

HEAT AND ENERGY RECOVERY AIR HANDLING UNIT



KOMFORT ERV EC DB 100 S14
KOMFORT ERV EC DB 150 S14
KOMFORT ERV EC DB 250 S14
KOMFORT ERV EC DB 350 S14

EN

USER'S MANUAL

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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 KOMFORT ERV EC DB 100/150/250/350 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

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.

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 appliance may adversely affect the safe operation of appliances burning gas or other fuels (including those in other rooms) due to back flow of combustion gases. These gases can potentially result in carbon monoxide poisoning. After installation of the unit the operation of flued gas appliances should be tested by a competent person to ensure that back flow of combustion gases does not occur.

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.

Connection of the unit to power mains is allowed by a qualified electrician with a work permit for the electric units up to 1000 V after careful reading of the present user's manual.

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.



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 houses, offices, hotels, cafes, conference halls, and other utility and 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 intake 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.

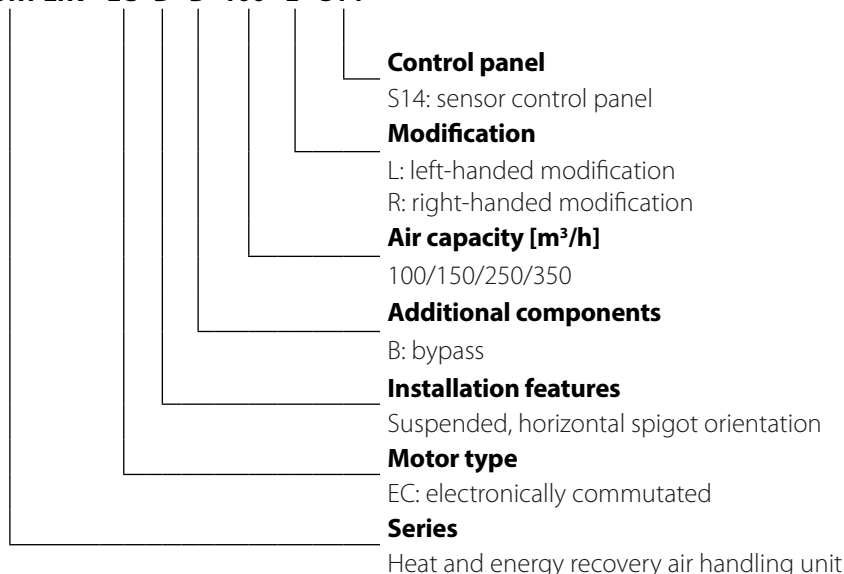
Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, sticky substances, fibrous materials, coarse dust, soot and oil particles or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs).

DELIVERY SET

Name	Number
Air handling unit	1 item
User's manual	1 item
Control panel	1 item
Packing box	1 item

DESIGNATION KEY

KOMFORT ERV EC D B 100 L S14



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.

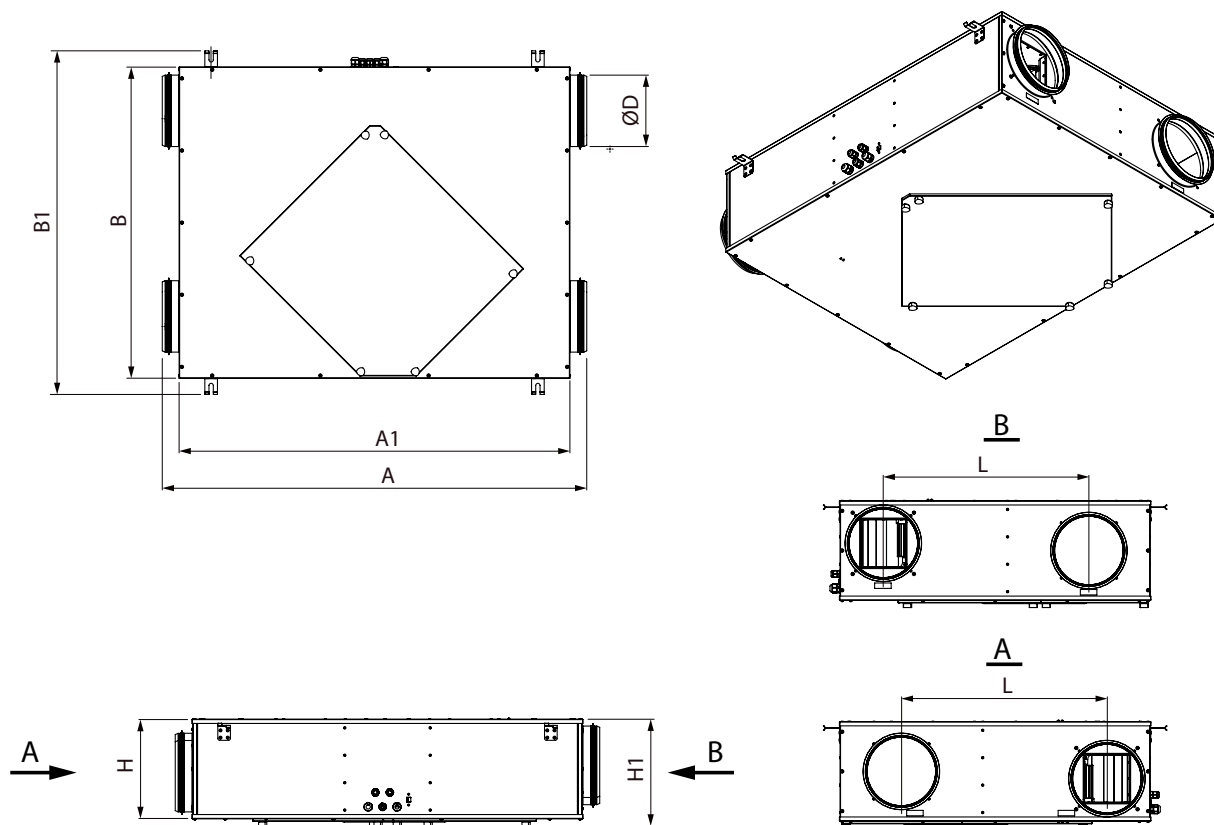
Hazardous parts access and water ingress protection rating:

IP22 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.

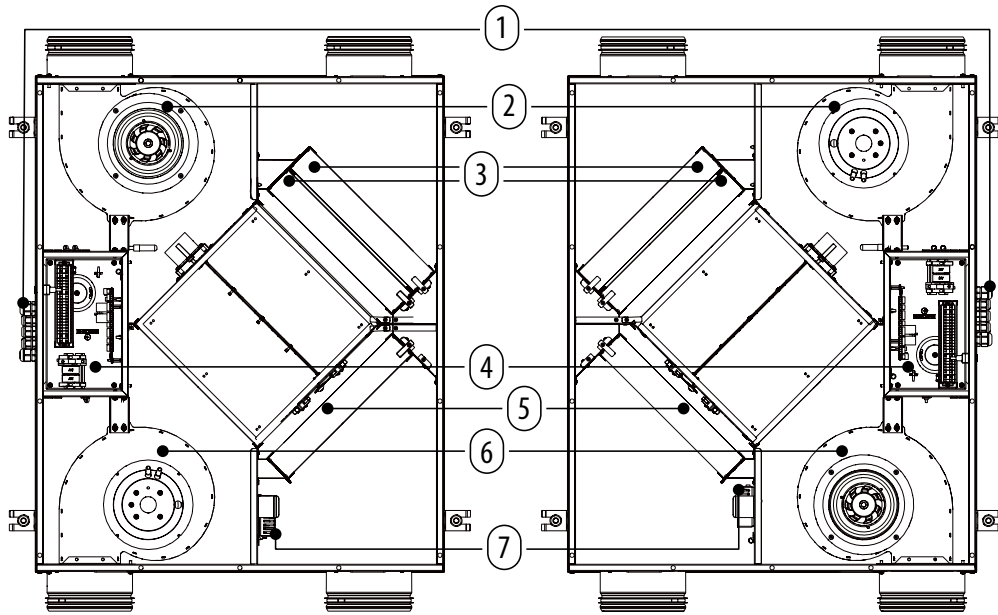
Parameter	KOMFORT ERV EC DB 100	KOMFORT ERV EC DB 150	KOMFORT ERV EC DB 250	KOMFORT ERV EC DB 350
Unit voltage [V 50/60 Hz]	1~ 230			
Maximum unit power [W]	66	83	84	171
Maximum unit current [A]	0.5	0.7	0.7	1.3
Maximum air capacity [m ³ /h]	170	215	300	430
RPM	2800	2000	2000	3200
Sound pressure level at 3 m distance [dBA]	30	32	36	46
Transported air temperature [°C]	-15...+40			
Extract air filter	G4			
Supply air filters	G4 and F8 (PM2.5 93 %)			
Connected air duct diameter [mm]	100	100	150	150
Heat recovery efficiency [%]	70-82	68-82	63-73	68-85
Humidity recovery efficiency [%]	24-41	22-41	16-27	19-34
Heat exchanger type	cross-flow enthalpy			
Weight [kg]	17	26	29	42
Energy efficiency class	A			



Model	Dimensions [mm]							
	Ø D	A	A1	B	B1	H	H1	L
KOMFORT ERV EC DB 100	100	734	600	481	571	207	229	300
KOMFORT ERV EC DB 150	100	987	854	704	793	222	241	480
KOMFORT ERV EC DB 250	150	987	854	704	793	227	246	480
KOMFORT ERV EC DB 350	150	1157	1024	754	843	277	296	488

DESIGN AND OPERATING PRINCIPLE

DESIGN. BOTTOM VIEW



KOMFORT ERV EC DB 100/150/250/350 L

KOMFORT ERV EC DB 100/150/250/350 R

- 1. Cable glands; 2. Extract fan; 3. Supply filter; 4. Control unit; 5. Extract filter; 6. Supply fan; 7. Humidity sensor (option)*.

The service panel is equipped with a detachable access door with manual bolts for cleaning or replacement of the filters and heat exchanger. The control unit is positioned inside the unit casing.

The power and the ground cable are to connect to the control unit through the cable glands in the unit casing side.

The plate enthalpy cross-flow heat exchanger is made of polymerized cellulose.

*At the request of the customer the unit can be equipped with a humidity sensor. The humidity sensor is purchased separately as an accessory. The unit with an installed humidity sensor maintains a set indoor humidity point. As the extract air humidity rises above the set point, the system automatically switches to the maximum speed. As the humidity drops down below the set point the unit returns to the previous operation mode. Installation and connection of the humidity sensor is carried out on site by the service technician.

UNIT OPERATION MODES

Heat recovery: warm extract air from the room flows into the unit and is cleaned in the extract filter. Then the air is moved through the heat exchanger and is exhausted outside with the extract fan. Cold fresh air from outside flows into the unit, where it is cleaned in the supply filter. Then the air flows through the heat exchanger and is moved to the room with the supply fan.

Supply air is heated in the heat exchanger by transferring the heat energy of warm and humid extract air to the cold fresh air.

The air flows are fully separated while flowing through the heat exchanger. Heat recovery minimizes heat losses, which reduces the cost of space heating in the cold season. The enthalpy heat exchanger allows to recover humidity as well as heat.

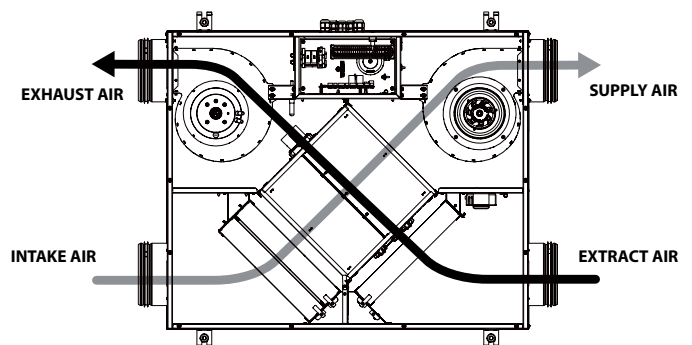
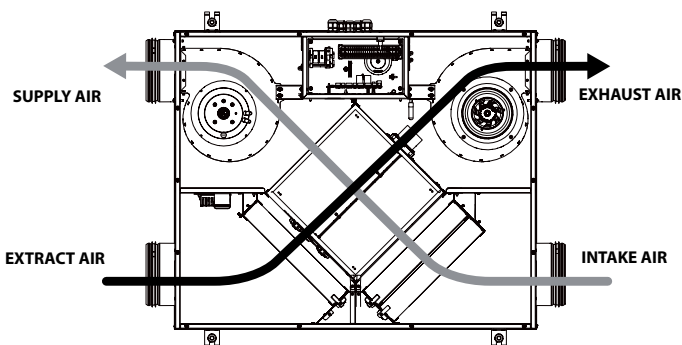
In the summer period, the supplied fresh air is cooled and dried by the heat exchanger, in the winter period it is heated and moisturized. The water vapour is devaporated from the stale wet air and absorbed with heat exchanger plates.

The released heat and moisture are transferred to the supply air. The transferring of dirt, odours and microorganisms from one air flow to another is excluded.

View from the service side

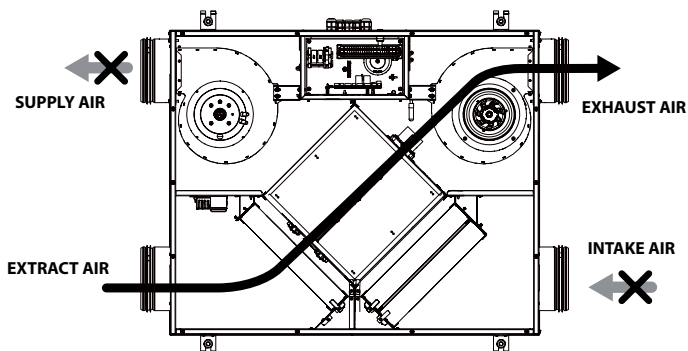
KOMFORT ERV EC DB 100/150/250/350 L

KOMFORT ERV EC DB 100/150/250/350 R

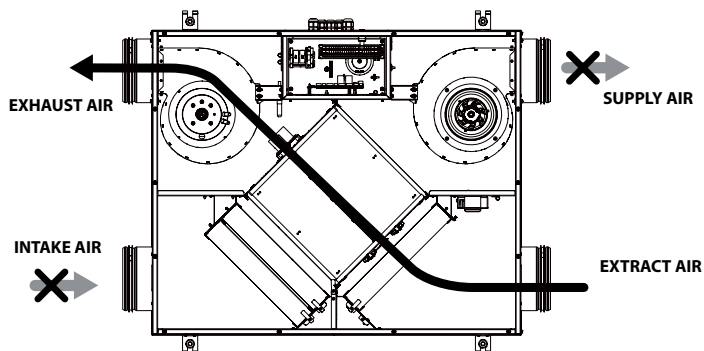


Defrosting mode: to prevent the heat exchanger freezing in the cold season the unit has an automatic Defrosting mode according to the freeze protection temperature sensor readings in the exhaust air duct downstream of the heat exchanger. The unit switches to the defrosting mode at the extract air temperature +3 °C. As the temperature rises the unit returns to the previous mode. Only the extract fan operates in the defrosting mode, the supply fan is switched off.

KOMFORT ERV EC DB 100/150/250/350 L

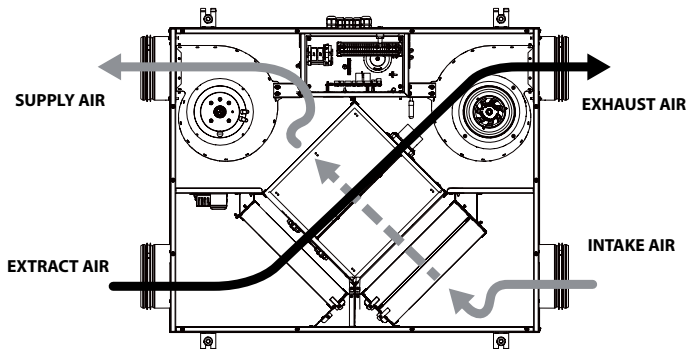


KOMFORT ERV EC DB 100/150/250/350 R

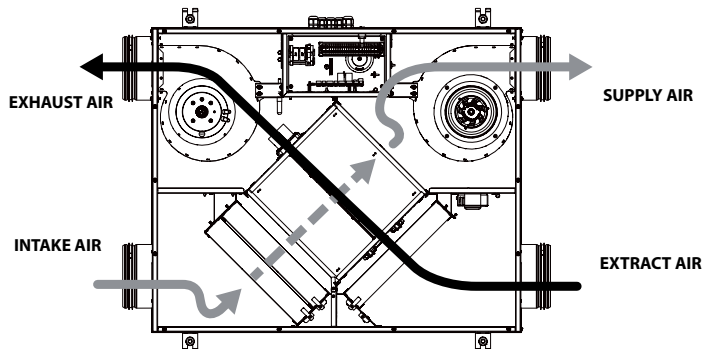


Summer Cooling mode: in the units with a bypass damper, the part of the intake air that is supplied to the premises bypasses the heat exchanger.

KOMFORT ERV EC DB 100/150/250/350 L



KOMFORT ERV EC DB 100/150/250/350 R



MOUNTING AND SET-UP



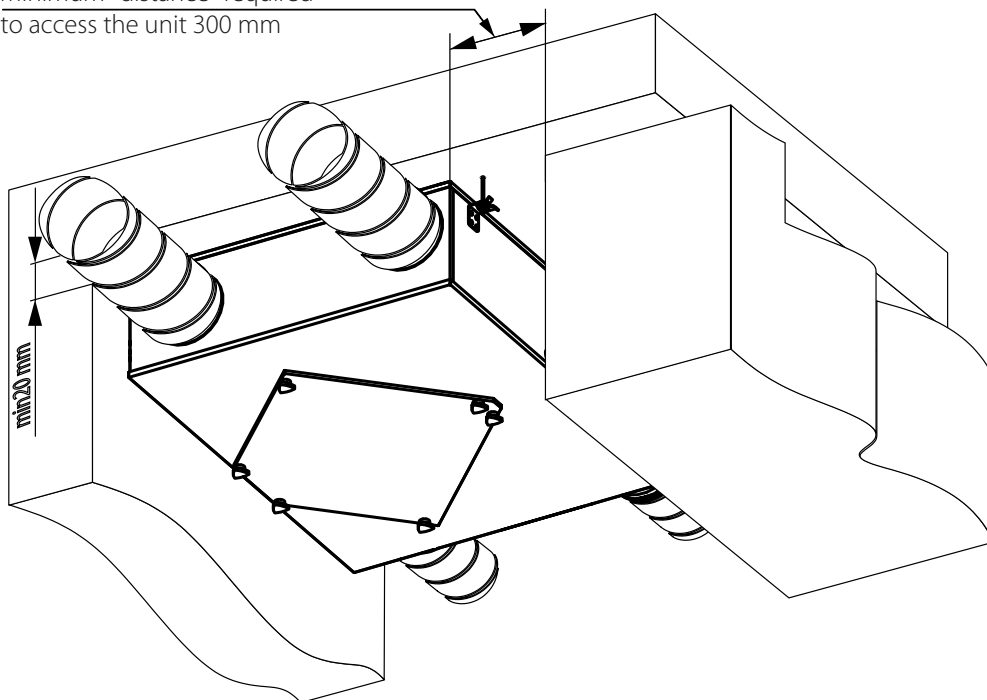
READ THE USER'S MANUAL BEFORE INSTALLING THE UNIT.



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

While mounting the unit provide enough space for its servicing and maintenance.

Minimum distance required
to access the unit 300 mm



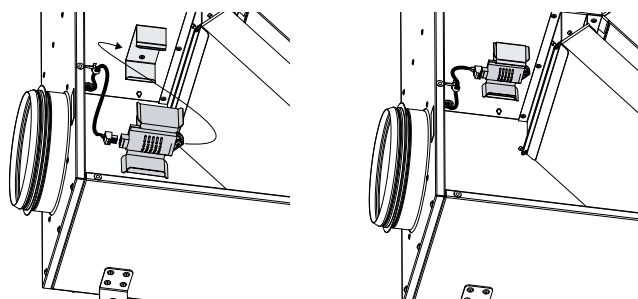
HUMIDITY SENSOR MOUNTING

The humidity sensor is not included in the delivery set and can be ordered separately.

The humidity sensor must be installed prior to unit mounting.

Unit mounting sequence:

- Remove the mounting screws of the service side panel of the unit and take it off.
- Install the humidity sensor into the mount from the side of the extract air duct and connect the humidity sensor connector to the respective connector coming from the control unit, refer to the External wiring diagram.
- Install the sensor cover back.

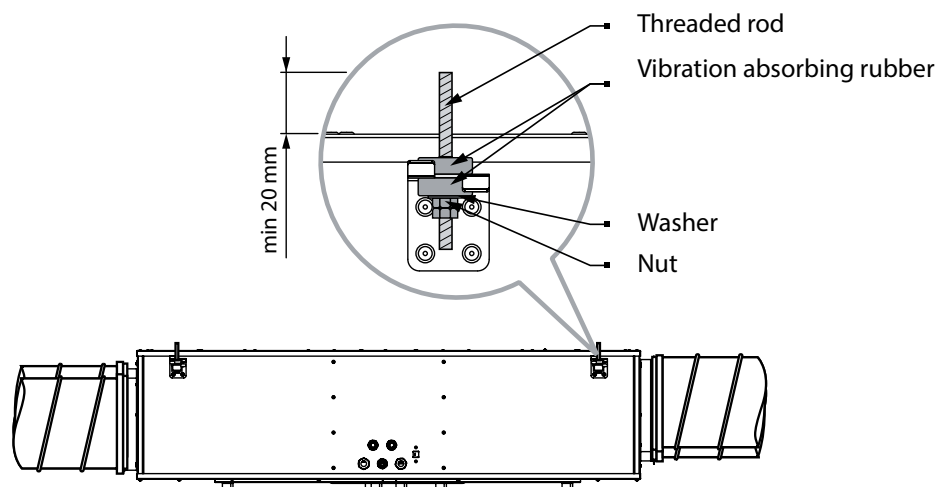


UNIT MOUNTING

The unit is designed for ceiling mounting with anchor threaded bolts, nuts and vibration-absorbing rubber. Fasteners for unit mounting are not included in the delivery set and should be ordered separately. While choosing fasteners consider the material of the mounting surface as well as the weigh of the unit, refer to the Technical Data section. Fasteners for unit mounting should be selected by the service technician. Before mounting make sure that the casing is free of any foreign objects like film or paper. While installing the unit ensure convenient access for subsequent maintenance and repair. Minimum required distance from the unit to the ceiling is at least 20 mm. To attain the best performance of the unit and to minimise turbulence-induced air pressure losses, connect the straight air duct section to the spigots on both sides of the unit while mounting. Minimum straight air duct length:

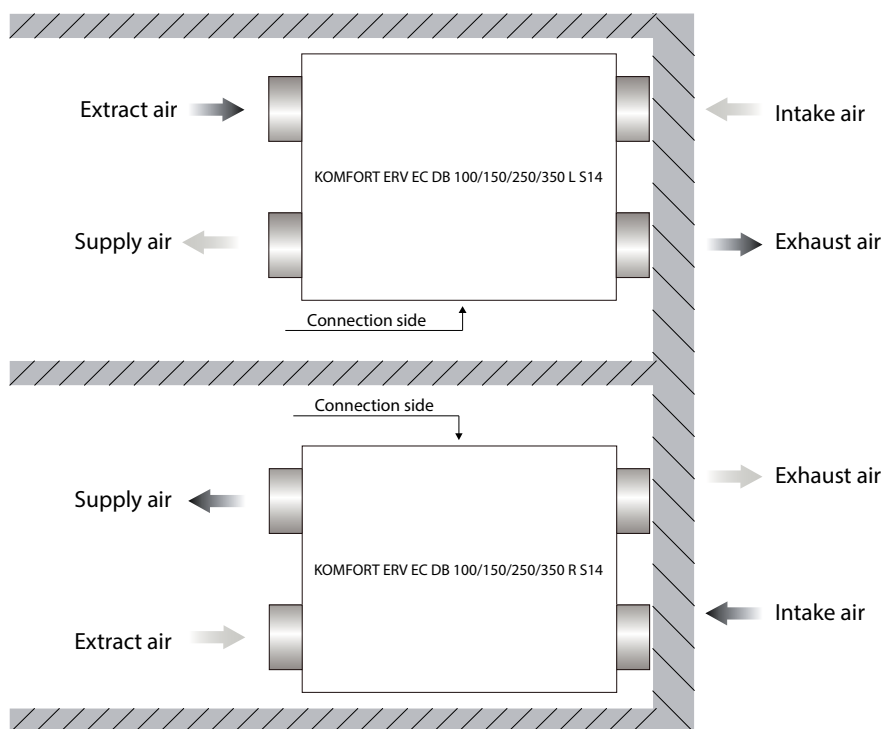
- equal to 1 air duct diameter on intake side
- equal to 3 air duct diameters on outlet side

If the air ducts are too short or not connected, protect the unit parts from ingress of foreign objects. To prevent uncontrollable access to the fans the spigots may be covered with a protecting grille or other protecting device with mesh width not more than 12.5 mm.

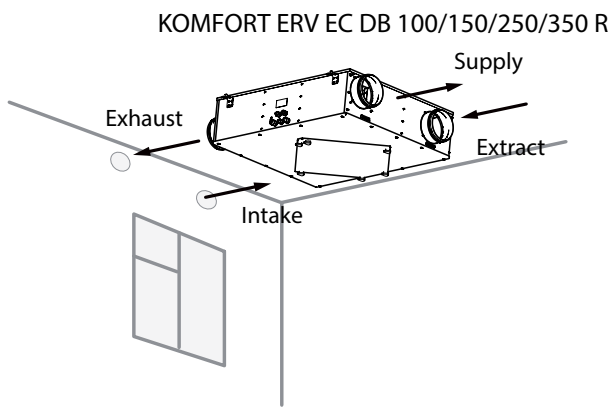
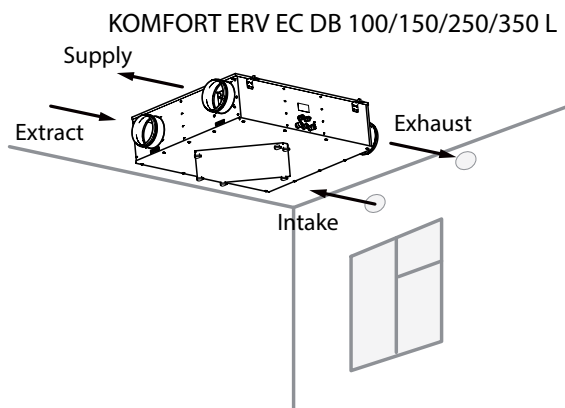


UNIT MODIFICATIONS


Choosing the right arrangement can improve the ease of installation, shorten the length of the ducts and reduce the number of air duct bends.



Top view



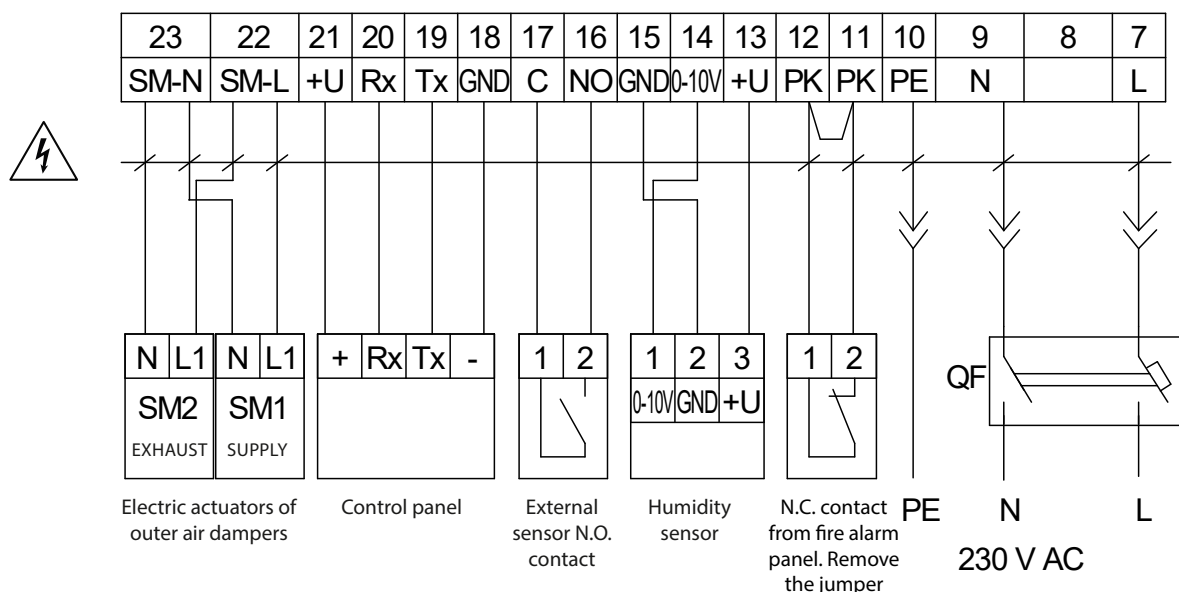
CONNECTION TO POWER MAINS



POWER OFF THE POWER SUPPLY PRIOR TO ANY OPERATIONS WITH THE UNIT.
THE UNIT MUST BE CONNECTED TO POWER SUPPLY BY A QUALIFIED ELECTRICIAN.
THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE MANUFACTURER'S LABEL.

- The unit is rated for connection to 1~230 V 50/60 Hz according to the wiring diagram.
- The connection must be made using insulated conductors (cables, wires).
- The actual wire cross section selection must be based on the maximum load current, maximum conductor temperature depending on the wire type, insulation, length and installation method.
- The external power input must be equipped with an automatic circuit breaker QF built into the stationary wiring to open the circuit in the event of overload or short-circuit.
- The position of the automatic circuit breaker must ensure free access for quick power-off of the unit.
- The trip current of the automatic circuit breaker must exceed the maximum current consumption of the unit (refer to the "Technical data" section or to the unit label).
- It is recommended to select the nominal current of the circuit breaker from the standard series, following the maximum current of the connected unit.
- The circuit breaker is not included in the delivery set and can be ordered separately.

External wiring diagram



TECHNICAL MAINTENANCE



DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!
MAKE SURE THE UNIT IS DISCONNECTED FROM POWER MAINS BEFORE REMOVING THE PROTECTION

The unit must undergo technical maintenance 3 to 4 times a year. It includes general cleaning of the unit and the following operations:

1. Filter maintenance (3-4 times per year).

Dirty filters increase air resistance in the system and reduce supply air volume. The filters require replacing not less than 3-4 times per year.

To replace the filters, open the access door on the service panel and remove the dirty filters, then install new filters and close the access door.

For new filters contact the Seller.

2. Heat exchanger maintenance (once a year).

Some dust may accumulate on the heat exchanger block even in case of regular maintenance of the filters.

To maintain the high heat exchange efficiency, regular heat exchanger vacuum cleaning using a crevice nozzle is recommended.

3. Fan maintenance (once a year).

Even in case of regular maintenance of the filters, some dust may accumulate inside the fans and reduce the fan performance and supply air flow.

Clean the fans with a soft brush or cloth.

Do not use water, aggressive solvents or sharp objects as they may damage the impeller.

4. Technical maintenance of air duct system (every 5 years).

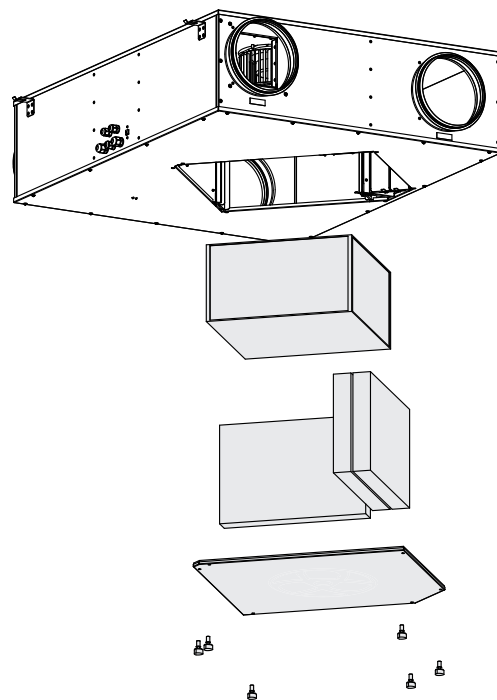
Even regular fulfilling of all the prescribed above maintenance operations may not completely prevent dirt accumulation in the air ducts which reduces the unit capacity.

Duct maintenance means regular cleaning or replacement.

5. Control unit maintenance (if necessary).

The control unit is positioned inside the unit casing.

To access the control unit, remove the mounting screws of the service panel of the unit and take it off.



TROUBLESHOOTING

Problem	Possible reasons	Troubleshooting
The fan(s) do(es) not get started.	The unit is disconnected from network.	Make sure the power supply line is connected correctly, otherwise troubleshoot a connection error.
Low air flow.	Filters, fans or the heat exchanger are soiled.	Clean or replace the filters. Clean the fans and the heat exchanger.
	The ventilation system is clogged or damaged.	Clean the ventilation system components. Replace the damaged components.
Noise, vibration	The fan impeller is soiled.	Clean the impellers.
	The fan or casing screw connection is loose.	Tighten the screw connection of the fans or the casing against stop.

STORAGE AND TRANSPORTATION REGULATIONS

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range from +5 °C to + 40 °C and relative humidity up to 70 %.
- Storage environment must not contain aggressive vapors 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 must 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 operating 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 Compatibility (EMC) Directive 2014/30/EU of the European Parliament and of the Council, Low Voltage Directive (LVD) 2014/35/EU of the European Parliament and of the Council and CE-marking Council 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 24 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 dismantled 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.



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



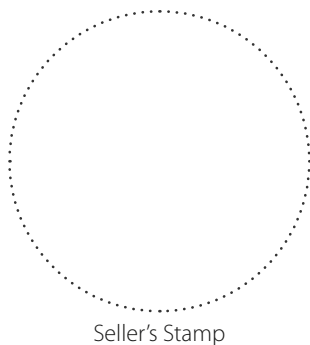
USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP

CERTIFICATE OF ACCEPTANCE

Unit Type	Heat and energy recovery air handling unit
Model	
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

SELLER INFORMATION

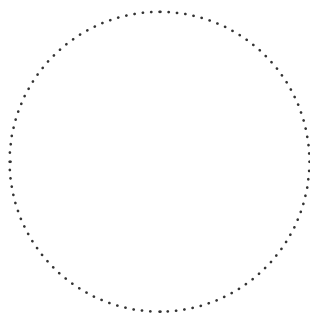
Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	



Seller's Stamp

INSTALLATION CERTIFICATE

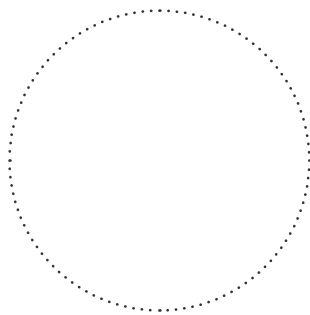
The _____ unit is installed pursuant to the requirements stated in the present user's manual.	
Company name	
Address	
Phone Number	
Installation Technician's Full Name	
Installation Date:	Signature:
The unit has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer.	
Signature:	



Installation Stamp

WARRANTY CARD

Unit Type	Heat and energy recovery air handling unit
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	



Seller's Stamp

