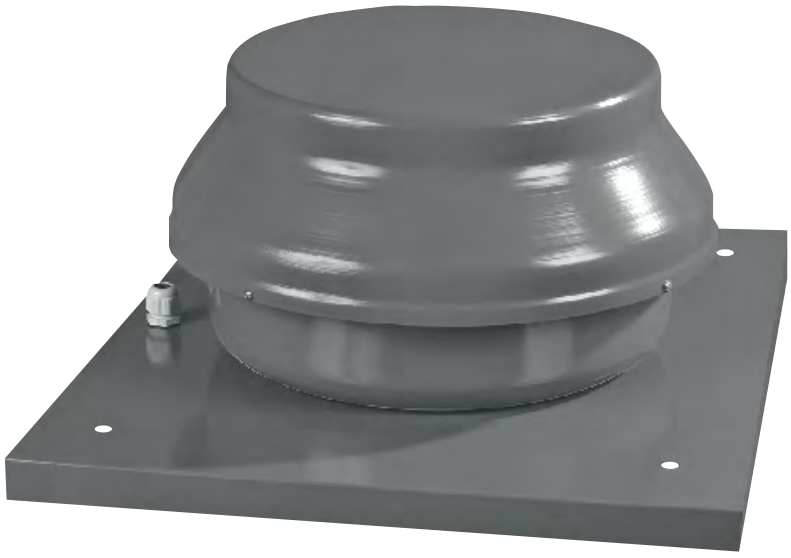


CENTRIFUGAL ROOF FAN

Tower-AM

EN USER'S MANUAL

BLAUBERG

CONTENTS

Safety requirements ... 3
Purpose ... 5
Delivery set ... 5
Designation key ... 5
Technical data ... 6
Mounting and set-up ... 7
Connection to power mains ... 8
Technical maintenance ... 10
Storage and transportation regulations ... 12
Manufacturer's warranty ... 13
Certificate of acceptance ... 15
Seller information ... 15
Installation certificate ... 15
Warranty card ... 15

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 Tower-AM 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 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.

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

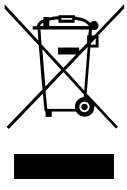
If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a safety hazard.

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.

The manufacturer, designer, installer and operator are responsible for the correct operation and functioning of the unit.

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 Tower-AM fans in metal casing with inlet diameter from 150 to 315 mm, hereinafter referred to as fans, are designed for ventilation of various industrial premises, pools, apartment buildings, offices, hospitals, restaurants, and other premises heated in winter time.
The transported air must not contain dust, solid particles, sticky and fibrous materials.
The ambient temperature must not exceed the values stated in the Technical data section.
The fan is suitable for vertical mounting on the exhaust ventilation shaft and is used for exhaust ventilation only.
The unit is rated for continuous operation.
The unit is rated as a Class I electrical appliance.
Ingress protection rating is IPX4.
The fan casing is made of polymer-coated steel that meets the atmospheric environmental category C3 according to ISO 12944-2.

DELIVERY SET

Name	Number
Fan	1 pc.
User's manual	1 pc.
Packing box	1 pc.

DESIGNATION KEY

Tower-AM 150 (220/60)

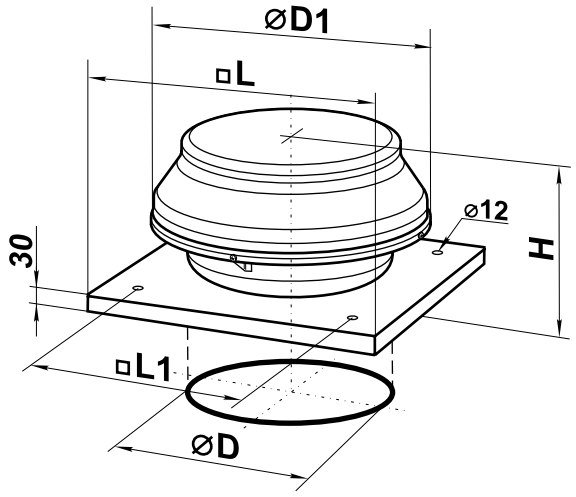
Power supply parameters other than 220 V/50 Hz
(Voltage/Frequency)

Impeller diameter [mm]

Fan designation:
Tower-AM — centrifugal roof fan with a round cover.

TECHNICAL DATA

Tower-AM



Model	Dimensions [mm]					Weight [kg]
	⌀D	⌀D1	H	L	L1	
Tower-AM 150	149	400	230	440	330	7,2
Tower-AM 200	198	400	250	440	330	8,1
Tower-AM 250	248	400	249	590	450	10,1
Tower-AM 315	315	550	339	590	450	12,3

⌀D — flange connection dimensions.

MOUNTING AND SET-UP

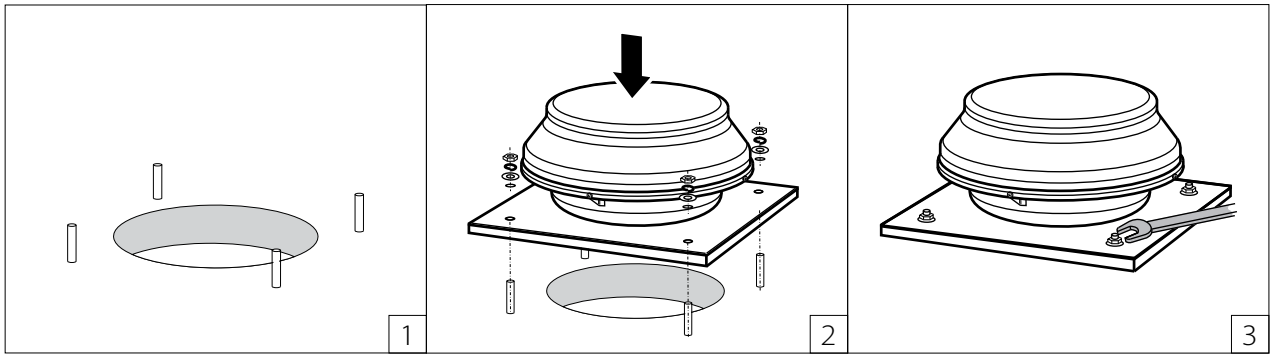
BEFORE MOUNTING MAKE SURE THE CASING DOES NOT CONTAIN ANY FOREIGN OBJECTS (E.G. FOIL, PAPER).

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

The fan is designed for mounting on a roof directly above a ventilation shaft or an air duct. The installation procedure and installation sequence are shown below. To prevent water and snow ingress inside a ventilation shaft, the fan can be mounted on a roof curb.
A roof fan can be connected to a ventilation shaft with an intake flange that is fixed directly to the fan base.
The fan base has holes for fastening bolts for connection of the fan to the level surface or to the roof curb.
The roof curb, intake flange and fastening bolts are not included in the delivery set and can be ordered separately.
Power is supplied via a remote terminal box or a terminal box built into the motor casing.

The unit is rated as a Class I electrical appliance and must be grounded. The terminal ⏚ must be connected to the ground loop.
The fan design is constantly being improved, thus some models may be slightly different from those described in this manual.

Tower-AM



OPERATION OF FANS WITHOUT A CONNECTED AIR DUCT SYSTEM IS IMPROPER

CONNECTION TO POWER MAINS

DISCONNECT THE POWER SUPPLY PRIOR TO ANY OPERATIONS WITH THE UNIT.

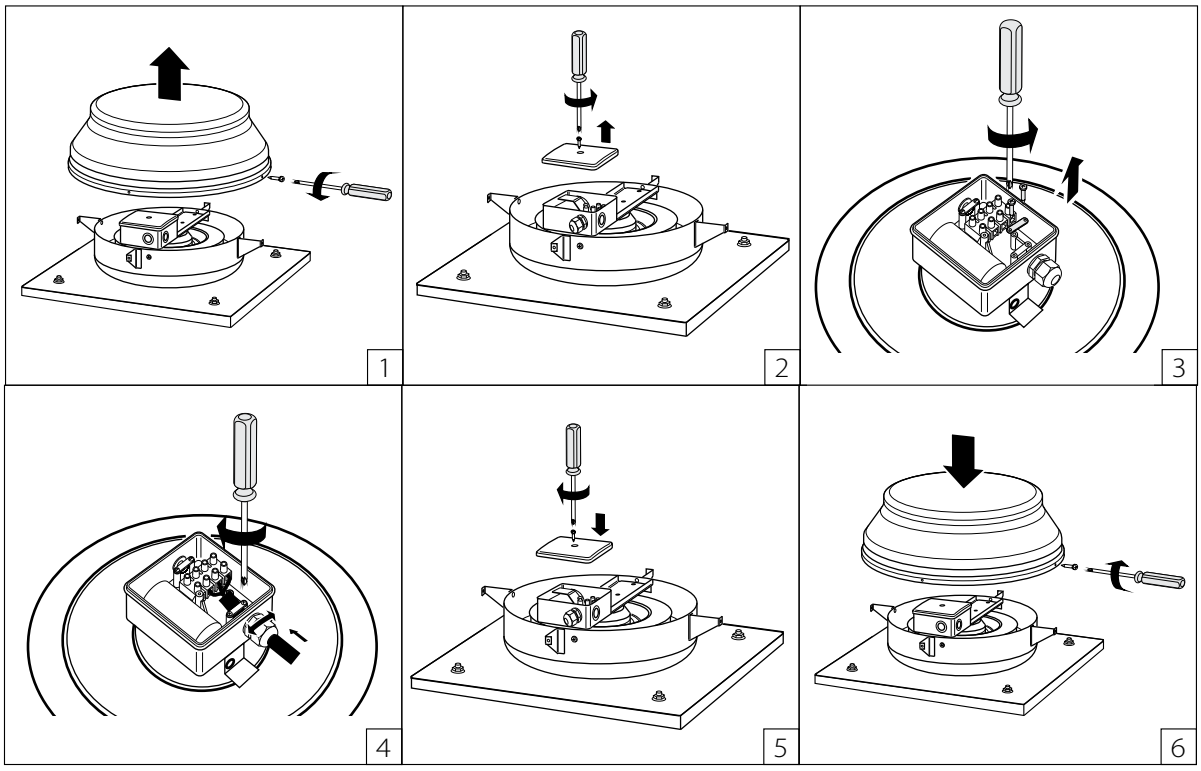
CONNECTION OF THE UNIT TO POWER MAINS IS ALLOWED BY A QUALIFIED ELECTRICIAN WITH A WORK PERMIT FOR THE ELECTRIC UNITS UP TO 1000 V AFTER CAREFUL READING OF THE PRESENT USER'S MANUAL.

THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE MANUFACTURER'S LABEL

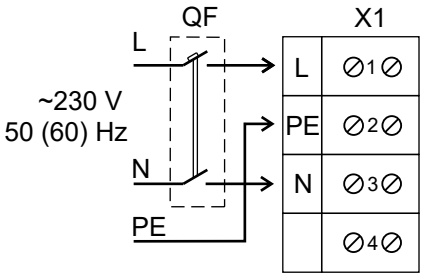
ANY TAMPERING WITH THE INTERNAL CONNECTIONS IS PROHIBITED AND WILL VOID THE WARRANTY.

The unit is designed for connection to power mains with the parameters specified in the technical data table.
The connection must be made using insulated conductors (cables, wires). The external power input must be equipped with an automatic circuit breaker built into the stationary wiring to open the circuit in the event of overload or short-circuit. The position of the QF external automatic circuit breaker must ensure free access for quick power-off of the unit. The overcurrent protection must match the rated current consumption of the fan.

The recommended automatic circuit breaker rated current and the cable cross section for various fan models are stated in the table.
The above cross sections are for reference only. The actual cross section depends on maximum permissible wire heating, its material, insulation, length and installation method (i.e. overhead, in pipes or inside the walls). The fans are connected to power mains through the terminal block located inside the remote or integrated terminal box in compliance with the wiring diagram and the terminal designation. The terminal designations are shown on the label inside the terminal box.

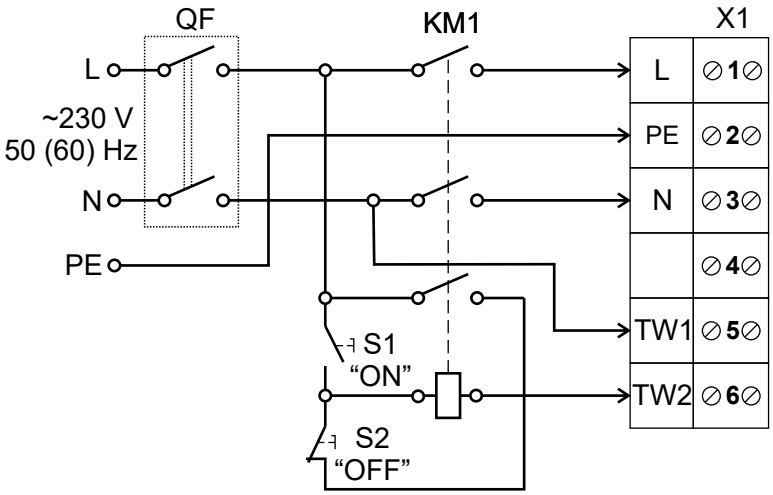


Wiring diagram



where QF is the automatic circuit breaker (not included in the delivery set);
X1 is the terminal block.

The recommended wiring diagram with motor overheating protection is shown below.



The TW1 and TW2 terminals are the electrical leads of the normally closed contact of the motor overheating protection. This contact must be connected in series to the power supply circuit of the KM1 magnetic starter coil, which starts the motor after pressing the S1 button. The contact is broken in case of motor overheating and it switches the starter coil off to cut power supply to the motor off. The QF automatic circuit breaker, KM1 magnetic starter, S1 and S2 control buttons are not included in the delivery set and are designed to be installed by the user.

Model	Automatic circuit breaker rated current [A]	Recommended cable, n x S, where n is a number of the cable conductors and S is the cable cross section [mm^2]
Tower-AM 150...250	1	3x0,5
Tower-AM 315	2	3x0,5

TECHNICAL MAINTENANCE

DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!

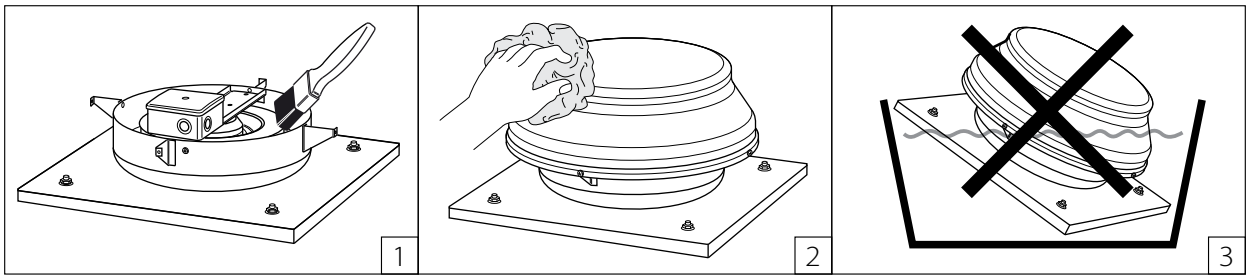
MAKE SURE THE UNIT IS DISCONNECTED FROM POWER MAINS BEFORE REMOVING THE PROTECTION.

PRIOR TO COMMENCING ANY TECHNICAL MAINTENANCE PUT UP A PROHIBITORY SIGN ON THE FAN STARTING PANEL:

"DO NOT SWITCH ON! MEN AT WORK!"

AVOID LIQUID SPILLS ON THE MOTOR! DO NOT USE AGGRESSIVE SOLVENTS AND SHARP OBJECTS FOR CLEANING!

Fan maintenance means periodic cleaning of the surfaces from dust and dirt. Switch the fan off while doing any maintenance operations!
Use a dry soft brush or compressed air to remove dust.
The impeller blades require thorough cleaning at least once in 6 months.
To clean the soiled fan internal parts perform a partial fan dismantling.
Wash the fan blades carefully with mild detergent and water solution avoiding liquid penetration on the electric motor.



TROUBLESHOOTING

Problem	Possible reasons	Elimination
The fan will not start.	No power supply.	Check the mains switch. Check the electrical connections according to the wiring diagram.
	Jammed motor.	Carefully check the fan impeller for possible seizure and eliminate it, if necessary. If the impeller is in order, replace the electric motor.
The switching equipment activates upon fan start-up.	Short circuit in the fan or the electric circuit between the fan and the switching equipment.	Eliminate the cause of a short circuit.
	Excessive current consumption due to an overload in the electric mains.	Eliminate the cause of excessive current consumption.
	Improper fan starting method.	Use a soft starter or frequency converter to start the motor **(see "Asynchronous Electric Motor Starting Methods" in the "Connection to power mains" section)**.
	Improper switching equipment.	Re-select the switching equipment in accordance with the current regulations and equipment specifications.
	The installed switching equipment is of poor quality or its actual performance falls short of the rated values stated by the manufacturer.	Re-select the switching equipment by choosing a unit which successfully passed commutation and load tests and has a technical compliance certificate. The selection should be limited to the top five foreign switching equipment manufacturers.
The fan fails to reach the required rotation speed due to serious overheating of the fan motor.	Fan motor overloaded.	Eliminate the overload.
	Improper fan starting method.	Use a soft starter or frequency converter to start the motor **(see "Asynchronous Electric Motor Starting Methods" in the "Connection to power mains" section)**.
The fan motor runs at overload capacity with current consumption in excess of the rated value.	The fan supplies more air than expected upon motor capacity selection.	Measure network resistance. Throttle down the network (add aerodynamic resistance to the air duct network).
	Wrong motor phasing. The impeller rotates in the opposite direction of the arrow on the fan casing.	If necessary, change the impeller rotation direction by changing the phase sequence on the electric motor terminals.
	Air ducts clogged.	Clean the air duct or the impeller.
The fan supplies more air than expected.	The resistance values used during the ventilation network calculations are too conservative.	Check the air ducts for proper shape and cross section as well as for any dampers present.
	The cross section of air ducts increased and their number reduced during the installation.	Throttle down the network (add aerodynamic resistance to the air duct network).
	Wrong choice of the fan.	Replace the fan with a unit of proper standard size.

The fan supplies less air than expected.	Wrong calculation of the ventilation network and wrong selection of the fan.	Re-calculate the network parameters and select a matching fan.
	The network resistance exceeds the design calculations.	Re-arrange the ventilation network to decrease its aerodynamic resistance.
	Wrong direction of the impeller rotation.	If necessary, change the impeller rotation direction by changing the phase sequence on the electric motor terminals **(see the "Commissioning" section)**.
	Air leak through a loose air duct connection.	Eliminate the air leak. Seal the air duct connection.
	Impeller or air duct contamination with foreign objects or debris.	Clean the impeller or the air ducts from foreign objects or debris.
Excessive noise or vibration both inside the fan and in the circuit.	Loose screw connections.	Check the screw connections for proper tightness.
	No flexible joints between the fan and the ventilation network on the suction and discharge sides.	Install flexible joints.
	Loose connection of valves and dampers to the air ducts.	Tighten up the fasteners of valves and dampers.
	Impeller or air duct contamination with foreign objects or debris.	Clean the impeller or the air ducts from foreign objects or debris.
	Worn bearings.	Replace the bearings.
	Unstable power supply, unstable motor operation.	Check the stability of power supply parameters and electric motor operation.

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 roof fan
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 roof fan
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

blaubergventilatoren.net
B292EN-01