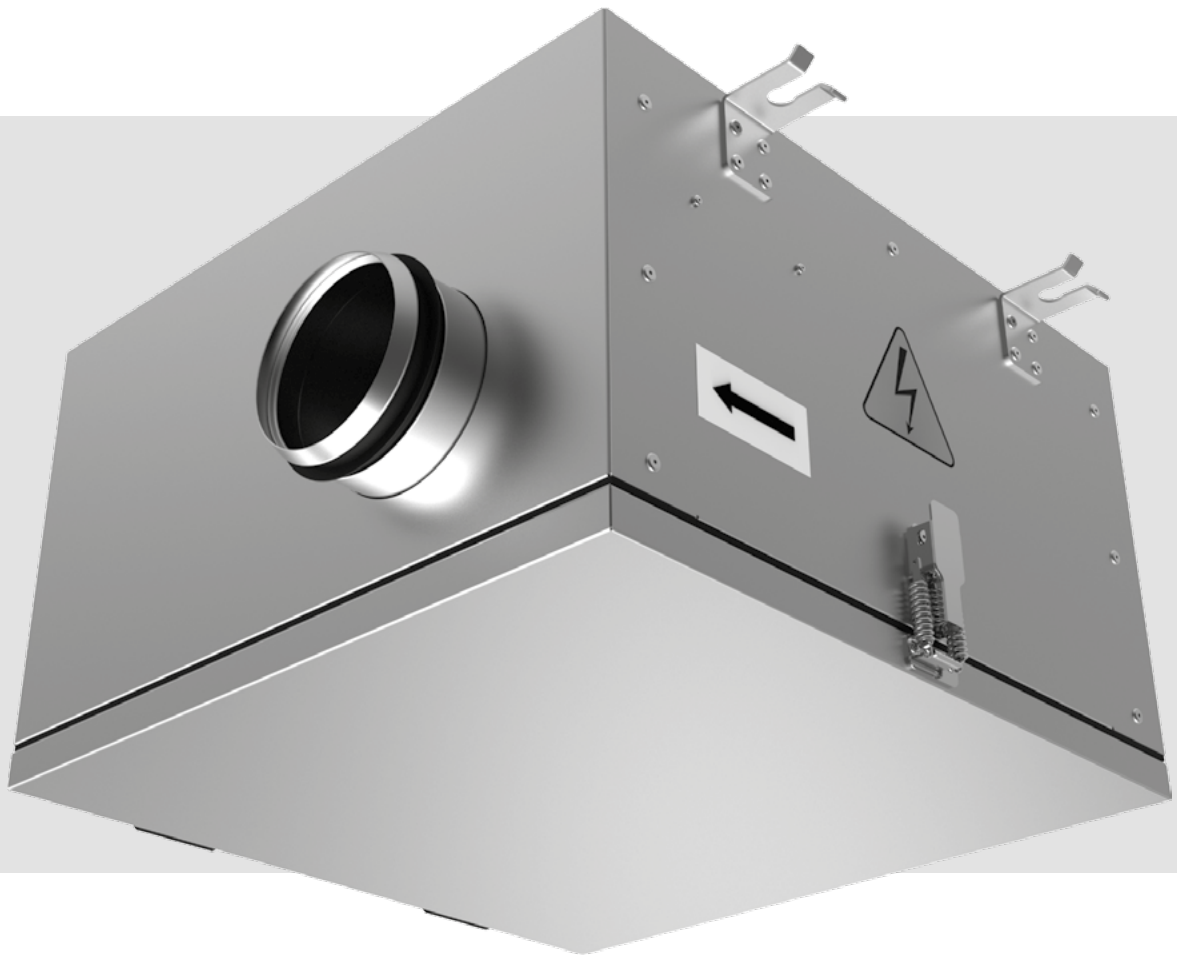


KSB K2



Centrifugal duct fan in sound insulated casing

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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 KSB K2 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 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.

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.
The appliance is only to be used with the power supply unit provided 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.

CAUTION: In order to avoid a safety hazard due to inadvertent resetting of the thermal cut-out, this unit must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

Ensure that the unit is switched off from the supply mains before removing the guard.
WARNING: If there are any unusual oscillating movements, immediately stop using the unit and contact the manufacturer, its service agent or suitably qualified persons.
The replacement of parts of the safety suspension system device shall be performed by the manufacturer, its service agent or suitably qualified persons.

Fixing means for attachment to the ceiling such as hooks or other devices shall be fixed with a sufficient strength to withstand 4 times the weight of the appliance.
The mounting of the suspension system shall be performed by the manufacturer, its service agent or suitably qualified persons.
The appliance is to be installed so that the blades are more than 2.3m above the floor.
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 SHOULD NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL, OR SENSORY CAPACITIES, OR THOSE WITHOUT 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 UNAUTHORISED ACCESS BY UNATTENDED CHILDREN.

The Centrifugal duct fan in sound insulated casing is designed for supply and exhaust ventilation of domestic, public and industrial premises with high requirements to the noise level and with limited space for mounting.

The unit is rated for continuous operation.

The unit is a component part and is not designed for stand-alone 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
Fan	1 pc.
User's manual	1 pc.
Packing box	1 pc.

DESIGNATION KEY

Designation example: **KSB 100 K2 Q R1**

Centrifugal duct fan in sound insulated casing |

Spigot connecting diameter [mm] |

Casing modification |

Motor type

_ — asynchronous

Motor options

S — high-powered motor

Q — low-noise and low-power motor

Connection options

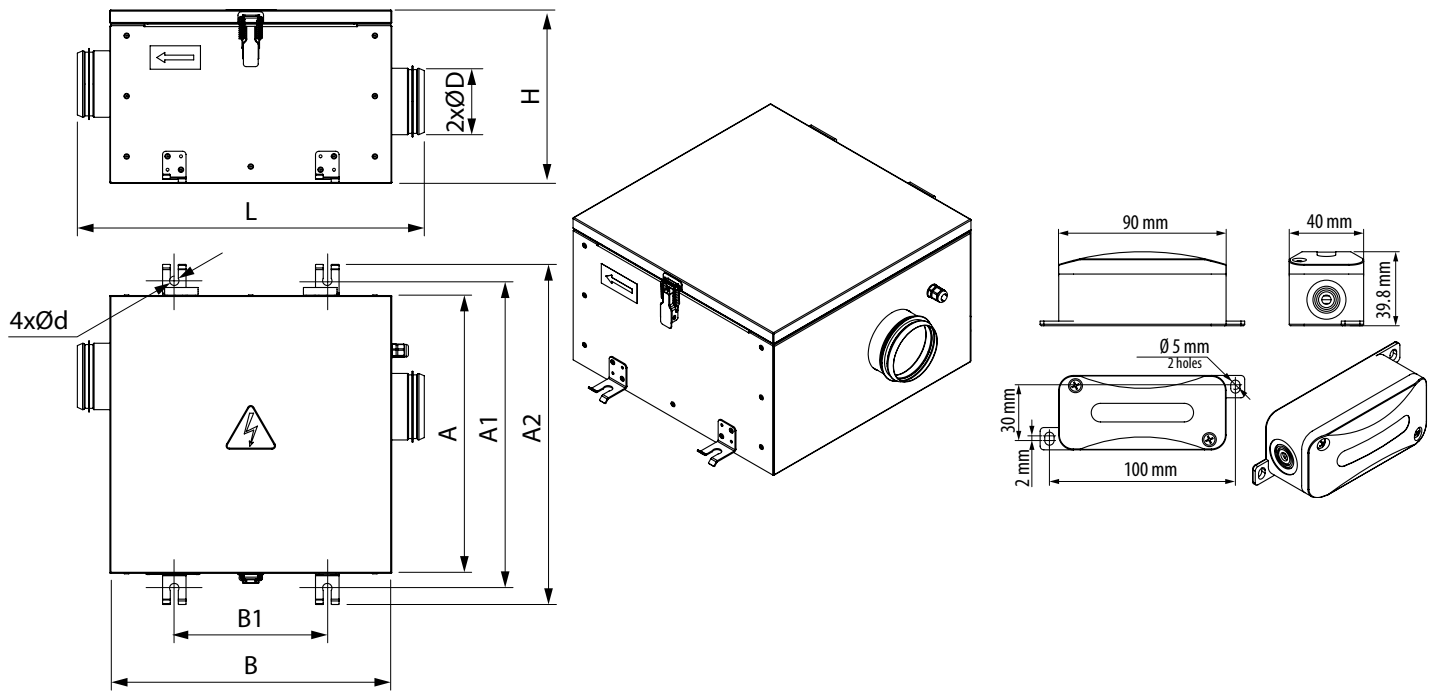
_ — remote terminal box

R1 — power cord with a plug

TECHNICAL DATA

The unit is rated as a Class I electrical appliance.

	KSB 100 K2	KSB 125 K2	KSB 125 K2 S	KSB 150 K2	KSB 160 K2	KSB 200 K2	KSB 250 K2	KSB 315 K2 S	KSB 355 K2	KSB 400 K2	KSB 450 K2 B	KSB 500 K2 (Δ)	KSB 500 K2 (Y)
Unit voltage [V/50 (60) Hz]	1~ 230	1~ 230	1~ 230	1~ 230	1~ 230	1~ 230	1~ 230	3~ 400	1~ 230	1~ 230	1~ 230	3~ 230	3~ 400
Power [W]	58	61	88	84	86	164	320	654	202	349	473	730	780
Current [A]	0,25	0,28	0,37	0,37	0,38	0,71	1,40	1,10	0,89	2,00	2,35	2,82	1,60
Maximum air flow [m ³ /h]	285	330	484	485	500	770	1515	2710	2235	2860	2760	7000	6720
RPM [min ⁻¹]	2530	2560	2670	2620	2670	2580	2615	2600	1330	1380	1350	980	948
Sound pressure level at 3 m distance [dBA]	34	35	40	38	38	42	45	48	48	48	48	56	54
Transported air temperature [°C]	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55	-25+55
Ingress protection rating	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4
SEC class	C	C	C	C	C	C	-	-	-	-	-	-	-



Overall and connecting dimensions of the fan [mm]

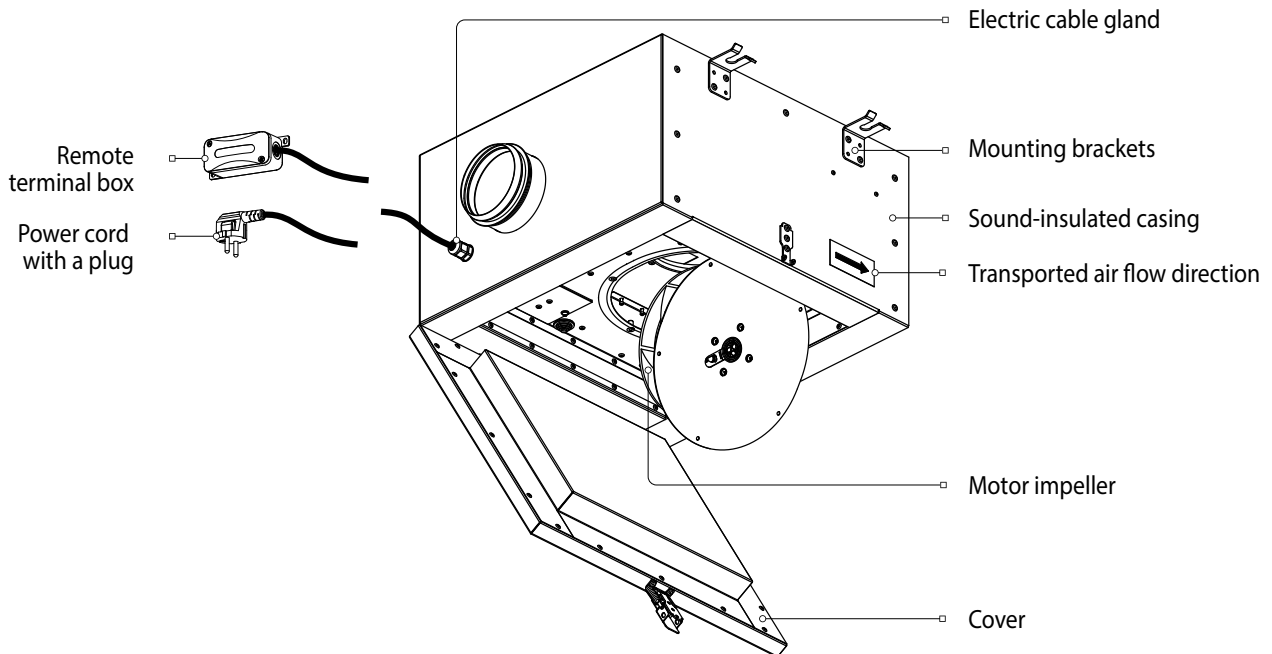
	D	H	L	A	A1	A2	B	B1	d	Weight [kg]
KSB 100 K2	99	258	517	414	458	507	420	228	14	13
KSB 125 K2	124	258	517	414	458	507	420	228		13
KSB 125 K2 S	124	280	630	525	568,5	617	533	333		19
KSB 150 K2	149	282	566	493	537	586	470	278		17
KSB 160 K2	159	282	566	493	537	586	470	278		17
KSB 200 K2	198	355	632	535	579	628	535	357,5		22,6
KSB 250 K2	248	429	774	666	710	759	677	537		33
KSB 315 K2 S	313	460	857	666	719	747	760	560	9	48
KSB 355 K2	354	500	927	804	857	885	830	641		58
KSB 400 K2	399	578	1024	876	929	957	927	737		78,5
KSB 450 K2 B	449	607	1152	968	1021	1049	1049	858		84
KSB 500 K2 (Δ) KSB 500 K2 (Y)	499	744	1300	1182	1235	1263	1203	993		129

UNIT DESIGN AND OPERATING PRINCIPLE

The fan casing is made of aluzinc. For easy installation and operation, the top cover of the fan is secured with a special lock. The casing is heat- and sound-insulated with a 50 mm layer of non-flammable mineral wool. To ensure better noise absorption, the inner surface of the insulation is made of a perforated metal sheet. The round connecting spigots are rubber sealed.

The fan is equipped with an asynchronous motor with an external rotor and an impeller with backward curved blades. The motor with ball bearings with specially selected grease ensures low-noise, maintenance-free operation of the fan. The fan with a three-phase motor has an integrated overheating protection with an automatic restart.

Duct fans are intended for mounting to round air ducts. The fans are installed between the air ducts. In case the fan is mounted on flexible joints, attach the fan to a structural unit by means of supports, suspension links or brackets (purchased separately). The fan may be installed in any position in consideration of the air flow direction (as indicated by the arrow on the fan casing).



INSTALLATION AND CONNECTION



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



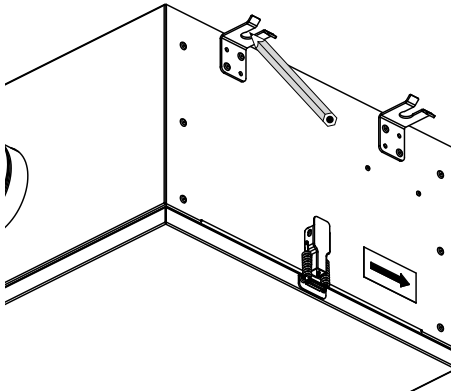
**THE UNIT MUST BE MOUNTED ON A PLANE SURFACE.
MOUNTING OF THE UNIT TO AN UNEVEN SURFACE CAN LEAD TO THE UNIT CASING DISTORTION AND OPERATION DISTURBANCE.**

- Before installing the fan, make sure the casing has no visible damages and check the integrity of power supply wires. The fan casing must not contain any foreign objects which can damage the impeller blades.
- Make sure the impeller rotates freely without touching the flange and the casing.
- Mount the fan in such a way that the arrow on the fan casing matches the air flow direction in the system.
- The casing has mounting brackets to facilitate the fan installation.
- The fan may be installed in any position in consideration of the air flow direction (as indicated by the arrow on the fan casing).
- To attain the best performance of the fan and to minimize turbulence-induced air pressure losses while mounting, connect the straight air duct section to the fan spigots on both sides of the fan. The minimum straight air duct length is equal to 1 air duct diameter on the intake side and 3 air duct diameters on the exhaust side. No filters or any other similar devices are allowed to be installed in these sections.

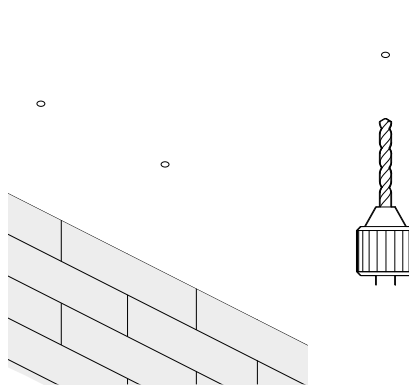
Fan and remote terminal box installation sequence

- Before installation, lay the wires and cables necessary to connect the fan to the mains.
- Minimal distance from the fan casing to the wall is 300 mm.
- Fasteners for fan 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.

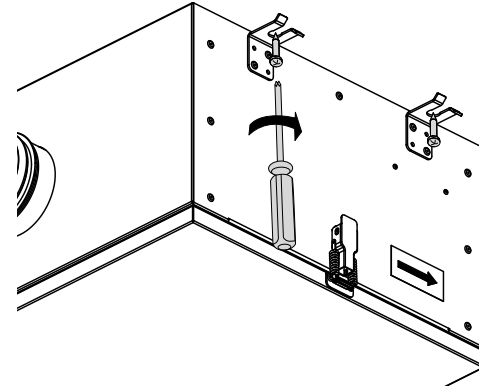
1. Mark the holes for mounting the fan.



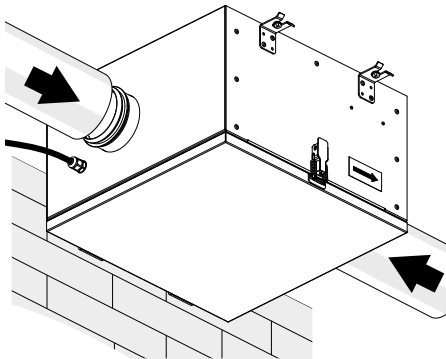
2. Drill the holes according to the markings.



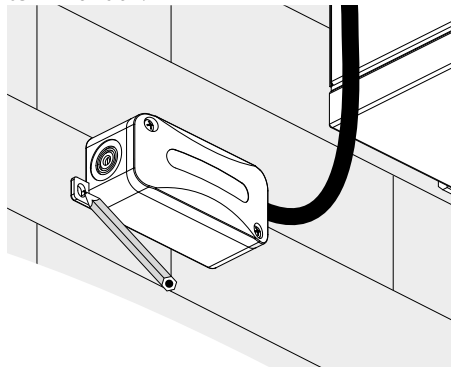
3. Fix the fan to the mounting surface.



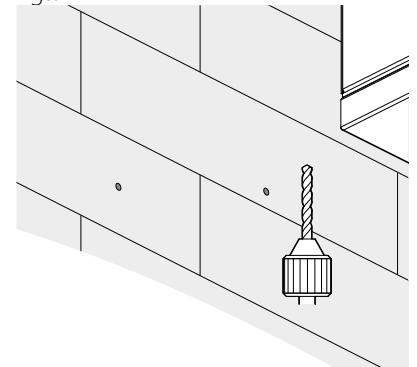
4. Connect the air ducts (purchased separately) to the fan spigots.



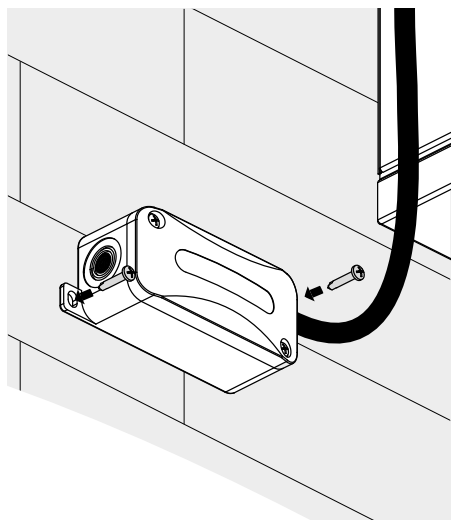
5. Mark the holes for mounting the terminal box.



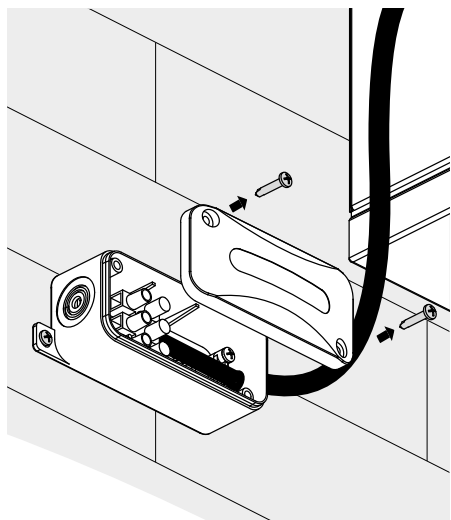
6. Drill the holes according to the markings.



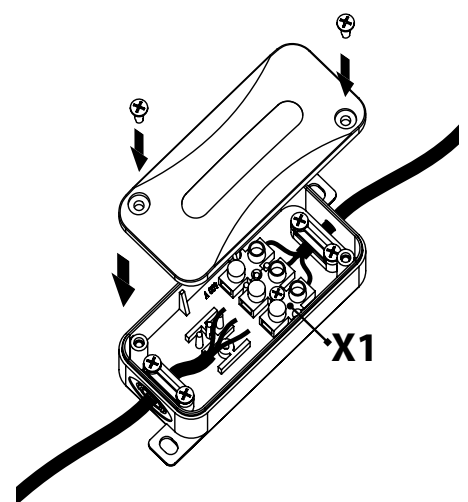
7. Fix the remote terminal box to the mounting surface.



8. Unscrew the terminal box cover.



9. Make the electrical connections in compliance with the wiring diagram. Re-assemble the terminal box in the reverse order.



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.**

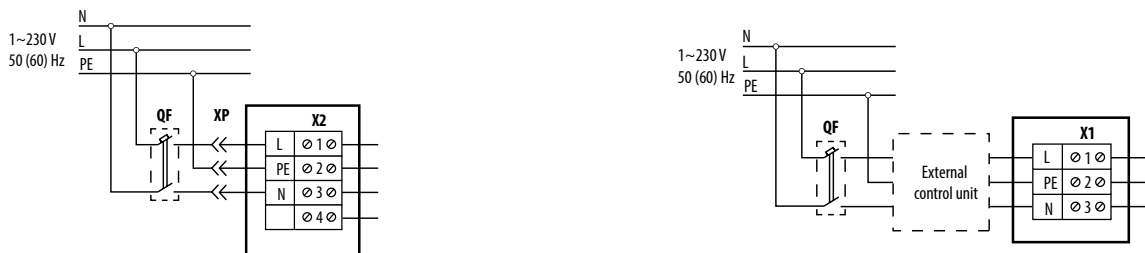
- The unit is rated for connection to 1~230 V/50(60) Hz, 3~230 V/50(60) Hz, 3~400 V/50(60) Hz power mains.
- The unit must be connected to power mains using insulated electric conductors (cables, wires). The actual wire cross section selection must be based on the maximum load current, maximum conductor temperature depending on the wire type, insulation, length and installation method.
- The external power input must be equipped with an automatic circuit breaker built into the stationary wiring to open the electric circuit in case of overload or short-circuit. The circuit breaker installation place must provide quick access for emergency shutdown 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 table). The recommended trip current of the circuit breaker is the next current in the standard trip current row following the maximum current of the connected unit. The automatic circuit breaker is not included in the delivery set.

Connection of the fan to power mains and to additional external control units is carried out in the remote control box. The same regulator device can be used for connecting several fans simultaneously provided that their combined capacity and working current remain within the nominal parameters of the regulator. External control units are purchased separately (shown in dotted lines in the diagram).

Wiring diagrams

The fan is connected to power mains by means of the power cord with a plug (XP) or in the remote terminal box (X1).

KSB 100 K2, KSB 125 K2, KSB 125 K2 S, KSB 150 K2, KSB 160 K2, KSB 200 K2, KSB 250 K2, KSB 355 K2

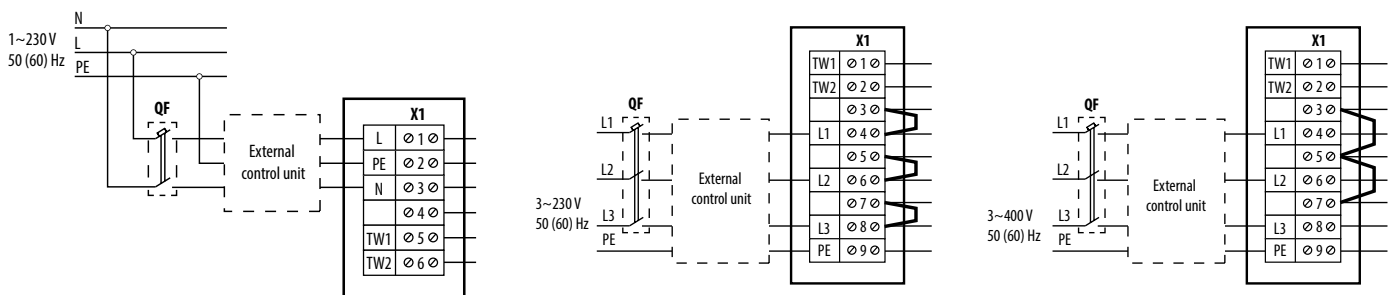


The fan is connected to power mains by means of the power cable only in a remote terminal box (X1)

KSB 400 K2, KSB 450 K2 B

KSB 500 K2 (Δ)

KSB 315 K2 S, ISO-RB 500 (Y)



CONTROL

The fan moves the air at a constant speed without possibility of regulation.

Additional external control units (purchased separately) can be connected to the fan for speed control.

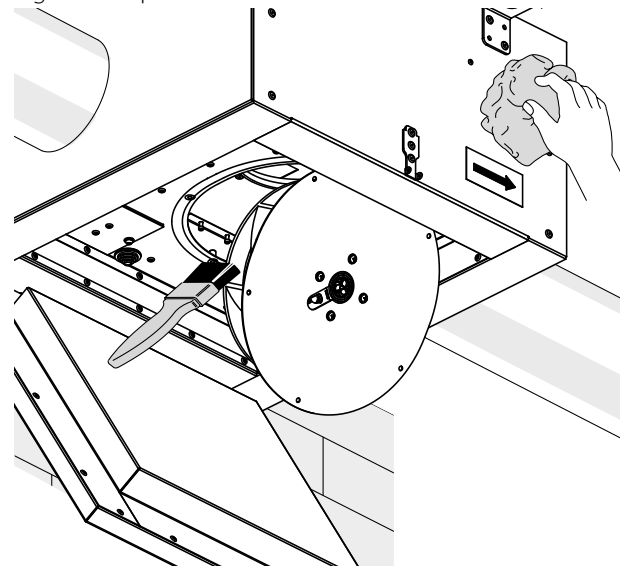
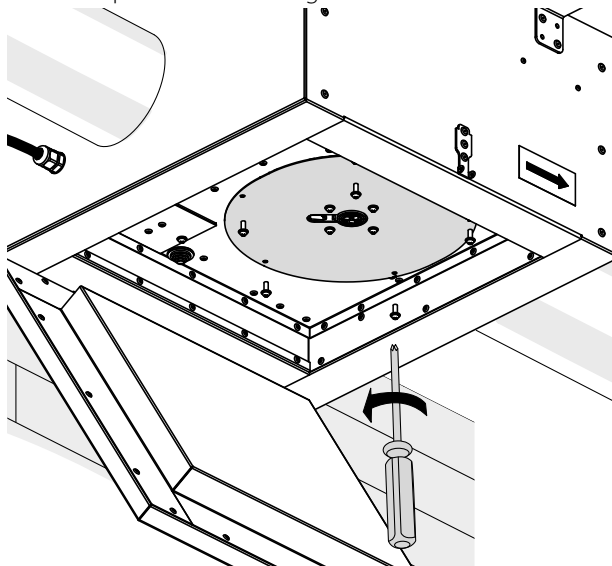
TECHNICAL MAINTENANCE



DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!

MAKE SURE THE UNIT IS DISCONNECTED FROM POWER MAINS BEFORE REMOVING THE PROTECTION

The technical maintenance includes periodic cleaning of the surfaces from accumulated dust and dirt. The impeller blades require thorough cleaning once in 6 months. Clean the blades with a soft brush or a vacuum cleaner. While cleaning the fan be careful not to displace the impeller counter weights. Protect the electric motor against ingress of liquid.



TROUBLESHOOTING

PROBLEM	POSSIBLE REASONS	TROUBLESHOOTING
The fan does not start.	No power supply.	Make sure that the unit is properly connected to the power mains and make any corrections, if necessary.
Low air flow.	The ventilation system is soiled or damaged.	Make sure the air ducts are clean and intact. Clean them if necessary.
Noise, vibration.	The fan impeller is soiled.	Clean the impellers.
	The screw connection is loose.	Tighten the fastening screws.

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.



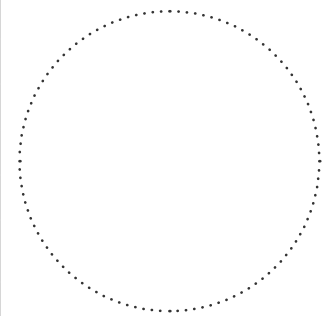
USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP.

CERTIFICATE OF ACCEPTANCE

Unit Type	Centrifugal duct fan in sound insulated casing
Model	
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

SELLER INFORMATION

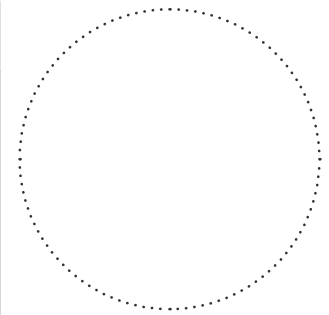
Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	



Seller's Stamp

INSTALLATION CERTIFICATE

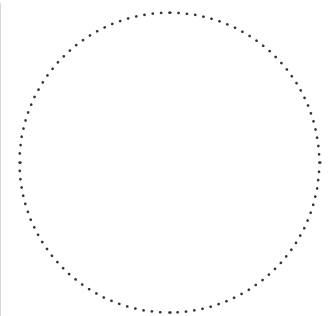
The unit _____ is installed pursuant to the requirements stated in the present user's manual.	
Company name	
Address	
Phone Number	
Installation Technician's Full Name	
Installation Date:	Signature:
The unit has been installed in accordance with the provisions of all the applicable local and national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



Installation Stamp

WARRANTY CARD

Unit Type	Centrifugal duct fan in sound insulated casing
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	



Seller's Stamp

