Series
VENTS VK

Inline centrifugal fans in plastic casing with the air flow up to **1700 m³/h**

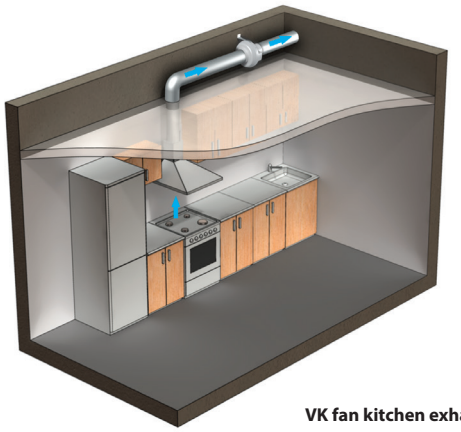
Applications
VK fans are applied for supply and exhaust ventilation systems of commercial, office and other premises. Compatible with Ø 100, 125, 150, 200, 250 and 315 mm round air ducts. Models marked VK...Q are supplied with quiet motors for low-noise applications. Due to the corrosion-resistant durable plastic casing, these models are the perfect solution for the installation in exhaust ventilation systems in humid premises such as bathrooms, kitchens etc.

Design
The casing is made of high-quality durable plastic. The fans are equipped with waterproof terminal boxes. Models marked VK..R are supplied with the power cord and a plug.

Motor
The centrifugal impeller with backward curved blades is powered by a single-phase external rotor motor. The motor is equipped with self-resetting overheating protection. Some standard sizes are available with a high-powered motor, see the VKS modifications. The motor is equipped with ball bearings for a long service life designed for at least 40 000 operating hours. For precise features, safe operation and low noise, each impeller is dynamically balanced while assembly. Motor protection rating is IP 44.

Speed control
Smooth or step speed control with a thyristor or autotransformer speed controller. Several fans may be connected to one speed controller provided that the total power and operating current do not exceed the rated speed controller parameters.
Two-speed models are controlled with the external speed switch P2-10 (available separately).

Mounting
The fan is mounted to the wall or ceiling with mounting brackets included into delivery set or with PVK holders, specially ordered accessory. The fan can be mounted at any angle. Electric connection and installation shall be performed in compliance with the manual and the wiring diagram on the terminal box.



VK fan kitchen exhaust ventilation example

Designation key

Series		Duct diameter	Options
VENTS VK	**S**: high-powered motor	100; 125; 150*; 200; 250; 315	**Q**: low-powered motor. **Duo**: double-speed motor. **U**: speed controller with an electronic thermostat and a temperature sensor integrated into the air duct. Equipped with a power cord and an IEC C14 electric plug. Temperature-based operation logic. **Un**: speed controller with an electronic thermostat and external temperature sensor fixed on 4 m cable. Equipped with a power cord and an IEC C14 electric plug. Temperature-based operation logic. **U1**: speed controller with an electronic thermostat and a temperature sensor integrated into the air duct. Equipped with a power cord and an IEC C14 electric plug. Timer-based operation logic. **U1n**: speed controller with an electronic thermostat and external temperature sensor fixed on 4 m cable. Equipped with a power cord and an IEC C14 electric plug. Timer-based operation logic. **P**: built-in smooth speed controller and power cord with an IEC C14 electric plug. **V**: built-in speed switch (for models with double-speed motors). **R**: power cord with an IEC C14 electric plug.

* VK 150 model is compatible with the air ducts both Ø 150 and 160 mm

Accessories

Silencer | Filters | Heaters | Backdraft damper | Air shutter | Speed controllers | Speed switch

Fan with electronic temperature and control module (U option)

The ideal solution for ventilation of the premises requiring permanent temperature control, i.e. greenhouses. The fan with the electronic temperature and speed control module provides automatic control of the motor speed (air flow) depending on air temperature in the air duct or in the room.

The front panel of the electronic module has the following control knobs:

– speed control knob for setting the motor speed

– thermostat control knob for setting the temperature set point

– thermostat indicator light

The fan is available in two modifications:

– with the temperature sensor integrated inside the fan air duct (U/U1 option)

– with the external temperature sensor fixed on the cable, 4 m long (Un / U1n)

Control logic of the fan with the electronic temperature and speed control module

Set the desired air temperature (thermostat set point) by turning the thermostat control knob. Set the required minimum impeller speed (air flow) by turning the speed control knob. The motor switches to maximum speed (maximum air flow) as the temperature reaches and exceeds the set temperature set point. The motor switches to the pre-set lower speed as the temperature drops down below the temperature set point. To avoid frequent motor speed switches when the air temperature in the duct is equal to the set temperature point, the speed switch delay is activated. There are two switch delay patterns for various cases:

1. The temperature sensor-based switch delay (U option): the motor switches to higher speed as the air temperature exceeds 2 °C above the set thermostat set point. The motor revers to the preset lower speed as the air temperature drops below the thermostat set point. This pattern is used to keep air temperature to within 2 °C. In this case the motor speed switches are rare.

2. The timer-based switch delay (U1 option): as the air temperature exceeds the set thermostat set point, the motor switches to higher speed and the switch delay timer is activated for 5 min. The motor reverts to lower speed as the air temperature drops down below the thermostat set point and only after 5 minuts timer countdown.

This pattern is used for exact air temperature control. The speed switches for the fan with U1 option are more frequent as compared to the operating logic of the fan with U option, however the minimum operating cycle at one speed is 5 minutes.

Example for temperature sensor delay pattern:

Initial conditions:

- rated speed is set as 60 % of the maximum speed
- operating threshold is set as 25 °C
- air temperature in the duct is 20 °C

motor operates with the rated speed =60 %

▼

- air temperature in the duct rises

motor operates with the rated speed =60 %

▼

- air temperature in the duct reaches 27 °C

motor switches to the speed =100 %

▼

- air temperature in the duct goes down

mototr operates with the speed =100 %

▼

- temperature in the duct reaches 25 °C again

motor switches to the preset rated speed =60 %

Example for timer delay pattern:

Initial conditions:

- rated speed is set as 60 % of maximum speed
- operating threshold is set as 25 °C
- air temperature in the duct is 20 °C

motor operates with the rated speed =60 %

▼

- the temperature in the duct rises, reaches 25 °C and keeps rising

▼

- fan switches to the maximum speed =100 % and the delay timer switches on again for 5 minutes

▼

- the temperature in the duct goes down

the motor operates with the maximum speed =100 %

▼

- the temperature in the duct reaches 25 °C and keeps rising

▼

- after the timer stops, the motor switches to the preset rated speed (=60 %). After the speed switch, the timer switches on again for 5 minutes.

▼

- the temperature in the duct rises, reaches 25 °C and keeps rising

▼

- after the timer stops, the motor switches to the maximum speed (=100 %). After the speed switch, the delay timer switches on again for 5 minutes

Thus, in timer delay pattern the delay timer activates every time when the fan speed changes.

Vents VK…U with electronic temperature and speed module

Bracket for easy installation (supplied with the fan)

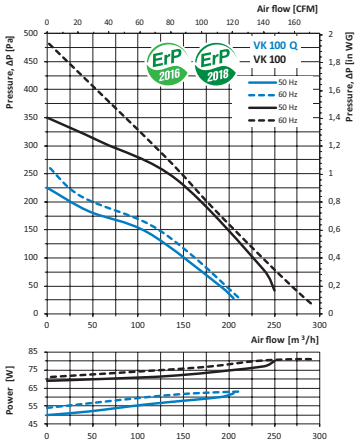
VENTS VK…P with built-in speed controller

VENTS VK…R with power cord

Technical data

	VK 100 Q		VK 100		VK 125 Q		VK 125		VK 150	
Voltage [V]	1~230		1~230		1~230		1~230		1~230	
Frequency [Hz]	50	60	50	60	50	60	50	60	50	60
Power [W]	62	63	80	81	61	64	79	81	80	84
Current [A]	0.38	0.38	0.34	0.34	0.38	0.4	0.34	0.35	0.35	0.37
Maximum air flow [m³/h]	205	210	250	290	260	270	355	370	460	505
RPM [min⁻¹]	2650	2710	2820	2890	2610	2680	2800	2830	2725	2840
Noise level at 3 m [dBA]	36	36	40	41	36	37	40	41	42	43
Transported air temperature [°C]	-25 +55	-25 +50	-25 +55	-25 +50	-25 +55	-25 +50	-25 +55	-25 +50	-25 +55	-25 +50
SEC class	C	-	C	-	C	-	B	-	B	-
Protection rating	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4

VENTS VK



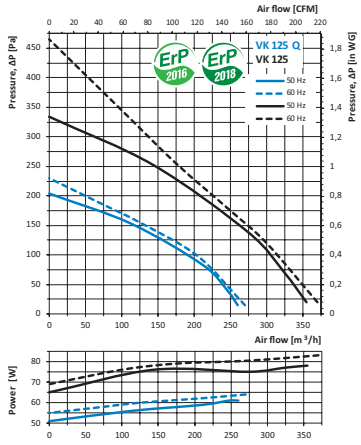
VK 100 Q
Sound-power level, A - weighted

	Hz	Gen.	63	125	250	500	1000	2000	4000	8000	LpA, 3 m [dBA]	LpA, 1 m [dBA]
		Octave-frequency band [Hz]										
L_{WA} to inlet	dBA	77	55	69	75	67	62	58	52	42	56	66
L_{WA} to outlet	dBA	76	62	69	74	66	59	55	51	40	55	65
L_{WA} to environment	dBA	57	26	45	47	51	52	49	40	31	36	46

VK 100
Sound-power level, A - weighted

	Hz	Gen.	63	125	250	500	1000	2000	4000	8000	LpA, 3 m [dBA]	LpA, 1 m [dBA]
		Octave-frequency band [Hz]										
L_{WA} to inlet	dBA	83	60	75	81	73	67	63	57	46	62	72
L_{WA} to outlet	dBA	82	67	75	80	72	64	60	55	44	61	71
L_{WA} to environment	dBA	61	28	49	51	55	57	53	44	34	40	50

VENTS VK



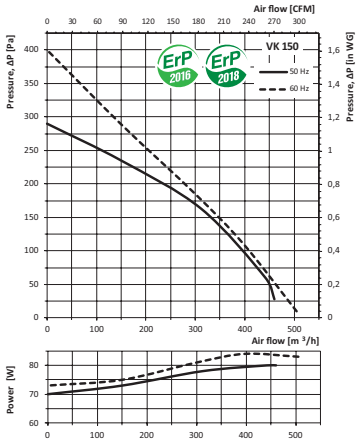
VK 125 Q
Sound-power level, A - weighted

	Hz	Gen.	63	125	250	500	1000	2000	4000	8000	LpA, 3 m [dBA]	LpA, 1 m [dBA]
		Octave-frequency band [Hz]										
L_{WA} to inlet	dBA	78	52	70	76	67	63	60	55	46	57	67
L_{WA} to outlet	dBA	77	59	70	75	66	60	58	53	45	56	66
L_{WA} to environment	dBA	56	27	40	48	51	50	50	40	28	36	46

VK 125
Sound-power level, A - weighted

	Hz	Gen.	63	125	250	500	1000	2000	4000	8000	LpA, 3 m [dBA]	LpA, 1 m [dBA]
		Octave-frequency band [Hz]										
L_{WA} to inlet	dBA	84	56	76	82	72	68	65	59	50	63	73
L_{WA} to outlet	dBA	83	63	76	81	71	65	62	57	49	62	72
L_{WA} to environment	dBA	60	29	44	52	55	54	54	44	31	40	50

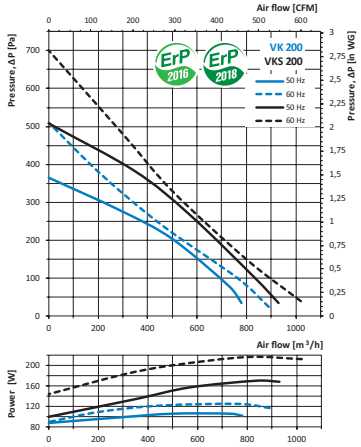
VENTS VK



VK 150
Sound-power level, A - weighted

	Hz	Gen.	63	125	250	500	1000	2000	4000	8000	LpA, 3 m [dBA]	LpA, 1 m [dBA]
		Octave-frequency band [Hz]										
L_{WA} to inlet	dBA	90	53	87	86	75	74	71	68	54	69	79
L_{WA} to outlet	dBA	90	53	88	85	72	71	66	65	52	69	79
L_{WA} to environment	dBA	63	26	46	55	57	57	57	47	35	42	52

VENTS VK



VK 200
Sound-power level, A - weighted

	Hz	Gen.	63	125	250	500	1000	2000	4000	8000	LpA, 3 m [dBA]	LpA, 1 m [dBA]
		Octave-frequency band [Hz]										
L_{WA} to inlet	dBA	85	47	74	81	77	77	78	70	59	65	75
L_{WA} to outlet	dBA	83	44	73	77	75	75	78	70	60	63	73
L_{WA} to environment	dBA	66	27	48	59	61	61	59	51	39	46	56

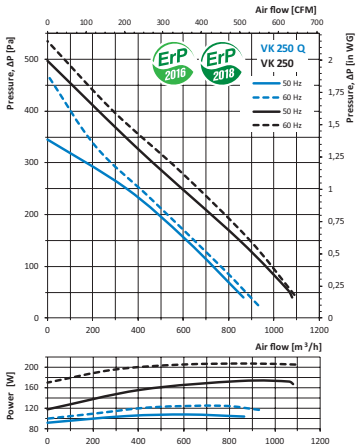
VKS 200
Sound-power level, A - weighted

	Hz	Gen.	63	125	250	500	1000	2000	4000	8000	LpA, 3 m [dBA]	LpA, 1 m [dBA]
		Octave-frequency band [Hz]										
L_{WA} to inlet	dBA	90	49	78	87	81	81	82	74	63	69	79
L_{WA} to outlet	dBA	87	46	77	81	79	79	82	74	64	67	77
L_{WA} to environment	dBA	68	29	52	60	63	63	62	53	39	48	58

Technical data

	VK 200		VKC 200		VK 250 Q		VK 250		VK 315	VKC 315
Voltage [V]	1~230		1~230		1~230		1~220-240		1~230	1~230
Frequency [Hz]	50	60	50	60	50	60	50	60	50	50
Power [W]	107	132	173	216	108	135	173	207	200	310
Current [A]	0.47	0.58	0.76	0.94	0.47	0.9	0.76	0.9	0.88	1.36
Maximum air flow [m³/h]	780	890	930	1020	865	930	1080	1090	1340	1700
RPM [min⁻¹]	2660	2765	2125	2155	2560	2570	2090	2120	2655	2590
Noise level at 3 m [dBA]	46	46	48	49	47	48	49	50	48	57
Transported air temperature [°C]	-25 +55	-25 +50	-25 +55	-25 +45	-25 +55	-25 +50	-25 +55	-25 +50	-25 +55	-25 +45
SEC class	B	-	B	-	B	-	B	-	-	-
Protection rating	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4	IPX4

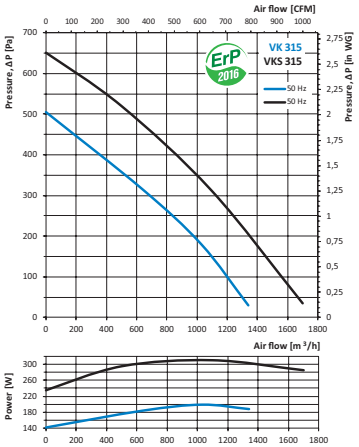
VENTS VK



VK 250 Q Sound-power level, A - weighted		Octave-frequency band [Hz]									LpA, 3 m [dBA]	LpA, 1 m [dBA]
Hz		Gen.	63	125	250	500	1000	2000	4000	8000		
L_{WA} to inlet	dBA	89	53	76	74	78	84	85	80	70	69	79
L_{WA} to outlet	dBA	89	56	68	78	75	83	86	79	71	68	78
L_{WA} to environment	dBA	68	36	50	60	63	62	61	56	42	47	57

VK 250 Sound-power level, A - weighted		Octave-frequency band [Hz]									LpA, 3 m [dBA]	LpA, 1 m [dBA]
Hz		Gen.	63	125	250	500	1000	2000	4000	8000		
L_{WA} to inlet	dBA	90	61	78	85	83	85	81	77	65	70	80
L_{WA} to outlet	dBA	88	64	77	73	82	84	82	77	63	68	78
L_{WA} to environment	dBA	69	35	49	61	64	64	62	50	39	49	59

VENTS VK



VK 315 Sound-power level, A - weighted		Octave-frequency band [Hz]									LpA, 3 m [dBA]	LpA, 1 m [dBA]
Hz		Gen.	63	125	250	500	1000	2000	4000	8000		
L_{WA} to inlet	dBA	86	51	73	71	75	81	82	77	68	66	76
L_{WA} to outlet	dBA	87	55	66	76	73	81	84	77	69	66	76
L_{WA} to environment	dBA	69	30	48	59	63	65	62	52	38	48	58

VKS 315 Sound-power level, A - weighted		Octave-frequency band [Hz]									LpA, 3 m [dBA]	LpA, 1 m [dBA]
Hz		Gen.	63	125	250	500	1000	2000	4000	8000		
L_{WA} to inlet	dBA	93	56	80	78	82	88	89	84	74	73	83
L_{WA} to outlet	dBA	93	59	72	82	79	87	90	83	75	72	82
L_{WA} to environment	dBA	78	33	54	63	71	73	73	63	55	57	67