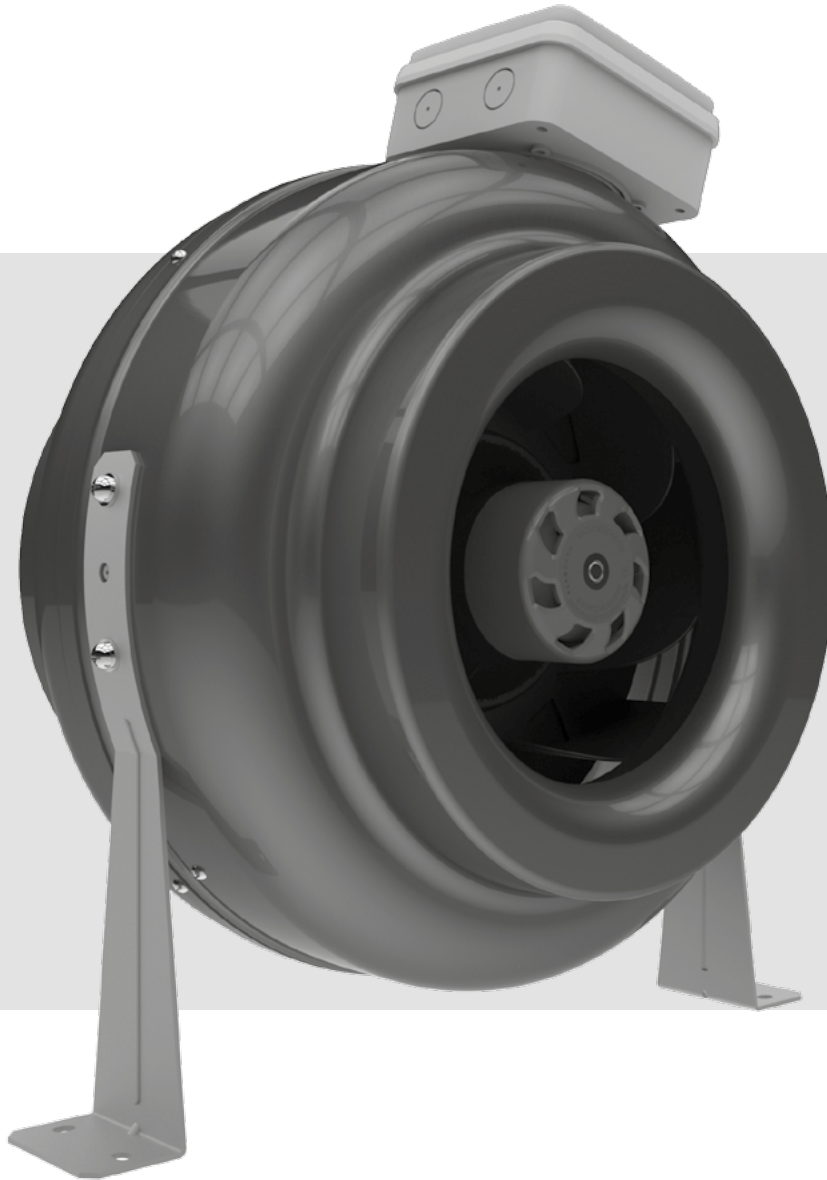


VKM EC



Centrifugal inline fan

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This user's manual is the primary operating document intended for technical, maintenance and operations staff.

The manual contains information about purpose, technical details, operating principle, design, and installation of the centrifugal inline fan VKM EC and all its modifications.

Technical and maintenance staff must have proper theoretical knowledge and practical training specific to ventilation systems as well as the necessary skills to carry out the work in accordance with labour safety and construction regulations and standards applicable in the respective territory.

The information provided in the present document is true as at the document preparation.

Due to the continuous product development the company reserves the right to update the technical specifications, design or delivery package of its products.

No part of the present publication may be reproduced, uploaded or saved in reference-providing information systems or translated into other languages in any form whatsoever without the company's prior written consent.

SAFETY REQUIREMENTS

- Please read the user's manual carefully prior to installing and operating 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.
- The warnings contained in the user's manual must be considered most seriously since they contain vital personal safety information.
- Failure to follow the rules and safety precautions noted in this user's manual may result in an injury or unit damage.
- After a careful reading of the manual, keep it for the entire service life of the unit.
- While transferring the unit control, the user's manual must be turned over to the receiving operator.

UNIT INSTALLATION AND OPERATION SAFETY PRECAUTIONS



- Disconnect the unit from power mains prior to any installation operations.



- Unpack the unit with care.



- The unit must be grounded!



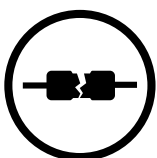
- While installing the unit, follow the safety regulations specific to the use of electric tools.



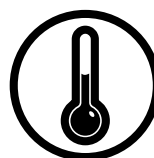
- Do not change the power cable length at your own discretion.
- Do not bend the power cable.
- Avoid damaging the power cable.
- Do not put any foreign objects on the power cable.



- Do not lay the power cable of the unit in close proximity to heating equipment.



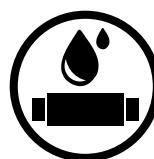
- Do not use damaged equipment or cables when connecting the unit to power mains.



- Do not operate the unit outside the temperature range stated in the user's manual.
- Do not operate the unit in aggressive or explosive environments.



- Do not touch the unit controls with wet hands.
- Do not carry out the installation and maintenance operations with wet hands.



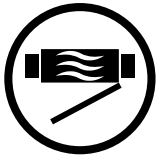
- Do not wash the unit with water.
- Protect the electric parts of the unit against ingress of water.



- Do not allow children to operate the unit.



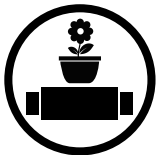
- Do not store any explosive or highly flammable substances in close proximity to the unit.



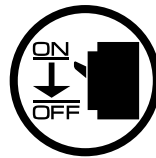
- Do not open the unit during operation.



- Do not block the air duct when the unit is switched on.



- Do not sit on the unit and avoid placing foreign objects on it.



- Disconnect the unit from power mains prior to any technical maintenance.



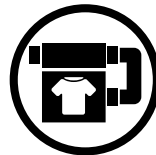
- When the unit generates unusual sounds, odour, or emits smoke, disconnect it from power supply and contact the Seller.



- Do not direct the air flow produced by the unit towards open flame or ignition sources.



- In case of continuous operation of the unit, periodically check the security of mounting.



- Use the unit only for its intended purpose.



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

PURPOSE

The product described herein is a centrifugal inline fan VKM EC for ventilation of small and medium domestic premises. The unit is rated for continuous operation.



THE UNIT SHOULD NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL, OR SENSORY CAPACITIES, OR THOSE WITHOUT THE APPROPRIATE TRAINING.

THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING.

THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORIZED ACCESS BY UNATTENDED CHILDREN.



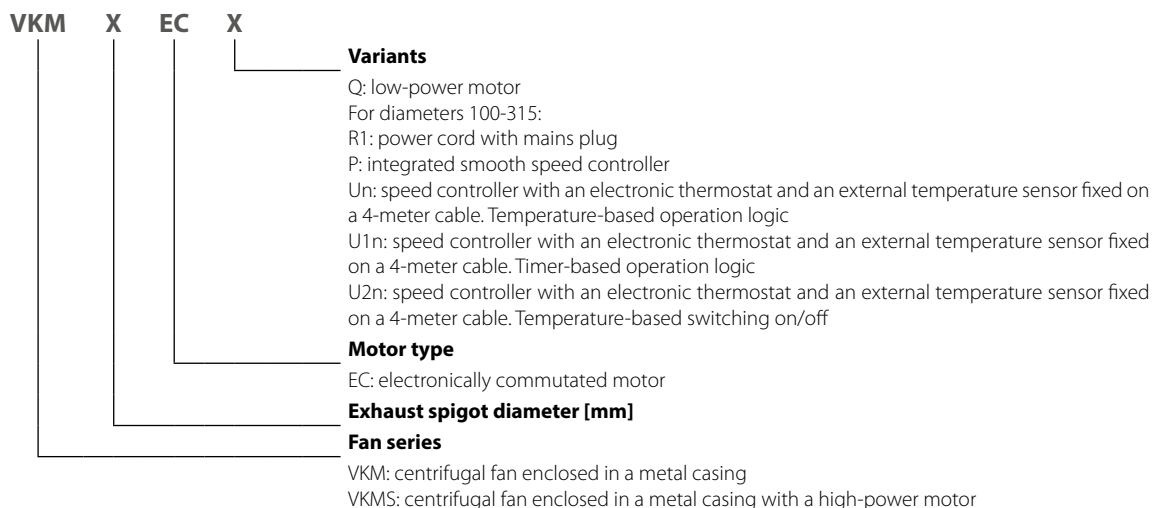
THE UNIT CAN BE USED IN KITCHEN SPACES ONLY IF THERE IS A GREASE FILTER. INSTALL A KITCHEN HOOD WITH A GREASE FILTER IF AIR IS EXTRACTED FROM THE COOKING SURFACE.

Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, sticky substances, fibrous materials, coarse dust, soot and oil particles or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs).

DELIVERY SET

NAME	QUANTITY
Fan	1 pc.
Fixing bracket	2 pcs.
User's manual	1 pc.
Packing box	1 pc.

DESIGNATION KEY

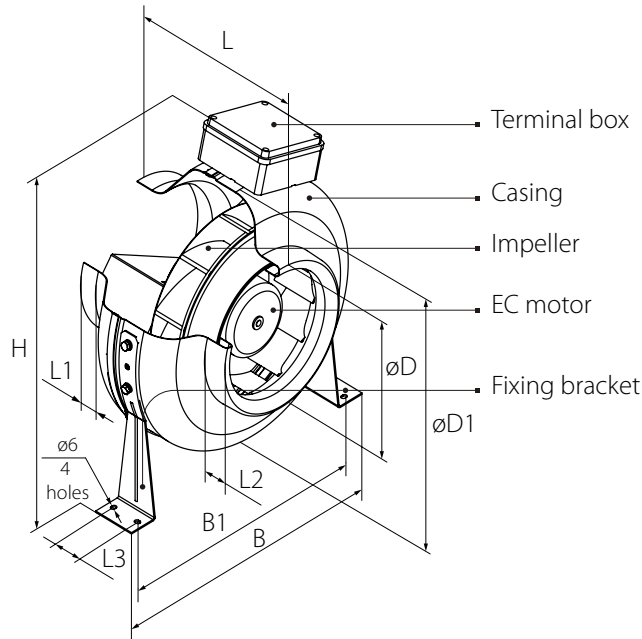


TECHNICAL DATA

The fan is designed for indoor or sheltered application at ambient temperature from -25 °C up to +40 °C and relative humidity up to 80 %. The unit is rated as a class I electric appliance.

Ingress protection rating against access to hazardous parts and water ingress is IPX4.

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



	D	D1	H	B	B1	L	L1	L2	L3
VKM100 EC	98	255	340	310	270	203	20	25	30
VKM 125 EC	123	255	340	310	270	203	20	25	30
VKM 150 EC	149	305	365	360	320	220	25	25	30
VKM 160 EC	159	305	365	360	320	220	25	25	30
VKM 200 EC	198	345	435	395	355	245	25	30	40
VKMS 200 EC	198	345	435	395	355	255	25	30	40
VKM 250 EC (Q)	248	345	435	395	355	250	25	30	40
VKM 315 EC	314	405	465	455	415	260	30	30	40

TECHNICAL DATA

	VKM100 EC	VKM 125 EC	VKM 150 EC	VKM 160 EC	VKM 200 EC	VKMS 200 EC	VKM 250 EC Q	VKM 250 EC	VKM 315 EC
Power supply voltage, 50 (60) Hz [V]	1~230								
Max. power consumption [W]	90	83	107	108	83	100	100	164	164
Current consumption [A]	0.70	0.58	0.89	0.90	0.63	0.74	0.74	1.15	1.15
Air capacity [m ³ /h]	345	480	700	785	845	1010	985	1230	1370
Noise level, 3 m [dBA]	44	45	48	48	47	48	44	46	48
Transported air temperature [°C]	-25...+60								
SEC class	B								

INSTALLATION AND SET-UP



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

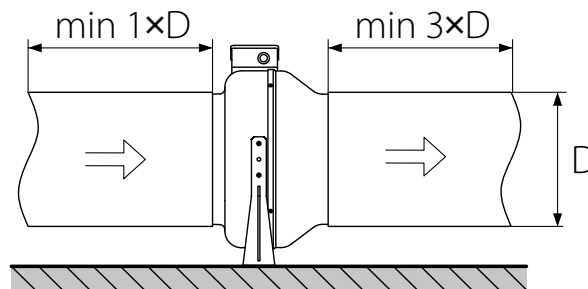
The air motion in the system must be as shown with the pointer of the fan casing.

In case of the vertical installation the intake spigot must be protected with a ventilation hood.

To attain the best performance of the fan and to minimise turbulence-induced air pressure losses while mounting, connect straight air duct sections to the fan spigots on both sides of the fan.

Minimum straight air duct length:

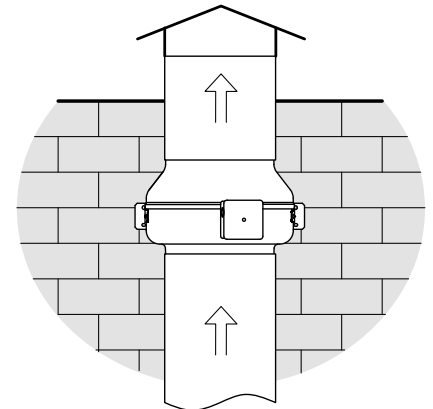
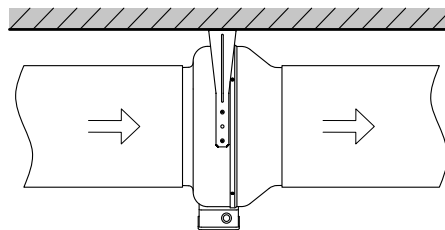
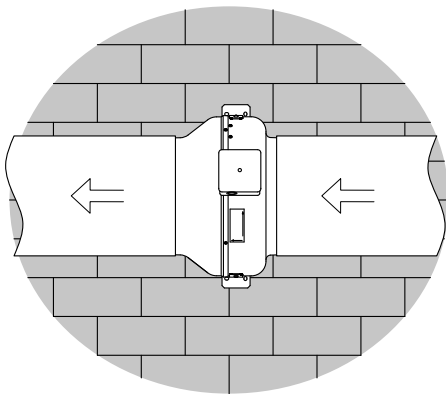
- equal to 1 air duct diameter on intake side
- equal to 3 air duct diameters on outlet side



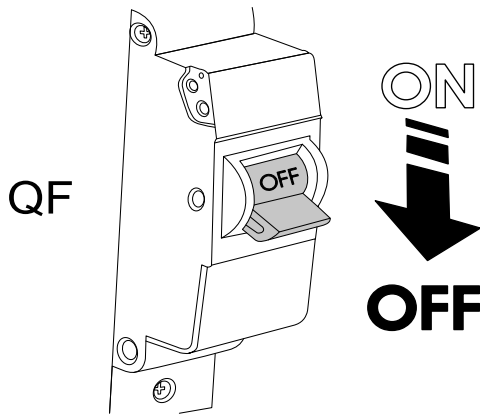
If the air ducts are too short or not connected at any spigot, protect the fan inner parts from ingress of foreign objects by installing a protecting grille or other protecting device with mesh width not more than 12.5 mm to prevent uncontrollable access to the fans.

While installing the fan ensure convenient access for subsequent maintenance and repair.

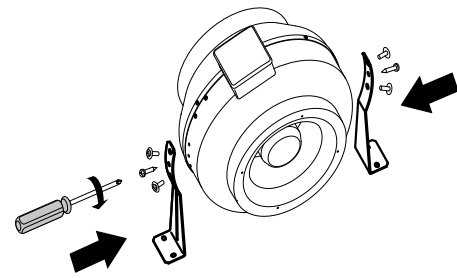
The unit must be mounted on a an even wall.



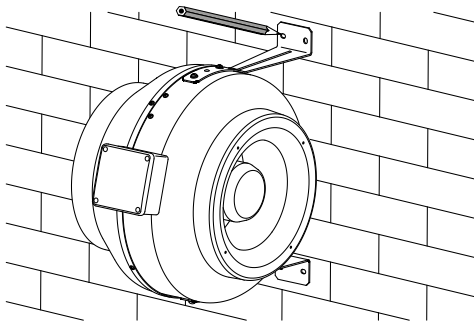
INSTALLATION STEPS



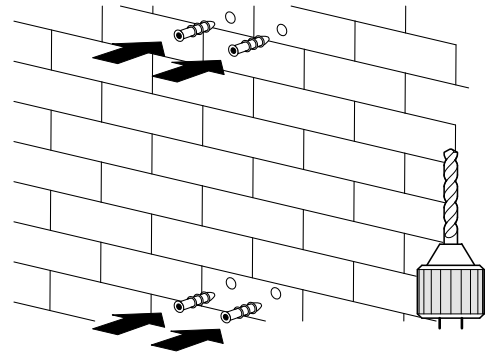
Disconnect the fan from power supply



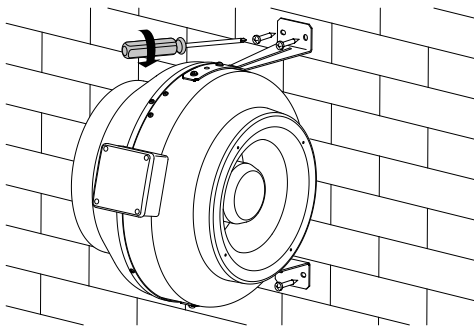
Install the fixing brackets



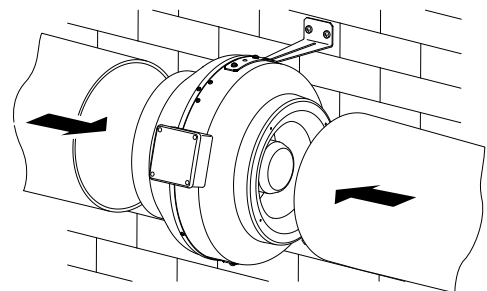
Lean the fan against the installation place and mark the fastening holes



Drill the holes and insert the expansion anchors



Fix the fan



Connect air ducts

CONNECTION TO POWER MAINS



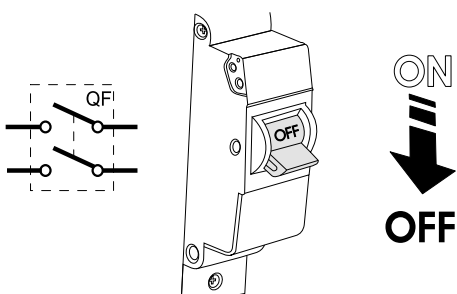
THE UNIT MUST BE MOUNTED BY A QUALIFIED EXPERT ONLY, PROPERLY TRAINED AND HAVING THE REQUIRED TOOLS AND MATERIALS.

The unit is rated for connection to single-phase ac 230 V/ 50 (60) Hz power mains. For electric installations use insulated durable heat-resistant conductors (cables, wires) with the minimum wire cross section 0.75 mm². The conductor cross section value must be selected depending on the wire type, maximum permissible heating temperature, insulation, length and installation method. Connect the fan to power mains via an external automatic circuit breaker installed at the power input and integrated in the house cabling to open the circuit in case of short circuit or overload.

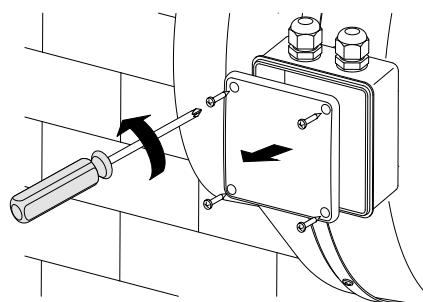
The circuit breaker location must provide quick access for emergency shutdown of the fan.

The fan is connected to the terminal box attached to the fan casing in compliance with the wiring diagram and designation of terminals. The terminal designation is shown on the sticker attached to the internal wall of the terminal block.

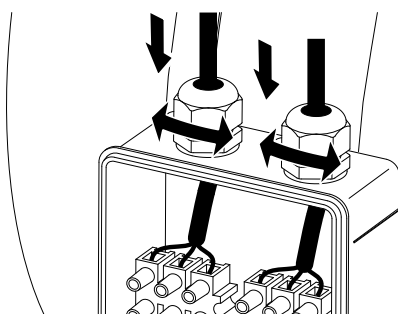
ACCESS TO THE TERMINAL BOX



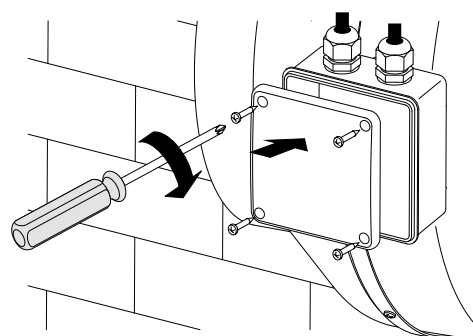
Disconnect the fan from power supply



Unscrew the 4 screws that fix the terminal box lid

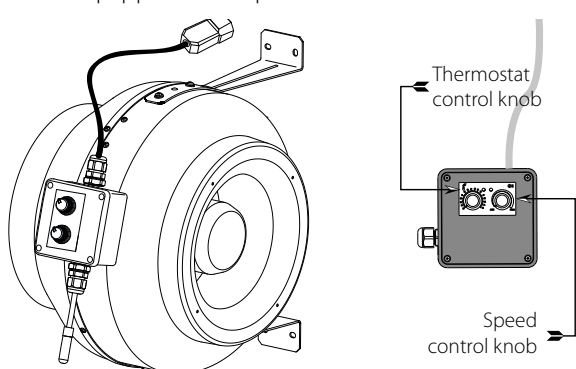


Route the cables through the cable gland and complete electric connection

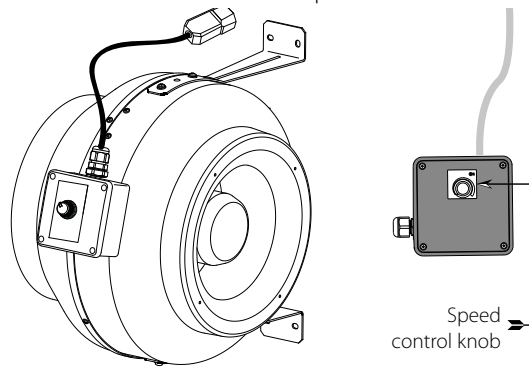


Reinstall the terminal box lid

The fan can be equipped with a power cord with an IEC C14 connector. The fan is rated for continuous operation.



Un, U1n, U2n



P

ELECTRONICS OPERATION ALGORITHM

The Un/U1n/U2n fan is equipped with an electronic module TSC (speed controller with an electronic thermostat) for automatic speed control (air flow) depending on the air temperature.

The terminal compartment incorporates 2 control knobs:

- presetting speed
- setting electric thermostat threshold value

The fan is equipped with two indicators:

- temperature sensor indicator (hereinafter referred to as TSI) - yellow colour
- motor control indicator (hereinafter referred to as MCI) - green/red colour

When the fan turns on, the TSI indicates the unit operation algorithm:

- one pulse – Un
- two pulses – U1n
- three pulses – U2n

The MCI lights up in green when the motor rotates and in red when it stops (or rotates very slowly).

To set the thermostat threshold, rotate the thermostat control knob clockwise to increase or counter-clockwise to decrease the temperature set point.

To set the fan speed (air flow), rotate the speed control knob in the same way.

UN: In this case, fan speed switching operations are rare.

The TSI lights up and the fan switches to the maximum speed as the room air temperature exceeds the set point.

As the air temperature drops 2 °C below the set point or if the initial temperature is below the set point, the TSI goes out and the fan operates with the set speed.

U1N: The speed switching operations are more frequent as compared to the temperature-based functioning logic (**U**), but one speed interval continues at least 5 minutes.

The TSI lights up and the fan switches to the maximum speed as the room air temperature exceeds the set point.

As the air temperature drops down below the set point, the TSI starts blinking, the timer starts a 5-minute countdown and then the fan switches to the set lower speed and the TSI goes out.

U2N: The fan starts only at a certain air temperature.

The TSI lights up and the fan switches to the set speed as the room air temperature exceeds the set point.

As the air temperature drops 2 °C below the set point or if the initial temperature is below the set point, the TSI goes out and the fan turns off.



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

EXTERNAL WIRING DIAGRAMS

Diagram 1.

Connect the fan to power mains

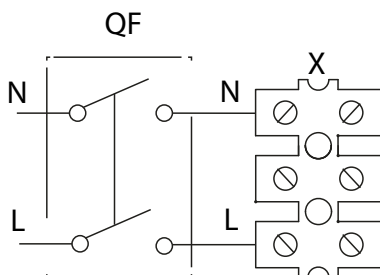
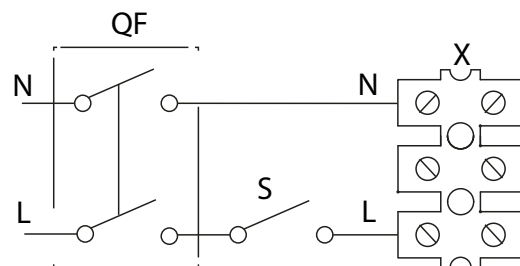


Diagram 2.

Connect the fan to power mains with an external switch



DESIGNATIONS ON DIAGRAMS:

L — line; **N** — neutral; **QF** — circuit breaker; **S** — external switch; **X** — input terminal.

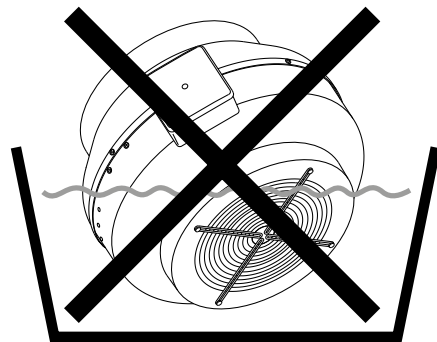
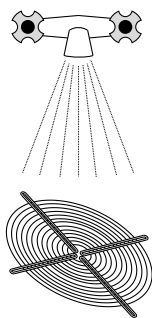
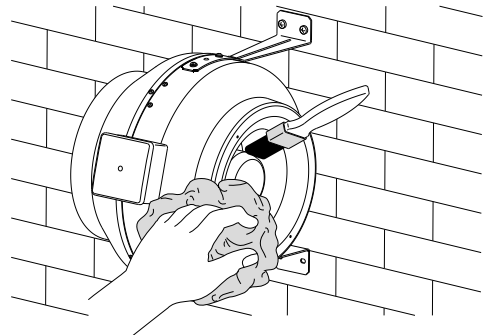
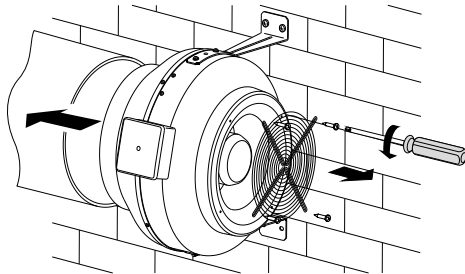
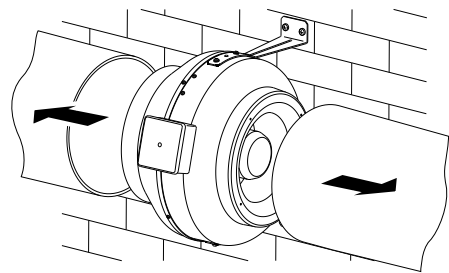
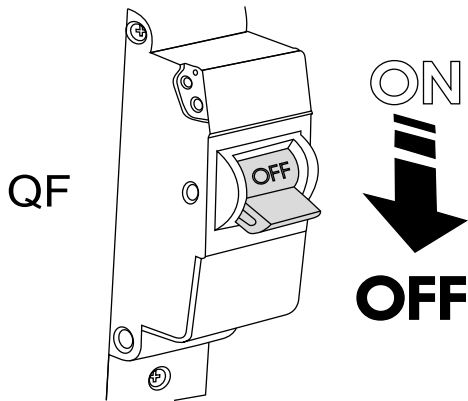
MAINTENANCE



CUT OFF POWER SUPPLY BEFORE ANY OPERATIONS ARE PERFORMED.

Technical maintenance means regular cleaning of the unit surfaces of dust. Use a soft brush or compressed air to remove dust. Clean the impeller blades at least every 6 months. Installation of an air filter prolongs the interval between the cleaning, to perform the cleaning first remove the screws and the fan cover. Wipe the impeller blades with a cloth wetted in a mild detergent solution. Avoid water dripping on the electric motor! After cleaning of the impeller install the cover and tighten the screws.

TECHNICAL MAINTENANCE STEPS



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 (+41 °F) to +40 °C (+104 °F) 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 dismantled 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.
- External damage to the unit casing (excluding external modifications as required for installation) 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.

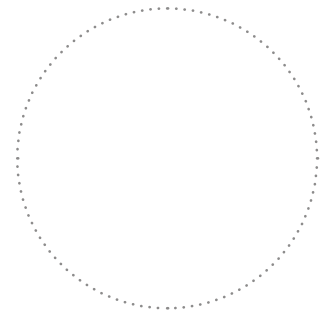
CERTIFICATE OF ACCEPTANCE

Unit Type	Centrifugal inline fan
Model	VKM _____ EC
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

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.

SELLER INFORMATION

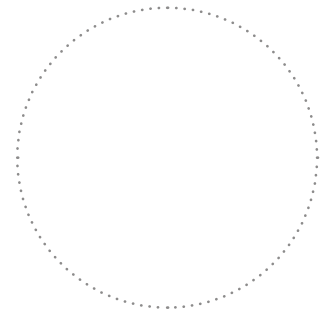
Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	



Seller's Stamp

INSTALLATION CERTIFICATE

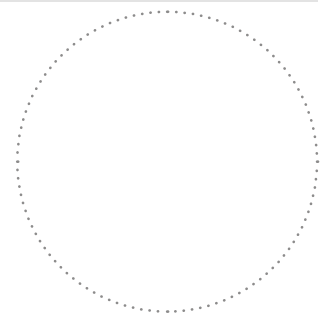
The VKM _____ EC unit is installed pursuant to the requirements stated in the present user's manual.	
Seller	
Address	
Phone Number	
Installation Technician's Full Name	
Installation Date:	Signature:
The unit has been installed in accordance with the provisions of all applicable local and national construction, electrical, and technical codes and standards. The unit operates normally as intended by the manufacturer.	
Signature:	



Installation Company Stamp

WARRANTY CARD

Unit Type	Centrifugal inline fan
Model	VKM _____ EC
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	



Seller's Stamp

