USER'S MANUAL

VKM 100 Q
VKM 100
VKM 125 Q
VKM 125
VKM 150 E
VKM 150
VKMS 150
VKM 160
VKMS 160
VKM 200
VKMS 200
VKM 250 E
VKM 250
VKM 315
VKMS 315
VKM 355 Q
VKM 400
VKM 450

Centrifugal inline fans

fanco

CONTENTS

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 VKM 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

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.
Do not expose the unit to adverse atmospheric agents (rain, sun, etc.).
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.
BEFORE INSTALLING ADDITIONAL EXTERNAL DEVICES, READ THE RELEVANT USER MANUALS.

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.
Children shall not play with the appliance.
Cleaning and user maintenance shall not be made by children without supervision

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.

CAUTION: In order to avoid a safety hazard due to inadvertent resetting of the thermal cut-out, this unit must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

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

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.

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.

THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.

DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.

PURPOSE

The VKM centrifugal fans are designed for ventilation of domestic, public and manufacturing premises heated during winter.
The transported air temperature must be within the limits stated in the «Technical data» section.
The fan is designed for horizontal or vertical mounting in an air duct and is used both for supply and exhaust ventilation.
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).

THE UNIT MUST NOT BE OPERATED IN KITCHEN PREMISES.

DELIVERY SET

NAME	NUMBER
Fan	1 pc.
Outer mounting bracket for VKM fans	2 pcs.
User's manual	1 pc.
Packing box	1 pc.

DESIGNATION KEY

VKM 100 Q

Additional options
Q – equipped with a low-watt motor
E – equipped with an energy-saving motor
Un – speed controller and temperature controller
P – speed controller
R – power cord with an electric plug

Exhaust spigot diameter

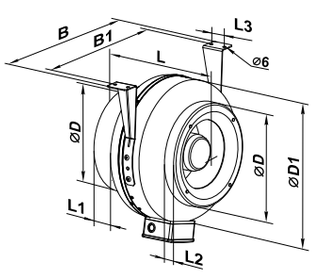
Fan series
VKM – centrifugal inline fan
VKMS – centrifugal duct fan with a high-powered motor

TECHNICAL DATA

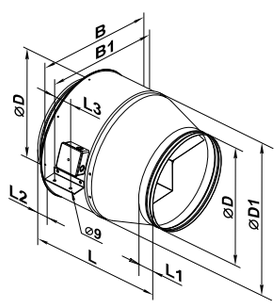
Permitted deviation of mains voltage: ±10 % of the rated voltage.
The fan must be grounded.
Ingress protection rating against access to hazardous parts and water ingress is IPX4.
Motor protection rating - IP44 (for VKM 355 Q/400/450 – IP54)
The unit design is constantly being improved, thus some models, their wiring diagrams and terminal symbols may be slightly different from those described in this manual.
To comply with the ErP 2018 regulation, a local demand controller and speed controller must be used.

OVERALL AND CONNECTING DIMENSIONS

VKM 100 - 315



VKM 355 - 450



Model	Dimensions [mm]								Weight [kg]
	Ø D	Ø D1	B	B1	L	L1	L2	L3	
VKM 100 Q	99	245	301	261	195	20	20	30	2,1
VKM 100	99	245	301	261	195	20	20	30	2,4
VKM 125 Q	123	255	310	270	205	20	25	30	2,9
VKM 125	123	255	310	270	205	20	25	30	3,2
VKM 150 E	148	305	360	320	200	20	25	30	4,25
VKM 150	149	345	395	355	200	20	20	40	4,7
VKMS 150	149	345	395	355	230	20	20	40	5,4
VKM 160	159	305	360	320	220	25	25	30	5,0
VKMS 160	158	340	390	350	245	25	25	40	6,4
VKM 200	198	345	395	355	255	25	30	40	6,6
VKMS 200	198	345	395	355	255	25	30	40	8,3
VKM 250 E	248	345	395	355	250	25	30	40	6,2
VKM 250	248	345	395	355	250	25	30	40	8,4
VKM 315	314	405	455	415	260	30	30	40	8,0
VKMS 315	314	405	455	415	290	30	30	40	8,8
VKM 355 Q	353	460	552	522	506	60	60	70	18,8
VKM 400	398	570	663	634	570	60	60	70	25,1
VKM 450	448	608	700	670	644	60	60	80	27,26

DESIGN AND OPERATING PRINCIPLE

The fan consists of the casing 1, the electric motor attached to the inner fixing bracket 4, the cover 2 that is fixed to the casing with screws 3 (the casing spigot diameter and the cover diameter are equal to the connected air duct diameter), the terminal box 5 that incorporates a terminal block and a capacitor and enables connection of the fan to single-phase power mains.
The fan models with a temperature and speed controller are equipped with a speed control knob 9, a thermostat control knob 10, a fan on/off LED light indicator 11 and a thermostat LED light indicator 12 that are located on the terminal box cover.
The fan models with the speed controller are equipped with a speed control knob 9 which is located on the terminal box 5 cover.
The fan models with a speed controller or with a speed and temperature controller are connected to power mains through a power cable with a plug.

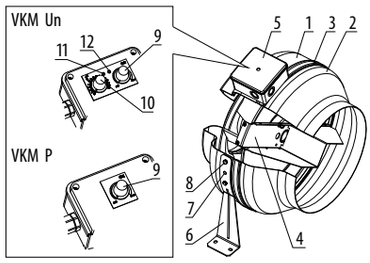


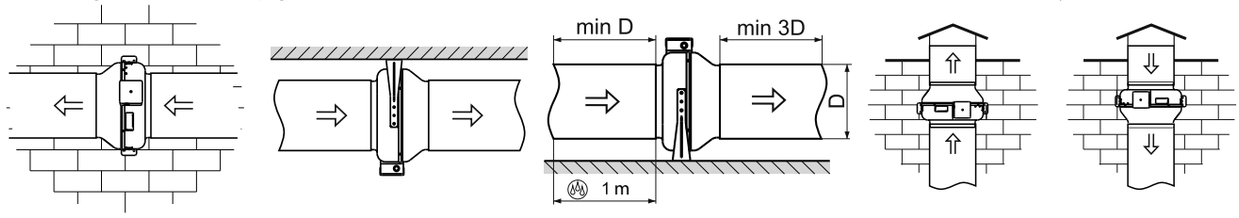
Fig. 1

6 – outer fixing bracket
7 – screws
8 – bolt
9 – knob for controlling fan impeller rotation speed
10 – thermostat control knob
11 – fan on/off LED light indicator
12 – thermostat LED light indicator

INSTALLATION AND SET-UP

READ THE USER'S MANUAL BEFORE INSTALLING THE UNIT.

The fans are designed for vertical or horizontal mounting. Air motion in the system must be in compliance with the direction of the arrow on the fan casing. Install a hood on outlet (discharge) 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 horizontal fan installation with maximum allowable humidity.



Mounting sequence:

- Remove the bolt from the casing 1 and install the fixing brackets in such a way so that the holes on the fixing brackets are aligned with the heads of the screws 3.
- Fix the fixing brackets on the casing with bolts.
- Drill the holes in the mounting surface to match the fitment holes of the fixing brackets.
- Fix the fan with the screws.
- Connect the air ducts of the respective size to the fan and fix them with clamps.

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 fan is designed for 220-240 V, 50 Hz/220 V, 60 Hz single-phase alternating current mains.
The fan shall be connected to power supply by means of insulated, durable and thermal-resistant cords (cables, wires) through the external circuit breaker with a thermal-magnetic trip built into the stationary wiring to disconnect all the power mains phases. The rated current must be not below the rated current consumption (refer to the «Technical data» section). The QF external switch location must ensure free access for quick shutdown of the fan.
The recommended rated current of the circuit breaker:

- 2 A for the VKM 355 Q fans
- 3.15 A for the VKM 400, VKM 450 fans
- 1 A for all other fans

The recommended wire cross section is minimum 0.75 mm^2.
The actual conductor cross-section selection must be based on its type, maximum permissible heating, insulation, length and installation method (in the air, pipes or inside walls). 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 wiring diagram for the VKM 450 fans is shown in Fig. 2. The wiring diagram for the other fans is shown in Fig. 3.
The fans with a speed controller and temperature and speed controller (VKM Un) are designed for connection to single-phase AC power mains 220-240 V, 50 Hz/220 V, 60 Hz and are equipped with a power cord and a plug (supplied connected to the terminal block).

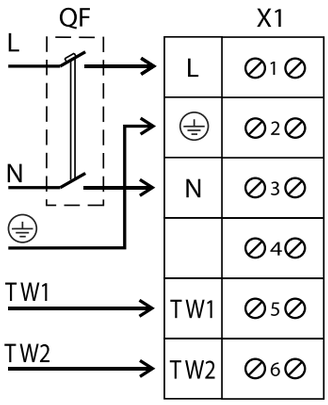


Fig. 2

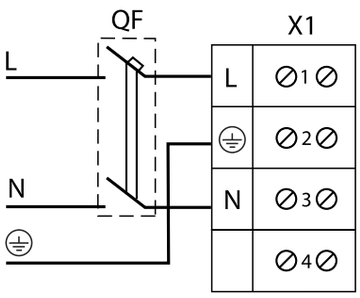


Fig. 3

The TW1, TW2 terminals are the electrical leads of the normally closed contact of the motor overheating protection.
Connect the contact in series to power circuit of the magnetic starter coil KM1 that starts the motor after pressing the S1 button.
In case of pressing the S2 button or motor overheating, the contact gets broken and switches the starter coil off to cut power off and stop the motor. The QF circuit breaker, the magnetic starter KM1, the control knobs S1 and S2 are not included in the delivery and must be installed by the user.
The motor connection example with thermal protecting contacts leaded outside are shown in Fig. 4.

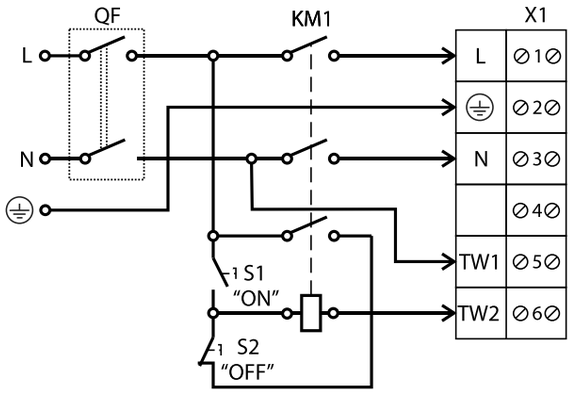


Fig. 4

CONTROL

The VKM P fans with a built-in electronic module
The electronic module is designed for smooth control of fan impeller rotation speed (air flow). The speed is controlled with the speed control knob 9 (Fig. 1).
The VKM Un fans with a temperature and speed controller (see Fig. 1).
The controller is designed for air temperature control and fan speed control depending on ambient air temperature 10. The speed is controlled with the speed control knob 9 and the temperature control knob 10. The VKM Un fans are equipped with an external temperature sensor fixed on a 4 m cable.
The cover of the terminal box incorporates the following controls:

- fan speed control knob 9
- thermostat control knob 10 to set the thermostat temperature threshold
- on/off LED light indicator 11
- thermostat LED light indicator 12

Operation algorithm of VKM Un fans
Set the thermostat temperature threshold with a thermostat control knob 10. Switch on the fan, then set the fan speed with the speed control knob 9. The fan on/off light indicator 11 lights up. The controller switches the fan to the maximum speed (maximum air flow) as the temperature rises and crosses the thermostat setpoint. The thermostat light indicator 12 glows if the temperature is above the thermostat setpoint. If the temperature falls 2 °C below the thermostat setpoint, the fan reverts to the preset lower speed. This prevents frequent speed changeovers during operation with the temperature close to the threshold value. This control logic enables tracking temperature fluctuations and respond to the temperature change with accuracy up to 2 °C. The rate of the speed switching depends exclusively on the air temperature fluctuations.

TECHNICAL MAINTENANCE

DISCONNECT THE UNIT FROM POWER SUPPLY BEFORE ANY MAINTENANCE OPERATIONS!

The technical maintenance includes periodic cleaning of the surfaces from accumulated dust and dirt. Use a soft dry brush or a vacuum cleaner to remove dust.
The impeller blades require thorough cleaning once in 6 months.
To do this, unscrew the self-tapping screws 3 and remove the cover 2 (Fig. 1).
Clean the impeller blades with a soft cloth wetted in mild water detergent solution. Avoid liquid dripping on the motor.

POSSIBLE MALFUNCTIONS AND TROUBLESHOOTING

PROBLEM	POSSIBLE REASONS	TROUBLESHOOTING
When switching on the unit the fan does not start.	No power supply.	Check the electrical connections and the power switch status.
	Motor jamming.	Turn off the fan. Troubleshoot the impeller jamming. Restart the fan.
Circuit breaker tripping during the fan start.	The automatic circuit breaker is triggered by an abnormally high current consumption due to a short circuit.	Disconnect the fan from power mains and contact the Seller. Do not turn on the fan again!
Low air flow.	Clogging of air ducts or other ventilation system elements. Impeller clogging. Damaged air ducts. Air damper closure.	Clean the air ducts and other ventilation system elements as well as the impeller. Check the air ducts for damage. Make sure the air dampers and louvre shutters are open.

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 up 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.

FANCO MANUFACTURER WARRANTY – WARRANTY AGAINST DEFECTS

Fanco's committed to providing product free from defects and will repair or replace (at the company's discretion on a case by case basis) any Fanco exhaust product which has a defect due to a manufacturing or workmanship fault, subject to the following conditions;

Warranty Period

The Fanco Warranty against Defects period is 2 years from the date of the invoice of the sale of the item.This period applies to consumer purchases only. If the item is used in non-domestic or commercial applications, Fanco warrants this product for a period of 3 months from date of invoice of the sale of the item. Commercial purchases may have an individual agreement overriding these terms. The Warranty period is not extended/renewed if a replacement is issued under warranty, and a new warranty period does not apply to the replacement product.

What is covered by the Warranty

The Warranty covers only defects due to manufacturing faults, and therefore does not include defects caused by misuse, transport damage, alterations made to the products, incorrect installation, installation by unauthorised or unqualified personnel, lack of maintenance or cleaning of the product. The Warranty only covers products that have been installed by a qualified electrical contractor (where required by law) and operated within the guidelines specified by Fanco, and within the correct operating voltage range as stated on the product's rating label. The Warranty covers only the product, no additional expenses, including but not limited to; freight costs to return a faulty item and to send out a repaired/replacement item, any costs associated with installation or removal of the original item or repaired/replacement item, any expenses incurred by the consumer in making the warranty claim.

To be entitled to a warranty claim the consumer must:

1. Cease to use the product immediately
2. Leave the product installed until advised to return to place of purchase
3. Contact the retailer in writing as soon as they are aware of the fault, and provide the following information:
   a) The order number/copy of invoice.
   b) Details of the nature of the fault.
   c) If possible and relevant, photographs may also be requested.
   d) For any products which are required to be hard-wired by a licenced electrician, a copy of the certificate of compliance issued by the electrician (or equivalent evidence that the product was installed by a licensed electrician) must be provided.
   No warranty claims will be accepted without evidence that product was installed by a licenced electrician.
4. Return the item to the place of purchase for testing when advised. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Fanco Australia Authorised National Distributor – Universal Fans:

ABN: 76 104 243 898
Address: 18 Cleeland Road, South Oakleigh, VIC, 3167
Phone number: (03) 9095 6933
Email: sales@universalfans.com.au

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	
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 inline fan
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	

Seller's Stamp