HEAT RECOVERY VENTILATOR

HRV H 120
ERV H 120
HRV H 170
ERV H 170

EN **OPERATION MANUAL**

BLAUBERG Ventilatoren

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The HRV/ERV H 120(170) unit is designed for ceiling mounting. The HRV/ERV H 120(170) is designed for ceiling and wall mounting.

APPLICATION

The unit is designed to save thermal energy by means of heat recovery and is one of the energy saving components used in the buildings and premises.
The ventilator is a component unit and is not designed for independent operation.
The unit is designed to provide permanent controlled air exchange by mechanical ventilation in houses, offices, hotels, cafés, conference halls and other residential and public premises as well as utilization of extract air heat energy to warm up supply purified air.
The unit is for ceiling mounting.
The unit is rated for continuous operation always connected to power mains.
Operating medium must not contain any flammable or explosive mixtures, evaporation of chemicals, coarse dust, soot and oil particles, sticky substances, fibrous materials, pathogens or any other harmful substances.

THE UNIT IS NOT DESIGNED TO BE USED BY CHILDREN, PHYSICALLY OR MENTALLY DISABLED PERSONS WITH SENSORY DISORDER,

PERSONS WITH NO APPROPRIATE EXPERIENCE OR EXPERTISE.

THE UNIT CAN BE OPERATED BY QUALIFIED EXPERTS AFTER APPROPRIATE INSTRUCTION ABOUT ITS USE AND OPERATION.

THE UNIT SHALL BE MOUNTED IN PLACES INACCESSIBLE FOR CHILDREN

DELIVERY SET

- Unit HRV/ERV H 120(170) - 1 pce;
- User's manual - 1 pce;
- Drain hose - 1 pce;
- Oil filter - 1 pce;
- Packing box - 1 pce.

UNIT DESIGNATION KEY

HRV/ERV H 120 (170)

Air capacity [CFM]

Unit type:
HRV - Heat Recovery Ventilator
ERV - Energy Recovery Ventilation

BASIC DIMENSIONS

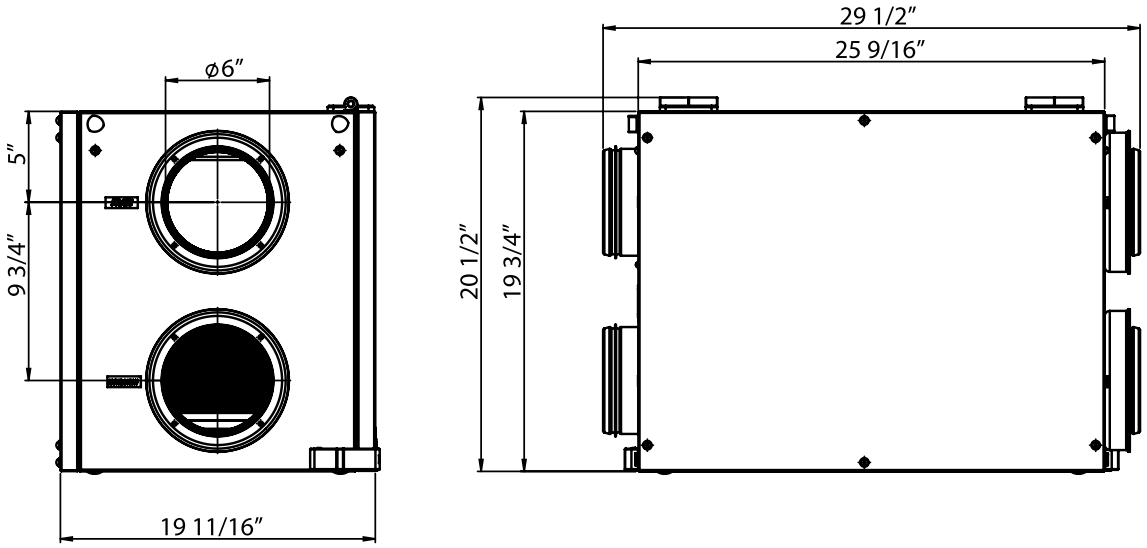

Fig. 1 Overall and connection dimensions

TECHNICAL DATA

The unit is designed for indoor installation and operation at the ambient air temperature ranging from +34 °F (1 °C) up to +122 °F (50 °C).
Ingress Protection rating:

- IP44 for the unit motors.
- IP 22 for the assembled unit connected to air ducts.

The unit net weight is 66 lbs (30 kg).
The unit series designation, basic overall and connecting dimensions are shown in fig. 1.
The unit design is regularly being improved, so some models can slightly differ from those ones described in this manual.

SAFETY REQUIREMENTS

While operating and mounting unit fulfill the requirements of the present operation manual as well as general requirements of all applicable codes and standards valid in USA and Canada.
Ground the unit!
Before connecting the unit to power mains make sure that the unit is free of any visible damages or any other foreign objects inside the casing that can damage the impeller blades.
Connection of the unit to power mains by duly qualified and authorized electricians only!

WARNING!
MOUNTING, SERVICING, CONNECTION AND REPAIR WORKS OF THE UNIT ARE ALLOWED AFTER THE UNIT IS DISCONNECTED FROM POWER MAINS.

DO NOT!
DO NOT OPERATE THE UNIT BEYOND THE SPECIFIED TEMPERATURE RANGE OR IN AN AGGRESSIVE AND EXPLOSIVE MEDIUM. DO NOT CONNECT CLOTHES DRYERS OR SIMILAR EQUIPMENT TO THE VENTILATION SYSTEM. DO NOT OPERATE THE UNIT IN THE AIR AND DUST MIXTURE ENVIRONMENT.

STRUCTURE AND OPERATING LOGIC

The unit has the following operating logic (fig. 2):
Warm stale extract air from the room flows through the air ducts to the unit, is purified in the extract filter and is supplied to the heat recovery core and exhausted outside by exhaust fan. Clean cold air from outside is moved by supply fans to the unit where it is purified through the supply filter. Then clean air flows through the heat recovery core and is supplied to the room by supply fan.
Thermal energy of warm extract air is transferred to clean intake fresh air and warms it up. The extract and intake air flows are fully separated during heat recovery which excludes any transfer of odors and pathogens to supply air. Heat recovery minimizes thermal energy losses, energy demand and heating costs.

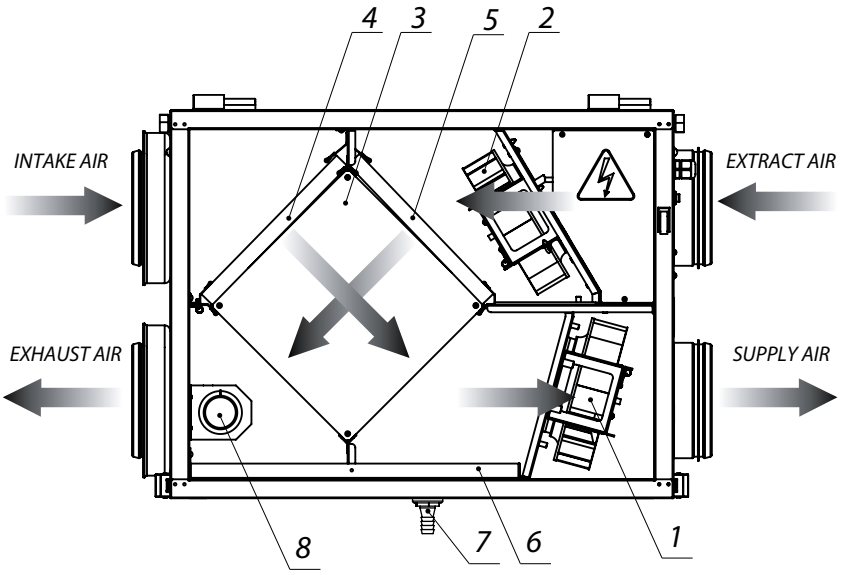

Fig. 2. Unit structure and operating logic

1. Supply fan with backward curved blades and maintenance-free motor with external rotor and integrated thermal protection.
2. Extract fan with backward curved blades and maintenance-free motor with external rotor and integrated thermal protection.
3. Plate cross flow heat recovery core that can be replaced with a summer block when no need for heat recovery.
4. G4 supply air filter.
5. G4 extract air filter.
6. Drain pan (applicable only for HRV H 120(170)
7. Drain hose (included into delivery set).
8. Frost protection thermostat.

MOUNTING AND SET-UP

While mounting the unit provide enough access for the unit maintenance and servicing. Mount the unit to ceiling with threaded rods fixed inside the dowels attached to the ceiling or by means of the belts that are rigidly fixed to horizontal plane (fig. 3). The unit can be installed on mounting supports with adjustable height for connection to the drain system (fig. 4).

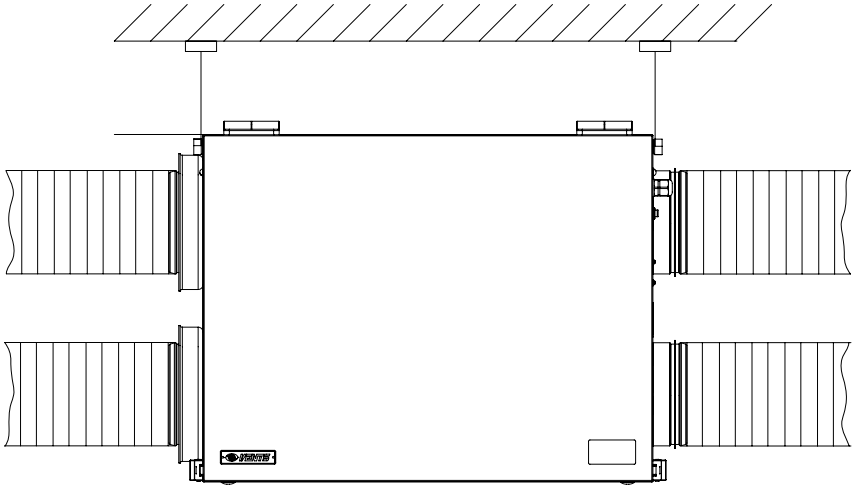

Fig. 3. Unit mounting

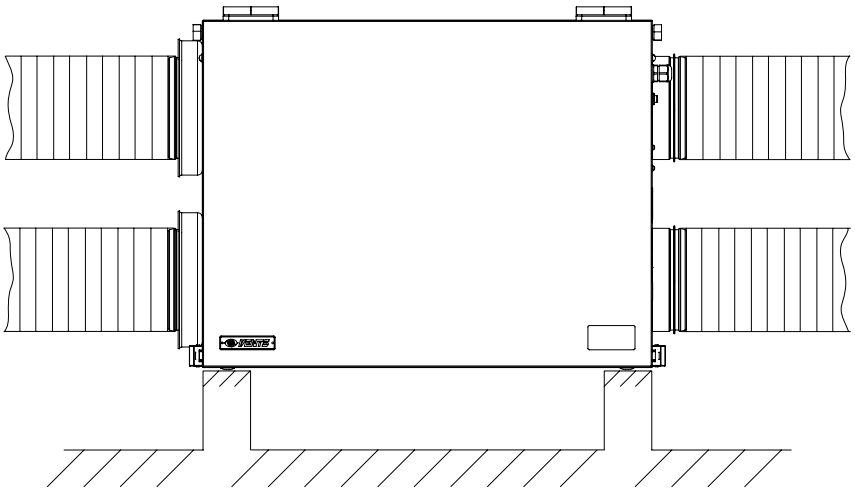

Fig. 4. Installation on mounting supports

To attain the best performance of the unit while mounting provide a straight 20" (500 mm) duct section in front and behind the unit. The unit must be equipped with a grille with the mesh width up to 1/2" or any other protecting device to prevent free access to the unit fans.

CONDENSATE DRAINAGE

The unit is equipped with a condensate drain hose for condensate drainage (fig. 5), (applicable only for HRV H 120(170). Connect the drain hose (1), U-trap (3) and drain system (5) with metal, plastic or rubber pipes (2 and 4). The pipes must be sloped down at least by 3°. Before starting operation of the unit fill the system with water and check that U-trap is always filled with water. Make sure that the water drainage is correct, otherwise some condensate may be accumulated inside the unit and provoke subsequent equipment damage and water ingress to the room. The condensate drainage system is designed for operation at the ambient temperature above 32 ºF(0 ºC). If the ambient temperature is below 32 ºF(0 ºC), insulate the drain system and provide air heating.

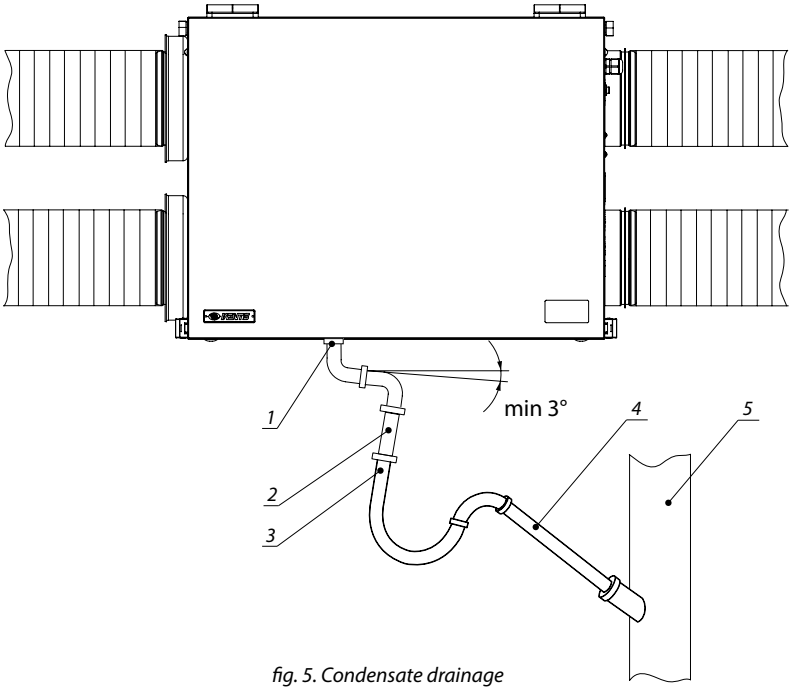

fig. 5. Condensate drainage

CONNECTION TO POWER MAINS

**CUT POWER SUPPLY OFF BEFORE ANY OPERATIONS WITH THE UNIT.
THE UNIT SHALL BE CONNECTED TO POWER MAINS BY A DULY QUALIFIED ELECTRICIAN ONLY.
RATED VALUES OF THE ELECTRICAL PARAMETERS ARE SHOWN ON THE RATING PLATE. ANY MODIFICATIONS OF THE INTERNAL CONNECTIONS ARE NOT ALLOWED AND WILL VOID THE WARRANTY.**

The unit is designed for connection to single-phase ac 120 V / 60 Hz power mains.
The unit is equipped with a power cable and a plug and can be connected to any standard grounded outlet. The power cable is connected to the terminal X1 by default.
Connect the unit to power mains through the external automatic switch integrated into the fixed wiring system that breaks the circuit in case of short circuit or overload.
Install the circuit breaker to have a free quick access in case of need to turn the unit off promptly.
The unit has overload protection provided by the thermal fuse which is activated in case of overload or short circuit. To replace the thermal fuse, disconnect the unit from power mains, remove the overload or short circuit. Remove the thermal fuse and check the unit.
Wiring diagram is shown in fig. 6.
The thermostat TS1 (fig. 6) provides freezing protection of the unit during cold season.
As the thermostat is activated, the supply fan stops and the heat recovery core is warmed up with extract air stream. To adjust the thermostatic switch, rotate the control dial to required setpoint. The setpoint depends on the operating conditions. Recommended setting of the thermostat is 37°F (+3ºC), set in the factory by default.

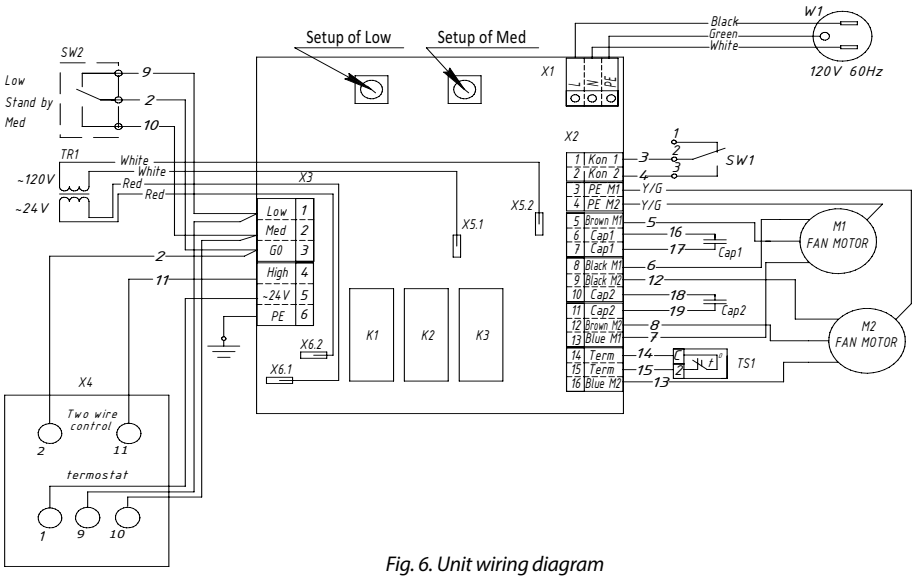

Fig. 6. Unit wiring diagram

UNIT CONTROL

The unit is controlled by a three-position speed switch that enables low-speed modes «Low» as well as «Med» and «Stand by» mode which enables total air quality control (fig. 7).
Up to five external control devices may be connected to the terminals 2-11 (fig. 7) that turn the unit to high-speed ventilation in case of activation of any of the control devices.

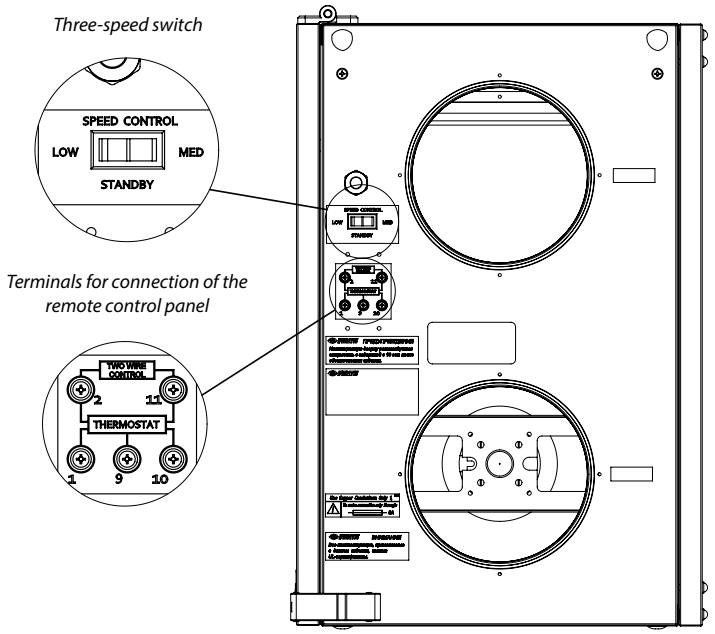

Fig. 7. Unit control

SWITCH THE THREE-POSITION SPEED CONTROLLER TO «STANDBY» MODE FOR CORRECT OPERATION FROM THE REMOTE CONTROL PANEL.

1. Remote control (Thermostat).
Remote control (thermostat) functions:
- Unit turning on/off
- Setting air flow
- Displaying indoor air temperature

2. CO2 sensor.
Recommended for use in office buildings and public premises. When carbon dioxide concentration exceeds the set point, the unit changes into the High Speed Mode.

3. Humidistat.
The humidistat is used for indoor humidity control. When indoor humidity level rises above the set point, the unit changes into the High Speed Mode and runs with the high speed until the humidity level falls down below the set point. The humidity set point is adjustable.

4. Remote mechanical timer.
In case of the timer activation the unit changes into the High Speed Mode.

5. Switch.
In case of the switch contact closing the unit changes into High Speed Mode and reverts to permanent Low Speed Mode when the switch contacts are opened.

SET THE THREE-POSITION SWITCH INTO THE STAND BY POSITION TO ACTIVATE THE REMOTE CONTROL.

SERVICING AND MAINTENANCE

Servicing of the unit is required 3-4 times per year. Besides general cleaning, the following operations are required:
1. Filter maintenance (3-4 times per year)
Dirty filters increase air resistance in the system and reduce supply air flow to the premises.

- Clean or replace the filters as often as required, but at least 3-4 times per year. Clean the filter with running water or a vacuum cleaner.
- After two cleaning replace the filter. Contact your local supplier for new filters.

2. Heat recovery core maintenance (once per year).
Some dust can get accumulated on the heat recovery core block even if you clean or replace the filters regularly in compliance with above procedure. To maintain the high heat exchange efficiency, pull out and clean the heat recovery core with warm detergent solution. Re-install the dry heat recovery to the unit.

3. Fan maintenance (once per year).
Even if you perform regular maintenance of the filters and the heat recovery core, some dust and grease can get accumulated inside the fans and reduce the fan performance and supply air flow.
Clean the fans with a soft brush or dry cloth. No water and abrasive detergent, sharp objects or solvents are allowed for cleaning to prevent the impeller damage.

4. Condensate drainage system maintenance (once per year), (applicable only for HRV H 120(170).
The drain hose can get clogged with the extracted particles. Clean the drain hose is required. Check proper functioning of the drain system by pouring some water into the drain pan at the unit bottom. Clean the U-trap and the drain tubes if required.

5. Supply air flow inspection (twice per year).
Leaves and other objects can clog the intake grille and decrease the unit performance and supply air flow. Check the intake grille twice per year and clean it if required.

6. Air ductwork maintenance (once in 5 years).
Even if you fulfill all the above maintenance guidelines regularly, a certain amount of dust is accumulated inside air ducts. That reduces the ventilation system performance. Clean or replace the air ducts periodically.

TROUBLESHOOTING

Problem	Possible reasons	Solving
The fan(s) do(es) not start running.	Power supply is off.	Make sure the power supply line is connected correct, otherwise troubleshoot the connection error.
	Thermal fuse is melted.	Disconnect the unit from power mains. Remove the overload. Replace the thermal fuse and check the unit.
Cold supply air.	The extract filter is clogged.	Clean or replace the extract filter.
	The heat recovery core is frozen.	Check the heat recovery core condition. Shutdown the unit and turn it on after the freezing danger is no longer imminent. Check the thermostat setpoints.
Low air capacity.	Too low set rotation speed.	Check the speed control settings.
	The filters, fans or heat recovery core are clogged.	Clean or replace the extract filters; clean the fans and the heat recovery core.
	The ventilation system is clogged or damaged.	Check the diffusers and louvre gravity shutters opening, check the exhaust hood and intake grille and clean those if required; make sure that the air ducts are not clogged or damaged.
Noise, vibration.	The impeller(s) is (are) clogged.	Clean the fan impeller(s).
	Fan screw tightening is loose.	Check and tighten the screws if required.
Water leakage.	The drain system is clogged, damaged or wrong arranged.	Clean the drain pipe is required. Check the drain pipe slope, U-trap and temperature conditions.

STORAGE AND TRANSPORTATION RULES

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range from +5 ˚C (+41 ˚F) to +40 ˚C (+104 ˚F) and relative humidity up to 70 %.
- 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 packaging by any mode of transport provided proper protection against precipitation and mechanical damage. The unit can be transported only in the working position.
- Avoid sharp blows, scratches, or rough handling during loading and unloading.
- Prior to the initial power-up after transportation at low temperatures allow the unit to warm up at room temperature for at least 3-4 hours.

MANUFACTURER'S WARRANTY

The product is in compliance with EU norms and standards on low voltage guidelines and electromagnetic compatibility. We hereby declare that the product complies with the provisions of Electromagnetic Council Directive 2014/30/EU, Low Voltage Directive 2014/35/EU and CE-marking Directive 93/68/EEC. This certificate is issued following test carried out on samples of the product referred to above.
The manufacturer hereby warrants normal operation of the unit for 60 months after the retail sale date provided the user's observance of the transportation, storage, installation, 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 get all the faults eliminated by the manufacturer by means of warranty repair at the factory free of charge. The warranty repair includes 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 paperwork 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 dismounted by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packaging 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.
- Violation of the unit installation regulations by the user.
- Violation of the unit control regulations by the user.
- Unit connection to power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in 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.
- Violation of the unit transportation regulations by the user.
- Violation of the unit storage regulations by the user.
- 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 paperwork certifying the unit purchase.

DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!

USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP.

CERTIFICATE OF ACCEPTANCE

Unit Type	Single-room reversible energy recovery ventilator
Model	HRV/ERV H 120(170)
Serial Number	
Manufacture Date	
We hereby declare that the product complies with the protection requirements of Electromagnetic Council Directive 2014/30/EU, Low Voltage Directive 2014/35/EU and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. This certificate is issued following the test on the samples of the product referred to above.	
Quality Inspector's Stamp	

SELLER INFORMATION

Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	

Seller's Stamp

INSTALLATION CERTIFICATE

The single-room reversible energy regeneration ventilator HRV/ERV H 120(170) has been connected to power mains pursuant to the requirements stated in the present user's manual.		
Company Name		
Address		
Phone Number		
Installation Technician's Full Name		
Installation Date:	**Signature**	
The unit has been installed in accordance with the provisions of all applicable local and national construction, electrical, and technical codes and standards. The unit operates normally as intended by the manufacturer.		
Signature:		

Installation Company Stamp

WARRANTY CARD

Unit Type	Single-room reversible energy recovery ventilator
Model	HRV/ERV H 120(170)
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	

Seller

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