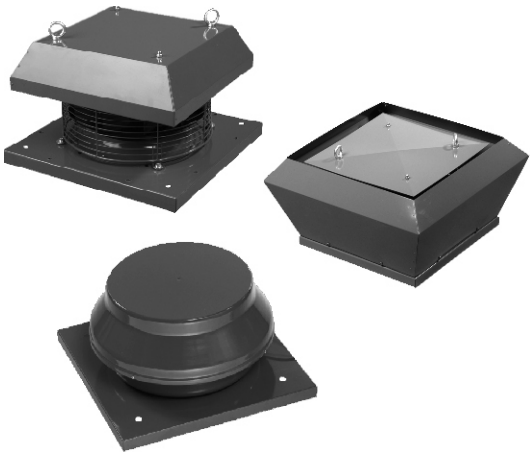
VENTS VKV/VKH/VKMK/VKMKp
ROOF CENTRIFUGAL FANS

USER'S MANUAL



2010

APPLICATION

VENTS VKV/ VKH/ VKMK/ VKMKp the roof centrifugal fan enclosed in metal body, with input opening diameter 220 to 500 mm (hereinafter named as "the fan") are designed to use in ventilation systems for industrial premises, swimming pools, multi-apartment housing, offices, hospitals, restaurants etc., being heated during winter season. They are manufactured according to TU U V.2.5-29.2-30637114-012:2006.
The air coming out the fan should not contain dust, other solid admixtures, sticky substances, and fibrous materials.
The ambient temperature should not exceed the limits indicated in Table 1, 3, 5.
The fan should be installed vertically on the output air duct shaft and may be used only for exhaust ventilation.
The fan is designed for long-term operation without disconnection with the electricity supply.
By the type of protection against electrical shock the fans belong to Class 1 devices according to GOST 12.2.007.0-75.
The degree of protection against access to the hazardous parts and water penetration is IPX4.
Type of the climatic modification of the fan is UHL 4.2 according to GOST 151590-69.

Design of the fans is being constantly perfected, so some models could slightly differ from the ones, described in this certificate.

MAIN SPECIFICATIONS

The fans' designations, their parameters, and connection dimensions are provided in tables 1, 2, 3, 4, 5, 6 and on figs. 1, 2, 3.

Structure of VKV, VKH fans designation.

XXX X X XXX

Fan type:
VKV - roof centrifugal fan with square cover
VKH - roof centrifugal fan with low square cover

Electric motor type:
2 - two-pole
4 - four-pole
6 - six-pole

Mains specifications:
E - one phase
D - three phases

Impeller diameter:
220; 225; 250; 280; 310; 355; 400; 450; 500 mm

Structure of VKMK, VKMKp fans designation.

XXX XXX

Fan type:
VKMK - roof centrifugal fan with round cover
VKMKp - roof centrifugal fan with round cover and base plate

Impeller diameter:
150; 200; 250; 315 mm

Designation examples:

VKV 2E 280 - roof centrifugal fan with two-pole one-phase electric motor and 280 mm impeller diameter.

VKH 4E 310 - roof centrifugal fan with low cover, four-pole one-phase electric motor and 310 mm impeller diameter.

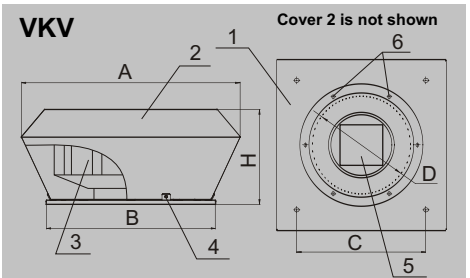
VKMK 200 - roof centrifugal fan with 200 mm inlet pipe.

VKMKp 150 - roof centrifugal fan with base plate and 150 mm inlet pipe.

Table 1

Fan type	Max .capacity (m^3/hour)	Rotation speed (rpm)	Input current (A)	Power (W)	Noise level (dBA, 3 m)	Mains voltage (V) at 50 Hz	Max. ambient temperature (°C)
VKV 2E 220	700	2700	0,38	85	49	230	+55
VKV 2E 225	900	2650	0,6	135	49	230	+55
VKV 2E 250	1300	2600	0,7	155	65	230	+50
VKV 2E 280	1780	2700	1,0	225	66	230	+50
VKV 4E 310	1820	1370	0,54	120	45	230	+85
VKV 4D 310	1950	1400	0,32	110	53	400	+65
VKV 4E 355	2800	1420	1,12	245	46	230	+50
VKV 4D 355	2350	1400	0,52	170	53	400	+70
VKV 4E 400	3400	1400	2,4	480	52	230	+80
VKV 4D 400	3800	1430	0,7	385	52	400Y	+60
VKV 4E 450	3850	1350	3,1	640	53	230	+50
VKV 4D 450	4300	1430	0,82	470	53	400Y	+50
VKV 6E 500	4700	880	1,82	385	47	230	+50

Allowable deviation of mains voltage: ±10% of the rated value.



1 - body; **2 - cover;**
3 - impeller; **4 - self-cutting screws;**
5 - junction box; **6 - nuts.**

Figure 1

Table 2

Fan type	Size (mm)					Weight (kg)
	A	B	C	H	D	
VKV 2E 220	460	335	245	275	213	8,9
VKV 2E 225	460	335	245	275	213	9,6
VKV 2E 250	520	400	330	275	286	12,8
VKV 2E 280	520	400	330	275	286	12,7
VKV 4E 310	560	435	330	330	286	17,8
VKV 4D 310	560	435	330	330	286	17,8
VKV 4E 355	783	595	450	420	438	22,0
VKV 4D 355	783	595	450	420	438	22,0
VKV 4E 400	783	595	450	420	438	27,5
VKV 4D 400	783	595	450	420	438	27,5
VKV 4E 450	872	665	535	454	438	29,5
VKV 4D 450	872	665	535	454	438	29,5
VKV 6E 500	872	665	535	454	438	33,8

Table 3

Fan type	Max .capacity (m^3/hour)	Rotation speed (rpm)	Input current (A)	Power (W)	Noise level (dBA, 3 m)	Mains voltage (V) at 50 Hz	Max. ambient temperature (°C)
VKH 2E 220	700	2700	0,38	85	49	230	+55
VKH 2E 225	900	2650	0,6	135	49	230	+55
VKH 2E 250	1300	2600	0,7	155	65	230	+50
VKH 2E 280	1780	2700	1,0	225	66	230	+50
VKH 4E 310	1820	1370	0,54	120	45	230	+85
VKH 4D 310	1950	1400	0,32	110	53	400	+65
VKH 4E 355	2800	1420	1,12	245	46	230	+50
VKH 4D355	2350	1400	0,52	170	53	400	+70
VKH 4E 400	3400	1400	2,4	480	52	230	+80
VKH 4D 400	3800	1430	0,7	385	52	400Y	+60
VKH 4E 450	3850	1350	3,1	640	53	230	+50
VKH 4D 450	4300	1430	0,82	470	53	400Y	+50
VKH 6E 500	4700	880	1,82	385	47	230	+50

Allowable deviation of mains voltage: ±10% of the rated value.

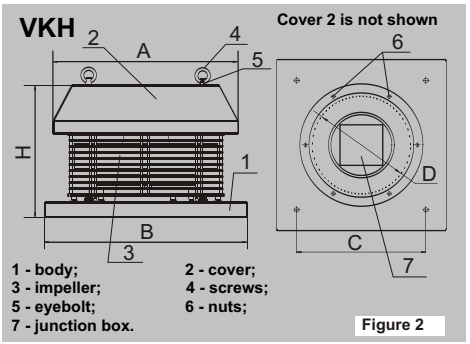


Figure 2

Table 4

Fan type	Size (mm)					Weight (kg)
	A	B	C	H	D	
VKH 2E 220	338	335	245	228	213	6,3
VKH 2E 225	338	335	245	228	213	6,9
VKH 2E 250	365	400	330	265	286	10,1
VKH 2E 280	365	400	330	265	286	10,2
VKH 4E 310	400	435	330	250	286	10,2
VKH 4D 310	400	435	330	250	286	10,2
VKH 4E 355	550	595	450	348	438	15,6
VKH 4D 355	550	595	450	348	438	15,6
VKH 4E 400	550	595	450	348	438	21,0
VKH 4D 400	550	595	450	348	438	20,9
VKH 4E 450	640	665	535	400	438	22,7
VKH 4D 450	640	665	535	400	438	22,7
VKH 6E 500	640	665	535	465	438	26,6

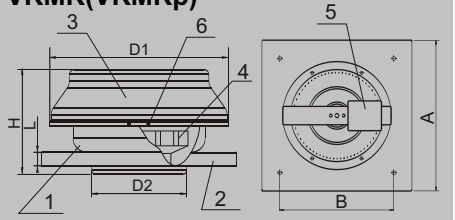
Table 5

Fan type	Max. Capacity (m^3/hour)	Rotation speed (rpm)	Input current (A)	Power (W)	Noise level (dBA, 3 m)	Mains voltage (V) at 50 Hz	Max. ambient temperature (°C)
VKMK 150 VKMKp 150	555	2705	0,43	98	47	230	+55
VKMK 200 VKMKp 200	950	2375	0,67	154	48	230	+50
VKMK 250 VKMKp 250	1310	2790	0,85	194	52	230	+50
VKMK 315 VKMKp 315	1880	2720	1,34	296	54	230	+45

Allowable deviation of mains voltage: ±10% of the rated value.

VKMK(VKMKp)

Cover 3 is not shown



1 - body; **2 - flange;**
3 - cover; **4 - impeller;**
5 - junction box; **6 - self-cutting screws.**

Figure 3

Table 6

Fan type	Size (mm)						Weight (kg)
	A	B	H	L	D1	D2	
VKMK 150	440	330	230	30	403	150	7,2
VKMK 200	440	330	238	30	403	200	8,1
VKMK 250	590	450	249	30	403	250	10,1
VKMK 315	590	450	269	30	503	315	10,1
VKMKp 150	440	330	230	2	403	150	8,2
VKMKp 200	440	330	238	2	403	200	9,3
VKMKp 250	590	450	249	2	403	250	12,3
VKMKp 315	590	450	269	2	503	315	12,2

PACKAGE CONTENTS

The package contains:
- fan: 1 pc
- user's manual;
- packing box.

SAFETY REQUIREMENTS

It is necessary to take measures to prevent penetration of black gases into premises through open smoke ducts or other fire-prevention facilities.
Fan installation and connection should be performed by qualified electrician according to effective regulations. Disconnect fan from the electricity supply prior to maintenance and repair.
Before fan connection to the electricity supply is necessary to ensure that there are no visible damages of impeller, body, grating, as well as foreign objects in the blowing part of the body, which can damage impeller vanes.

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

FAN CONSTRUCTION

The **VKV** fan (fig. 1) consists of a body 1 with electric motor and impeller 3 fitted therein. Cover 2 is fastened to the body by self-cutting screws 4. Junction box 5 is fixed at the top of the body. It is intended for connecting the fan to one-phase or three-phase electricity supply and contains operating capacitor.
The **VKH** fan (fig. 2) consists of a body 1 with electric motor and impeller 3 fitted therein. Cover 2 is fixed to the body with two screws 4 and two eyebolts 5. Junction box 7 is fixed at the top of the body. It is intended for connecting the fan to one-phase or three-phase electricity supply and contains operating capacitor.
The **VKMK / VKMKp** fans (fig. 3) consist of a body 1 with flange 2 in a shape of a box (VKMK) or a plate (VKMKp). Electric motor with impeller 4 is fitted inside the body. Cover 3 is fastened to the body by self-cutting screws 6. Junction box 5 is fixed at the top of the body. It is intended for connecting the fan to one-phase or three-phase electricity supply and contains operating capacitor.

CONNECTION TO THE MAINS

Connection of the fan to the single-phase mains (fig. 4) should be through the circuit-breaker incorporated into wiring. The gap between contacts of switch at all poles should not be less than 3 mm.

Connection of the fan to the three-phase mains (figs. 5, 6) should be through the 3-pole circuit-breaker with thermomagnetic tripper. Connection for the fan with the electric motor and fitted overheating control sensor should be made according to Fig. 7, 8.

A fan should be mounted vertically.

Air moving direction should coincide with the direction of the arrow on the fan body.

A fan may be equipped with protective grating at the input side.

A fan is fixed on the output shaft by four M10 nuts.

Connection scheme of the fan with one-phase motor

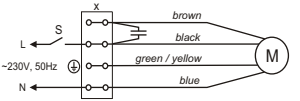


Figure 4

Y-type connection of the fan with three-pase motor

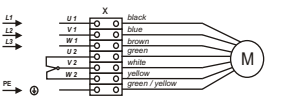


Figure 5

D-type connection of the fan with three-phase motor

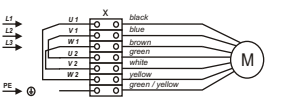


Figure 6

Y-type connection of the fan with three-phase motor and overheating control sensor

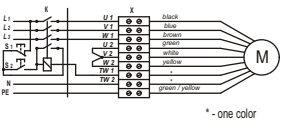


Figure 7

D-type connection of the fan with three-phase motor and overheating control sensor

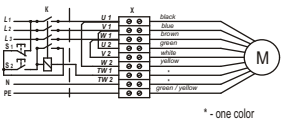


Figure 8

where X - terminal block;
M - electric motor;
S - switch;
K- solenoid starter;
S1 - switch-on button;
S2 - swithch-off button.

MAINTENANCE

Maintenance of the fan should be carried out only after disconnecting it with the mains. Maintenance comprises periodical cleaning of the surfaces from dust and dirt, when the fan is disconnected with the mains. To remove the dust, use a soft dry brush or compressed air.

Blades of the impeller require careful cleaning every 6 months.

For this purpose:

- loosen the self-cutting screws 4 (fig. 1), 6 (fig. 2) screws 4 and eyebolts 5 (fig. 2)
- detach cover 2 (fig. 1, 2), cover 3 (fig. 3) from the body.

Using the water solution of detergent, clean the blades of the impeller, avoiding fluid penetration onto the electric motor.

KEEPING CONDITIONS

Keep the fan in the manufacturer's packaging in a well vented premise at the temperature from +5°C to + 40°C and relative humidity not exceeding 80 % (at T = 20°C).

The presence of acids, alkalis and other aggressive substances in the air is not allowed.

MANUFACTURER'S WARRANTY

The manufacturer, Joint-Stock Company “Ventilation systems ", guarantees the normal operation of the fan during 24 months from the date of sale through the retail outlet under condition that the rules of transportation, storage, installation and operation were followed.

When the mark about the sale date is absent, the warranty period is calculated from the date of manufacture.

In case of any failures in operation of the fan through the manufacturer's fault during the warranty term, the consumer has the right to have the fan replaced in accordance with the Article 14 item 9 of The Law of Ukraine "On consumer rights protection".

Replacement will be made in the office located at:
1 Mikhaila Kotzubinskogo St., Kiev 01030 Ukraine.

ACCEPTANCE CERTIFICATE

Fan " VENTS VKV_____"
"VENTS VKH _____"
"VENTS VKMK _____"
"VENTS VKMKp _____"

(fill as appropriate, delete the rest)

complies with the TU U V.2.5-29.2-30637114-012:2006
and is accepted as ready for operation

Stamp of the inspector

Manufacture date

Sold
name of the trading company, stamp of the shop

Date of sale