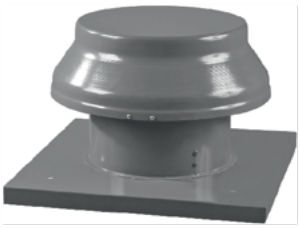
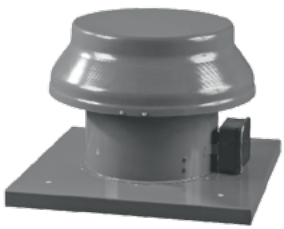
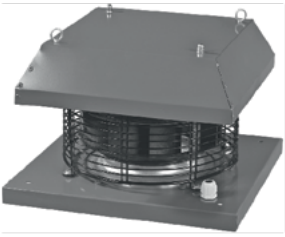
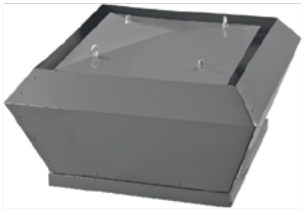
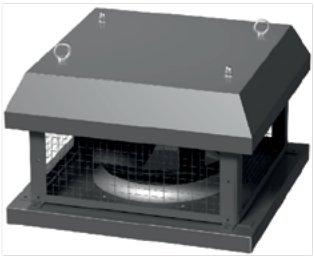
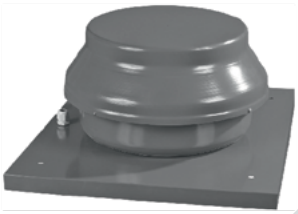
USER'S MANUAL

ROOF FANS

VENTS VKV \ VKH \ VKV EC \ VKH EC \ VKMK \ VKMKp \ VOK \ VOK1 SERIES

CONTENTS

PURPOSE

The VENTS VKV, VKH, VKV EC, VKH EC, VKMK, VKMKp, VOK, VOK1 fans in metal casing with inlet diameter from 220 to 500 mm and from 250 mm to 560 mm for VKV EC and VKH EC models, 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.

DELIVERY SET

The delivery set includes:

- – Fan
- – User's manual
- – Packing

THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.
DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.

DESIGNATION KEY

Designation key of the VKV, VKH, VOK fans

XXX X X XXX

Impeller diameter [mm]:
200; 220; 225; 250; 280; 300; 310; 350; 355; 400; 450; 500

E – single-phase
D – three-phase

Number of motor poles:
2, 4, 6.

Fan designation:
VKV – centrifugal roof fan with vertical air discharge
VKH – centrifugal roof fan with horizontal air discharge
VOK – axial roof fan with horizontal air discharge

Designation key of the VKV EC, VKH EC fans

XXX XXX XX

Motor type:
EC – electronically commutated

Impeller diameter [mm]:
250; 280; 310; 355; 400; 450; 500; 560

Fan designation:
VKV – centrifugal roof fan with vertical air discharge
VKH – centrifugal roof fan with horizontal air discharge

Designation key of the VKMK, VKMKp, VOK1 fans

XXX XXX

Impeller diameter [mm]:
150; 200; 250; 315

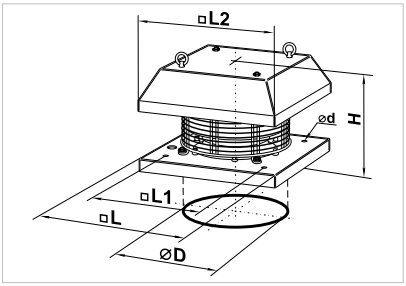
Fan designation:
VKMK – centrifugal roof fan with a round cover
VKMKp – centrifugal roof fan with a round cover and a base plate
VOK1 – axial roof fan with a round cover

Designation key example:

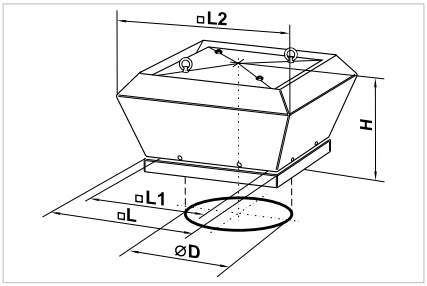
VKV 2E 280 – centrifugal roof fan with vertical air discharge, a two-pole single-phase electric motor and a Ø 280 mm impeller.
VKV 280 EC – centrifugal roof fan with vertical air discharge, an EC electric motor and a Ø 280 mm impeller.
VKH 4E 310 – centrifugal roof fan with horizontal air discharge, a 4-pole single-phase electric motor and a Ø 310 mm impeller.
VKMK 200 – centrifugal roof fan with a Ø 200 mm intake flange.
VKMKp 150 – centrifugal roof fan with a base plate and Ø 150 mm intake flange.

TECHNICAL DATA

VKH



VKV



Fan overall dimensions:

Model	Dimensions [mm]						Weight [kg]
	ØD	Ød	H	L	L1	L2	
VKH 2E 220	213	10	228	338	245	338	6.9
VKH 2E 225	213	10	228	338	245	338	7.1
VKH 2E 250	285	10	265	425	330	365	10.1
VKH 2E 280	285	10	265	425	330	365	10.2
VKH 4E 310	285	10	300	438	330	400	10.2
VKH 4D 310	285	10	300	438	330	400	10.2
VKH 4E 355	438	12	348	598	450	550	15.6
VKH 4D 355	438	12	325	598	450	550	15.6
VKH 4E 400	438	12	348	598	450	550	21.0
VKH 4E 450	438	12	400	668	535	640	22.7
VKH 4D 400	438	12	323	598	450	550	22.0
VKH 4D 450	438	12	400	668	535	640	22.7
VKH 6E 500	438	12	465	668	535	640	26.6

Model	Dimensions [mm]					Weight [kg]
	ØD	H	L2	L1	L	
VKV 2E 220	213	275	460	245	338	8.9
VKV 2E 225	213	275	460	245	338	9.6
VKV 2E 250	285	275	520	330	425	12.0
VKV 2E 280	285	275	520	330	425	12.7
VKV 4E 310	285	330	560	330	438	17.8
VKV 4D 310	285	330	560	330	438	17.8
VKV 4E 355	438	420	783	450	598	22.0
VKV 4D 355	438	420	783	450	598	22.0
VKV 4E 400	438	420	783	450	598	27.5
VKV 4E 450	438	454	872	535	668	30.0
VKV 4D 400	438	420	783	450	598	27.5
VKV 4D 450	438	454	872	535	668	30.0
VKV 6E 500	438	454	872	535	668	33.8

Technical data:

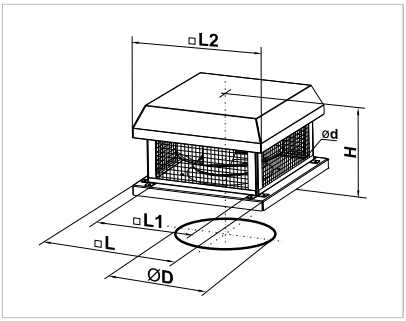
	VKV / VKH 2E 220		VKV / VKH 2E 225		VKV / VKH 2E 250		VKV / VKH 2E 280	
Voltage [V]	1~ 220-240		1~ 220-240		1~ 220-240		1~ 220-240	
Frequency [Hz]	50	60	50	60	50	60	50	60
Power [W]	85	111	135	142	155	265	225	348
Current [A]	0.38	0.44	0.6	0.65	0.7	1.15	1.0	1.51
Maximum air flow [m^3/h]	700	815	900	940	1300	1480	1780	1855
RPM [min^{-1}]	2700	2810	2650	2830	2600	2640	2700	2790
Sound pressure level at a distance of 3 m [dBA]	49	51	49	51	65	70	66	69
Max. transported air temperature [°C]	55	50	55	50	50	50	50	50
SEC class*	B	B	B	B	-	-	-	-
Ingress protection rating	IPX4		IPX4		IPX4		IPX4	

*The EC norm 1254/2014 does not apply if maximum air capacity is >1000 m^3/h

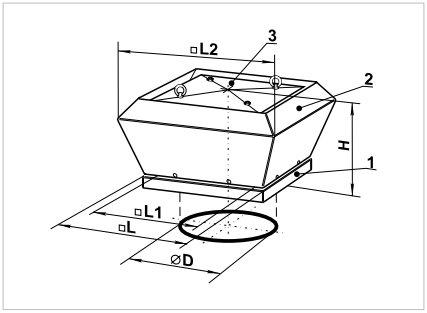
	VKV / VKH 4E 310		VKV / VKH 4D 310		VKV / VKH 4E 355		VKV / VKH 4D 355	
Voltage [V]	1~ 220-240		3~ 400		1~ 220-240		3~ 400	
Frequency [Hz]	50	60	50	60	50	60	50	60
Power [W]	120	183	110	172	245	305	170	235
Current [A]	0.54	0.79	0.32	0.32	1.12	1.34	0.52	0.5
Maximum air flow [m^3/h]	1820	1880	1950	2030	2800	2920	2350	2570
RPM [min^{-1}]	1370	1420	1400	1480	1420	1530	1400	1600
Sound pressure level at a distance of 3 m [dBA]	45	46	53	54	46	49	53	55
Max. transported air temperature [°C]	85	50	65	50	50	50	70	50
Ingress protection rating	IPX4		IPX4		IPX4		IPX4	

	VKV / VKH 4E 400		VKV / VKH 4D 400				VKV / VKH 4E 450	VKV / VKH 4D 450	VKV / VKH 6E 500	
Voltage [V]	1~ 220-240		3~ 400 Δ		3~ 400 Y		1~ 220-240	400 Y	1~ 220-240	
Frequency [Hz]	50	60	50	60	50	60	50	50	50	60
Power [W]	480	665	515	750	385	515	640	470	385	475
Current [A]	2.4	2.99	1.41	1.44	0.7	0.93	3.1	0.82	1.82	2.1
Maximum air flow [m^3/h]	3400	3500	3950	4200	3800	3850	3850	4300	4700	5130
RPM [min^{-1}]	1400	1480	1415	1610	1430	1420	1350	1430	880	850
Sound pressure level at a distance of 3 m [dBA]	52	53	59	62	52	53	53	53	47	49
Max. transported air temperature [°C]	80	50	-40 +60	-40 +60	-40 +60	-40 +40	50	50	50	40
Ingress protection rating	IPX4		IPX4		IPX4		IPX4	IPX4	IPX4	

VKH EC



VKV EC



Fan overall dimensions:

Model	Dimensions [mm]						Weight [kg]
	ØD	Ød	H	L	L1	L2	
VKH 250 EC	285	11	289	435	330	411	16
VKH 280 EC	285	11	264	435	330	431	16
VKH 310 EC	285	11	272	435	330	431	19
VKH 355 EC	438	11	326	595	450	558	38
VKH 400 EC	438	11	357	595	450	558	81
VKH 450 EC	438	11	407	665	535	637	82
VKH 500 EC	438	11	437	665	535	637	81
VKH 560 EC	605	14	487	940	750	912	98

Model	Dimensions [mm]					Weight [kg]
	ØD	H	L	L1	L2	
VKV 250 EC	285	320	435	330	528	16
VKV 280 EC	285	327	435	330	557	18
VKV 310 EC	285	327	435	330	557	21
VKV 355 EC	438	387	595	450	708	38
VKV 400 EC	438	387	595	450	708	82
VKV 450 EC	438	464	665	535	898	84
VKV 500 EC	438	464	665	535	898	88
VKV 560 EC	605	560	940	750	1150	98

Technical data:

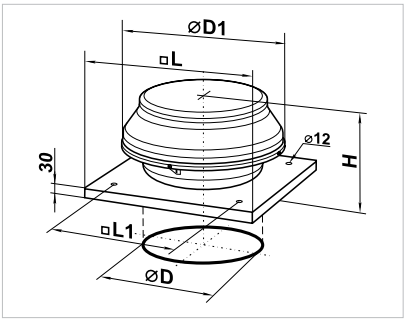
	VKV / VKH 250 EC	VKV / VKH 280 EC
Unit voltage [V/50 (60) Hz]	1~ 200-277	1~ 200-277
Power [kW]	0.485	0.455
Current [A]	3.0	2.8
Maximum air flow [m^3/h]	1750	2650
RPM [min^{-1}]	3580	2600
Sound pressure level at a distance of 3 m [dBA]	47	47
Max. transported air temperature [°C]	-25 +60	-25 +40
Ingress protection rating	IPX4	IPX4

	VKV / VKH 310 EC	VKV / VKH 355 EC
Unit voltage [V/50 (60) Hz]	1~ 200-277	3~ 380-480
Power [kW]	0.48	0.94
Current [A]	3.1	1.5
Maximum air flow [m^3/h]	3220	4500
RPM [min^{-1}]	2300	2215
Sound pressure level at a distance of 3 m [dBA]	48	51
Max. transported air temperature [°C]	-25 +60	-25 +60
Ingress protection rating	IPX4	IPX4

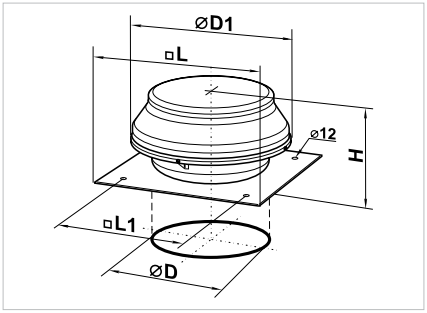
	VKV / VKH 400 EC	VKV / VKH 450 EC
Unit voltage [V/50 (60) Hz]	3~ 380-480	3~ 380-480
Power [kW]	0.77	1.01
Current [A]	1.3	1.6
Maximum air flow [m^3/h]	5360	6700
RPM [min^{-1}]	1755	1560
Sound pressure level at a distance of 3 m [dBA]	53	55
Max. transported air temperature [°C]	-25 +60	-25 +60
Ingress protection rating	IPX4	IPX4

	VKV / VKH 500 EC	VKV / VKH 560 EC
Unit voltage [V/50 (60) Hz]	3~ 380-480	3~ 380-480
Power [kW]	2.7	2.3
Current [A]	4.3	3.6
Maximum air flow [m^3/h]	10500	11400
RPM [min^{-1}]	1700	1350
Sound pressure level at a distance of 3 m [dBA]	63	65
Max. transported air temperature [°C]	-25 +60	-25 +60
Ingress protection rating	IPX4	IPX4

VKMK



VKMKp



Fan overall dimensions:

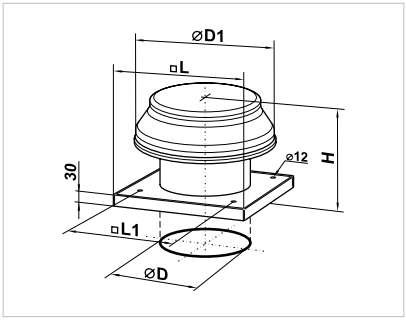
Model	Dimensions [mm]					Weight [kg]
	$Ø_D$	$Ø_{D1}$	H	L	L1	
VKMK 150	149	400	230	440	330	7.2
VKMK 160	159	400	230	440	330	7.2
VKMK 200	198	400	250	440	330	8.1
VKMK 250	248	400	249	590	450	10.1
VKMK 315	315	550	339	590	450	12.3
VKMKp 150	149	400	230	440	330	6.8
VKMKp 160	159	400	230	440	330	6.8
VKMKp 200	198	400	250	440	330	7.7
VKMKp 250	248	400	249	590	450	9.6
VKMKp 315	315	550	339	590	450	11.6

Technical data:

	VKMK 150 VKMK 160		VKMK 200		VKMK 250		VKMK 315	
Voltage [V]	1~ 220-240		1~ 220-240		1~ 220-240		1~ 220-240	
Frequency [Hz]	50	60	50	60	50	60	50	60
Power [W]	98	119	154	205	194	240	296	413
Current [A]	0.43	0.52	0.67	0.9	0.85	1.05	1.34	1.8
Maximum air flow [m^3/h]	555	580	950	1000	1310	1340	1880	1920
RPM [min^{-1}]	2705	2855	2375	2510	2790	2860	2720	2780
Sound pressure level at a distance of 3 m [dBA]	47	48	48	50	52	53	54	55
Max. transported air temperature [°C]	-25 +55	-25 +50	-25 +50	-25 +50	-25 +50	-25 +50	-25 +50	-25 +50
SEC class*	B		B		-		-	
Ingress protection rating	IPX4		IPX4		IPX4		IPX4	

*The EC norm 1254/2014 does not apply if maximum air capacity is >1000 m^3/h

VOK



Fan overall dimensions:

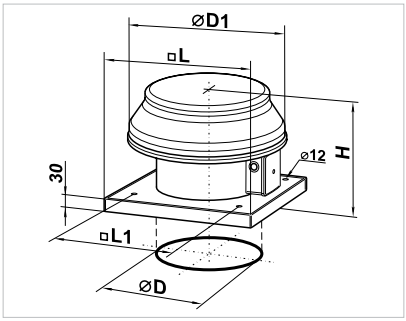
Model	Dimensions [mm]					Weight [kg]
	ØD	ØD1	H	L	L1	
VOK 2E 200	208	345	280	425	330	5.0
VOK 2E 250	262	405	280	425	330	7.0
VOK 4E 250	262	405	280	425	330	7.0
VOK 2E 300	314	555	340	585	450	10.5
VOK 4E 300	314	555	340	585	450	10.5
VOK 4E 350	364	555	350	655	535	12.0

Technical data:

	VOK 2E 200*		VOK 2E 250*		VOK 4E 250*		VOK 2E 300		VOK 4E 300*		VOK 4E 350	
Voltage [V]	1~ 230											
Frequency [Hz]	50	60	50	60	50	60	50	60	50	60	50	60
Power [W]	55	61	80	91	50	56	145	178	75	92	140	147
Current [A]	0.26	0.28	0.4	0.42	0.22	0.24	0.66	0.79	0.35	0.4	0.65	0.66
Maximum air flow [m^3/h]	860	875	1050	1150	800	865	2230	2280	1340	1475	2500	2650
RPM [min^{-1}]	2300	2550	2400	2990	1380	1730	2300	2410	1350	1405	1380	1700
Sound pressure level at a distance of 3 m [dBA]	50	51	60	61	55	56	60	61	58	59	62	63
Max. transported air temperature [°C]	-30 +60	-30 +50	-30 +60	-30 +50	-30 +60	-30 +50	-30 +60	-30 +50	-30 +60	-30 +50	-30 +60	-30 +50
Ingress protection rating	IP24											

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

VOK1



Fan overall dimensions:

Model	Dimensions [mm]					Weight [kg]
	ØD	ØD1	H	L	L1	
VOK1 200	208	345	280	425	330	6.1
VOK1 250	262	405	300	425	330	7.2
VOK1 315	314	555	380	585	450	11.5

Technical data:

	VOK1 200		VOK1 250		VOK1 315	
Voltage [V]	1~ 230					
Frequency [Hz]	50	60	50	60	50	60
Power [W]	43	33	68	76	110	104
Current [A]	0.28	0.21	0.48	0.51	0.75	0.7
Maximum air flow [m^3/h]	405	470	1070	1050	1700	1650
RPM [min^{-1}]	1300	1615	1300	1450	1300	1365
Sound pressure level at a distance of 3 m [dBA]	32	31	48	48	54	54
Max. transported air temperature [°C]	40					
Ingress protection rating	IP24					

SAFETY REQUIREMENTS

DISCONNECT THE UNIT FROM 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.

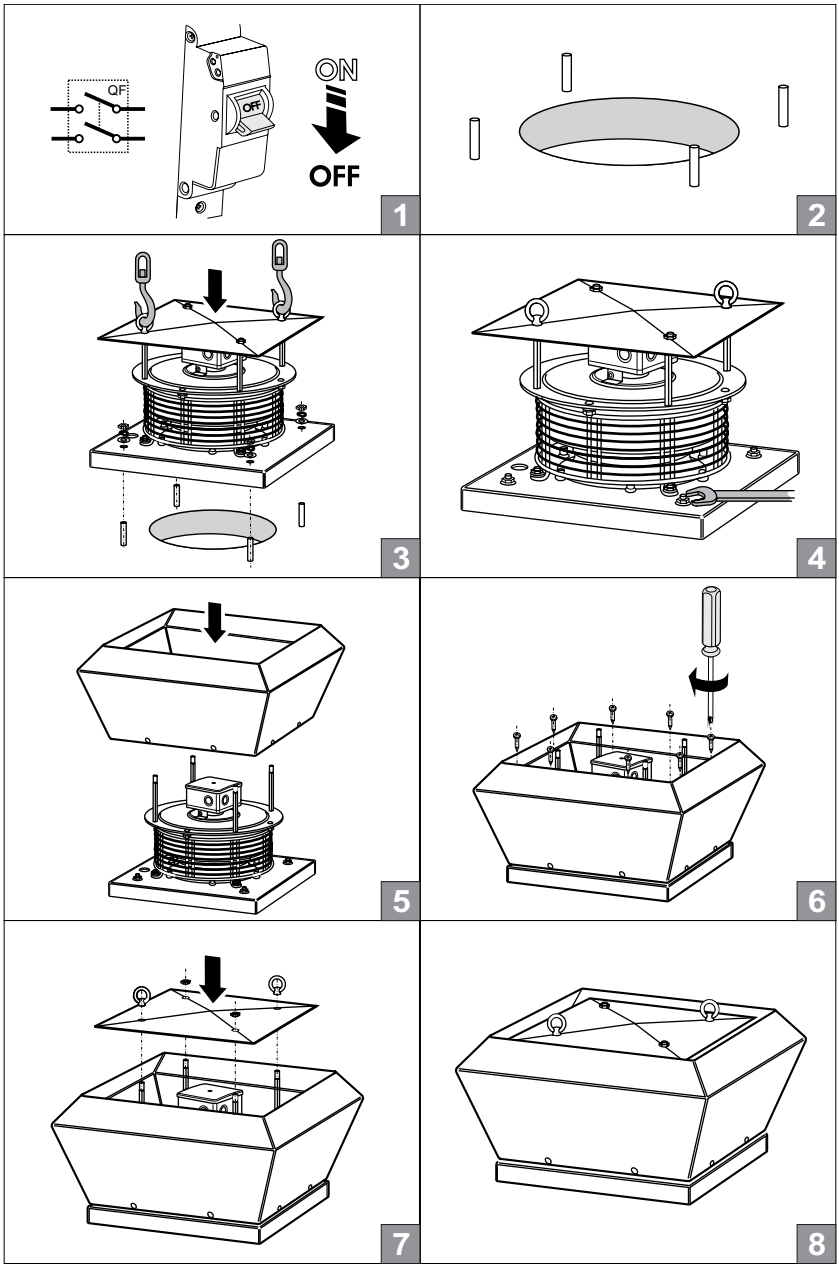
Make sure there are no visible damages of impeller, casing, grille and no foreign objects inside the casing that can damage the impeller blades.
Misuse of the fan and any unauthorized modifications are not allowed.
The unit is not to be used by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the unit operation by the person(s) responsible for their safety.
The fans are not designed for operation in the environment containing flammable substances or vapours like alcohol, gasoline, etc.

INSTALLATION AND OPERATION GUIDELINES

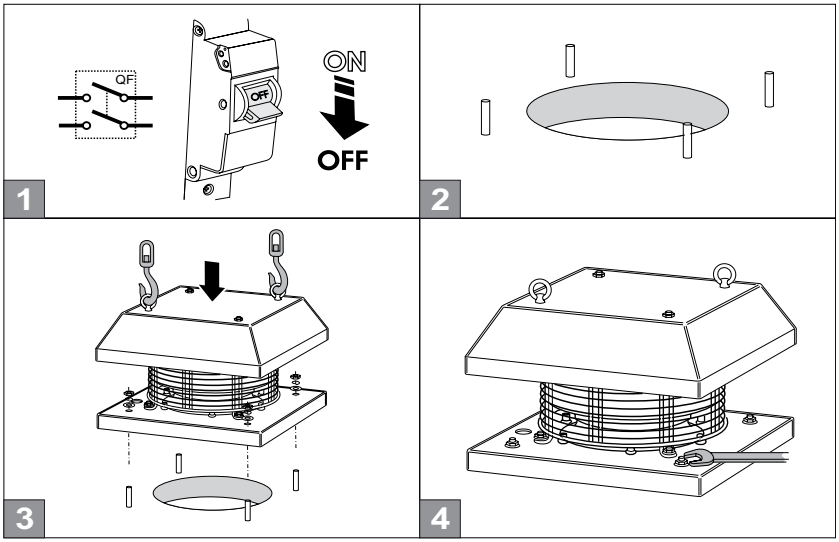
The fan is designed for mounting on a roof directly above a ventilation shaft or an air duct. Installation procedure and mounting sequence are shown on pages 15-18.
To prevent water and snow ingress inside a ventilation shaft, the fan can be mounted on a roof curb.
A roof fan can be connected to a ventilation 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.

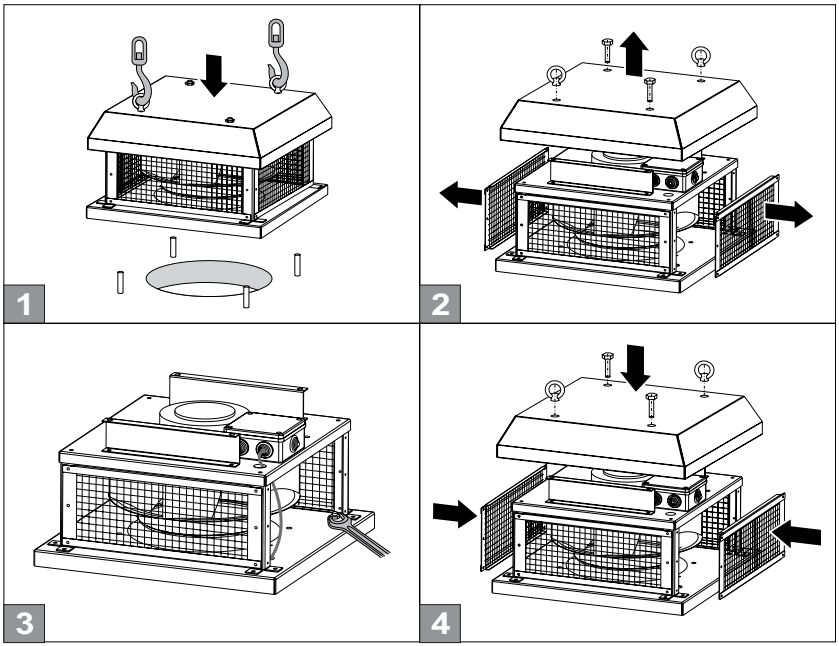
The fan design is constantly being improved, thus some models may be slightly different from those described in this manual.


QF
OFF
ON
OFF
1
2
3
4
5
6
7
8

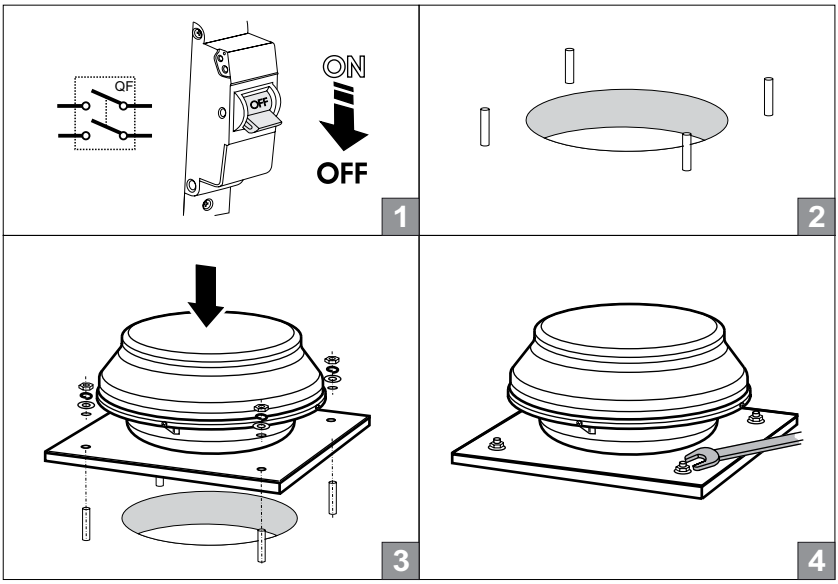
VKH



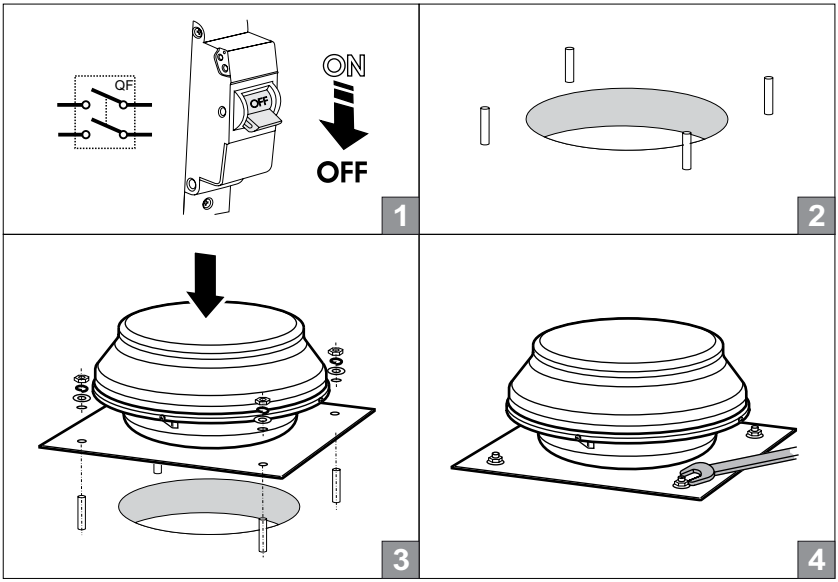
VKH EC



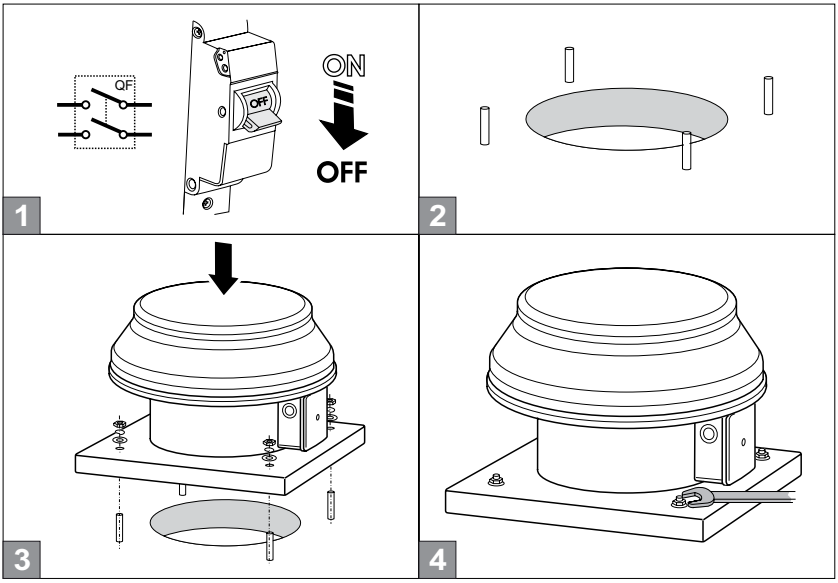
VKMK



VKMKp



VOK, VOK1



CONNECTION TO POWER MAINS

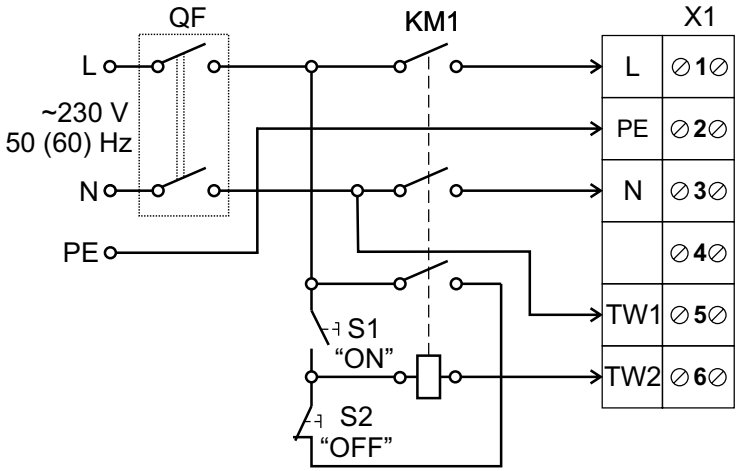
DISCONNECT THE UNIT FROM POWER MAINS PRIOR TO ANY OPERATIONS.
THE UNIT MUST BE CONNECTED TO POWER SUPPLY BY A QUALIFIED ELECTRICIAN.
THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE MANUFACTURER'S LABEL.

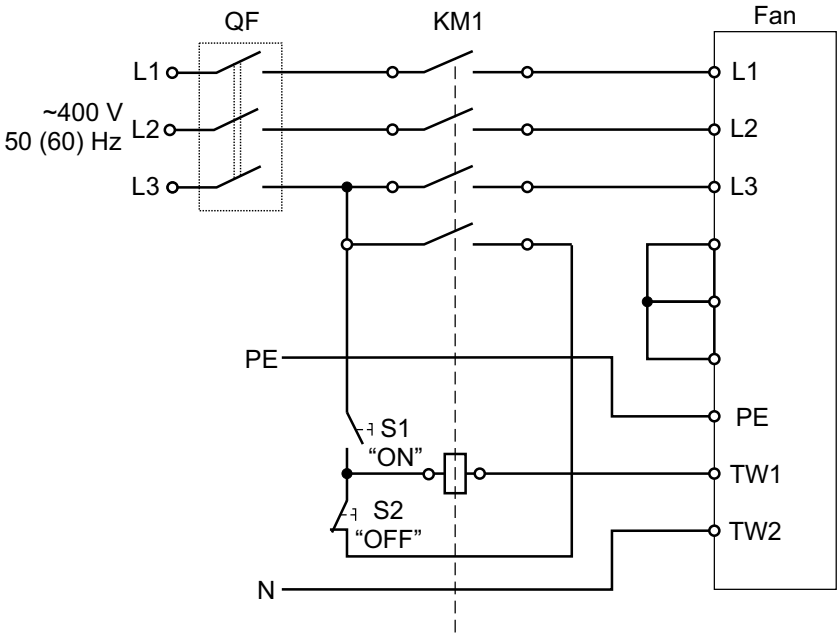
ANY INTERNAL CONNECTION MODIFICATIONS ARE NOT ALLOWED AND RESULT IN WARRANTY LOSS.

Depending on the modification the fans are powered by single-phase AC 230 V/50 (60) Hz or three-phase AC 400 V/50 (60) Hz.
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.

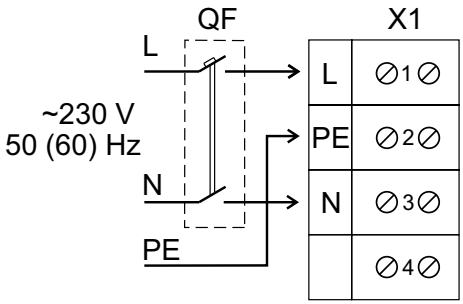
The recommended automatic circuit breaker rated current and the cable cross section for various fan models are stated in the table on page 19.
The above cross sections are for reference only. The actual cross section depends on maximum permissible wire heating, its material, insulation, length and installation method (i.e. overhead, in pipes or inside the walls).
The fans with EC motors 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, see page 23.
The terminal designations are shown on the label inside the terminal box.
The recommended wiring diagram with motor overheating protection is shown on page 20.
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.

Fan 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]
VKV/VKH 2E 220...250 VKV/VKH 4E 310	1	3x0.5
VKV/VKH 2E 280 VKV/VKH 4E 355	1.6	3x0.5
VKV/VKH 4E 400...450	4	3x1.0
VKV/VKH 6E 500	2.5	3x1.0
VKV/VKH 4D 310...450	1	5x0.5
VKV/VKH 250...310 EC	4	3x1.0
VKV/VKH 355...450 EC	2	5x0.75
VKV/VKH 500...560 EC	10	5x1.5
VKMK/VKMKp 150...250	1	3x0.5
VKMK/VKMKp 315	2	3x0.5
VOK 2E, 4E 200...350	1	3x0.5
VOK1 200...315	1	3x0.5


QF
KM1
X1
L
~230 V
50 (60) Hz
N
PE
S1
"ON"
S2
"OFF"
L
PE
N
TW1
TW2
1
2
3
4
5
6

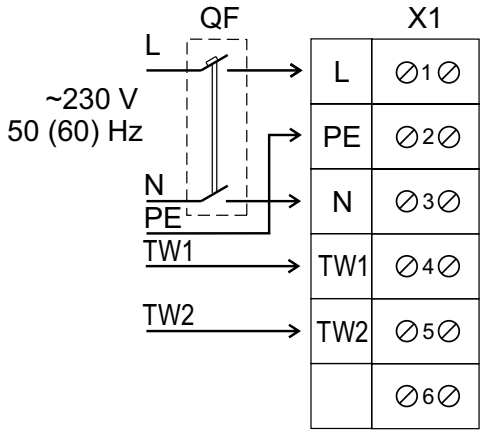

QF
KM1
Fan
L1
~400 V
50 (60) Hz
L2
L3
PE
S1
"ON"
S2
"OFF"
N
L1
L2
L3
PE
TW1
TW2

Wiring diagram of the VKV/VKH 2E 220, VKV/VKH 2E 225, VKV/VKH 2E 250, VKV/VKH 2E 280, VKV/VKH 4E 310 and VKV/VKH 4E 355 fans



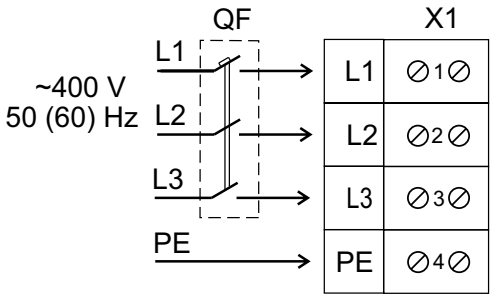
where **QF** is the automatic circuit breaker (not included in the delivery set)
X1 is the terminal block

Wiring diagram of the VKV/VKH 4E 400, VKV/VKH 4E 450 and VKV/VKH 6E 500 fans



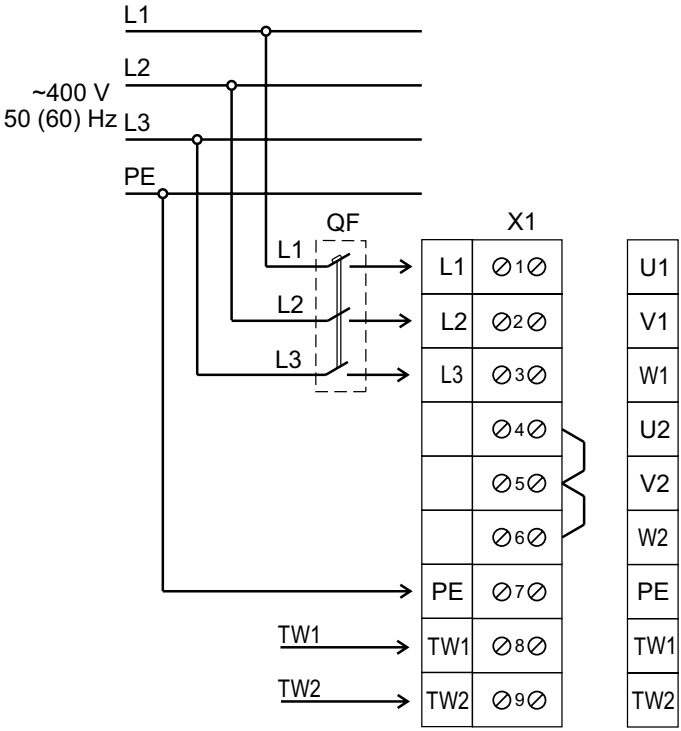
where **QF** is the automatic circuit breaker (not included in the delivery set)
X1 is the terminal block

Wiring diagram of the VKV/VKH 4D 310 fan



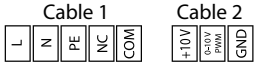
where **QF** is the automatic circuit breaker (not included in the delivery set)
X1 is the terminal block

**Wiring diagram of the VKV/VKH 4E 355,
VKV/VKH 4D 400 and VKV/VKH 4D 450 fans**



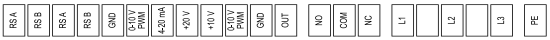
where **QF** is the automatic circuit breaker (not included in the delivery set)
X1 is the terminal block

Wiring diagram of the VKV/VKH 250 EC, VKV/VKH 280 EC and VKV/VKH 310 EC fans



Contact	Connection	Colour	Function
1	L	Black	Mains 50/60 Hz, phase
	N	Blue	Mains 50/60 Hz, zero wire
	PE	Green/Yellow	Protective ground conductor
	NC	White 1	Fault relay, normally closed contact
	COM	White 2	Fault relay, COMMON
2	+ 10 V	Red	Voltage output +10 V (no more than 1.1 mA)
	0-10 V/PWM	Yellow	Control input 0-10 V / PWM (full resistance 100 kOhm)
	GND	Blue	Ground

Wiring diagram of the VKV/VKH 355 EC, VKV/VKH 400 EC, VKV/VKH 450 EC and VKV/VKH 560 EC fans

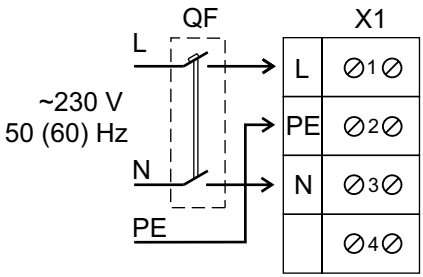


Terminal	Connection	Function
PE	PE	Protective ground conductor
KL1	L3	Mains; L3
	L2	Mains; L2
	L1	Mains; L1
KL2	NC	Alarm relay, normally closed contact
	COM	Alarm relay, COMMON (2A, 250 V, AC1)
	NO	Alarm relay, normally open contact
KL3	OUT	Control signal output 0-10 V max. 3 mA
	GND	GND (GROUND)
	0-10 V/PWM	Control input (full resistance 100 kOhm)
	+10 V	External potentiometer power supply, 10 V (+10 %) max. 10 mA
	+20 V	External sensor power supply 20 V (+20 %) max. 50 mA
	4-20 mA	Control input
	0-10 V/PWM	Control input
	GND	GND (GROUND)
	RSB	RS485 interface for ebmBUS; RS B
	RSA	RS485 interface for ebmBUS; RS A
	RSB	RS485 interface for ebmBUS; RS B

Wiring diagram of the VKV/VKH 500 EC fan

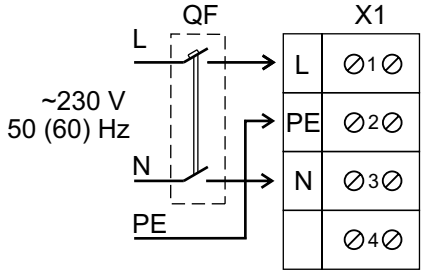
Terminal	Connection	Function
PE	PE	Protective ground conductor
KL1	L3	Mains; L3
	L2	Mains; L2
	L1	Mains; L1
KL2	NC	Signal-actuated relay, voltage-free signalling contact; error-triggered break contact
	COM	Status relay; dry signal contact for status message service; change-over contact, shared connection; maximum contact closing current 250 VAC/max. 2 A (AC1)/min. 10 mA
	NO	Signal-actuated relay, voltage-free signal contact; error-triggered break contact
KL3	RSA	RS485 connection; RSA; MODBUS RTU; PELV
	RSB	RS485 connection; RSB; MODBUS RTU; PELV
	GND	Control interface earthing PELV
	Ain1 U	Analogue input 1, pre-set value: 0-10 V, Ri=100 kOhm, parametrized curve; to be used only as Ain1 I input alternative; PELV
	+10 V	Constant 10 VDC output + 10 V +/-3 %, max. 10 mA, with continuous short-circuit protection, supply voltage for external devices (e.g. potentiometer); PELV
	Ain1 I	Analogue input 1, pre-set value: 4-20 mA, Ri=100 kOhm, parameterized curve; to be used only as Ain1 U input alternative; PELV
	Din1	Digital input 1: electronic equipment activation, actuation: contact opening or application 5-50 VDC. Blocking: current-carrying bridge to ground bus or application of < 1 VDC. Reset function: reset function enabled at voltage level change to < 1 VDC; PELV
	Din2	Digital input 2: switching between parameter sets 1/2; after setting up EEPROM setup the valid parameter set or the currently used one can be selected either via the signal bus or DIN2 signal input. Parameter set 1: contact opening or application 5-50 VDC. Parameter set 2: current-carrying bridge to ground bus or application of < 1 VDC; PELV
	Din3	Digital input 3: Integrated regulator polarity; according to the EEPROM settings the integrated regulator polarity (i.e. direct/inverted) is selected via the signal bus or the digital input. Normal: contact opening or application 5-50 VDC. Inverted: current-carrying bridge to ground bus or application of < 1 VDC; PELV
	Ain2 U	Analogue input 2, valid setting: 0-10 V, Ri=100 kOhm, parameterized curve; to be used only as Ain2 I input alternative; PELV
	+20 V	Constant voltage output 20 VDC; +20 V +25/-10 %; Max. 50 mA; with continuous short-circuit protection; supply voltage for external devices (e.g. sensors), PELV
	Ain2 I	Analogue input 2, valid value: 4-20 mA, Ri=100 kOhm, parameterized curve; to be used only as Ain2 U input alternative; PELV
	Aout	Analogue output 0-10 VDC; Max. 5 mA; output for the current motor operating cycle / current motor rotation speed; parametrized curve, PELV

Wiring diagram of the VKMK/VKMKp 150; VKMK/VKMKp 200; VKMK/VKMKp 250 and VKMK/VKMKp 315 fans



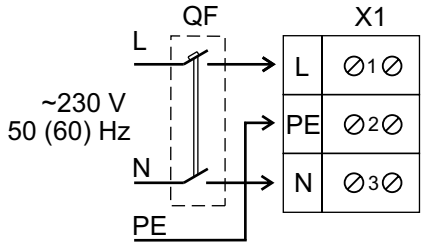
where **QF** is the automatic circuit breaker (not included in the delivery set)
X1 is the terminal block

Wiring diagram of the VOK 2E 200; VOK 2E 250; VOK 4E 250; VOK 2E 300; VOK 4E 300; VOK 4E 350 fans

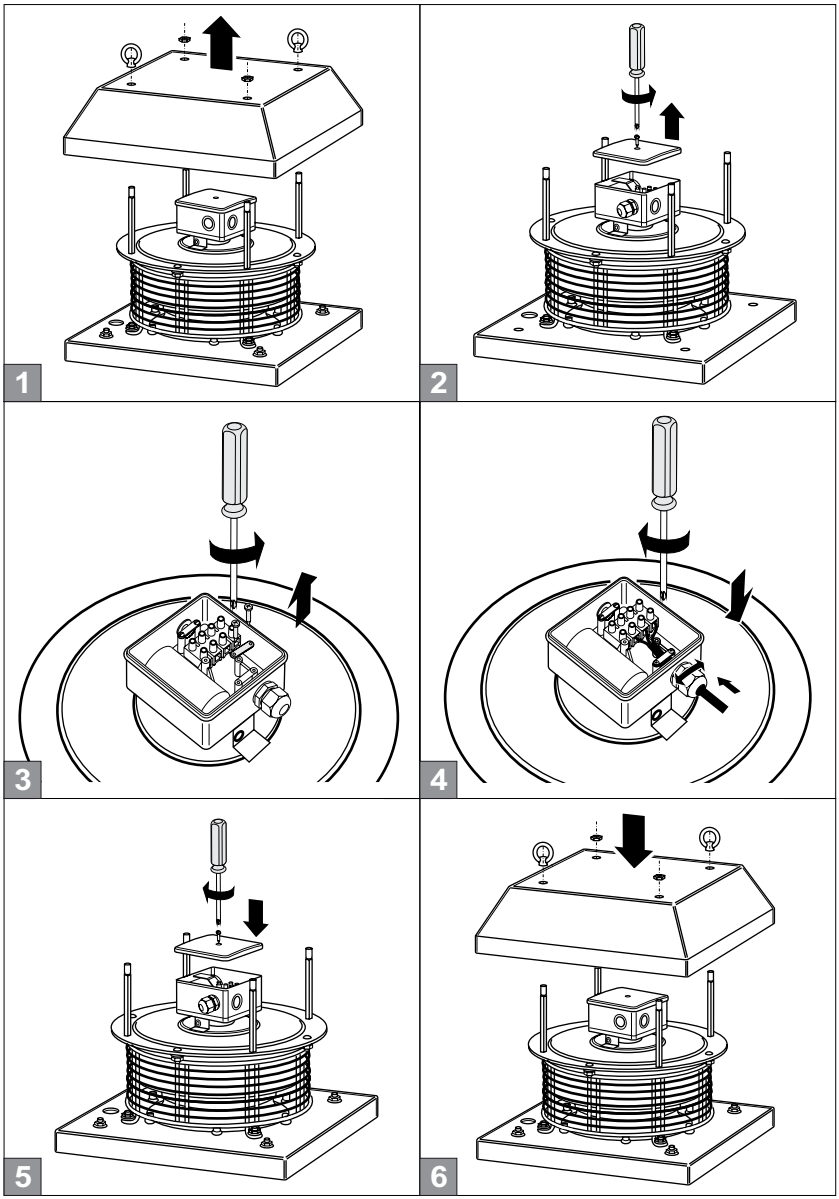


where **QF** is the automatic circuit breaker (not included in the delivery set)
X1 is the terminal block

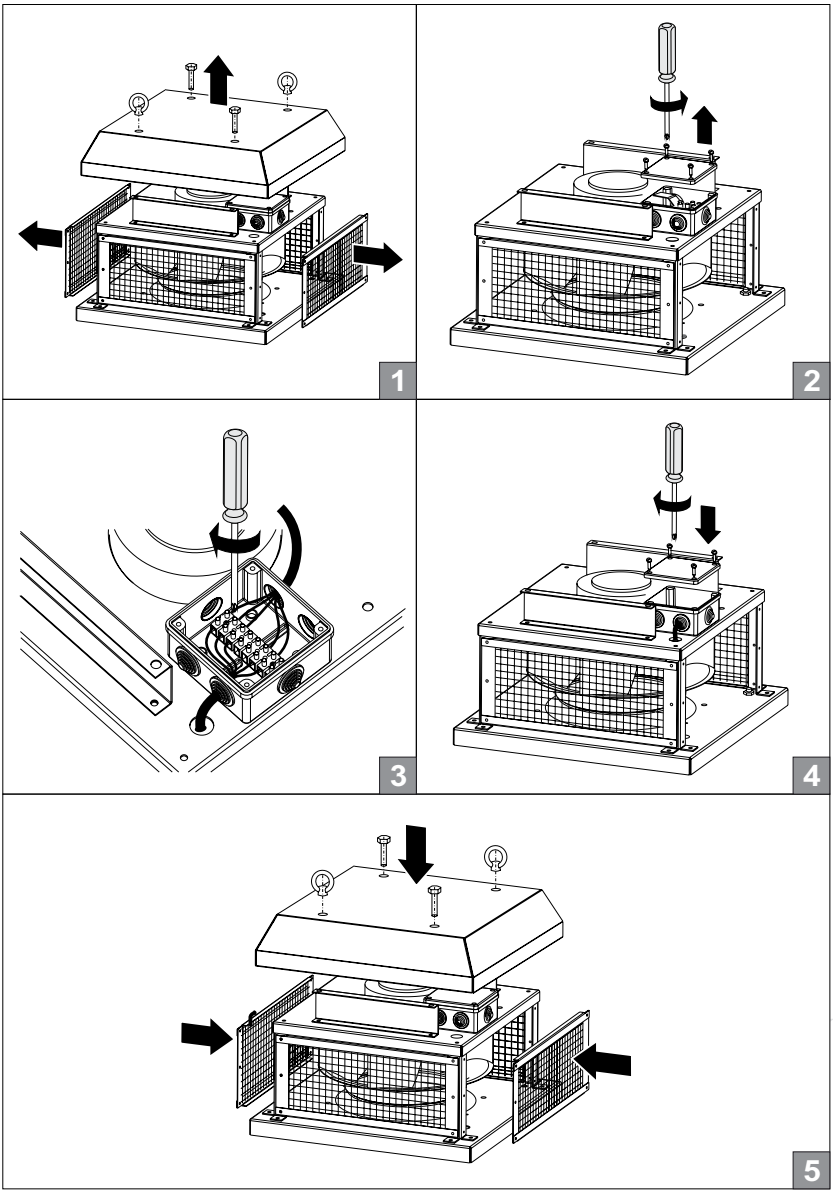
Wiring diagram of the VOK1 200; VOK1 250 and VOK1 315 fans

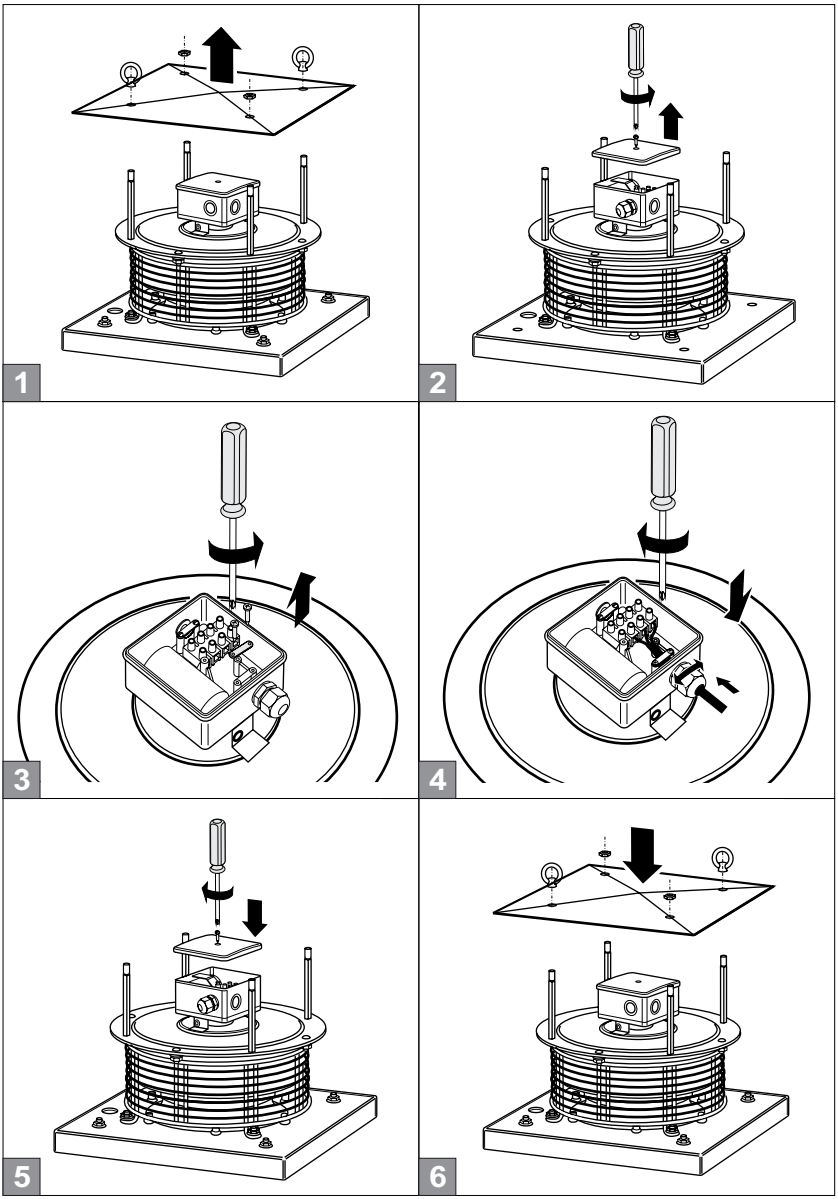


where **QF** is the automatic circuit breaker (not included in the delivery set)
X1 is the terminal block

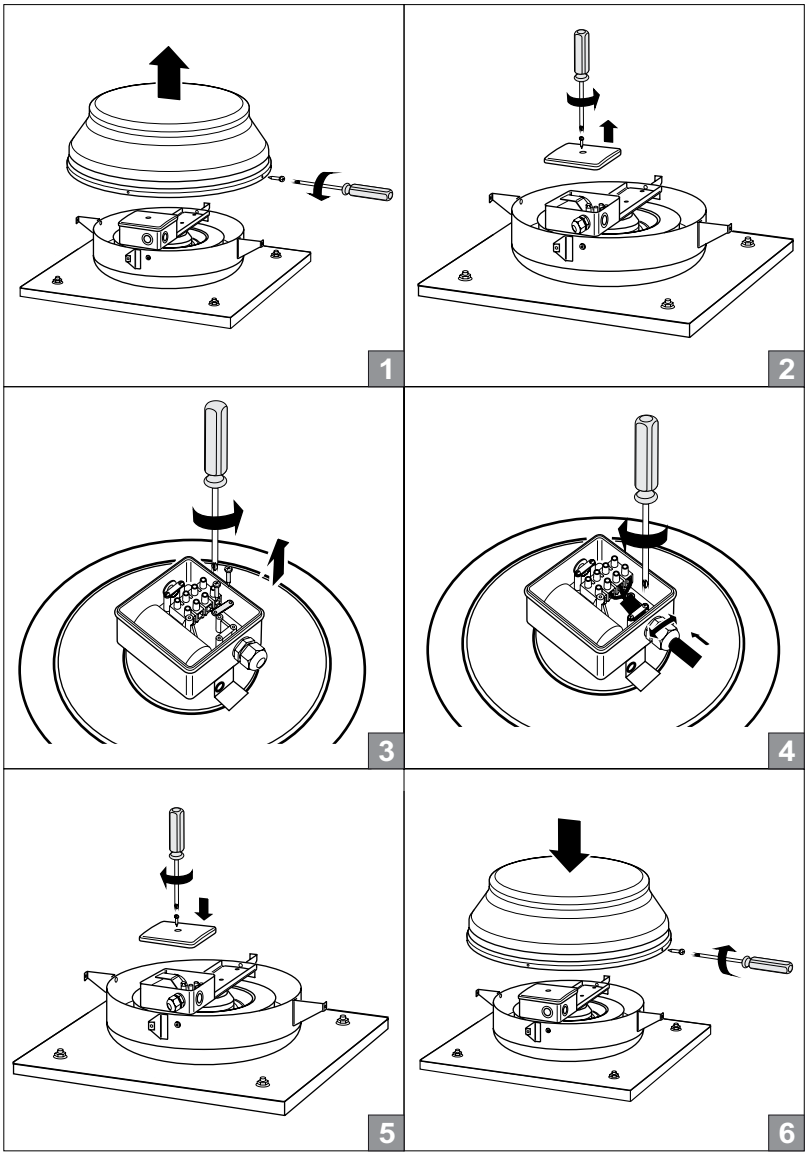

1
2
3
4
5
6

VKH EC

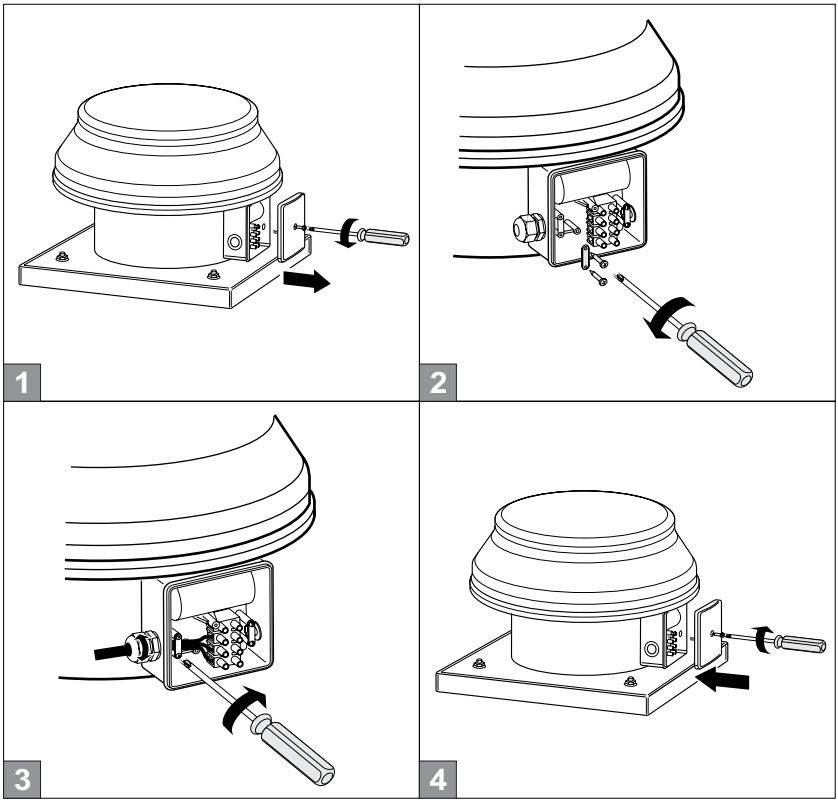



1
2
3
4
5
6

VKMK, VKMKP



VKV, VKV EC



STORAGE 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 of up to 80 % (at +20 °C).

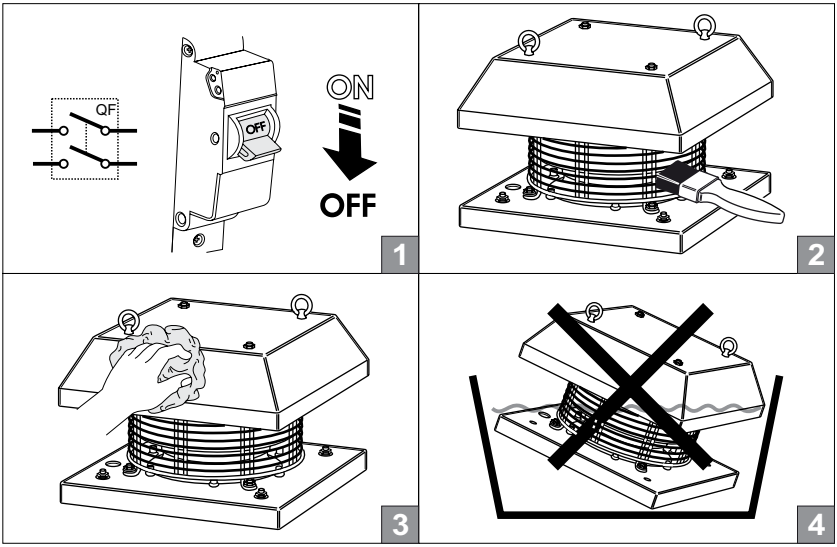
TECHNICAL MAINTENANCE

Fan maintenance means periodic cleaning of the surfaces from dust and dirt. Switch the fan off while doing any maintenance operations!

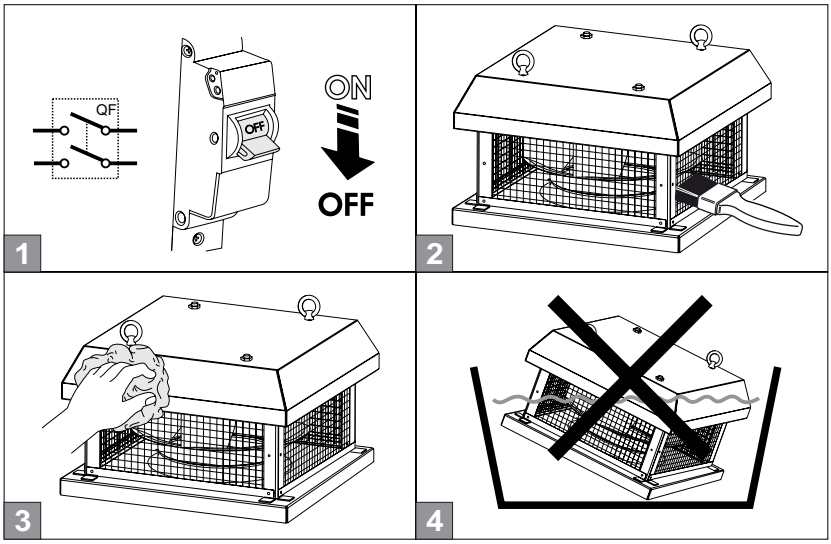
Use a dry soft brush or compressed air to remove dust.
The impeller blades require thorough cleaning at least once in 6 months.

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.

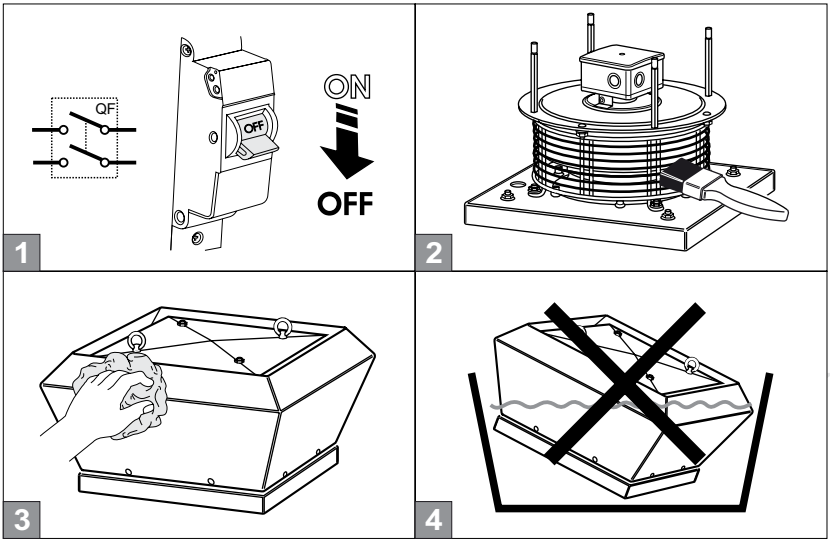
VKH



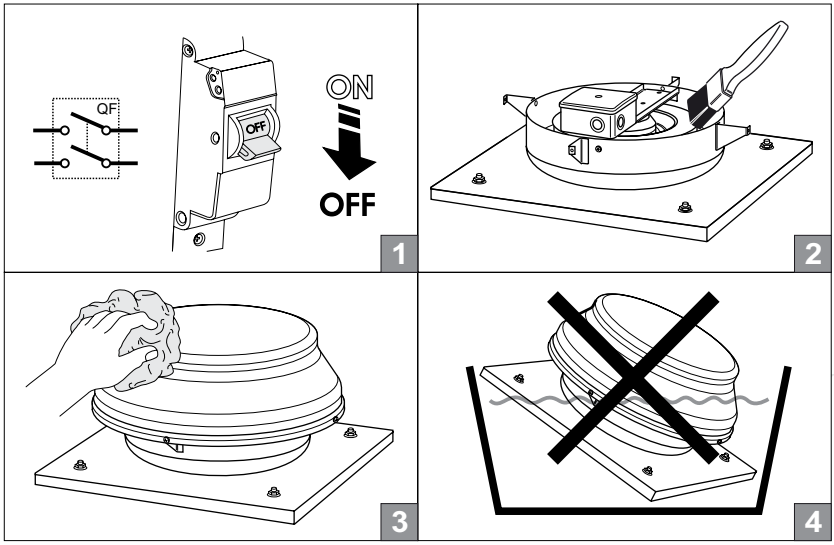
VKH EC



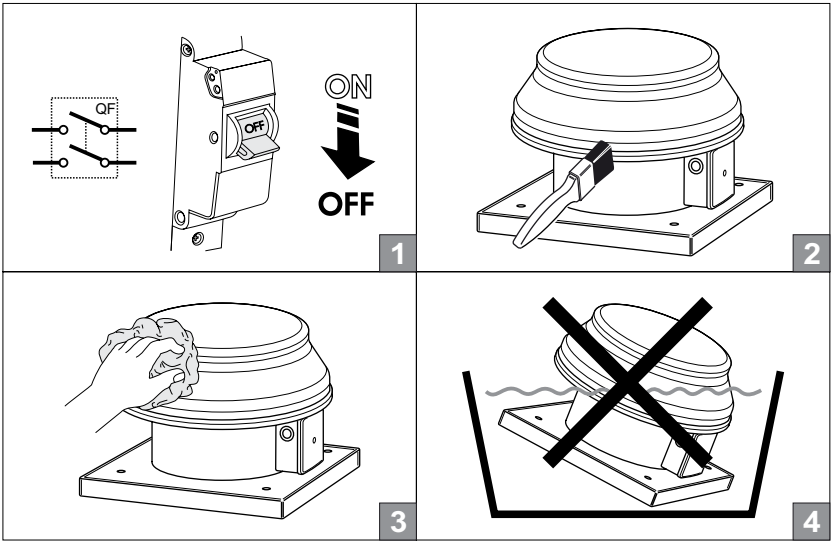
VKV, VKV EC



VKMK, VKMKP



VOK, VOK1



MANUFACTURING WARRANTY

While buying the present product the Customer agrees to accept the following warranty conditions:
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.
In case of no confirmation of the sales date the guarantee 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.
For warranty service, repair and replacement, contact the seller.
The warranty does not apply to accessories used with this product, either included or not included in the delivery, as well as damage caused to other equipment operating in conjunction with this unit.
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.

NO LIABILITY FOR THE RELATED DAMAGES:
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 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.

CERTIFICATE OF ACCEPTANCE

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 protection requirements of Electromagnetic Council Directive 2014/30/EU, Low Voltage Directive 2014/35/EU 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 the test on the samples of the product referred to above.

Model
„VENTS "
VKV _____
VKH _____
VKV EC _____
VKH EC _____
VKMK _____
VKMKp _____
VOK _____
VOK1 _____
(tick the proper model only)

Manufacturing date

Approval mark

Sold
(name and stamp of the Seller)

Sales date

WARRANTY CARD