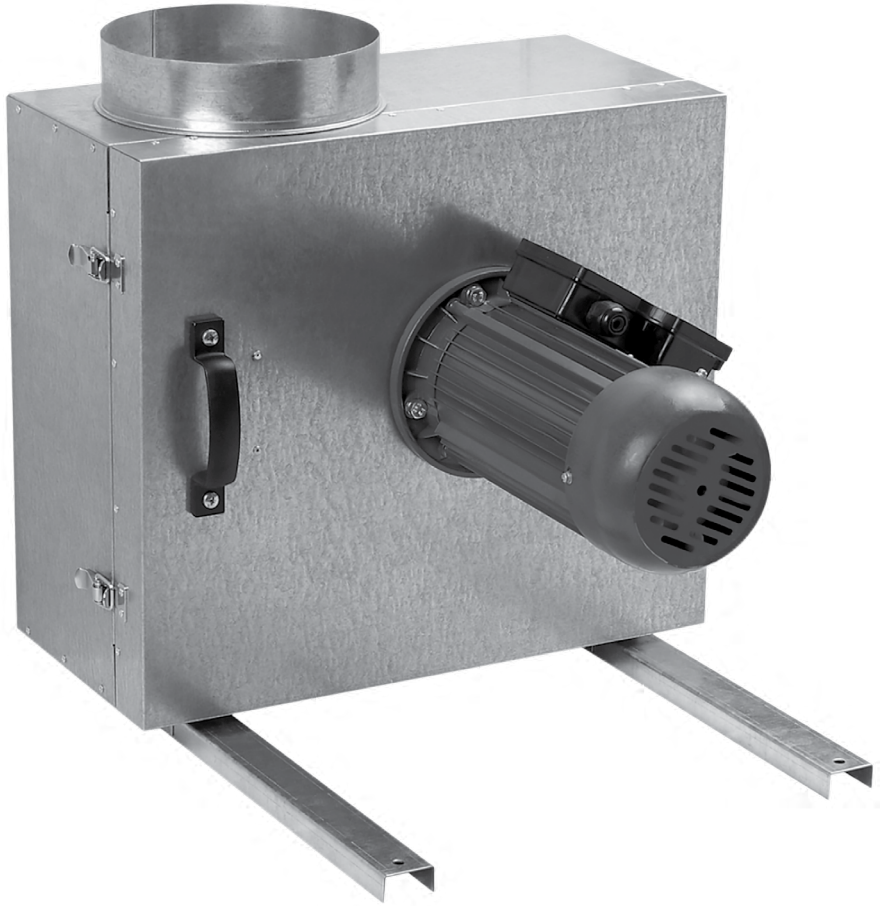

CENTRIFUGAL FAN IN SOUND INSULATED CASING

Iso-K

EN USER'S MANUAL

BLAUBERG

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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 Iso-K 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 done by children without supervision.
Children shall not play with the applianceThe appliance is only to be used with the power supply unit provided with the appliance.
.
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.

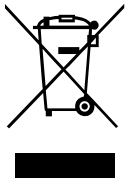
CAUTION: In order to avoid a safety hazard due to inadvertent resetting of the thermal cut-out, this unit must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

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

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.
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 (2.1 m AU) above the floor.

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.
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.
Do not install or use the product until all construction and finishing work has been completed in the room where it is to be installed.
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 Centrifugal 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: **ISO-K 160 4 E**

Fan name
Iso-K – centrifugal fan in sound insulated casing

Outlet duct diameter [mm]

Pole number

Power mains specifications:
E – single phase
D – three-phase

TECHNICAL DATA

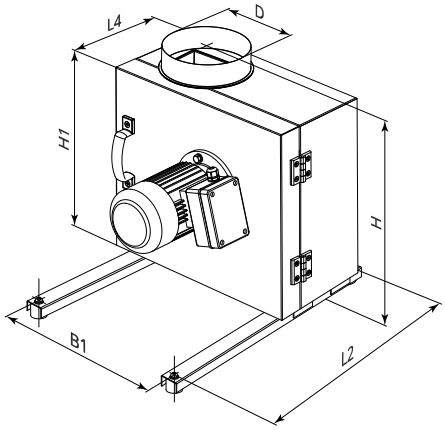
The fan is intended for exhaust ventilation of premises with the temperatures from -20 °C up to +120 °C.
The unit is rated as a Class I electrical appliance.

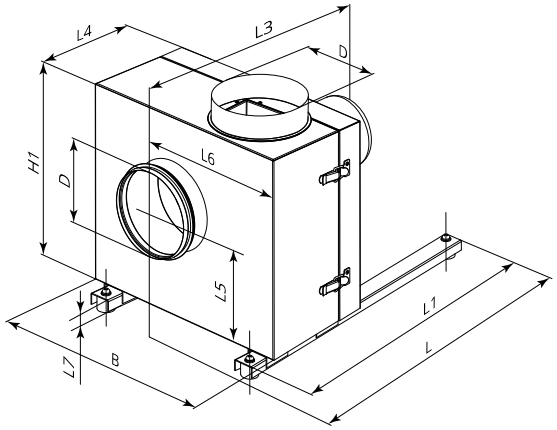
- Hazardous parts access and water ingress protection rating is IP54.
- The motor insulation is class F.

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

Overall and connecting dimensions

Model	Dimensions [mm]													Weigh [kg]
	Ø D	B	B1	H	H1	L	L1	L2	L3	L4	L5	L6	L7	
Iso-K 150 4E	150	410	330	540	365	525	500	470	475	205	203	233	33	17.0
Iso-K 150 4D	150	410	330	540	365	525	500	470	475	205	203	233	33	17.0
Iso-K 160 4E	160	410	330	540	365	525	500	470	475	205	203	233	33	17.0
Iso-K 160 4D	160	410	330	540	365	525	500	470	475	205	203	233	33	17.0
Iso-K 200 4E	200	485	365	600	425	625	600	570	515	235	236.5	276.5	33	25.0
Iso-K 200 4D	200	485	365	600	425	625	600	570	515	235	236.5	276.5	33	25.0
Iso-K 250 4E	250	575	435	665	505	700	675	645	620	285	282.5	330.5	33	40.0
Iso-K 250 4D	250	575	435	665	505	700	675	645	620	285	282.5	330.5	33	40.0
Iso-K 315 4E	315	690	550	708	600	715	700	650	612	327	329	390	59	53.0
Iso-K 315 4D	315	690	550	708	600	715	700	650	612	327	329	390	59	52.0
Iso-K 315 2E	315	690	550	708	600	715	700	650	672	327	329	390	59	61.0
Iso-K 315 2D	315	690	550	708	600	715	700	650	672	327	329	390	59	60.0
Iso-K 355 4E	355	740	600	764	655	727	700	650	637	352	361.5	421	59	60.0
Iso-K 355 4D	355	740	600	764	655	727	700	650	637	352	361.5	421	59	59.0
Iso-K 355 2E	355	740	600	764	655	727	700	650	737	352	361.5	421	59	68.0
Iso-K 355 2D	355	740	600	764	655	727	700	650	737	352	361.5	421	59	65.0
Iso-K 400 4E	400	906	700	900	790	908	900	850	747	402	435	505	59	92
Iso-K 400 4D	400	906	700	900	790	908	900	850	747	402	435	505	59	92
Iso-K 400 6E	400	906	700	900	790	908	900	850	687	402	435	505	59	87
Iso-K 400 6D	400	906	700	900	790	908	900	850	687	402	435	505	59	87
Iso-K 450 4D	450	996	750	980	870	925	900	850	782	437	485	560	59	109
Iso-K 450 4D	450	996	750	980	870	925	900	850	782	437	485	560	59	109
Iso-K 450 6D	450	996	750	980	870	925	900	850	739	437	485	560	59	105
Iso-K 450 6D	450	996	750	980	870	925	900	850	739	437	485	560	59	105





Main technical parameters

	Iso-K 150 4E Iso-K 160 4E	Iso-K 1504D Iso-K 1604D	Iso-K 200 4E	Iso-K 200 4D	Iso-K 250 4E	Iso-K 250 4D
Voltage [V/Hz]	230/50	400/50	230/50	400/50	230/50	400/50
Power [W]	180	180	550	750	1500	1500
Current [A]	1.7	0.6	3	2	11	3.4
Max. air flow [m³/h]	700	730	1600	1650	3400	3500
RPM [min^{-1}]	1450	1455	1475	1465	1500	1470
Sound pressure level at a distance of 3 m [dBA]	41	41	45	45	51	51
Transported air temperature [°C]	-20 ... +120					
Ingress protection rating	IP54					

	Iso-K 315 4D		Iso-K 315 4E		Iso-K 315 2D		Iso-K 315 2E	
Voltage [V/Hz]	400/50	400/60	230/50	230/60	400/50	400/60	230/50	230/60
Power [W]	184	206	304	383	1225	2011	1531	2816
Current [A]	0.70	0.70	1.84	1.72	2.80	3.40	7.35	11.92
Max. air flow [m³/h]	2040	2355	1970	2310	4710	5290	4695	5345
RPM [min^{-1}]	1488	1776	1475	1750	3025	3328	3125	3384
Sound pressure level at a distance of 3 m [dBA]	46	48	46	47	52	54	53	55
Transported air temperature [°C]	-20 ... +120							
Ingress protection rating	IP54							

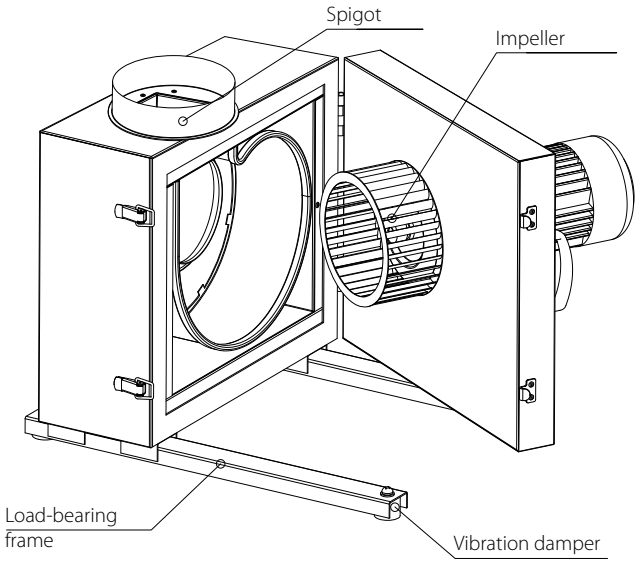
	Iso-K 355 4D		Iso-K 355 4E		Iso-K 355 2D	Iso-K 355 2D
Voltage [V/Hz]	400/50	400/60	230/50	230/60	400/50	230/50
Power [W]	405	580	393	525	3145	2621
Current [A]	0.87	1.25	2.11	2.34	6.12	12.66
Max. air flow [m³/h]	3155	3270	3545	3860	6185	6570
RPM [min^{-1}]	1379	1578	1517	1705	2652	2890
Sound pressure level at a distance of 3 m [dBA]	49	50	50	52	54	54
Transported air temperature [°C]	-20 ... +120					
Ingress protection rating	IP54					

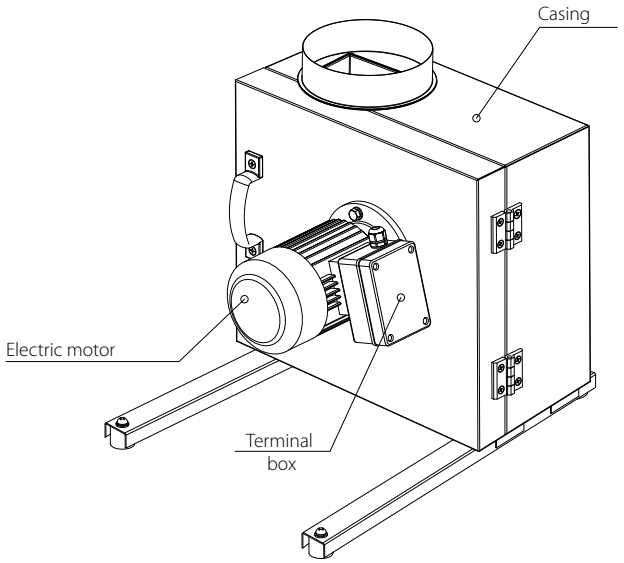
	Iso-K 400 4E	Iso-K 400 4D	Iso-K 400 6E	Iso-K 400 6D
Voltage [V/Hz]	230/50	400/50	230/50	400/50
Power [W]	1048	785	362	357
Current [A]	5,00	2,25	1,71	0,92
Max. air flow [m³/h]	5392	5098	2915	2966
RPM [min^{-1}]	1440	1470	930	948
Sound pressure level at a distance of 3 m [dBA]	54	53	48	47
Transported air temperature [°C]	-20 ... +120			
Ingress protection rating	IP54			

	Iso-K 450 4E	Iso-K 450 4D	Iso-K 450 6E	Iso-K 450 6D
Voltage [V/Hz]	230/50	400/50	230/50	400/50
Power [W]	1570	1350	594	454
Current [A]	7,25	2,81	2,85	1,33
Max. air flow [m³/h]	8138	7840	5299	4991
RPM [min^{-1}]	1470	1450	970	920
Sound pressure level at a distance of 3 m [dBA]	57	56	50	49
Transported air temperature [°C]	-20 ... +120			
Ingress protection rating	IP54			

DESIGN AND OPERATING PRINCIPLE

The fan casing is made of galvanized steel soundproof on the inside with 50 mm thick mineral wool.
The pivot design of the fold out motor-impeller unit ensures easy access to the fan internals for quick and efficient cleaning.
The inlet and outlet spigot diameters match standard duct sizes.
The spigots have rubber seals.
The fan is mounted on RN Iso-K load-bearing frames with integral vibration dampers and mounting brackets UM Iso-K (purchased separately).
The fan benefits from a steel high-performance centrifugal impeller.
The impeller is mounted on the electric motor shaft and is jointly balanced statically and dynamically.
The high-performance single-phase or three-phase electric motor with a squirrel-cage rotor is completely maintenance-free.
The power is adjusted by means of transformer control units.
The fan is connected to power mains via the terminal box mounted on the electric motor.
Provide an additional electric cable length to ensure unobstructed opening of the fold out motor-impeller unit.





INSTALLATION AND SET-UP

IT IS RECOMMENDED TO ISNTALL A GREASE FILTER UPSTREAM OF THE FAN TO PREVENT DIRT FROM ACCUMULATING ON THE FAN'S IMPELLER.

DIRT ON THE IMPELLER MAY CAUSE ITS UNBALANCE, WHICH, IN TURN, MAY CAUSE MOTOR FAILURE AND IMPELLER DESTRUCTION.

THE APPROPRIATE FILTER MUST BE SELECTED BY THE DESIGNER OF THE VENTILATION SYSTEM

READ THE USER'S MANUAL BEFORE INSTALLING THE UNIT

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

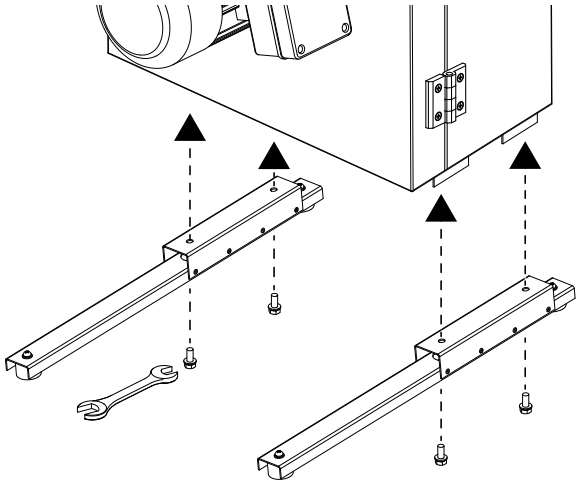
THE UNIT MUST BE MOUNTED ON A PLANE SURFACE.

MOUNTING OF THE UNIT TO AN UNEVEN SURFACE CAN LEAD TO THE UNIT CASING DISTORTION AND OPERATION DISTURBANCE.

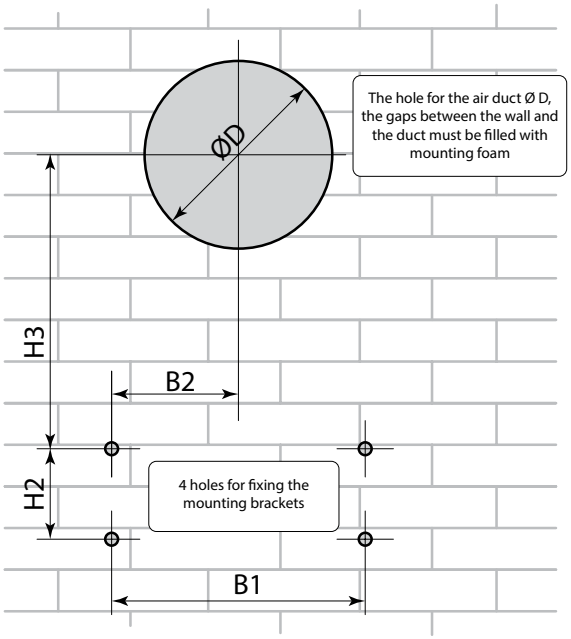
- Disconnect the unit from power supply prior to any connection, servicing and repair operations.
- Prior to installing the fan make sure the casing has no visible damages and check the integrity of power supply wires. The fan casing must not contain any foreign objects which can damage the impeller blades. Make sure the impeller rotates freely without touching the flange and the casing. The fan shall be installed in the air duct with the same diameter.
- Mount the fan in such a way that the arrow on the fan casing matches the air flow direction in the system.
- Install flexible connectors on both sides of the fan (purchased separately).
- Ensure a direct air duct section of at least one air duct diameter long on the inlet side and at least three air duct diameters long on the outlet side.
- The fan is not a ready to use unit and requires connection to the air ducts.
- Install the fan securely while ensuring free access for maintenance operations.
- When mounting the fan outdoors, protect it against weather impact and water ingress, for example, by mounting a hood over the fan.
- Take steps to prevent back flow of gases from devices using gas and open flames.

Mounting sequence:

1. Install the fan on the load-bearing frame (for models delivered unassembled).

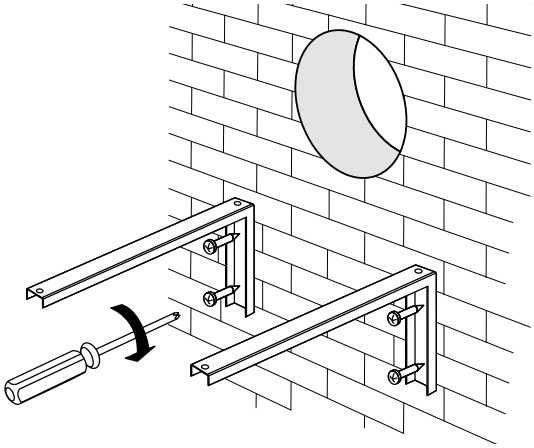


2. Make the markings (distances are shown in the table) and drill holes in the wall for the duct and for mounting the brackets.

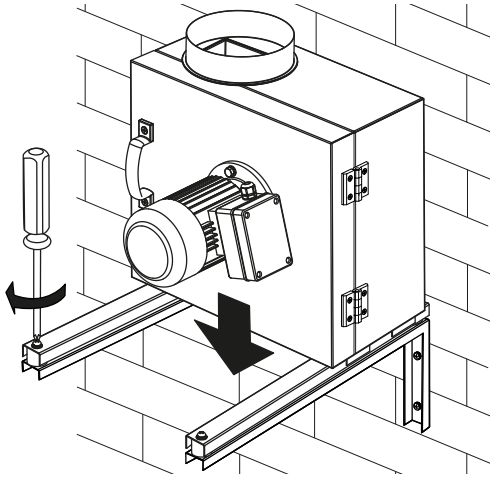


Model	Distances for marking [mm]			
	H2	B1	B2	H3
Iso-K 150...	170	330	193	276
Iso-K 160...	170	330	193	276
Iso-K 200...	220	365	216.5	309.5
Iso-K 250...	270	435	260.5	355.5
Iso-K 315...	300	550	320	448
Iso-K 355...	300	600	350.5	481
Iso-K 400...	350	700	410	555
Iso-K 450...	350	750	445	605

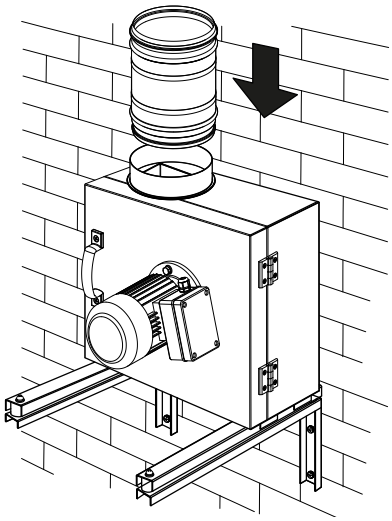
3. Install the mounting brackets (purchased separately).



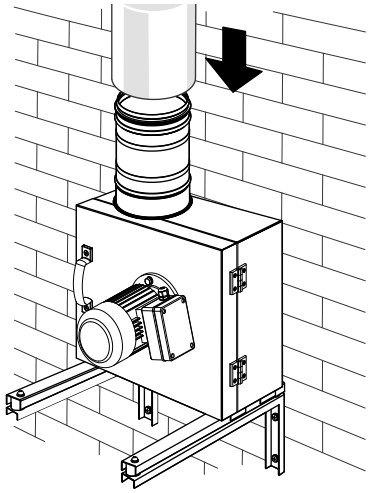
4. Mount the fan on the mounting brackets.



5. Connect the nipple or flexible anti-vibration connector (purchased separately) to the fan spigot.



6. Install the air duct (purchased separately).



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.

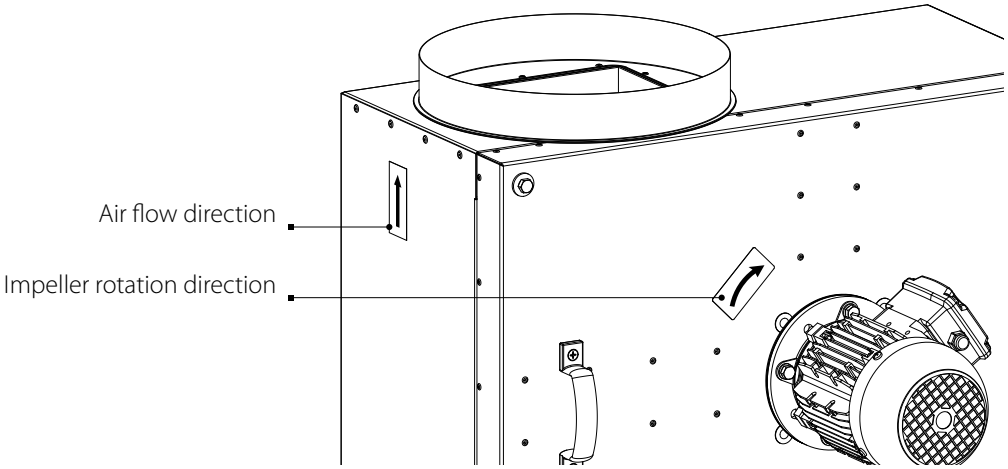
- The unit is rated for connection to to 1~230 V/50 (60) Hz or 3~400 V/50 Hz power mains.
- The unit must be connected to power mains using insulated electric conductors (cables, wires). The actual wire cross section selection must be based on the maximum load current, maximum conductor temperature depending 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 **QF** 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.

The recommended circuit breaker nominal current and conductor cross section

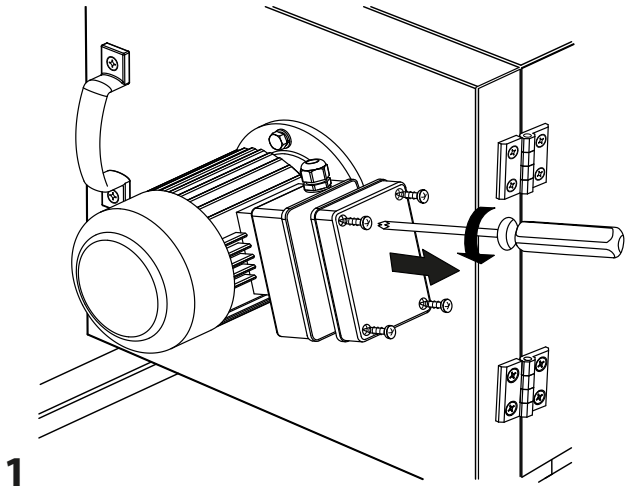
Model	Rated current of the circuit breaker [A]	Recommended cable, n x S, where n is the number of wires, and S is the cross section in mm²
Iso-K 150 4E	2	2x1.5
Iso-K 150 4D	1	3x1.5
Iso-K 160 4E	2	2x1.5
Iso-K 160 4D	1	3x1.5
Iso-K 200 4E	8	2x1.5
Iso-K 200 4D	3.15	3x1.5
Iso-K 250 4E	12.5	2x1.5
Iso-K 250 4D	4	3x1.5
Iso-K 315 4E	3	2x1.5
Iso-K 315 4D	1	3x1.5
Iso-K 315 2E	16	2x2.5
Iso-K 315 2D	5	3x1.5
Iso-K 355 4E	4	2x1.5
Iso-K 355 4D	2	3x1.5
Iso-K 355 2E	16	2x2.5
Iso-K 355 2D	8	3x1.5
Iso-K 400 4E	8	2x1,5
Iso-K 400 4D	3,15	3x1,5
Iso-K 400 6E	2	2x1,5
Iso-K 400 6D	3,15	3x1,5
Iso-K 450 4E	10	2x1,5
Iso-K 450 4D	4	3x1,5
Iso-K 450 6E	4	2x1,5
Iso-K 450 6D	2	3x1,5

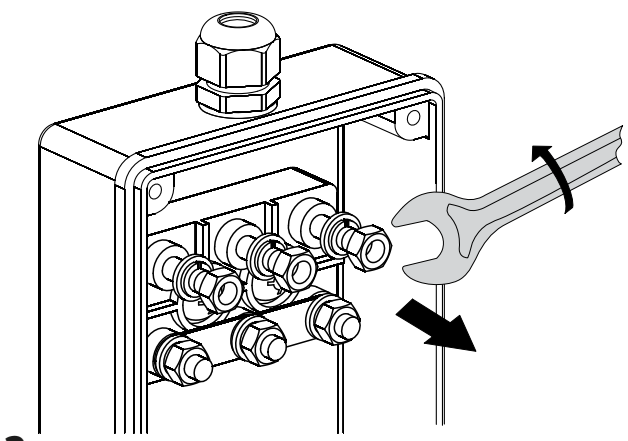
The fan connections shall be made in the terminal box mounted on the fan casing as shown in the wiring diagram.
The wiring diagram sticker is located inside the motor terminal box.

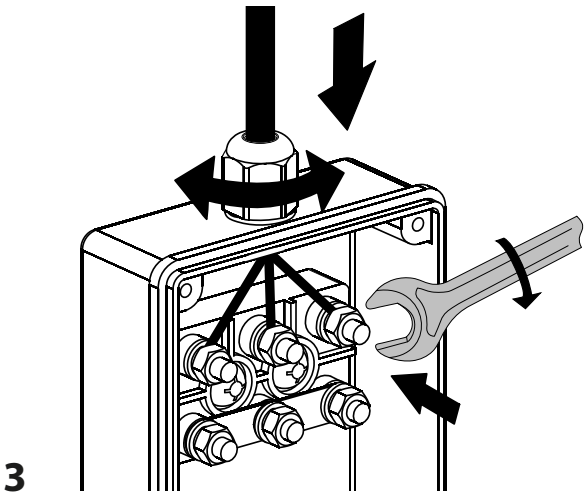
CAUTION!
Make sure that the fan impeller wheel rotates in the direction of the arrow applied to the fan casing.

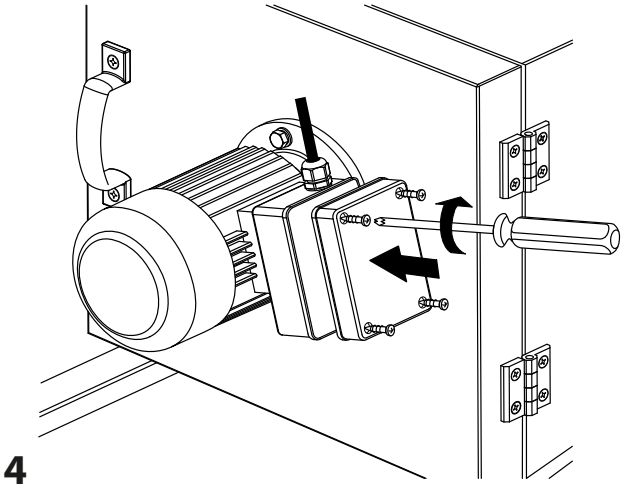


Access to the terminal box









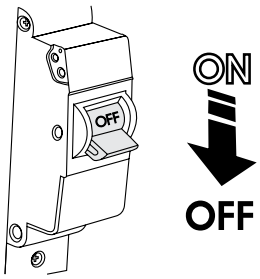
TECHNICAL MAINTENANCE

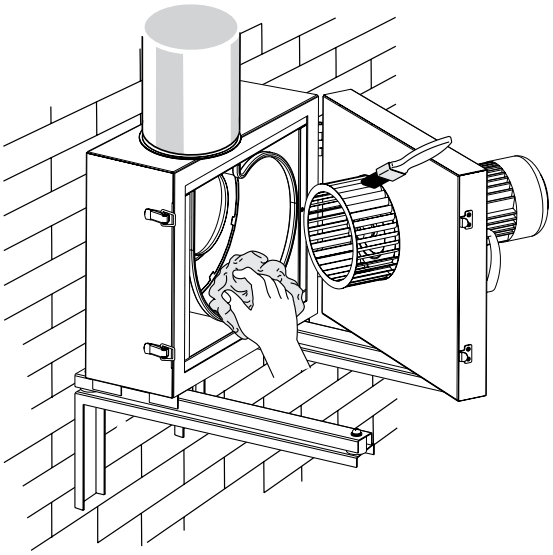
DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!

The fan should be cleaned at least twice per year as necessary , based on how soiled it is.
Check the following conditions during the unit maintenance:

- Cut off power supply to the fan.
- Clean the fan casing from outside with a soft cloth dampened with water.
- Open the fold out motor-impeller unit.
- Wash the impeller blades carefully with a soft cloth or a brush dampened with water and mild detergent solution. Remove dust from soundproof surface using a vacuum cleaner.
- Check screw connections as well as rivet and welded joints.
- Check tightness of ground screw clamps and electric connections.
- Check wire terminal connections.
- Check the vibration level The mean squared vibration velocity of the fan should not exceed 6.3 mm/s.

Avoid penetration of water onto the electric parts and the motor.
Wipe the unit surfaces dry after cleaning.





Fan maintenance intervals	Once in 3 months	Once in 6 months	Once per year
Visual inspection of the fan		X	
Measuring the fan's power consumption and comparing the results to the data stated on the fan's nameplate.		X	
Checking the fan's impeller for unbalance or damage.		X	
Cleaning the fan and ventilation system.	X		
Checking the screw and rivet connections.			X
Checking the tightness of grounding screw clamps and electrical contact connections.			X
Checking the flexible connections if installed.			X

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 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.
- Damage to the unit casing 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 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 fan in sound insulated casing
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	

Seller's Stamp

BLAUBERG

Manufacturer: Ventilation Systems LLC,
Ukraine, Kyiv, 1 M. Kotsyubynskoho Street
Address of production facilities:
Ukraine, Kyiv Region, Fastiv District, Boyarka, 36 Sobornosti Street

laubergventilatoren.net
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