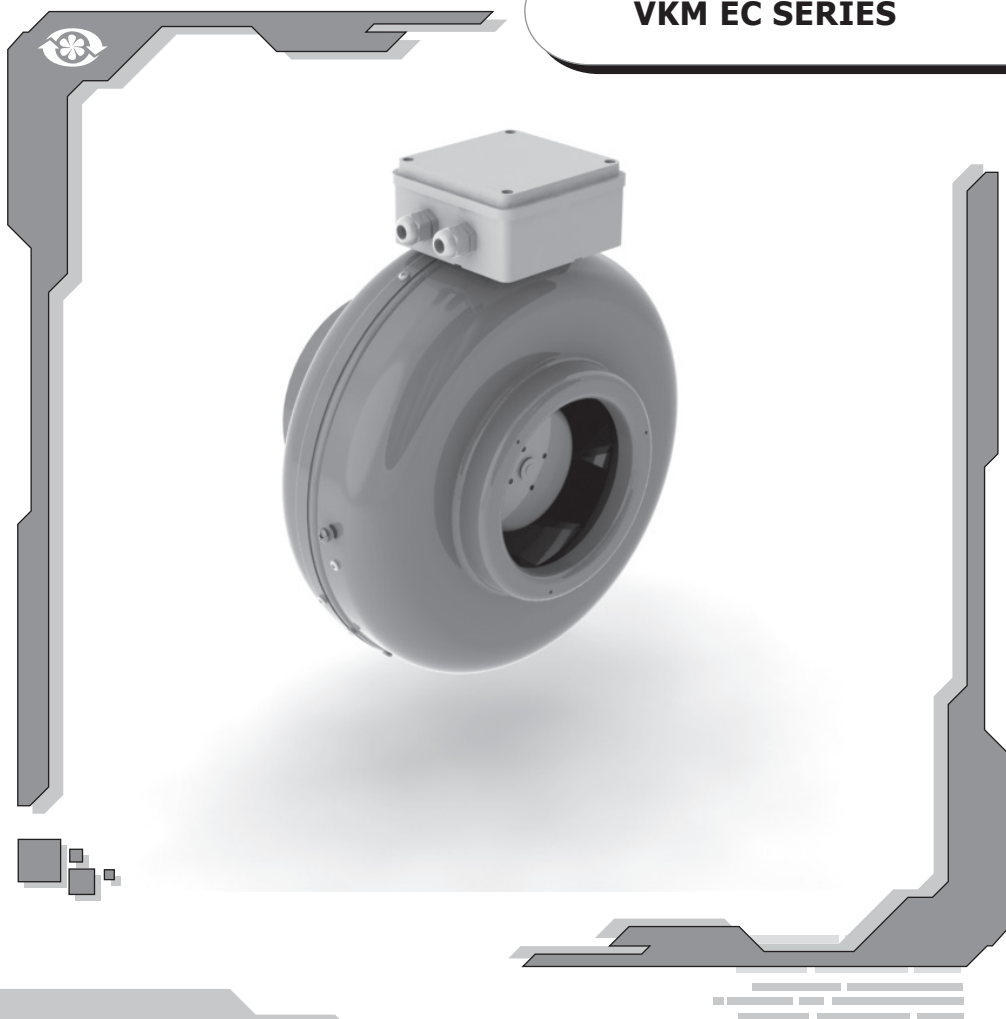


OPERATION MANUAL

CENTRIFUGAL INLINE FAN WITH ELECTRONICALLY COMMUTATED MOTOR

VKM EC SERIES





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INTRODUCTION

The present user manual contains the product description, technical data, operation, installation and mounting guidelines for the centrifugal inline fan of VKM EC series, hereinafter referred to as the fan.

USE

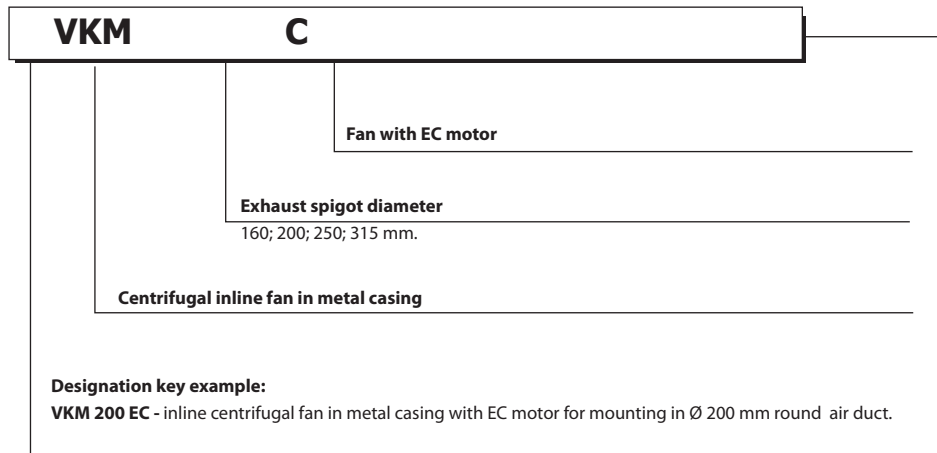
The centrifugal fan VENTS VKM EC, enclosed in a metal casing with the impeller diameter from 190 to 280 mm, is designed for ventilation of domestic, public and industrial premises that require economic solution and controllable ventilation.

The applied EC motors enable reducing of power demand by 1.5-3 times and provide high efficiency and low noise level.

The fan is designed for horizontal or vertical mounting in a round air duct and are used both for extract and supply ventilation.

The fan is rated for continuous operation always connected to power mains. The fan must be grounded! Ingress Protection Rating IPX4.

STRUCTURAL DESIGNATION KEY



DELIVERY SET

The delivery set includes:

- fan - 1 item;
- fixing bracket for the fan mounting - 2 items;
- user manual;
- packing box.

MAIN TECHNICAL DATA

The fan designation, parameters and connecting dimensions are shown in tables 1, 2, 3 and in fig. 1.

Due to the constant improvements the design of some models may slightly differ from those described in this manual. The wiring diagram and terminal designation may also differ from the description in this manual.

FAN DESIGN

1. casing
2. EC-motor
3. impeller
4. fixing bracket
5. terminal box

Table 1

ErP data	
Overall efficiency	η , (%)
Measurement category	MC
Efficiency category	EC
Efficiency grade	N
Variable speed drive	VSD
Power	[kW]
Current	[A]
Air flow	[m ³ /h]
Static pressure	[Pa]
Speed	[n/min ⁻¹]
Specific ratio	SR

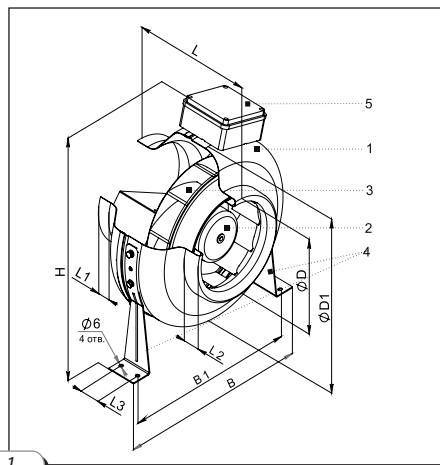


Table 2

Fan type	Dimensions, mm									Weight, kg
	D	D1	H	B	B1	L	L1	L2	L3	
VKM 160 C	158	304	360	351	311	200	25	25	30	5,9
VKM 200 C	198	344	437	390	350	238	25	25	40	7,1
VKM 250 C	248	344	437	390	350	249	25	31	40	8,0
VKM 315 C	313	404	466	454	414	260	25	40	40	8,5

Table 3

Fan type	Voltage [V / 50/60 Hz]	Power [W]	Current [A]	Max. air capacity [m ³ /h]	RPM [min ⁻¹]	Noise level at 3 m [dBA]	Transported air temperature [°C]	Protection rating
VKM 160 C*	1~ 230	80	0,58	660	3250	45	-25 +60	IP4
VKM 200 C*	1~ 230	84	0,49	840	2490	50	-25 +60	IP4
VKM 250 C	1~ 230	161	0,94	1275	2700	46	-25 +60	IP4
VKM 315 C	1~ 230	160	0,94	1460	2780	48	-25 +60	IP4

* Compliant to the ErP-regulation (EC) 327/2011, the power consumption at optimum efficiency is < 125W.

SAFETY REQUIREMENTS

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. Mounting and maintenance of the fan are allowed only by duly qualified electricians in compliance with valid rated norms.

Disconnect the fan from power mains prior to any servicing and repair works. Before connecting the fan to power mains check the fan for any visible damages of impeller and casing. The fan casing must not contain any foreign objects which can damage the impeller blades.



WARNING: Do not use the fan in explosive or fire-hazardous environment.

MOUNTING AND INSTALLATION GUIDELINES

The fans are designed for vertical or horizontal mounting, fig. 2-5. Air motion in the system must be in compliance with the pointer direction on the fan casing. Install a hood on the intake spigot side in case of the vertical fan installation.

Provide a straight air duct section at least 1 m long on the intake spigot side in case of the horizontal fan installation and the fan use in the humid environment.

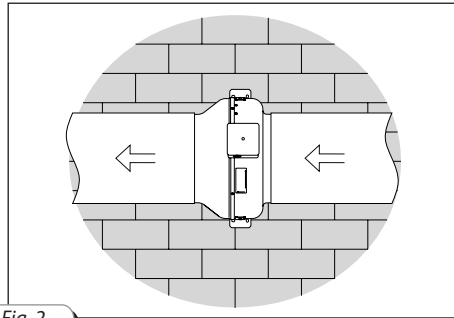


Fig. 2

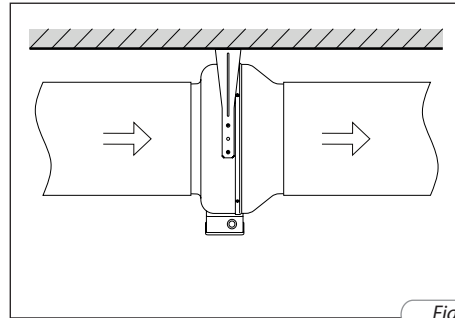


Fig. 3

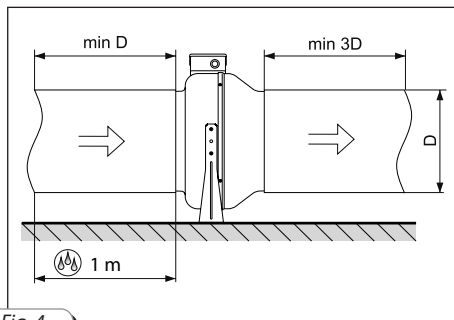


Fig. 4

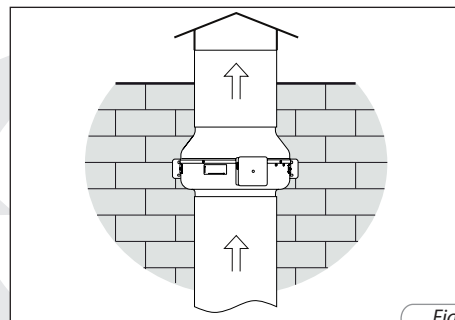


Fig. 5

Mounting sequence

Disconnect the fan from power mains prior to any installation works, fig. 6.

Remove the bolts on both sides of the casing 1, install the fixing brackets and tighten the bolts, fig. 7.

Align the holes in the fixing brackets and the holes in the casing.

Drill the holes in the wall or in the ceiling for the dowels and fix the fan with the screws, fig. 8-10. Connect the air ducts of respective diameter to the fan, fig. 11.

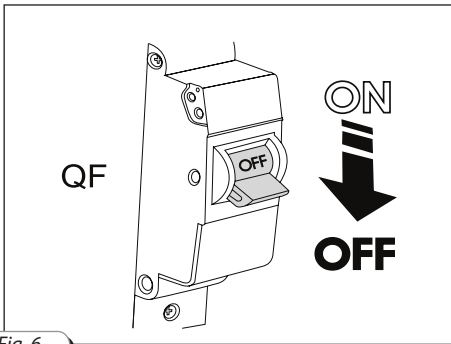


Fig. 6

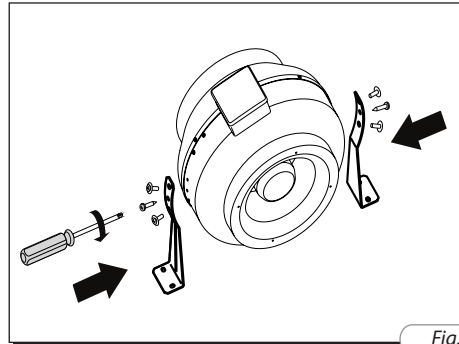


Fig. 7

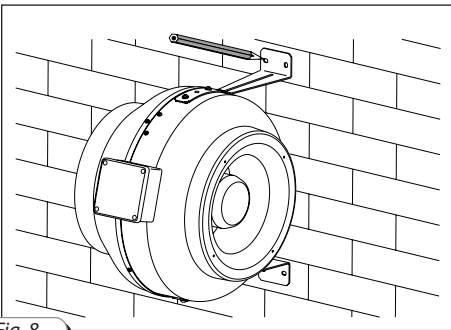


Fig. 8

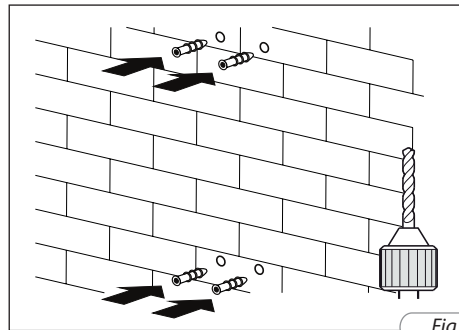


Fig. 9

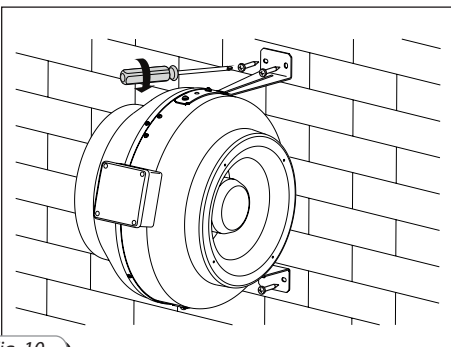


Fig. 10

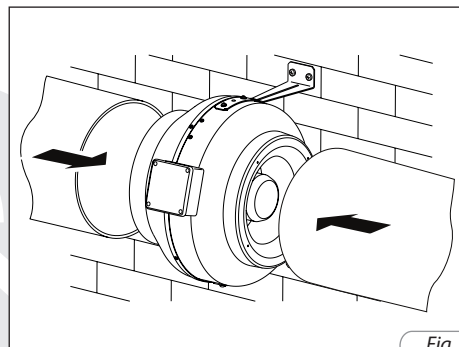


Fig. 11

CONNECTION TO POWER MAINS

Cut power supply off before any operations with the fan. The fan must be connected to power mains by a duly qualified electrician. The rated electrical parameters of the fan are shown on the sticker. Any modifications of the internal connections are not allowed and will void the warranty.

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

Connect the fan to power mains by means of insulated, durable and thermal-resistant cords (cables, wires) with respective cross section, in any case no less 0.75 mm². The above cross section is for reference only. The applicable cable must be selected in consideration of the maximum wire temperature depending on the wire and insulation type, the maximum current, the lead wire length and its layout type.

Install the automatic circuit breaker at the external electric input 230 V / 50 Hz and integrate it into the fixed wireworks. Install the automatic circuit breaker in such a way to provide quick unhampered access to it in case of emergency.

The trip current must be in compliance with the fan current consumption. The recommended rated current for all the fan models is 1.6 A.

Connect the cables to the terminal block incorporated inside the terminal box located on the fan casing in compliance with the fan wiring diagram and the terminal designation. The terminal designations are shown on the sticker inside the fan casing.

The fan wiring diagram is shown in fig. 12

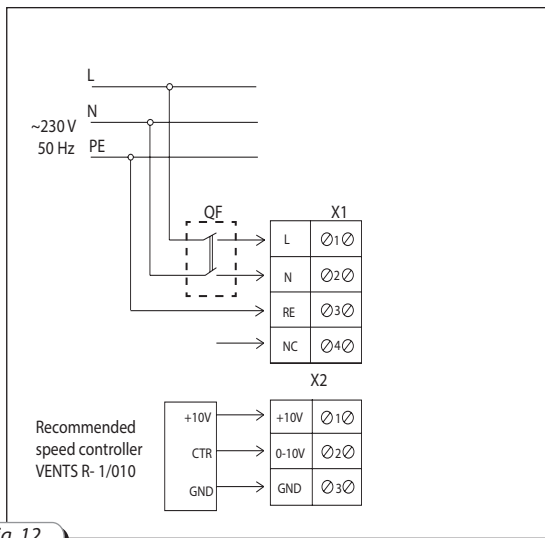


Fig. 12

The fan has smooth speed control due to the speed controller R-1/010, hereinafter the controller. Set the required speed from minimum to maximum value.

The controller is an optional item and is available upon separate order. Connect the speed controller in compliance with the wiring diagram, fig. 12.

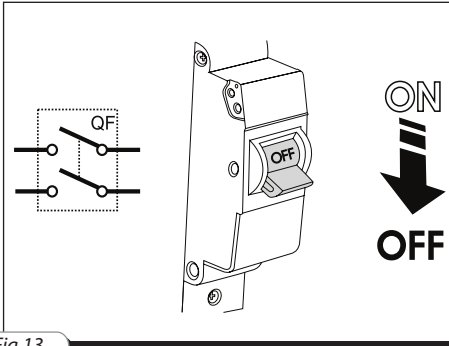


Fig. 13

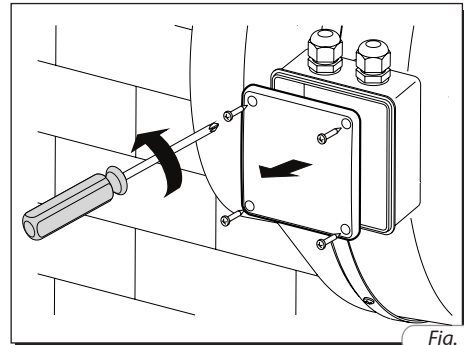


Fig. 14

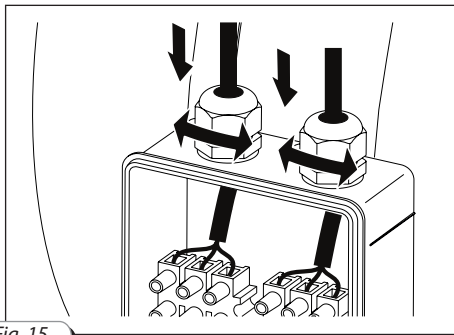


Fig. 15

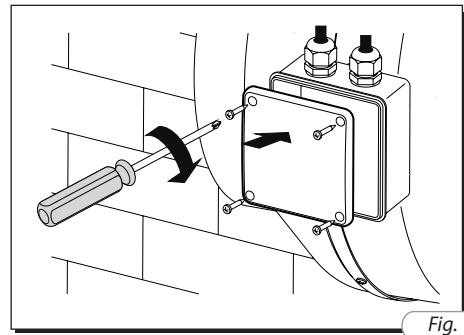


Fig. 16

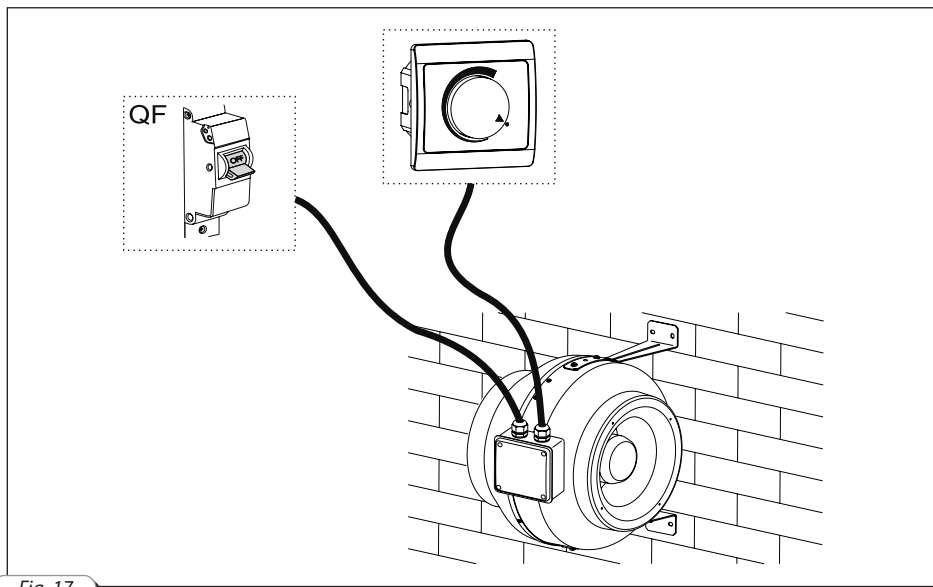


Fig. 17

MAINTENANCE

Disconnect the fan from power mains prior to maintenance and servicing operations, fig. 18.

Maintenance means regular cleaning of the fan surfaces from dust and dirt. Use a soft dry brush or a vacuum cleaner to remove dust, fig. 21.

Clean the impeller blades at least once in 6 months. Install the filter to prevent the fan soiling and reduce the maintenance periodicity. Remove the screws and take off the fan cover prior to cleaning the fan, fig. 20.

Clean the impeller blades with a soft cloth wetted in mild water detergent solution. Avoid liquid dripping on the motor, fig. 23! After cleaning of the impeller re-install the cover and tighten the screws.

The fan maintenance is allowed by a qualified expert only.

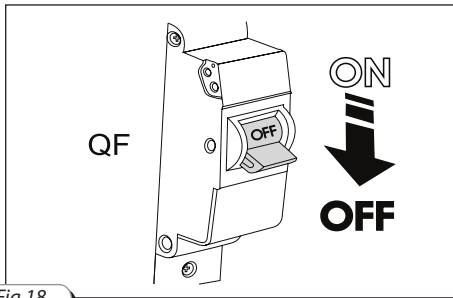


Fig. 18

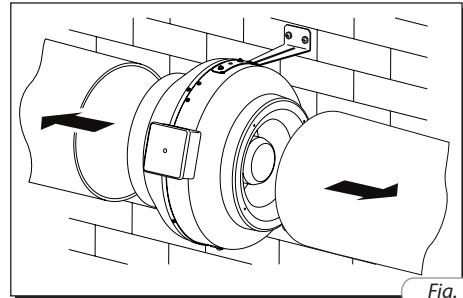


Fig. 19

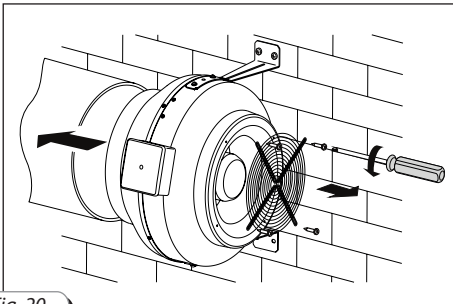


Fig. 20

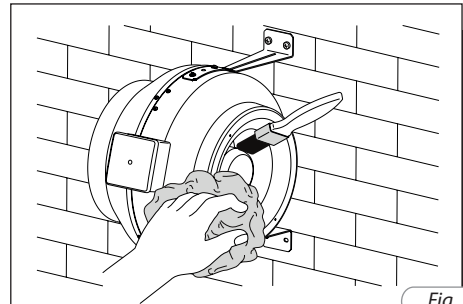


Fig. 21

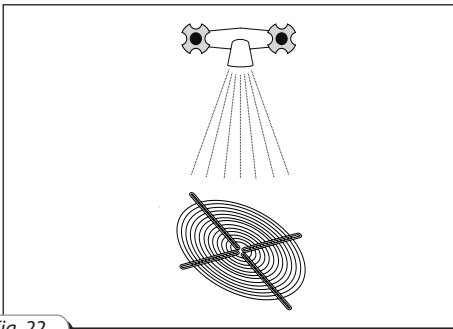


Fig. 22

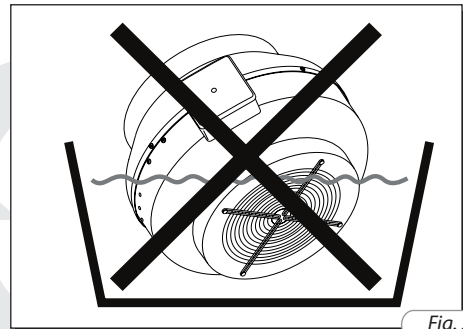


Fig. 23

STORAGE REQUIREMENTS

Store the fan in the manufacturer's original packing box in a dry ventilated premise at the temperatures from +5°C up to +40°C and relative humidity less than 80% (at the temperature +20°C).

Vapours or particles which can cause corrosion or damage the insulation or connection tightness are not allowed in the storage environment.

MANUFACTURER'S WARRANTY

The fan is manufactured at the factory of "Ventilation systems" Pr JSC (hereinafter referred to as the Manufacturer).

By purchasing this product the customer confirms to have read and agreed to the warranty terms.

The manufacturing company sets forth the warranty period (service life) of the product as 24 months following the sale date via retail network subject to the customer's ensuring compliance with the rules of transportation, storage, mounting and operation of the product. In case of no confirmation of the sales date the warranty period is calculated from the manufacturing date.

All the units and components belonging to the faulty unit and replaced within the warranty period shall be covered by the previous warranty period and general warranty conditions. Thus the warranty period is neither extended nor renewed for the replaced components or the unit.

In case of failure due to faulty equipment during the warranty period the consumer has the right to get it exchanged at the manufacturing facility.

For the product replacement please contact your Seller.

The accessories operated together with the unit, both included and not included into the delivery list as well as other equipment operating jointly with the unit are not covered by the warranty.

The company is not responsible for compatibility of their goods with other producers' goods. The warranty covers the manufacturing defects only.

All the defects and faults resulting from gross mechanical effect during operation process or natural wear-and-tear are not covered by the warranty conditions.

The faults caused by violence of operation, servicing and maintenance guidelines either by Customer or third parties or caused by unauthorized design modifications shall not be covered by warranty.

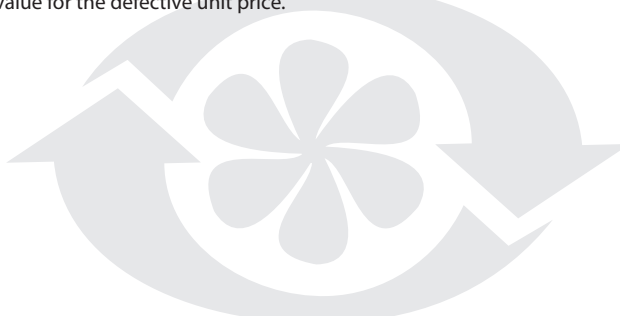
WARRANTY LIMITATION

The manufacturer is not responsible for any mechanical or physical damages resulting from the manual requirements violence, the unit misuse or gross mechanical effect.

Indirect damages such as re-installation or re-connection of the unit, direct or indirect losses related to the unit replacement shall not be indemnified.

Mounting/dismantling, connection/disconnection and adjustment of the unit shall not be covered by the warranty.

The contractor in charge for mounting, electric mounting and adjustment works shall be responsible for quality and warranty of these works. In any case the indemnity amount shall not exceed the actually paid value for the defective unit price.





ACCEPTANCE CERTIFICATE

We hereby declare that the following 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.

The fan has been duly certified as serviceable: **VENTS model** _____

Stamp of the acceptance inspector _____ Date of production _____

Sold by

name of the vendor, stamp of the retailer _____

Sale date _____

WARRANTY CARD

