

# SOUND-INSULATED FAN



***Iso-K***



**OPERATION MANUAL**



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BLAUBERG Ventilatoren GmbH Company is happy to offer your attention the sound-insulated fan **BLAUBERG Iso-K**.

## INTRODUCTION

The present operation manual contains technical description, technical data sheets, operation and mounting guidelines, safety precautions and warnings for safe and correct operation of the fan.

## GENERAL

The sound-insulated Iso-K fans are designed for hot and highly polluted air extraction with the temperature up to 100 °C in high resistance condition.

The fans are used as a component of ventilation systems installed in:

- industrial kitchens;
- industrial bakeries;
- metal processing workshops (post-welding gas removal).

The fan is available for round air ducts Ø 150, 160, 200 and 315 mm.

The fan must be grounded.

The fan is allowed for operation only after final mounting, that includes installation of protecting devices in compliance with DIN EN ISO 13875 (DIN EN ISO 12100) as well as other construction safety equipment.

The fan design is regularly improved, so some models can slightly differ from those ones described in this operation manual.

## SAFETY RULES

The fan complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

All operations related to the electrical connection of the fan, like servicing and repair works are allowed only after the disconnection from power mains.

All mounting and servicing operations are allowed for duly qualified electricians with valid electrical work permit for electric operations at the units up to 1000 V after careful study of the present operation manual.

Please follow the safety regulations and working instructions (DIN EN 50 110, IEC 364).

Make sure the impeller and the casing are not damaged before connecting the fan to power mains. The casing internals must be free of any foreign objects which can damage the impeller blades.

Disconnect the fan from power mains prior to any operations related to the servicing and repair works. Make sure the rotating parts have come to a full stop.

Take measures to prevent contact with the fan to avoid physical damages during the fan test and start-up.

Misuse of the product or any unauthorized modification are not allowed.

The fan is designed for connection to ac single-phase or ac three-phase power mains, see "Technical Data". The fan is rated for permanent operation during non-stop power supply.

Take steps to prevent ingress of smoke, carbon monoxide and other combustion products into the room through open chimney flues or other

fire-protection devices. Sufficient air supply must be provided for proper combustion and exhaust of gases through the chimney of fuel burning equipment to prevent back drafting. The maximum permitted pressure difference per living units is 4 Pa.

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

The fan is not designed for use in an inflammable and explosive medium.

The transported medium must not have an aggressive effect on steel at the temperature stated in the table 1 of the section "Technical data".

The fan motor has F class winding insulation and IP 54 ingress protection rating.

Do not close or block the intake or exhaust vent not to disturb the normal air circulation.

Do not sit on the fan and do not put objects on the fan.

Follow the manual guidelines to ensure trouble-free operation and long service life of the product.

## STORAGE AND TRANSPORTATION RULES

Store the delivered fan in the manufacturer's original packing box in a dry ventilated premise with the ambient temperature from +5°C up to +40°C.

Store the fan in an environment with minimized risk of mechanical damages, temperature and humidity fluctuations. Store the fan inside a room or under a shelter.

Transportation of the fan is allowed by any vehicle provided the fan is transported in the original package and is protected against weather and mechanical damages.

Use hoist machinery for handling and transportation to prevent possible mechanical damages.

Fulfil the requirements for transportation of the specified cargo type during cargo-handling operations.

Do not expose the fan to extremely low or high temperatures.

## MANUFACTURER'S WARRANTY

The fan complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

The manufacturer hereby warrants normal operation of the fan over the period of two years from the retail sale date provided observance of the installation and operation regulations.

In case of failure due to faulty equipment during the warranty period the consumer has the right to exchange it.

If case of no confirmation of the sale date, the warranty term shall be calculated from the manufacturing date.

The replacement is offered by the Seller.

The MANUFACTURER shall not be liable for any damage resulting from any misuse of or gross mechanic interference with the fan.

Fulfil the operation manual requirements to ensure a trouble-free and long service life of the fan.



### WARNING

The product is not allowed for use by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the product operation by the person(s) responsible for their safety.

Supervise the children and do not let them play with the product.

### WARNING



*Do not dispose in domestic waste. The product contains in part material that can be recycled and in part substances that should not end up as domestic waste. Dispose of the fan once it has reached the end of its working life according to the regulations valid where you are.*

## FAN DESIGN

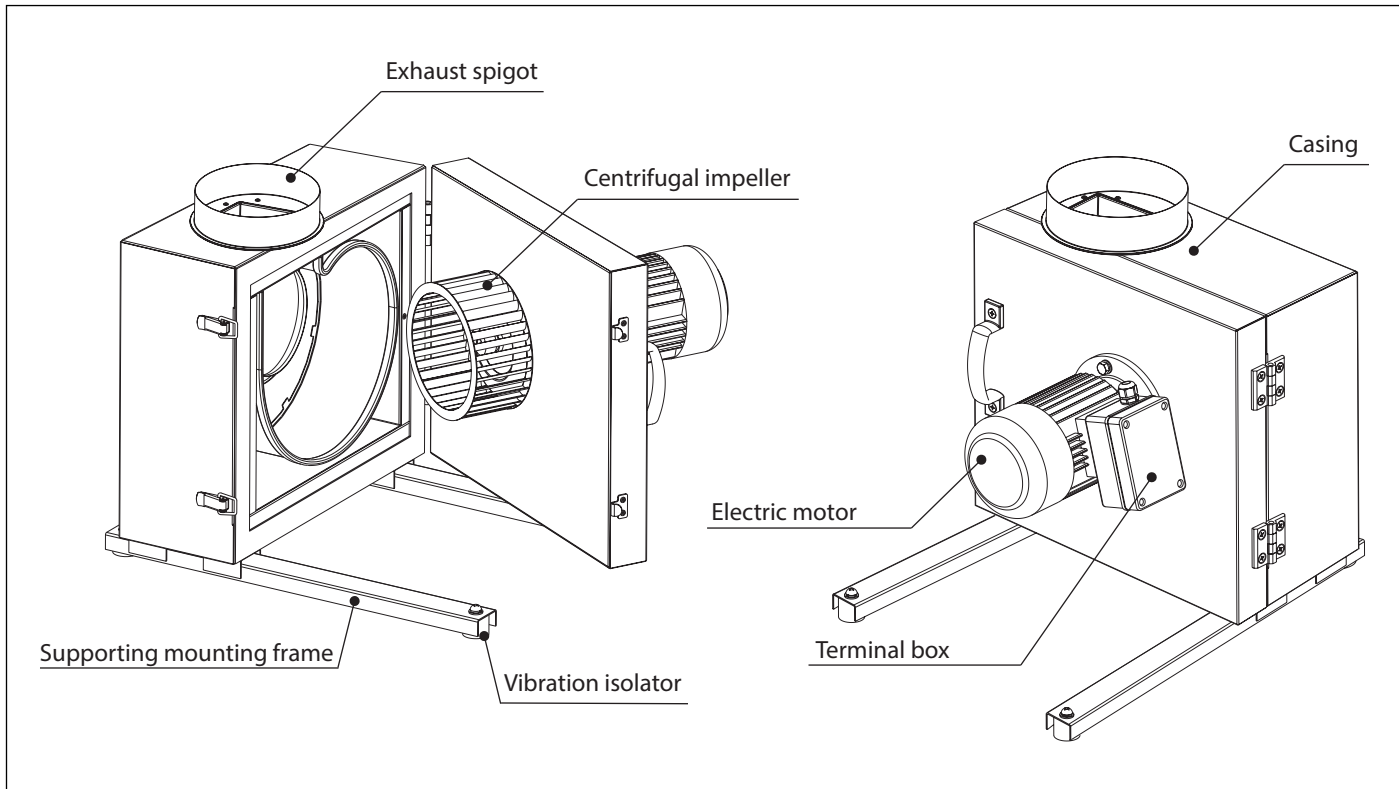


Fig. 1. Iso-K fan design

The steel is made of galvanized steel and is internally filled with 50 mm thermal- and sound-insulating layer made of non-flammable mineral wool.

The fan casing is installed on a supporting mounting frame with integrated vibration isolators.

The swivel motor-impeller block is attached to the swivel door which facilitates the fan servicing.

The fan is equipped with a single- or three-speed motor with short circuit rotor and a centrifugal impeller with forward curved blades.

The impeller is made of galvanized steel.

The motor is equipped with ball bearings for longer service life and a dynamically balanced turbine.

F class motor winding insulation and IP 54 ingress protection rating.

Overheating protection by built-in thermal switches with leads for connection to external protection devices.

Smooth or step-up speed control with an auto transformer or frequency inverter. Both available upon separate order.

Mounting to the wall is performed with the mounting angle bracket KS-ISK (available upon separate order).

## DELIVERY SET

- ✓ fan - 1 item;
- ✓ operation manual - 1 item.

**ATTENTION**

*Make sure the fan has no visible transport damages and check the ordered and the delivered goods for compliance.*

**TECHNICAL DATA**

Table 1. Technical data

| Parameters                            | Iso-K 150 4E<br>Iso-K 160 4E | Iso-K 150 4D<br>Iso-K 160 4D | Iso-K 200 4E | Iso-K 200 4D | Iso-K 250 4E | Iso-K 250 4D |
|---------------------------------------|------------------------------|------------------------------|--------------|--------------|--------------|--------------|
| Voltage, 50 Hz [V]                    | 1 ~ 230                      | 3 ~ 380                      | 1 ~ 230      | 3 ~ 380      | 1 ~ 230      | 3 ~ 380      |
| Power [W]                             | 180                          | 180                          | 550          | 750          | 1500         | 1500         |
| Current [A]                           | 1.7                          | 0.6                          | 3            | 2            | 11           | 3.4          |
| Max. air flow [m <sup>3</sup> /h]     | 700                          | 730                          | 1600         | 1650         | 3400         | 3500         |
| RPM [min <sup>-1</sup> ]              | 1450                         | 1455                         | 1475         | 1465         | 1500         | 1470         |
| Noise level, 3 m [dBA]                | 41                           | 41                           | 45           | 45           | 51           | 51           |
| Max. transported air temperature [°C] | -20 ... +100                 | -20 ... +100                 | -20 ... +100 | -20 ... +100 | -20 ... +100 | -20 ... +100 |
| Ingress Protection Rating             | IP 54                        | IP 54                        | IP 54        | IP 54        | IP 54        | IP 54        |

Table 2. Overall dimensions

| Type         | Dimensions [mm] |     |     |     |     |     |     |     |     |     | Weight [kg] |
|--------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|
|              | ØD              | B   | B1  | H   | H1  | L   | L1  | L2  | L3  | L4  |             |
| Iso-K 150 4E | 150             | 410 | 330 | 540 | 365 | 525 | 500 | 470 | 475 | 205 | 17          |
| Iso-K 150 4D | 150             | 410 | 330 | 540 | 365 | 525 | 500 | 470 | 475 | 205 | 17          |
| Iso-K 160 4E | 160             | 410 | 330 | 540 | 365 | 525 | 500 | 470 | 475 | 205 | 17          |
| Iso-K 160 4D | 160             | 410 | 330 | 540 | 365 | 525 | 500 | 470 | 475 | 205 | 17          |
| Iso-K 200 4E | 200             | 485 | 365 | 600 | 425 | 625 | 600 | 570 | 515 | 235 | 25          |
| Iso-K 200 4D | 200             | 485 | 365 | 600 | 425 | 625 | 600 | 570 | 515 | 235 | 25          |
| Iso-K 250 4E | 250             | 575 | 435 | 665 | 505 | 700 | 675 | 645 | 620 | 285 | 40          |
| Iso-K 250 4D | 250             | 575 | 435 | 665 | 505 | 700 | 675 | 645 | 620 | 285 | 40          |

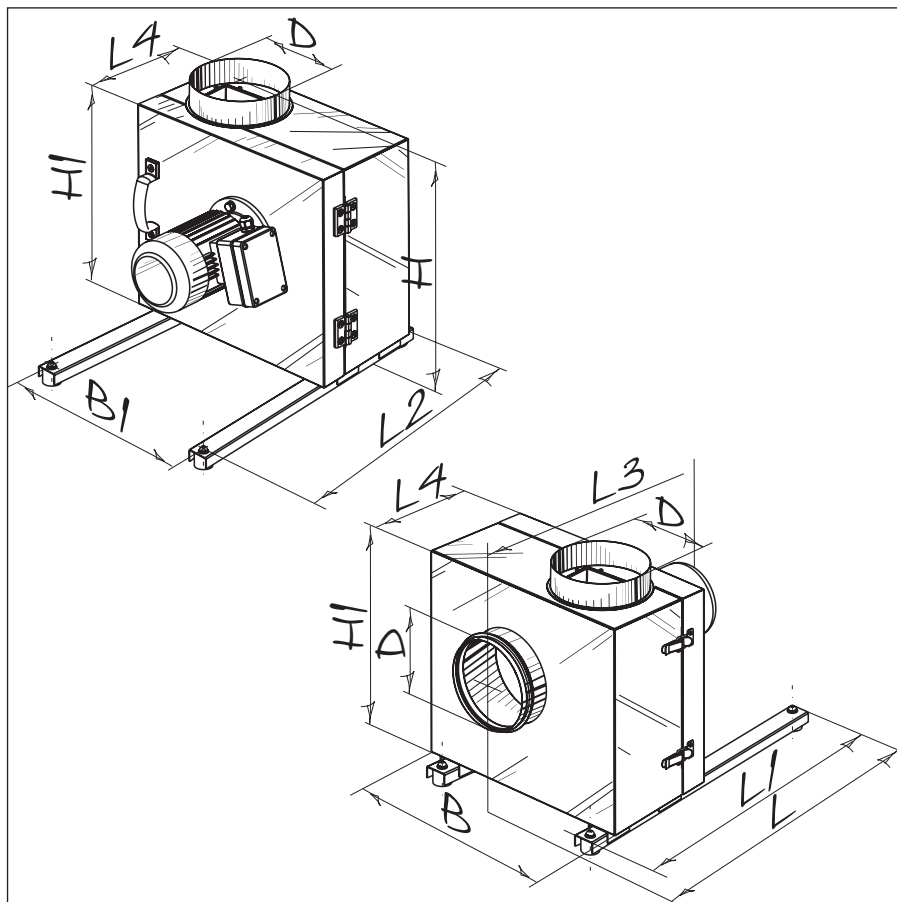


Fig. 2. Iso-K fan overall dimensions

**MOUNTING AND OPERATION GUIDELINES**



**WARNING**

Before starting mounting:

- ✓ Read carefully the fan mounting, start-up, operation and servicing instructions;
- ✓ Check the fan for possible transport damages.

Follow the safety regulations during the fan start-up and operations.

The fan is designed for connection to round air ducts on both sides of the fan.

The special fixing brackets in the fan casing enable selecting the most suitable fan installation position.

If the fan is connected through the flexible anti-vibration connectors the fan must be secured to a mounting surface with supports, hanger brackets or brackets.

The air motion direction in the system must match the pointer on the fan casing.

Install the fan to ensure sufficient and quick access for servicing and repair operations.

The fan must be grounded.

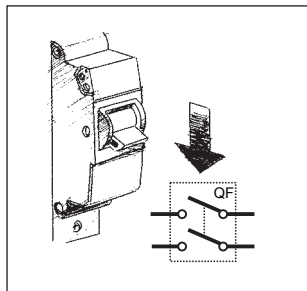
To reduce air turbulence related pressure losses connect a straight air duct to the fan of the length equal to min. 1 air duct diameter on the intake side and min. 3 air duct diameter on the exhaust side.

Power is supplied either through the external terminal box.

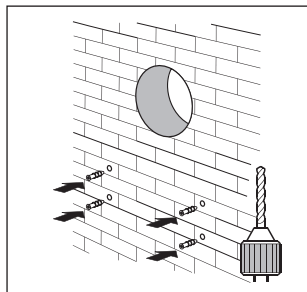
Mounting of the fan on the wall with the KS-ISK mounting angle brackets is shown in fig. 3 (available upon separate order).

**MOUNTING SEQUENCE**

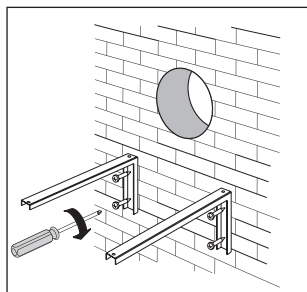
1. Cut off power supply.



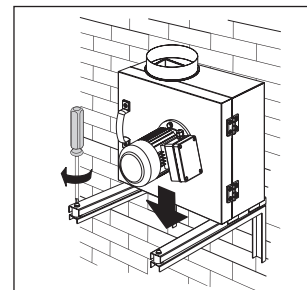
2. Mark and drill the holes on the mounting surface for the fan mounting.



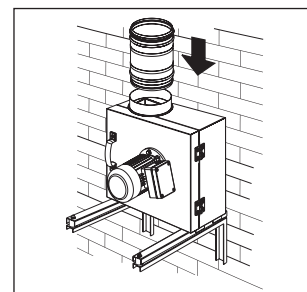
3. Fix the KS-ISK mounting angle brackets on a mounting bracket using appropriate fasteners, for example, expansion anchors.



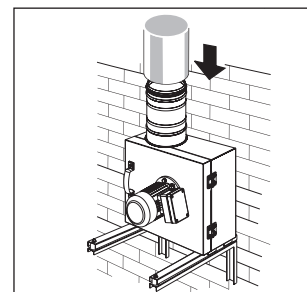
4. Install the fan on the KS-ISK mounting brackets and fix it using appropriate fasteners.



5. Install accessories, i.e. install a backdraft damper into the fan spigot.



6. Connect air ducts to the fan and fix those with clamps (available upon separate order).



**CONNECTION TO POWER MAINS**



**WARNING**

Read the operation manual prior to any electric installations. Connection of the fan to power mains is allowed by a qualified electrician only.  
 The rated electrical parameters of the fan are stated on the rating plate. No modifications of internal connections are allowed and will result in void warranty.  
 Connect the fan only to power mains with valid electric standards.  
 Follow the respective electric standards, safety rules (DIN VDE 0100), TAB der EVUs.  
 The house cabling system must be equipped with an automatic switch at the external input. Connect the fan to power mains through the automatic switch. The contact gap on all poles at least 3 mm (VDE 0700 T1 7.12.2 / EN 60335-1).  
 The automatic switch trip current must be in compliance with the fan current consumption, refer Table 1. Install the automatic switch to ensure prompt access.

The fan is rated for connection to single-phase alternating current power mains 230 V / 50 Hz.

The recommended rated automatic switch trip current for ISO-K fans is stated in Table 3.

The electric connections must be performed with insulated, durable and heat-resistant conductors (cables, wires).

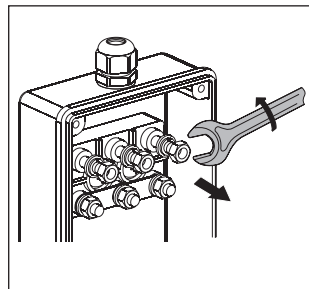
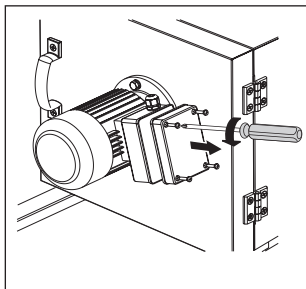
The recommended conductor cross section is stated in Table 3.

The wiring diagram for connection of the single-phased fans is shown in fig. 3. The wiring diagram for connection of the three-phased fans is shown in fig. 4.

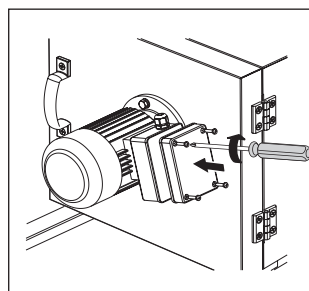
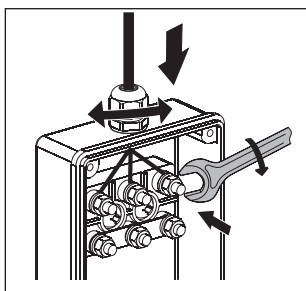
Cut power supply to the fan off by turning the automatic electric switch QF to OFF position. Take steps to prevent activation of the automatic switch prior to finishing mounting.

Connection to power mains of the basic fan model with a terminal box is as follows:

1. Cut off power supply to the fan by turning the automatic switch QF to OFF position.
2. Remove the screws that fix the terminal box cover and take off the cover.



3. Route the electric cable to the terminal box through the electric lead-in and connect the cable wires to the input terminal box in compliance with the wiring diagram, fig. 3, 4. Fix the cable with nuts. Re-install the terminal box cover and fix it with screws.



4. Turn the fan on by turning the automatic switch QF to ON position.

Table 3. Recommended automatic switch trip current and cable cross section.

| Model        | Rated automatic switch trip current [A] | Recommended cable n x S, n – wire number; S – cross section, mm <sup>2</sup> |
|--------------|---|--|
| Iso-K 150 4E | 2                                       | 2 x 1.5  |
| Iso-K 150 4D | 1                                       | 3 x 1.5  |
| Iso-K 160 4E | 2                                       | 2 x 1.5  |
| Iso-K 160 4D | 1                                       | 3 x 1.5  |
| Iso-K 200 4E | 8                                       | 2 x 1.5  |
| Iso-K 200 4D | 3.15                                    | 3 x 1.5  |
| Iso-K 250 4E | 12.5                                    | 2 x 1.5  |
| Iso-K 250 4D | 4                                       | 3 x 1.5  |

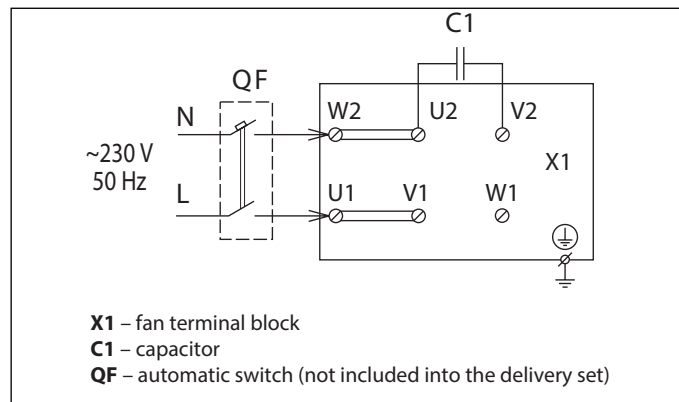


Fig. 3. Wiring diagram for single-phase fans

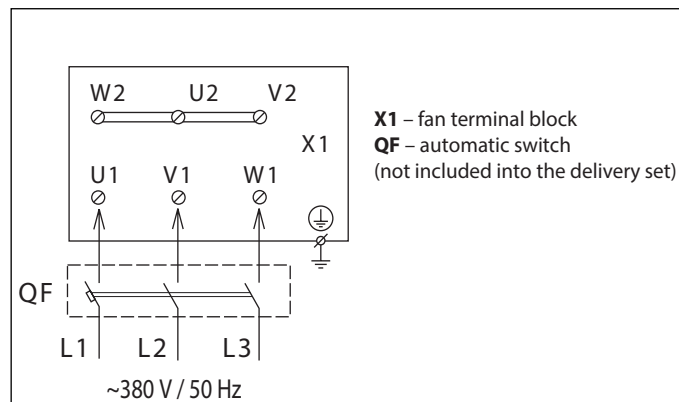


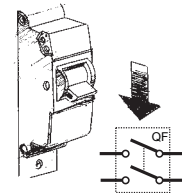
Fig. 4. Wiring diagram for three-phase fans

**MAINTENANCE**



**ATTENTION**

Cut power supply to the fan off by turning the automatic electric switch QF to OFF position. Take steps to prevent activation of the automatic switch prior to finishing maintenance.



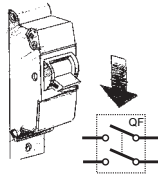
Disconnect the fan from power mains prior to any operations related to servicing and repair works. Make sure the rotating parts have come to a full stop.

The fan technical maintenance consists in the periodic cleaning of the fan surfaces.

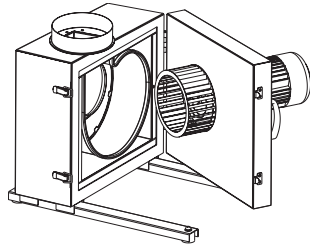
The impeller blades require thorough cleaning once in 6 months.

Cleaning procedure:

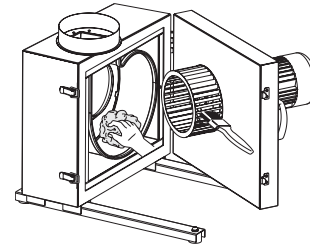
- ✓ cut off power supply to the fan;



- ✓ open the fan swivel panel;



- ✓ clean the impeller blades with a dry soft brush or compressed air.



Avoid liquid dripping on the motor and inside the electronic compartment. While cleaning the fan be careful not to displace the impeller counter weights. After cleaning perform all the operations reverse.

**TROUBLESHOOTING**

Table 4. Error list and troubleshooting

| Fault                      | Possible reason                                      | Remedy  |
|----------------------------|--|---|
| The fan does not operate.  | No power supply or connection error.                 | Make sure of correct power supply, otherwise troubleshoot the connection error. |
|                            | Jammed motor, soiled impeller blades.                | Remove the motor jam, clean the impeller blades.                                |
| Automatic switch tripping. | Short circuit in power grid.                         | Turn the fan off and contact your seller for troubleshooting.                   |
| Noise, vibration.          | The impeller is soiled.                              | Clean the impeller.   |
|                            | The screw connection is loose.                       | Tighten the fastening screws.   |
|                            | No flexible anti-vibration connectors are installed. | Install the flexible anti-vibration connectors.                                 |



**ACCEPTANCE CERTIFICATE**

**Sound-insulated fan**

|       |     |  |    |  |
|-------|-----|--|----|--|
| Iso-K | 150 |  | 4E |  |
|       | 125 |  |    |  |
|       | 160 |  | 4D |  |
|       | 200 |  |    |  |
|       | 250 |  |    |  |

is recognizes as serviceable.

The product complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

We hereby declare that the product complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

This certificate is issued following test carried out on samples of the product referred to above.

Approval mark \_\_\_\_\_ Manufacturing date \_\_\_\_\_

**CONNECTION CERTIFICATE**

**Sound-insulated fan**

|       |     |  |    |  |
|-------|-----|--|----|--|
| Iso-K | 150 |  | 4E |  |
|       | 125 |  |    |  |
|       | 160 |  | 4D |  |
|       | 200 |  |    |  |
|       | 250 |  |    |  |

is connected to power mains in compliance with this operation manual requirements by the professional:

Company: \_\_\_\_\_

Name: \_\_\_\_\_

Date \_\_\_\_\_ Signature \_\_\_\_\_

**WARRANTY CARD**

|       |     |  |    |  |
|-------|-----|--|----|--|
| Iso-K | 150 |  | 4E |  |
|       | 125 |  |    |  |
|       | 160 |  | 4D |  |
|       | 200 |  |    |  |
|       | 250 |  |    |  |

**SELLER**

**SALES DATE**

**REPRESENTATIVE IN EU**

Blauberg Ventilatoren GmbH  
Aidenbachstr. 52a,  
D-81379 München,  
Deutschland



NOTES

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**NOTES**

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[www.blaubergventilatoren.de](http://www.blaubergventilatoren.de)  
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