge of the recovery unit.

Horizontal mounting on the ceiling or floor

- Terminate the drain at least 5 cm from the bottom edge of the recovery unit.

Requirements for construction

Mandatory preparation

Air ducts ∅ 125 mm

- Supply air ducts according to the selected configuration of the rec. unit (right/left variant) and the location of air inlets (front/side outlet). Keep in mind the overall location of the heat recovery unit in the building (wall/drop ceiling/floor mounting).

Revision opening (min. 1 580 × 880 mm)

- Ensure sufficient space for installation and servicing with regard to the location of the heat recovery unit.
- The minimum required installation depth of the heat recovery unit is 220 mm.

Anchor holes

- With regard to the chosen mounting variant and it’s weight.

Horizontal mounting
(see p. 12)

- Installation under the ceiling (e.g. drop ceiling) – always the **left** variant of the heat recovery unit!
- Floor mounting (e.g. attic) – always the **right** variant of the heat recovery unit!

Vertical mounting
(see p. 13)

- Wall mounting – mounting of **both right and left** variants of the heat recovery unit

ACOUSTIC PARAMETERS

Noise emitted from the unit to the surroundings according to EN ISO 9614-2

Acoustic energy L_{WA} – to the surroundings

Unit power [%]	External pressure [Pa]	Air flow [m³/h]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1 000 [dB(A)]	2 000 [dB(A)]	4 000 [dB(A)]	8 000 [dB(A)]	Total [dB(A)]
20	**50**	50	35.6	28.4	40.1	35.8	28.4	18.5	7.9	2.5	35.6
70	**50**	105	42.3	37.5	51.3	44.4	37.8	30.3	21.9	15.9	46.9
100	**100**	150	41.8	42.2	48.4	57.6	46.7	39.1	31.3	9.8	54.7
100	**200**	150	44.8	46.4	50.8	57.7	50.2	40.3	33.2	14.5	56.3

Noise emitted into the duct according to EN ISO 5136 – at the discharge to the pipe

Acoustic energy L_{WA} – discharge to the pipe – E2

Unit power [%]	External pressure [Pa]	Air flow [m³/h]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1 000 [dB(A)]	2 000 [dB(A)]	4 000 [dB(A)]	8 000 [dB(A)]	Total [dB(A)]
20	**50**	50	61.0	56.4	55.9	48.4	44.6	36.2	26.7	17.2	50.7
70	**50**	105	65.5	62.3	66.6	56.4	54.5	48.6	42.4	30.0	62.0
100	**100**	150	72.0	67.5	64.7	73.4	65.3	57.5	51.4	41.7	70.9
100	**200**	150	73.7	69.0	66.8	72.6	67.3	60.8	55.7	47.1	72.3

Acoustic energy L_{WA} – discharge to the pipe – I2

Unit power [%]	External pressure [Pa]	Air flow [m³/h]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1 000 [dB(A)]	2 000 [dB(A)]	4 000 [dB(A)]	8 000 [dB(A)]	Total [dB(A)]
20	**50**	50	61.6	58.3	53.6	48.2	43.6	34.2	25.2	18.6	50.1
70	**50**	105	65.5	64.3	63.6	58.1	54.0	46.9	39.4	29.6	60.4
100	**100**	150	73.2	71.5	66.0	73.2	62.7	56.0	51.6	43.7	70.5
100	**200**	150	76.2	71.3	67.7	72.2	64.3	57.2	55.4	48.5	71.1

Noise emitted from the unit into the duct (according to EN ISO 5136) – for suction into the duct

Acoustic energy L_{WA} – intake to the duct – E1

Unit power [%]	External pressure [Pa]	Air flow [m³/h]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1 000 [dB(A)]	2 000 [dB(A)]	4 000 [dB(A)]	8 000 [dB(A)]	Total [dB(A)]
20	**50**	50	51.3	44.2	44.5	39	29.9	13.9	4.7	4.7	39.2
70	**50**	105	56.4	50.2	55.0	46.6	39.9	25.1	9.3	4.7	50.0
100	**100**	150	62.5	55.9	53.4	63.3	49.3	34.8	23.2	10.3	59.5
100	**200**	150	64.3	59.2	53.0	60.8	52.9	37.7	23.1	15.5	59.2

Acoustic energy L_{WA} – suction into the duct – I1

Unit power [%]	External pressure [Pa]	Air flow [m³/h]	63 [dB(A)]	125 [dB(A)]	250 [dB(A)]	500 [dB(A)]	1 000 [dB(A)]	2 000 [dB(A)]	4 000 [dB(A)]	8 000 [dB(A)]	Total [dB(A)]
20	**50**	50	52.8	47.7	41.6	36.3	26.1	12.5	4.7	4.7	37.6
70	**50**	105	57.5	52.7	53.0	45.3	35.8	24.0	13.5	4.7	48.2
100	**100**	150	65.4	60.0	51.6	57.4	44.6	33.9	23.9	10.4	54.8
100	**200**	150	66.6	61.2	52.7	59.0	47.9	35.9	25.0	15.6	57.2

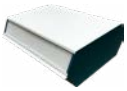
TECHNICAL PARAMETERS VENTBOX 150 Thin

	Optimum version	Premium version
Recommended area	up to 100 m²*	
Height	192 mm	
Width	593 mm	
Length/depth	1 248 mm	
Weight	20 kg	
Weight with enthalpy heat exchanger	21.5 kg	
Electric current (including preheating)	0.3 (3.7) A	
Air flow	30–150 m³/h	
Maximum air flow in BOOST mode	200 m³/h	
Reference air flow	105 m³/h	
Displacement pressure (at reference flow)	50 Pa	
Acoustic energy L_{WA} to the surroundings (at reference flow and a pressure of 50 Pa)	46.9 dB (A)	
Heat transfer efficiency with standard heat exchanger (%/air flow)	78 %/150 m³/h; 83 %/105 m³/h; 88 %/50 m³/h	
Heat transfer efficiency with ent. exchanger (%/air flow)	70 %/150 m³/h; 74 %/105 m³/h; 82 %/50 m³/h	
Moisture transfer efficiency with standard heat exchanger	–	
Moisture transfer efficiency with ent. exchanger (%/air flow)	48 %/150 m³/h; 53 %/105 m³/h; 63 %/50 m³/h	
Electrical input without preheating at external pressure 50 Pa	55 W/150 m³/h; 29 W/105 m³/h; 17 W/50 m³/h	
SPI specific energy consumption	0.29 W (at reference flow 105 m³/h and disp. pressure 50 Pa)	
Energy class	A	
Max. number of all sensors (CO_2/RH/radon ...)	9	
Connector for fire sensor or EPS connection	Yes	
Automatic frost protection	Yes	
Max. power without preheating	72 W	
Max. preheating input power	1 024 W	
Total power consumption	1 096 W	
By-pass function (exchanger by-pass)	Yes	
Shock ventilation	Yes	
Weekly time mode	Yes	
Measuring energy consumption	Yes	
Modbus TCP/IP communication	Yes	
Modbus RTU communication	Yes	
Analogue input	2	
Digital input	1	
Diameter of the connection necks	125 mm	
Motors with constant flow function	No	Yes
Filter clogging indicator based on filter pressure drop	No	Yes
Filter clogging indicator based on time interval	Yes	
Filters supply (% of particles captured in a given filter class)	M5 ePM10 55 % (F7 optional)	F7 ePM1 70 %
Filters exhaust (% of particles captured in a given filter class)	M5 ePM10 55 % (F7 optional)	F7 ePM1 70 %

values with enthalpy heat exchanger

* with regard to the total internal volume of the building

ACCESSORIES

	Name	Description	Ordering code
	RH sensor	Humidity sensor, analogue/digital 12–24 V DC, plaster box	P-001
	CO_2 sensor	CO_2 concentration sensor, analogue/digital, 12–24 V DC, plaster box	P-002
	TVOC sensor	Volatile and formaldehyde concentration sensor, analogue/digital, 12–24 V DC, plaster box	P-023
	Radon sensor	Radon concentration sensor	P-022
	Continuous manual control of relative P.R.T.	0–100 % continuous control with intensive exhaust	P-003
	Directional wedge	Directional wedge – supply – interior/exterior	P-032
	Air duct connection necks	Set of air duct connection necks, 4×	P-037
	Counterflow plate heat exchanger HRV	Counterflow plate heat exchanger	P-030
	Enthalpy counterflow heat exchanger ERV	Enthalpy counterflow heat exchanger	P-019
	Insulation box	Insulation box to uninsulated areas	P-021
	Filter class M5 (ePM10 55 %) inlet/exhaust	Folded M5 class filter (ePM10 55 %), 204 × 127 × 29 mm	P-012
	Filter class F7 (ePM1 70 %) inlet/exhaust	Folded M7 class filter (ePM1 70 %), 204 × 127 × 29 mm	P-013
	Annual filter set M5 (ePM10 55 %)	Filter set 2× inlet, 2× exhaust	P-014
	Annual filter set F7 (ePM1 70 %)	Filter set 2× inlet, 2× exhaust	P-015
	VENTBOX 150 Thin Optimum	VENTBOX 150 Thin Optimum HRV with standard heat exchanger	VB1-0150-TC-OHR(L)
	VENTBOX 150 Thin Premium	VENTBOX 150 Thin Premium HRV with standard heat exchanger	VB1-0150-TC-PHR(L)
	VENTBOX 150 Thin Optimum	VENTBOX 150 Thin Optimum ERV **with enthalpy exchanger**	VB1-0150-TC-OER(L)
	VENTBOX 150 Thin Premium	VENTBOX 150 Thin Premium ERV **with enthalpy exchanger**	VB1-0150-TC-PER(L)

TECHNICAL INFORMATION

Compliance with the regulation on the display of energy consumption information for ventilation units for residential buildings
(according to EU Commission Regulation No 1254/2014 and supplementing EU Directive 2010/30/EU)

Name/trademark of the manufacturer: LICON s.r.o.
Model designation: VENTBOX 150 Thin

Climate zone	hot	moderate	cool	hot	moderate	cool
Specific energy consumption SEC kWh/(m².a)	-17.95	-41.12	-79.14	-16.16	-39.4	-75.77
SEC climate class	E	A	A+	E	A	A+
Type of ventilation unit	BUV – bidirectional			BUV – bidirectional		
Installed drive type	multi-speed			multi-speed		
Heat recovery system	recuperative/**standard**			recuperative/**enthalpy**		
Thermal efficiency, dry non-condensing %	82.5			74.2		
Maximum air flow m³/h	150			150		
Electrical input at maximum air flow W	55			55		
Acoustic energy level L_{WA} dB(A)	47			47		
Reference flow rate m³/h	105			105		
Reference displacement pressure Pa	50			50		
SPI W/m³/h	0.288			0.288		
Control factor and control typology (if fitted with sensors)	0.65	local control		0.65	local control	
Declared maximum unit air leakage %	internal		0.9	internal		0.9
	external		0.7	external		0.7
Method of location and description of the optical filter change message	user manual					
Internet address of user and installation instructions	www.licon.cz					
Annual electricity consumption AEC kWh/(m².a)	–	0.687	8.888	–	0.687	8.888
Annual heat savings AHS kWh/(m².a)	20.759	45.381	88.777	19.973	43.663	85.416

ORDERING CODES

VENTBOX 150

VENTBOX	Generation		Volume flow		Design	Heat recovery unit type		Model/Type	Exchanger type	Connection option
VB	1	-	0150	-	T Thin	C centralized	-	O Optimum P Premium	H standard E enthalpy	P right L left

Example of ordering code: VB1-0150-TC-OHR
VENTBOX 150 Thin first generation, with central heat recovery, standard EC fans version Optimum, standard heat exchanger with right-hand side connection.

CONVECTORS

WITH NATURAL
AND FORCED CONVECTION

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