

# **SINGLE-ROOM ENERGY RECOVERY VENTILATION UNIT**



***VENTO Eco***  
***VENTO Eco2***

**EN**

**OPERATION MANUAL**

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The user's manual consisting of the technical details, operating instructions and technical specification applies to the installation and mounting of the single-room energy recovery reversible ventilator Vento Eco (hereinafter referred to as «the unit»).

**SAFETY REQUIREMENTS**

Read the user's manual carefully prior to installing and operating the unit.  
 Fulfil the user's manual requirements as well as the provisions of all the applicable local and national construction, electrical and technical norms and standards.  
 The warnings contained in the user's manual must be considered most seriously since they contain vital personal safety information. Failure to follow the rules and safety precautions noted in this user's manual may result in an injury or unit damage.  
 After a careful reading of the manual, keep it for the entire service life of the unit.  
 While transferring the unit control the user's manual must be turned over to the receiving operator.

Symbol legend:

	<b>WARNING!</b>
	<b>DO NOT!</b>

**UNIT MOUNTING AND OPERATION SAFETY PRECAUTIONS**



- Disconnect the unit from power mains prior to any installation operations.



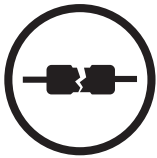
- Unpack the unit with care.



- Do not lay the power cable of the unit in close proximity to heating equipment.



- While installing the unit follow the safety regulations specific to the use of electric tools.



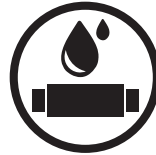
- Do not use damaged equipment or cables when connecting the unit to power mains.



- Do not operate the unit outside the temperature range stated in the user's manual.
- Do not operate the unit in aggressive or explosive environments.



- Do not touch the unit controls with wet hands.
- Do not carry out the installation and maintenance operations with wet hands.



- Do not wash the unit with water.
- Protect the electric parts of the unit against ingress of water.

### UNIT MOUNTING AND OPERATION SAFETY PRECAUTIONS



- Do not allow children to operate the unit.



- Disconnect the unit from power mains prior to any technical maintenance.



- Do not store any explosive or highly flammable substances in close proximity to the unit.



- When the unit generates unusual sounds, odour or emits smoke disconnect it from power supply and contact the Seller.



- Do not open the unit during operation.



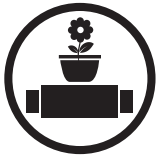
- Do not direct the air flow produced by the unit towards open flame or ignition sources.



- Do not block the air duct when the unit is switched on.



- In case of continuous operation of the unit periodically check the security of mounting.



- Do not sit on the unit and avoid placing foreign objects on it.



- Use the unit only for its intended purpose.



**THE PRODUCT MUST BE COLLECTED SEPARATELY AT THE END OF SERVICE LIFE.**

**DO NOT DISPOSE OF AS UNSORTED MUNICIPAL WASTE.**

**PURPOSE**

The unit is designed to ensure continuous mechanical air exchange in houses, offices, hotels, cafes, conference halls and other utility and public spaces.

The unit is equipped with a ceramic regenerator that enables supply of fresh filtered air heated by means of extract air heat energy generation.

The unit is designed for mounting in walls.



**THE UNIT MAY NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL OR SENSORY CAPACITIES, OR LACKING THE APPROPRIATE TRAINING.**

**THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING.**

**THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORIZED ACCESS BY UNATTENDED CHILDREN.**

The unit is rated for continuous operation.

Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, sticky substances, fibrous materials, coarse dust, soot and oil particles or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs).

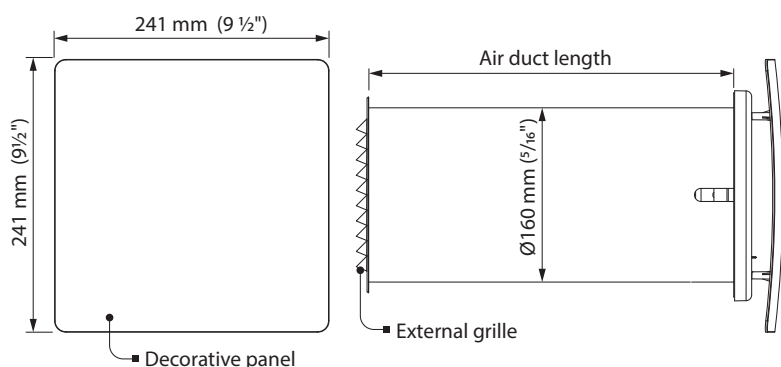
**DELIVERY SET**

Name	Number	
	VENTO Eco A50 S1 Pro	VENTO Eco2 A50 S1 Pro
Air duct	1 item	2 items
Sound-absorbing layer	1 item	2 items
Assembled cartridge	1 item	2 items
Internal round ventilation grille	1 item	2 items
Internal square ventilation grille	1 item	2 items
External grille	1 item	2 items
Control panel	1 item	1 item
Fastening set	1 pack	1 pack
Mounting box	1 item	1 item
User's manual	1 item	1 item
Packing box	1 item	1 item

**TECHNICAL DATA**

The unit is designed for indoor use.  
The unit design is constantly being improved, so some models can slightly differ from those ones described in this manual.

Speed	VENTO Eco A50 S1 Pro			VENTO Eco2 A50 S1 Pro		
	I	II	III	I	II	III
Unit voltage [V / 50-60 Hz]	1~100-240					
Power [W]	0.89	2.32	5.39	2.07	4.15	10.10
Current [A]	0.018	0.032	0.060	0.030	0.049	0.098
RPM	1030	1760	2690	1030	1760	2690
Air capacity [m³/h] (CFM)	15 (9)	30 (18)	50 (29)	15 (9)	30 (18)	50 (29)
Filters	G3 (MERV 7); F8 (MERV 13) option					
Transported air temperature [°C (°F)]	from -30 (-22) up to 50 (122)					
Sound pressure level at 1 m distance [dB(A)] (Sones)	22 (0.6)	29 (1.0)	32 (1.2)	22 (0.6)	29 (1.0)	32 (1.2)
Sound pressure level at 3 m distance [dB(A)] (Sones)	13 (0.3)	20 (0.5)	23 (0.6)	13 (0.3)	20 (0.5)	23 (0.6)
Noise level attenuation [dB(A)] (Sones)	41 (2,5)					
Heat recovery efficiency [%]	92	86	78	92	86	78
Ingress protection	IP24					

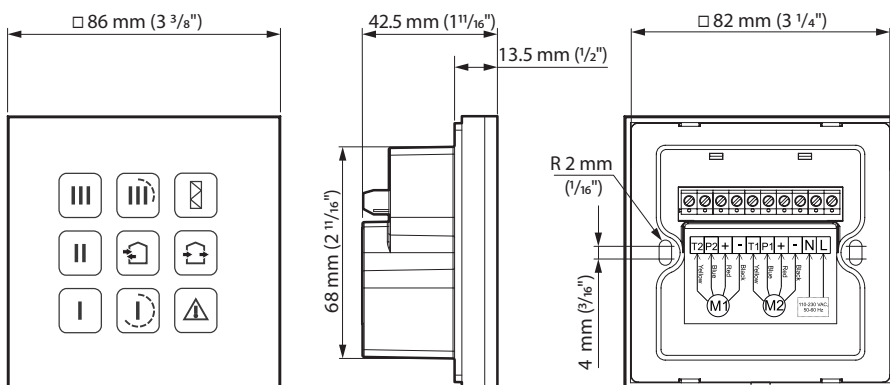


The air duct length and the internal grille model depend on the unit model. For details, please refer to the Designation Key.  
The external grille may be replaced with an outer ventilation hood.  
Overall dimensions of the ventilation hood are stated in the mounting instruction for respective ventilation hood.

**Control panel**

The sensor panel contains touch buttons for unit control and an emergency indicator.

Unit voltage [V / 50-60 Hz]	110-230
Temperature range [°C]	from +10 up to +45
Humidity range [%]	10 - 80 (no condensation)
Service life, switching operations	100 000
Ingress protection	IP30
Weight [g]	190



**DESIGN AND OPERATING LOGIC**

The unit consists of a protecting internal grille with a decorative panel, a cartridge, an air duct with a sound absorbing material layer and a protecting external ventilation grille or a hood.

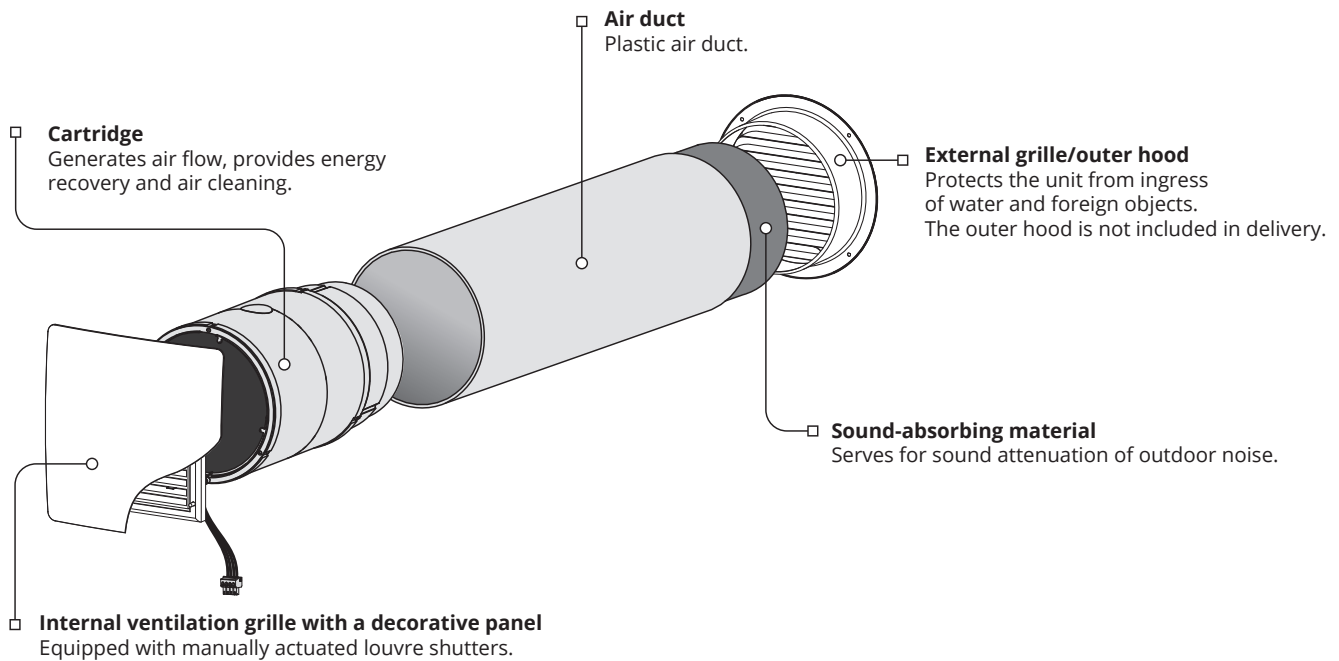
The cartridge is the basic functioning part of the unit.

The cartridge consists of a fan, a regenerator and two filters that ensure rough air filtration and prevent ingress of dust and foreign objects into the regenerator and the fan.

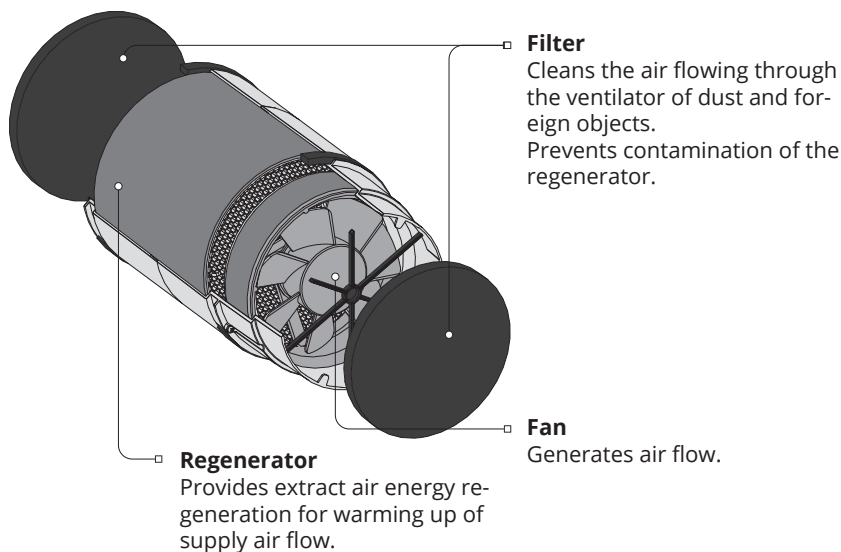
The internal grille is equipped with manually actuated shutters to close the air duct during the unit standstill.

The external protective grille on the outer wall prevents ingress of water and foreign objects into the unit.

**UNIT DESIGN**



**CARTRIDGE DESIGN**



Cartridge is a block consisting of removable filters and a solid fan-regenerator unit. The filters are easy removable for technical maintenance.

## UNIT OPERATION MODES

The unit has two ventilation modes:

**Ventilation.** The unit operates in permanent supply or extract mode at set speed. In case of two units operating in this mode one unit operates in supply and the other one in extract mode.

**Regeneration.** The unit operates in reversible mode with heat and humidity regeneration in two cycles, 70 seconds each.

### Cycle I.

As warm stale extract air flows through the ceramic regenerator, it heats up and moisturizes the regenerator and transfers up to 97 % of heat energy.

In 70 seconds as the ceramic regenerator gets warmed the unit is switched to supply mode.

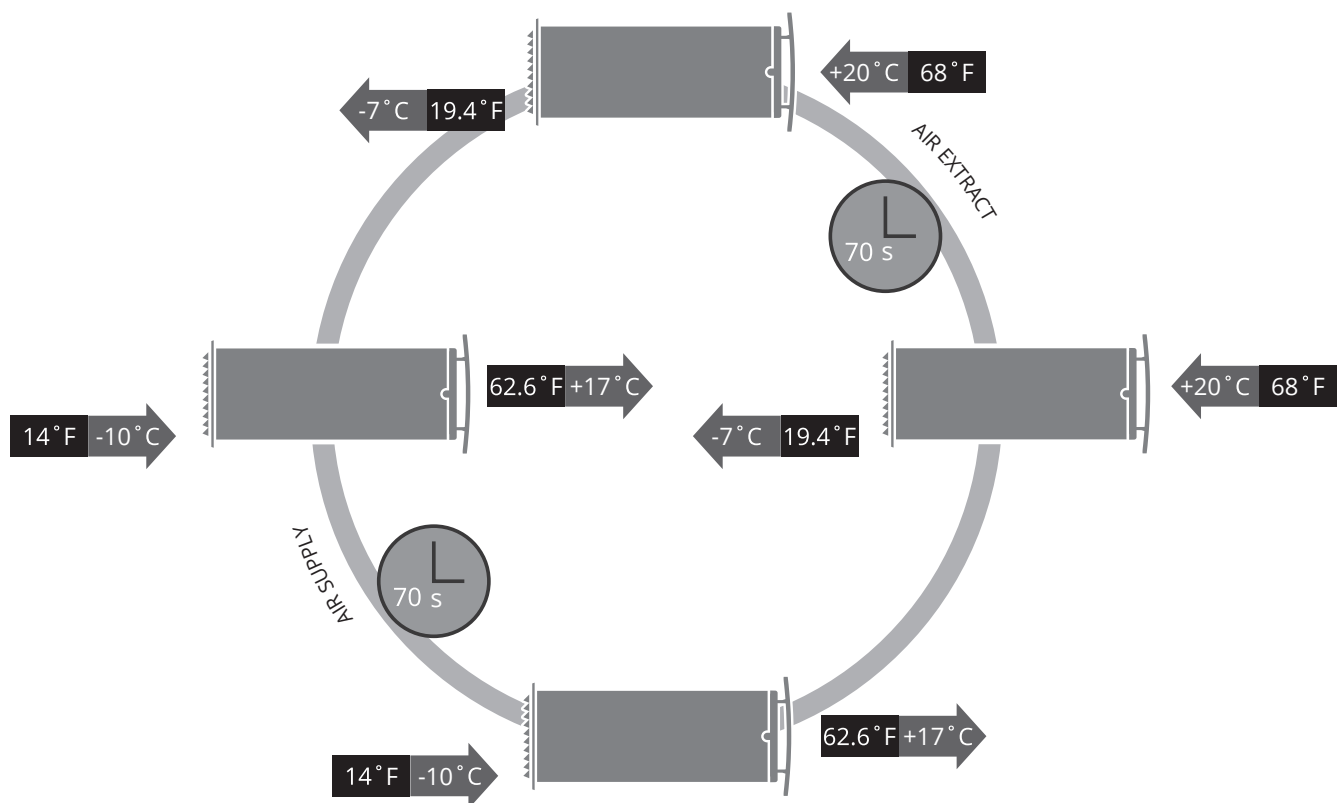
### Cycle II.

Fresh intake air from outside flows through the ceramic regenerator, absorbs accumulated moisture and is heated up to the room temperature.

In 70 seconds as the ceramic regenerator gets cooled down, the unit is switched to air extract mode and the cycle is renewed.

In this operation mode, in case if two units are installed each of them operates two cycles in opposite phases.

While one unit operates in air supply mode the other one operates in air extract mode.



**MOUNTING AND SET-UP**

**WALL-MOUNTED CONTROL PANEL INSTALLATION AND CONNECTION**



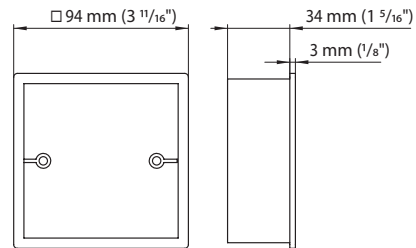
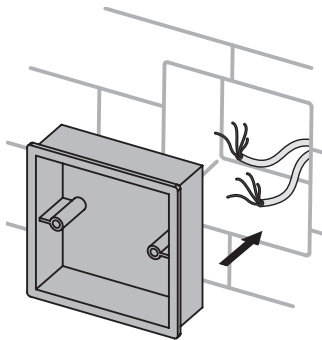
**INSTALLATION AND CONNECTION OF THE CONTROL PANEL SHALL ONLY BE PERFORMED BY A PROFESSIONAL ELECTRICIAN.**

**MAKE SURE THAT THE CONTROL PANEL IS NOT DAMAGED. DO NOT USE A DAMAGED CONTROL PANEL!**

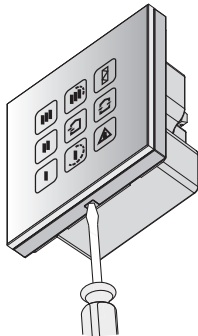
**DO NOT INSTALL THE CONTROL PANEL ON AN UNEVEN SURFACE!**

**WHILE TIGHTENING THE SCREWS, DO NOT APPLY EXCESSIVE FORCE TO PREVENT THE CONTROL PANEL CASING DEFORMATION.**

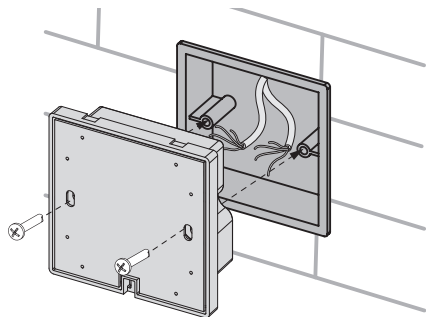
1. Prepare a hole in the wall and route all the wires to the installation place. Insert the supplied mounting box for flush wall mounting. The mounting box is included in delivery.



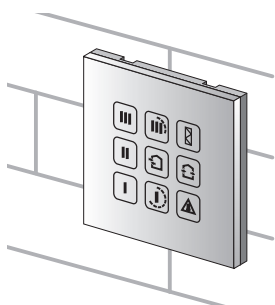
2. Use a screwdriver to carefully undo the clips on the backside of the control panel and remove the back cover.



3. Screw the backside of the casing to the mounting box through the fastening holes. Fastening screws for mounting of the control panel are included in the control panel delivery set. Then connect the cable to the control panel in compliance with the external wiring diagram.




4. Install the control panel display and press it to fix.





UNIT MOUNTING

 **READ THE USER'S MANUAL PRIOR TO MOUNTING THE UNIT.**

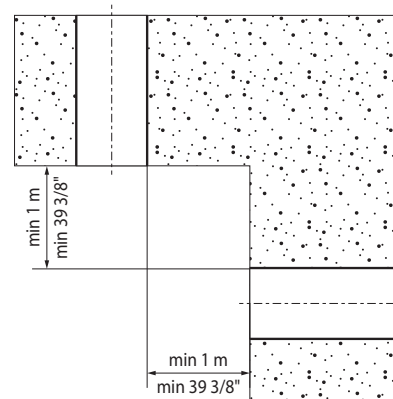
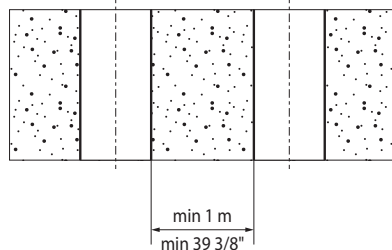
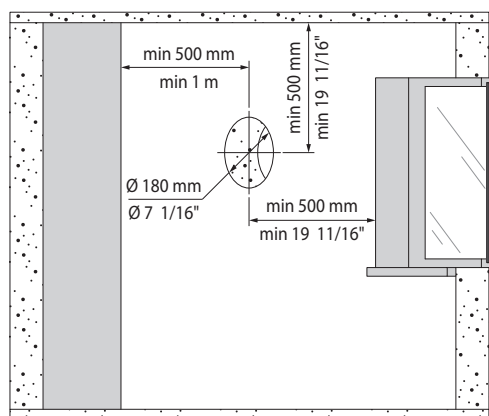
 **WARNING!**  
**DO NOT BLOCK THE AIR DUCT OF THE INSTALLED UNIT WITH DUST ACCUMULATING MATERIALS, SUCH AS CURTAINS, CLOTH SHUTTERS, ETC. AS IT PREVENTS AIR CIRCULATION IN THE ROOM.**

1. Prepare holes for the air ducts.

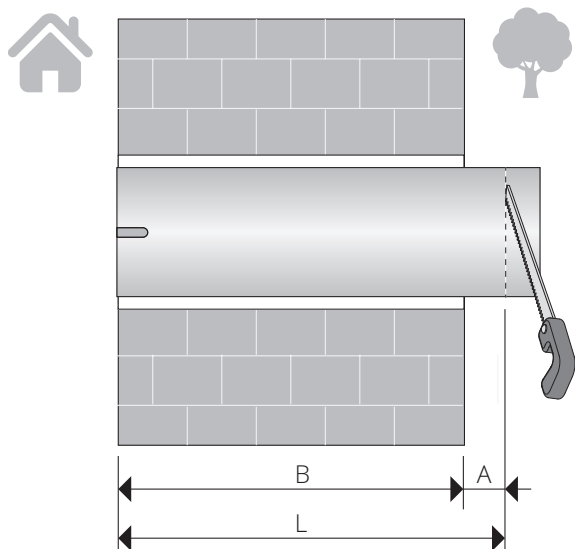
Prepare one or two round core holes in the outer wall, depending on the unit equipment.

For efficient operation of the ventilation system it is recommended to install the units as far apart from one another as possible. While preparing core holes it is recommended to make preparations for layout of the power cable and other required cables.

The core hole size and minimum distance to a mounting surface, for example, a wall, ceiling or a window as well as the minimum distance between the units are shown below.



2. Prepare air ducts of required length.



Measure the wall thickness B.

The air duct length is calculated as  $L = B + A$ , where A means an air duct segment that protrudes in the outer wall to enable installation of the external grille or the outer ventilation hood. For details, see the table below.

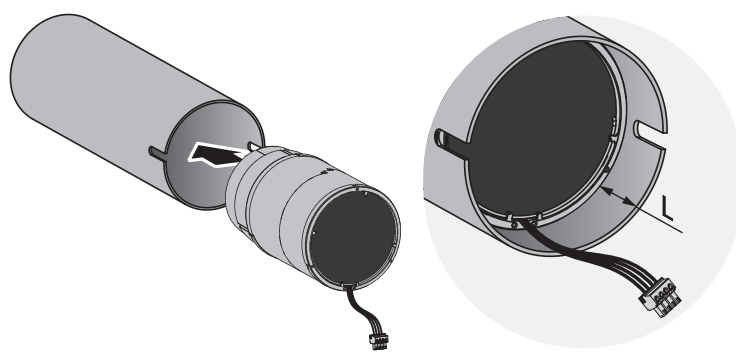
External grille/outer ventilation hood model	Air duct excess length on the outer wall side A, mm
H 160	10
H-S 160	10 - 100
Decor 150Fs An white	0

Cut the air duct to the length L, without consideration to the cable groove.

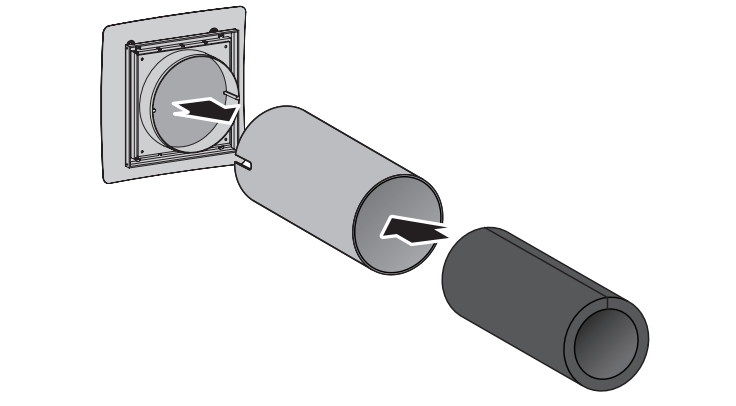
Insert the air duct into a prepared hole in the wall. The cable grooves must be located on inner wall side. The air duct end on the indoor side must be flush with the inner wall side.

3. Install the sound-absorbing layer in the air duct. Prior to installation adjust its length with respect to the dimensions of the cartridge, external grille or the outer ventilation hood as well as the internal square or round grille.

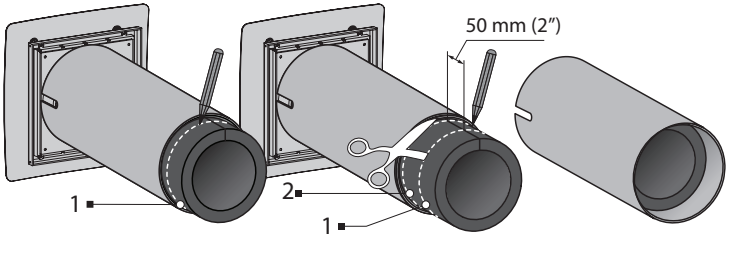
**This example shows adjustment of the sound-absorbing layer length calculated from the flange width of the square inner grille.**



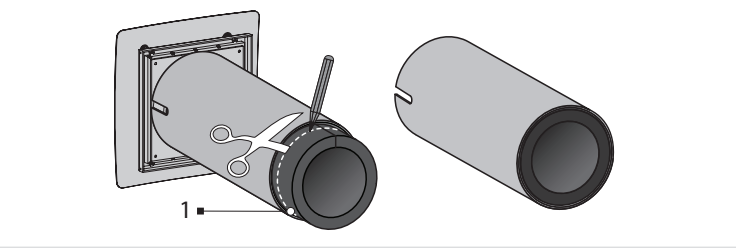
Insert the cartridge during adjustment in the air duct. The distance L from the edge of the air duct is equal to the width of the flange of the inner grille. For a square grille L = 40 mm (1 9/16") for a round one L = 20 mm (13/16")



During adjustment of the insulation layer length cover the air duct and the cartridge with the internal grille. Roll the sound-absorbing layer to match the air duct diameter with the protecting paper layer outside and insert the roll in the air duct against stop. **Do not remove the paper layer!**

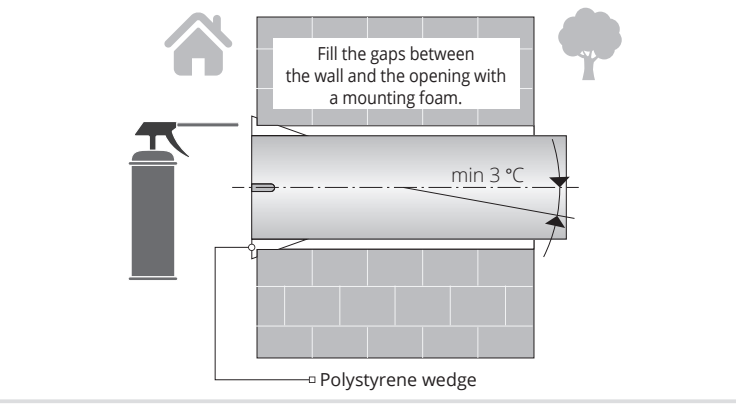


**The adjustment of the sound-absorbing layer length for the unit with an external grille**  
Mark the sound-absorbing layer at the end of the air duct as 1. From the mark 1 measure 50 mm (2") and make the mark 2. Cut the excessive part of the sound-absorbing layer. Insert the adjusted and ready sound-absorbing layer into the air duct. No glue is required for fixation!

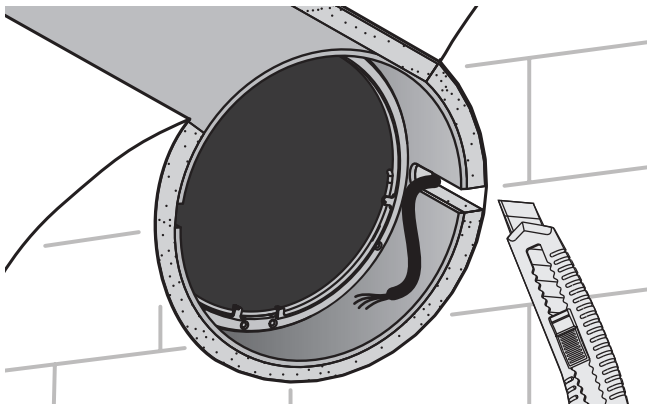


**The adjustment of the sound-absorbing layer length for the unit with an outer hood (optional)**  
Mark the sound-absorbing layer at the end of the air duct as 1. Cut the excessive part of the sound-absorbing layer. Insert the adjusted and ready sound-absorbing layer into the air duct. No glue is required for fixation!

4. Insert the air duct in the wall.

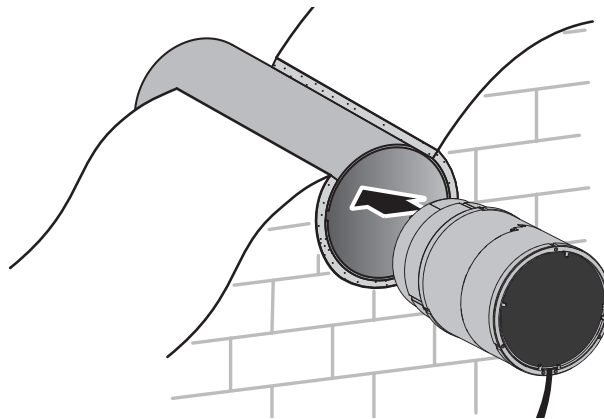


Install the air duct with the sound-absorbing layer with minimum slope 3° downwards using polystyrene wedges. Fill the gaps between the wall and the opening with a mounting foam.

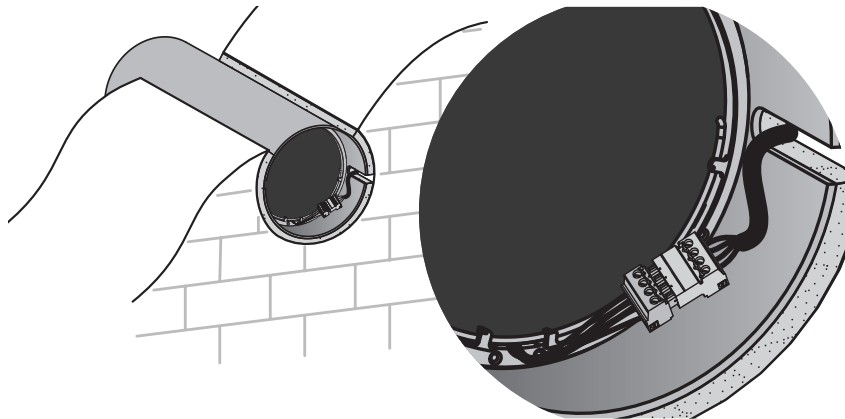


To enable easy installation of the cartridge in the air duct cut out a recess in the mounting foam layer on the side of the cable installation parallel to the groove in the air duct. For freedom of placement of the cable in the groove without any damage to the cable insulating material, cut off the excess of the mounting foam.

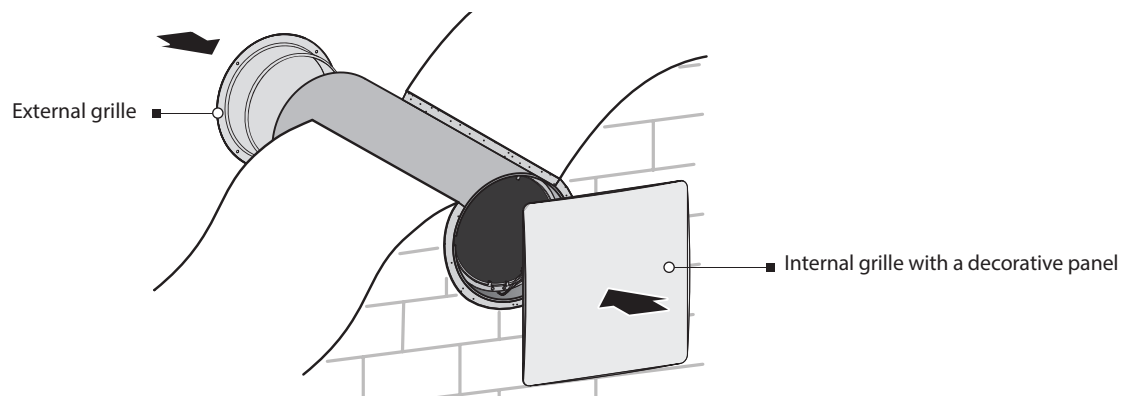
5. Install the cartridge in the air duct.



6. Connect the socket connector from the control panel in compliance with the external wiring diagram. Connect the socket connectors of the cartridge and the control panel.




7. Install the internal grille and fix the external grille.



For mounting of the outer ventilation hood, please refer to a respective hood installation instruction.

**CONNECTION TO POWER MAINS AND CONTROL**



**DISCONNECT THE UNIT FROM POWER SUPPLY PRIOR TO ANY OPERATIONS WITH THE UNIT.**

**INSTALLATION SHALL ONLY BE PERFORMED BY A PROFESSIONAL ELECTRICIAN QUALIFIED FOR UNASSISTED OPERATIONS WITH ELECTRICAL INSTALLATIONS UP TO 1000 V AFTER CAREFUL STUDY OF THE PRESENT USER'S MANUAL.**

**THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE MANUFACTURER'S LABEL. ANY INTERNAL CONNECTION MODIFICATIONS ARE NOT ALLOWED AND RESULT IN WARRANTY LOSS.**

The unit is rated for connection to single-phase AC 100-240 V/ 50-60 Hz power mains. Connect the unit to power mains through the external automatic circuit breaker with a magnetic trip integrated into the fixed wiring system.

The circuit breaker trip current must exceed the consumption current of the unit. For details, please refer to the table at page 5.

For electric installations use insulated, durable and heat-resistant electric leads (cables, conductors) with the minimum cross section 0.5 up to 0.75 mm<sup>2</sup> for the power cable and 0.25 mm<sup>2</sup> for the signalling cables.

The cable cross-section is given for reference only.

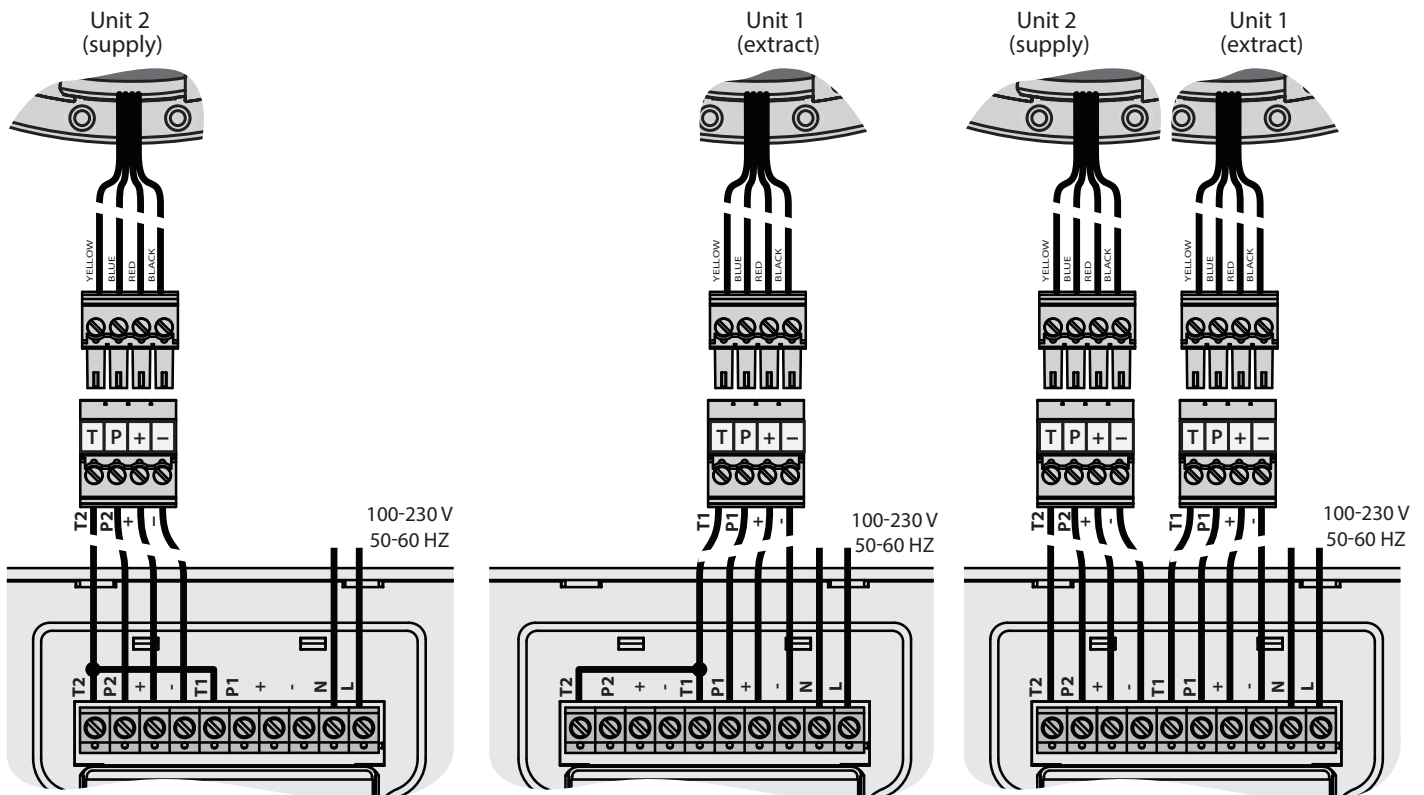
The signal cable must be shielded.

The actual conductor cross-section selection must be based on its type, the maximum permissible heating, insulation, length and installation method.

Use copper wires for all the electric connections!

Connect the unit to power mains in compliance with the external connections wiring diagram.

**EXTERNAL CONNECTIONS WIRING DIAGRAM OF THE UNIT WITH A SENSOR CONTROL PANEL**



## UNIT CONTROL

The unit is operated with the control panel.

### WARNING!

- The control panel must be fixed on a surface in operational position!
- Do not press the buttons on the unsecured panel to avoid false speed switching!
- Pressing the buttons quickly and shortly may result in malfunction of the unit!
- Press the button precisely in the desired sector of the control panel to switch the speed.

The following parameters are set with the control panel:

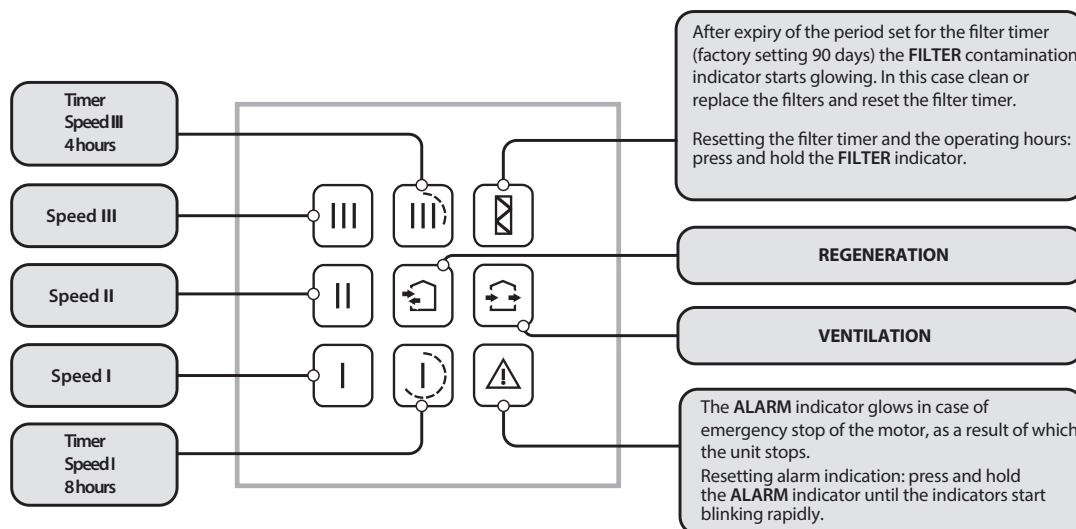
- unit operation speed: I, II, III;
- unit operation mode: REGENERATION or VENTILATION;
- timer-based operation of the unit: 4 hours at speed III or 8 hours at speed I.

The control panel displays the following parameters:

- current unit speed
- current operation mode of the unit
- timer operation status (on/off)
- filter replacement/cleaning need according to indications of the filter timer (factory setting 90 days)
- emergency shutdown of the unit in case of a motor failure

In case of power cut-off the set parameters are saved in the non-volatile memory of the control panel.

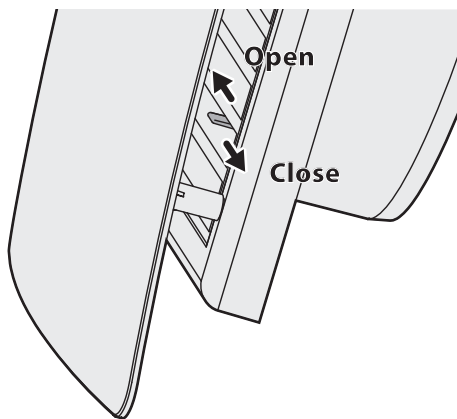
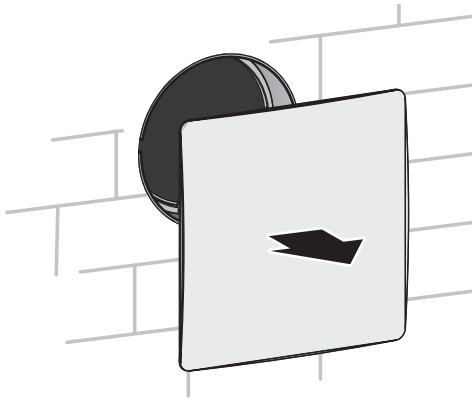
### UNIT CONTROL WITH A SENSOR CONTROL PANEL



Turning the unit on	Press any of speed selection buttons  ,  ,  or the timer buttons  , .
Turning the unit off	Press the active speed button  ,  ,  or the active timer button  ,  , if no speed button is active.
Unit speed selection	Press the inactive speed button  ,  , .
Unit operation mode selection	Press the inactive REGENERATION  or VENTILATION  button. The direction of air flow in the unit (supply and extract mode) is set when connecting the unit according to the external connections wiring diagram.
Turning the timer on	Press the timer  button or .
Timer selection	Press the inactive timer  button or .
Turning the timer off	Press the active timer  button or .
	If the timer period expires: <ul style="list-style-type: none"> <li>The unit continues operation at a set speed. The speed can be selected before switching on the timer as well as during the timer-based operation.</li> <li>The unit turns off if the speed was not selected.</li> </ul>

**AIR DUCT CLOSING**

Disconnect the unit from power supply.  
Remove the grille with the decorative panel from the air duct.



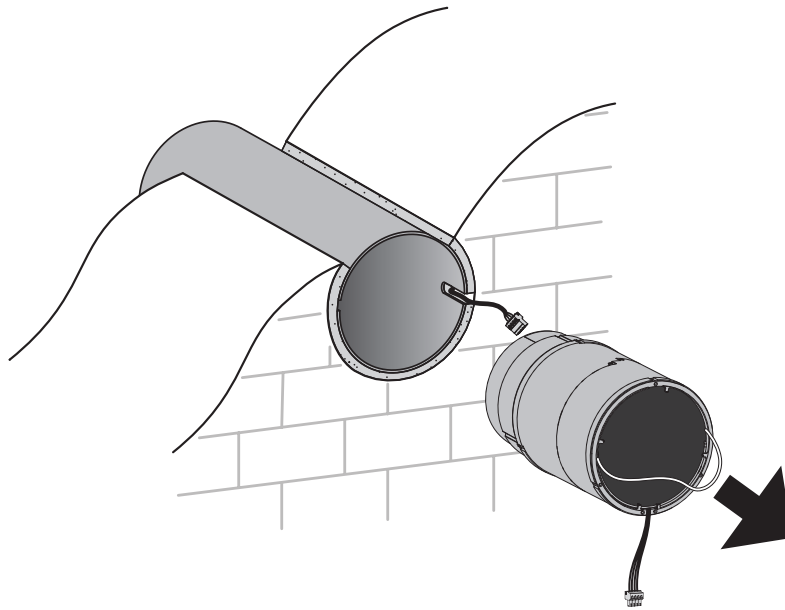
To close the air duct pull a small handle between the grille shutters to the left against stop.  
To open the air duct pull this handle to the right.

**TECHNICAL MAINTENANCE**



**DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!**

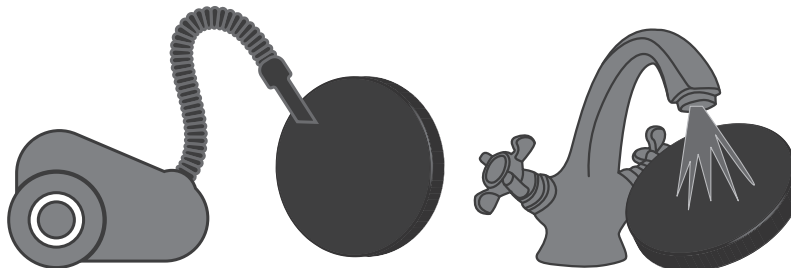
Maintenance of the unit means regular cleaning of the unit surfaces of dust and cleaning and replacement of the filters. To access the basic assembly units follow the steps:

Disconnect the socket connectors. Push the cable from the control panel aside to the wall and pull the cord from the cartridge to remove it from the air duct. Remove the filters from the cartridge.



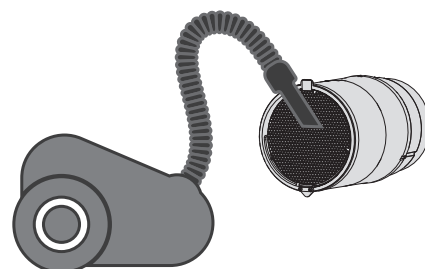
Clean the filters as they get contaminated, but not less than once in three months.

- After expiry of the period set for the filter timer (factory setting 90 days) the filter replacement indicator  appears on the control panel display.
- Wash the filters and let those dry out completely. Then install the dry filters in the air duct.
- Vacuum cleaning is allowed.
- The filter rated service life is 3 years.
- For new filters contact the Seller.




Even regular technical maintenance may not completely prevent dirt accumulation on the regenerator and the fan.

- Clean the regenerator regularly to ensure its high regeneration efficiency.
- Clean the regenerator with a vacuum cleaner at least once a year.



**TROUBLESHOOTING**

**POSSIBLE REASONS AND TROUBLESHOOTING**

Problem	Possible reasons	Troubleshooting
The fan does not start up during the unit start-up. The control panel displays no information and does not respond to the button pressing.	No power supply.	Make sure the power supply line is connected correctly, otherwise troubleshoot the connection error.
The control panel displays an alarm indicator  .	Motor is jammed, the impeller blades are clogged.	Turn the unit off. Clean the impeller to troubleshoot the motor jam. Restart the unit.
	Communication loss in connecting cable between the fan motor and the control panel.	Turn the unit off. Contact the Seller for further information.
Automatic switch tripping following the unit turning on.	Overcurrent as a result of short circuit in the electric line.	Turn the unit off. Contact the Seller for further information.
Low air flow.	Low set fan speed.	Set higher speed.
	The filters, the fan or the regenerator are clogged.	Clean or replace the filter. Clean the fan and the heat exchanger.
Noise, vibration.	The impeller is clogged.	Clean the impeller.

**STORAGE AND TRANSPORTATION REGULATIONS**

Store the unit in the manufacturer's original packing box in a dry ventilated premise at ambient temperatures from +5 °C ( 41 °F) up to +40 °C (104 °F).  
 Storage environment must not contain aggressive vapours and chemical mixtures provoking corrosion, insulation and sealing deformation. Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit.  
 Follow the handling requirements applicable for the particular type of cargo.  
 The unit can be carried in the original packing by any mode of transport provided proper protection against precipitation and mechanical damage.  
 Avoid sharp blows, scratches or rough handling during loading and unloading.  
 Do not expose the unit to sudden changes in temperature.  
 Such changes can lead to condensation of moisture inside the unit and performance disturbance when the unit is switched on.  
 Prior to the initial power-up after transportation at subzero temperatures allow the unit to warm up at room temperature for at least 2 hours.



## MANUFACTURER'S WARRANTY

The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, mounting and operation regulations.

Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation the user is entitled to elimination of faults by the manufacturer by means of warranty repair at the factory free of charge.

The warranty repair shall include work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation.

The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

### The warranty repair does not include:

- routine technical maintenance
- unit installation / dismantling
- unit setup

To benefit from warranty repair the user must provide the unit, the user's manual with the purchase date stamp and the payment document certifying the purchase.

The unit model must comply with the one stated in the user's manual.

### Contact the Seller for warranty service.

### The manufacturer's warranty does not apply to the following cases:

- User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismantled by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packing and in the user's manual.
- User's failure to ensure timely technical maintenance of the unit.
- External damage to the unit casing (excluding external modifications as required for installation) and internal components caused by the user.
- Redesign or engineering changes to the unit.
- Replacement and use of any assemblies, parts and components not approved by the manufacturer.
- Unit misuse.
- User's violation of the unit installation regulations.
- User's violation of the unit control regulations.
- Unit connection to the power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in the power mains.
- Discretionary repair of the unit by the user.
- Unit repair by any persons without the manufacturer's authorization.
- Expiration of the unit warranty period.
- User's violation of the unit transportation regulations.
- User's violation of the unit storage regulations.
- Wrongful actions against the unit committed by third parties.
- Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
- Missing seals if provided by the user's manual.
- Failure to submit the user's manual with the unit purchase date stamp.
- Missing payment document certifying the unit purchase.



**FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT.**

**ACCEPTANCE CERTIFICATE**

**Heat recovery single room unit with heat and humidity recovery**

VENTO Eco\_\_\_\_\_

**is recognized as serviceable.**

The unit complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

We hereby declare that the unit complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility, which relate to electrical appliances used in set voltage classes.

This certificate is issued following test carried out on samples of the product referred to above.

Quality Inspector's Stamp

Manufacture Date \_\_\_\_\_

**CONNECTION CERTIFICATE**

**Heat recovery single room unit with heat and humidity recovery**

VENTO Eco\_\_\_\_\_

**is connected to power mains in compliance with the operation manual requirements by the professional:**

Company: \_\_\_\_\_

Expert's Full Name \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_

**WARRANTY CARD**

VENTO Eco\_\_\_\_\_

**SELLER**

**PURCHASE DATE**

**REPRESENTATIVE IN EU**

BLAUBERG Ventilatoren GmbH  
Aidenbachstr. 52a,  
D-81379 Munich, Germany





**BLAUBERG**  
*Ventilatoren*



VENIO\_Eco\_v.2(1)\_EN