



**AIR HANDLING UNIT**



***Freshbox 110***  
***Freshbox 110 K1***  
***Freshbox 110 ERV***  
***Freshbox 110 K1 ERV***

**EN**

**USER'S MANUAL**



**BLAUBERG**  
Ventilatoren

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This user's manual is a main operating document intended for technical, maintenance, and operating staff.

The manual contains information about purpose, technical details, operating principle, design, and installation of the Freshbox 110(K1) (ERV) unit and all its modifications.

Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country.

## SAFETY REQUIREMENTS

All operations described in this manual must be performed by qualified personnel only, properly trained and qualified to install, make electrical connections and maintain ventilation units.

Do not attempt to install the product, connect it to the mains, or perform maintenance yourself. This is unsafe and impossible without special knowledge.

Disconnect the power supply prior to any operations with the unit.

All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.

Disconnect the unit from the power supply prior to any connection, servicing, maintenance, and repair operations.

**Only qualified electricians with a work permit for electrical units up to 1000 V are allowed for installation. The present user's manual should be carefully read before beginning works.**

Check the unit for any visible damage of the impeller, the casing, and the grille before starting installation. The casing internals must be free of any foreign objects that can damage the impeller blades.

While mounting the unit, avoid compression of the casing! Deformation of the casing may result in motor jam and excessive noise.

Misuse of the unit and any unauthorised modifications are not allowed.

Do not expose the unit to adverse atmospheric agents (rain, sun, etc.).

Transported air must not contain any dust or other solid impurities, sticky substances, or fibrous materials.

Do not use the unit in a hazardous or explosive environment containing spirits, gasoline, insecticides, etc.

Do not close or block the intake or extract vents in order to ensure the efficient air flow.

Do not sit on the unit and do not put objects on it.

The information in this user's manual was correct at the time of the document's preparation.

The Company reserves the right to modify the technical characteristics, design, or configuration of its products at any time in order to incorporate the latest technological developments.

Never touch the unit with wet or damp hands.

Never touch the unit when barefoot.

**BEFORE INSTALLING ADDITIONAL EXTERNAL DEVICES, READ THE RELEVANT USER MANUALS.**

This unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the unit by a person responsible for their safety. Children should be supervised to ensure that they do not play with the unit.

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.

Cleaning and user maintenance shall not be made by children without supervision.

Children shall not play with the appliance.

Connection to the mains must be made through a disconnecting device, which is integrated into the fixed wiring system in accordance with the wiring rules for design of electrical units, and has a contact separation in all poles that allows for full disconnection under overvoltage category III conditions.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a safety hazard.

Ensure that the unit is switched off from the supply mains before removing the guard.

Precautions must be taken to avoid the back-flow of gases into the room from the open flue of gas or other fuel-burning appliances.



**THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.  
DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.**

**PURPOSE**

The unit is designed to ensure continuous mechanical air exchange in residential premises, offices, hotels, cafés, conference halls, and other public spaces as well as to recover the heat energy contained in the air extracted from the premises to warm up the filtered stream of supply air.

The unit is not intended for organizing ventilation in swimming pools, saunas, greenhouses, summer gardens and other spaces with high humidity.

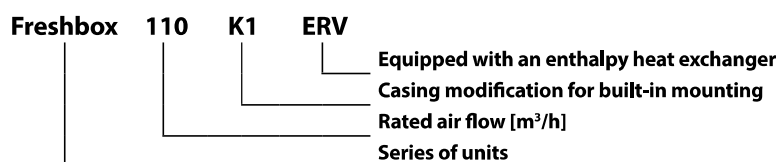
Due to the ability to save heating energy by means of energy recovery, the unit is an important element of energy-efficient premises. The unit is a component part and is not designed for stand-alone operation.

It 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	
	Freshbox 110 (ERV)	Freshbox110K1(ERV)
Mounting	1	1
User's manual	1	1
Template	1	1
Magnetic sheet	1	2
Spigot	1	—
Packing box	1	1

**DESIGNATION KEY**

## TECHNICAL DATA

The unit is designed for indoor application with the ambient temperature ranging from +1 °C up to +40 °C and relative humidity up to 60 % without condensation. In cold, damp rooms, there is a possibility of freezing or condensation inside and outside the casing.

In order to prevent condensation on the internal walls of the unit, it is necessary that the surface temperature of the casing is 2-3 °C above the dew point temperature of the transported air.

The unit should be operated continuously, and in cases where ventilation is not necessary, reduce the air flow of the fans to a minimum (20%). This will ensure a favorable indoor climate and reduce the amount of condensation inside the unit, which can damage electronic components. Never use the unit for dehumidification, for example, of new buildings.

The unit is rated as a Class I electrical appliance.

Hazardous parts access and water ingress protection rating:

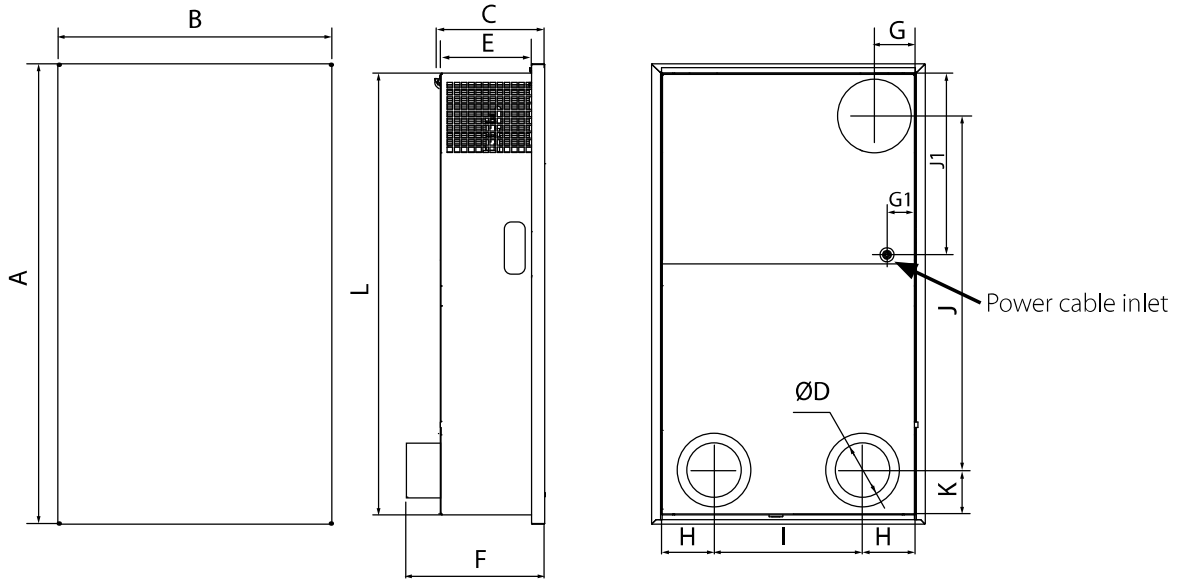
IP20 for the unit connected to the air ducts.

IP44 for the unit motors.

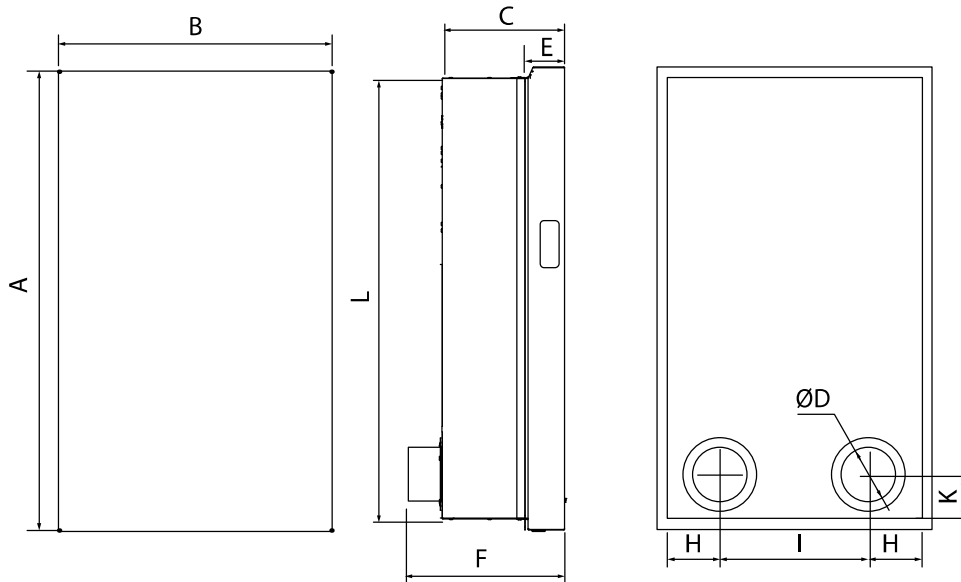
The unit design is constantly being improved, thus some models may be slightly different from those described in this manual.

PARAMETER	Freshbox 110			Freshbox 110 K1			Freshbox 110 ERV			Freshbox 110 K1 ERV		
	1	2	3	1	2	3	1	2	3	1	2	3
Speed	1	2	3	1	2	3	1	2	3	1	2	3
Maximum air flow [m <sup>3</sup> /h]	30	60	100	30	60	100	30	60	100	30	60	100
Supply voltage, 50 (60) Hz [V]	1~230											
Unit power [W]	10	15	31	10	15	31	10	15	31	10	15	31
Maximum unit current [A]	0,26											
RPM [min <sup>-1</sup> ]	3200											
Sound power level [dBA]	31	41	51	31	41	51	31	41	51	31	41	51
Sound pressure level at 1 m distance [dBA]	20	30	40	20	30	40	20	30	40	20	30	40
Sound pressure level at 3 m distance [dBA]	10	21	31	10	21	31	10	21	31	10	21	31
Transported air temperature [°C]	-15...+40											
Casing material	Painted steel			Painted steel, galvanized steel			Painted steel			Painted steel, galvanized steel		
Insulation [mm]	10											
Supply filter ISO 16890 / EN 779:2012	Coarse 90% / G4											
Extract filter ISO 16890 / EN 779:2012	Coarse 90% / G4, ePM1 65% / F7 (option)											
Heat recovery efficiency [%]	93	87	84	93	87	84	85	80	72	85	80	72
Humidity recovery efficiency [%]	-						45	39	29	45	39	29
Heat exchanger type	Counter-flow											
Heat exchanger material	Polystyrene						Enthalpy					
Connected air duct diameter [mm]	2x100 mm + 1x100 mm (option)			2x100 mm + 4x75 mm (option)			2x100 mm + 1x100 mm (option)			2x100 mm + 4x75 mm (option)		
Weight [kg]	20			23			20			23		
SEC class	A											

**Freshbox 110 (ERV)**

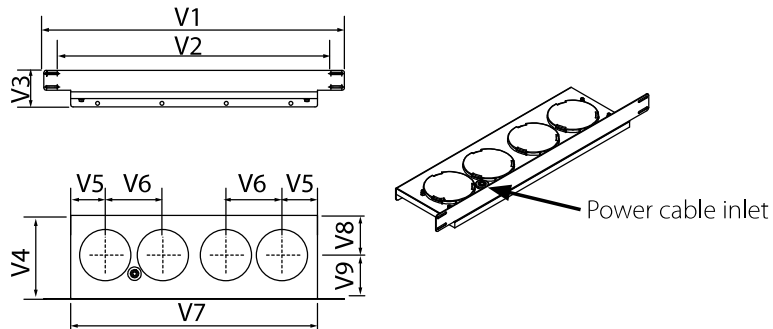


**Freshbox 110 K1 (ERV)**



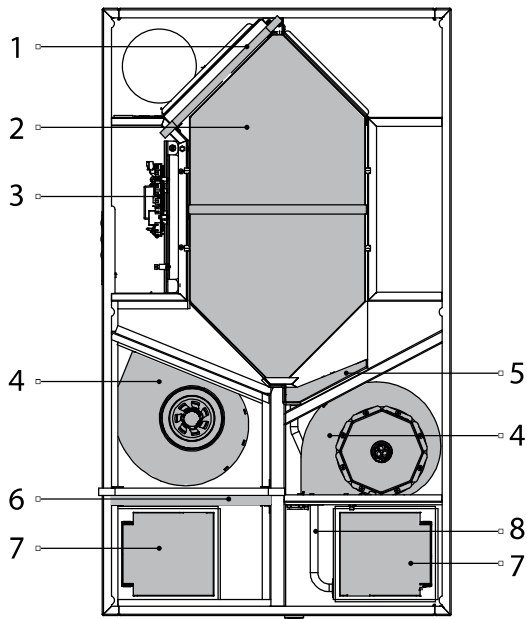
Model	Dimensions [mm]											
	Ø D	A	B	C	E	F	G	H	I	J	K	L
Freshbox 110 (ERV)	100	834	496	195	165	251	75	95	270	644	81	800
Freshbox 110 K1 (ERV)		840	500	224	67	284	—			—		800

**Mounting plate for Freshbox 110 K1 (ERV)**



Dimensions [mm]								
V1	V2	V3	V4	V5	V6	V7	V8	V9
570	510	79	156	67	104	460	73	82

**DESIGN AND OPERATING PRINCIPLE**



- 1: extract filter
- 2: heat exchanger
- 3: control unit
- 4: fan unit
- 5: drain pan
- 6: supply filter
- 7: damper with an electric actuator ( )
- 8: condensate drain pipe (Freshbox 110 (K1))

Extract air from the room flows to the unit, where it is filtered by the extract filter, then air flows through the heat exchanger and is exhausted outside by the extract fan.

Intake air from outside flows into the unit, where it is cleaned by the supply filter. Then filtered air flows through the heat exchanger and is moved to the room with the supply fan.

Thermal energy of warm extract air is transferred to clean intake fresh air from outside and warms it up. The air flows are fully separated. Heat recovery minimizes heat losses, which reduces the cost of space heating in the cold season.

Frost protection of the heat exchanger (danger of freezing appears when the exhaust air temperature downstream of the heat exchanger is lower than +5 °C) is provided by automatically switching off the supply fan.

The frost protection mode of the heat exchanger is deactivated at an air temperature above +7 °C.

Frost protection is only possible in heat recovery mode.

The Freshbox 110 (ERV) units provide for the installation of an exhaust spigot (Ø 100 mm) for servicing another room.

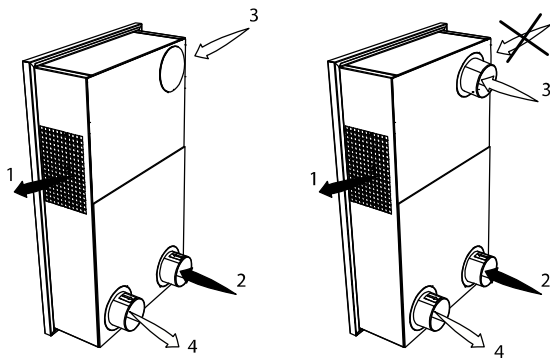
The spigot is included in the delivery set.

The exhaust grille must be covered with the magnetic plug supplied.

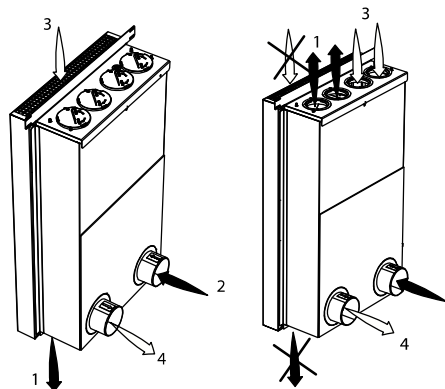
The Freshbox 110 K1 (ERV) units provide for the connection of FlexiVent 75 air ducts.

When using a mounting plate, the exhaust and supply grilles must be closed with the magnetic plugs included in the delivery set.

Freshbox 110 (ERV)



Freshbox 110 K1 (ERV) with mounting plate



- 1 – supply air
- 2 – intake air
- 3 – extract air
- 4 – exhaust air

## MOUNTING AND SET-UP



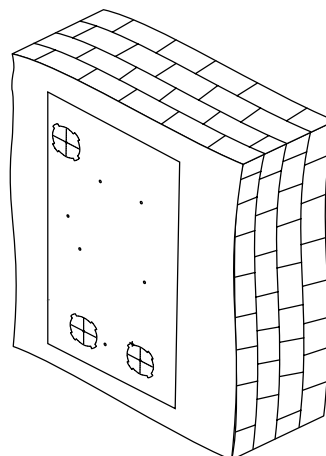
**READ THE USER'S MANUAL BEFORE INSTALLING THE UNIT.**



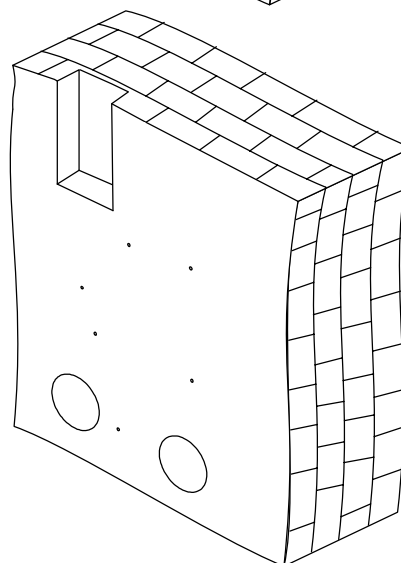
**WHILE INSTALLING THE UNIT ENSURE CONVENIENT ACCESS FOR SUBSEQUENT MAINTENANCE AND REPAIR.**

### Freshbox 110 (ERV)

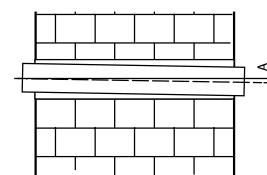
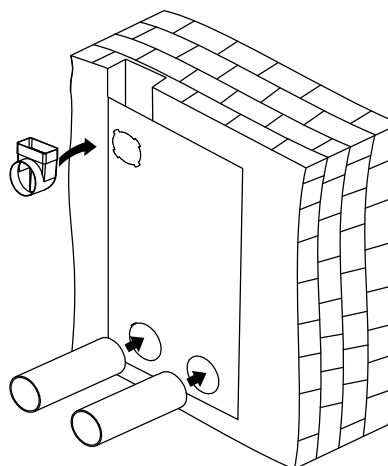
1. Fix the mounting template at the required level on the wall. Mark the holes for the air ducts, the hole for power cable entry and holes for mounting the unit. For installation operations route necessary cables and wires to the place where the power cable enters the unit.



2. Remove the mounting template and drill two through holes  $\varnothing$  120 mm in the wall for the air ducts. When mounting the unit with an extract spigot prepare a hole in the wall for a connecting bend and for laying of a rectangular air duct. A connecting bend, rectangular and round air ducts are available separately. Drill  $\varnothing$  8 mm holes to mount the unit. Install the expansion anchors, remove the perforated fillers for the air ducts from the mounting template and install the mounting template back. Prepare air ducts of required length. Note that the telescopic air duct end must protrude for the distance that enables installation of the outer ventilation hood. For details, refer to the installation instruction for the ventilation hood. The outer ventilation hood is available separately.



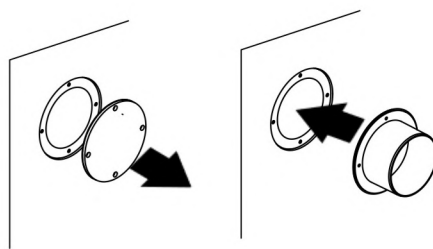
3. Insert the air ducts in the corresponding holes of the mounting template. Install the air duct A with the minimum slope of 3 mm for condensate removal. To install the unit with an additional spigot, insert the connecting bend into the prepared hole in the wall, aligning the mounting template hole with a round end of the connecting bend. Connect a rectangular duct to the connecting bend. Fill the gaps between the air ducts and the wall with a mounting foam. Wait till the mounting foam hardens then take off the mounting template and remove the foam excess. Cut off the protruding air duct parts to be flush with the wall surface.



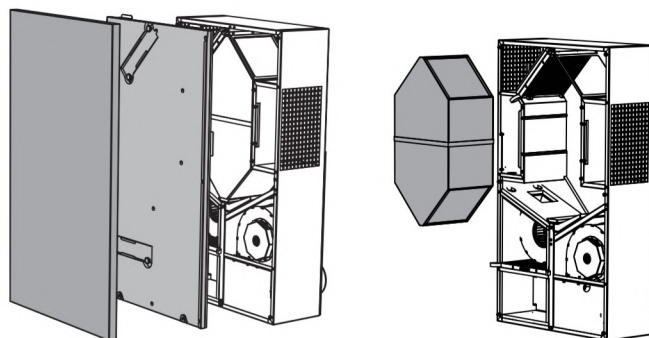


4. To install an extract spigot, remove the plug on the rear part of the unit.

Undo the screws, remove the plug and fix a spigot on its place.



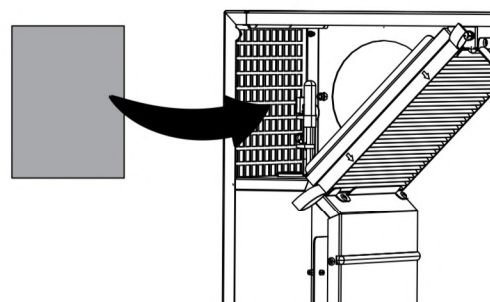
To access the mounting holes, remove the decorative panel, unscrew the screws and remove the protective panel, remove the heat exchanger.



If an optional exhaust spigot is installed, install a magnetic plug on the exhaust grille.

For Freshbox 110 units it is recommended to use a condensate drain pipe heater (not included in the delivery set).

The heater must be installed before fixing the unit to the wall (see the heater installation manual).



5. Lift the unit, insert the spigots into the air ducts installed in the wall.

Fix the unit using the supplied screws.

The unit is secured with five screws.

Install the heat exchanger, protective and decorative panels.

Mount an outer ventilation hood (not included in the delivery set).

