

FANS FOR ROUND DUCTS

Series
VENTS VK
VENTS VK Duo



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.

The double-speed models (Duo) are equipped with asynchronous electric external rotor motors and centrifugal impellers with forward curved blades. The impellers are dynamically balanced. Double-speed control.

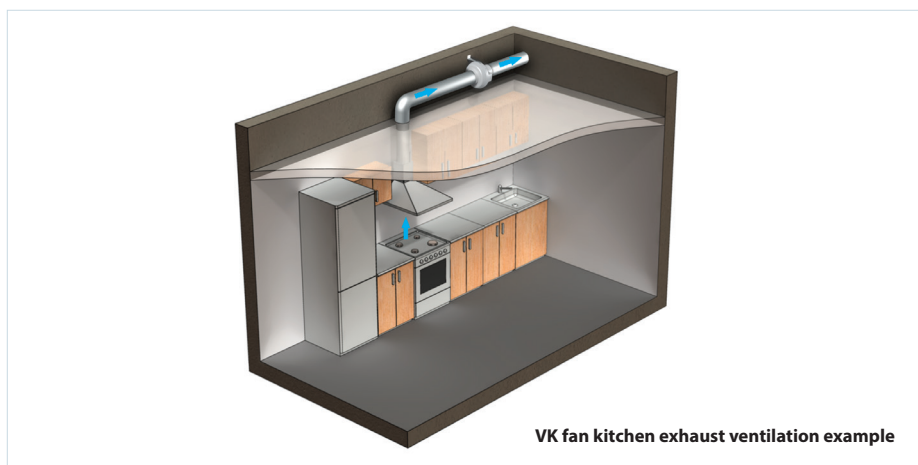
Speed control

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



VK fan kitchen exhaust ventilation example

Designation key

Series	Duct diameter	Options
VENTS VK S: high-powered motor	100; 125; 150*; 200; 250; 315	<p>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.</p>

*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

performed in compliance with the manual and the wiring diagram on the terminal box.

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 reverts 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 minutes 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

motor operates with the speed =100 %



- temperature in the duct reaches 25 °C again

motor switches to the preset rated speed =60 %

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

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

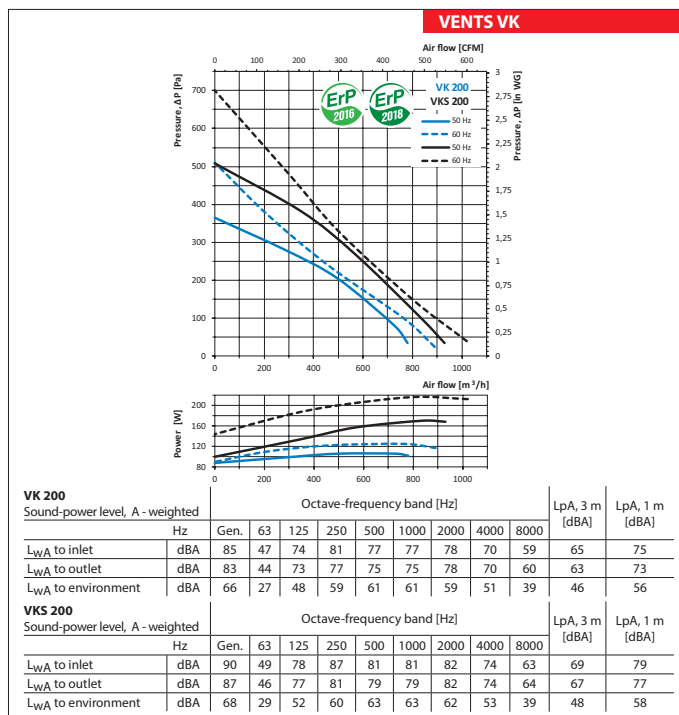
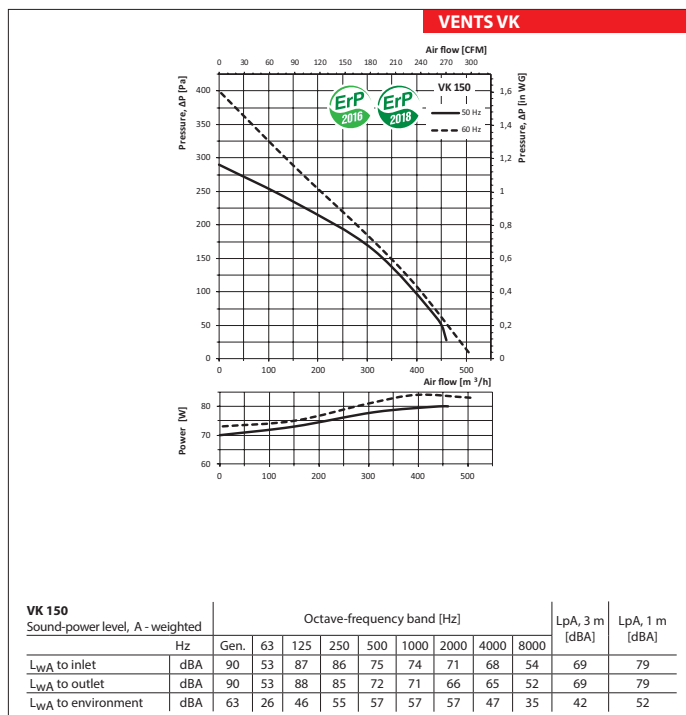
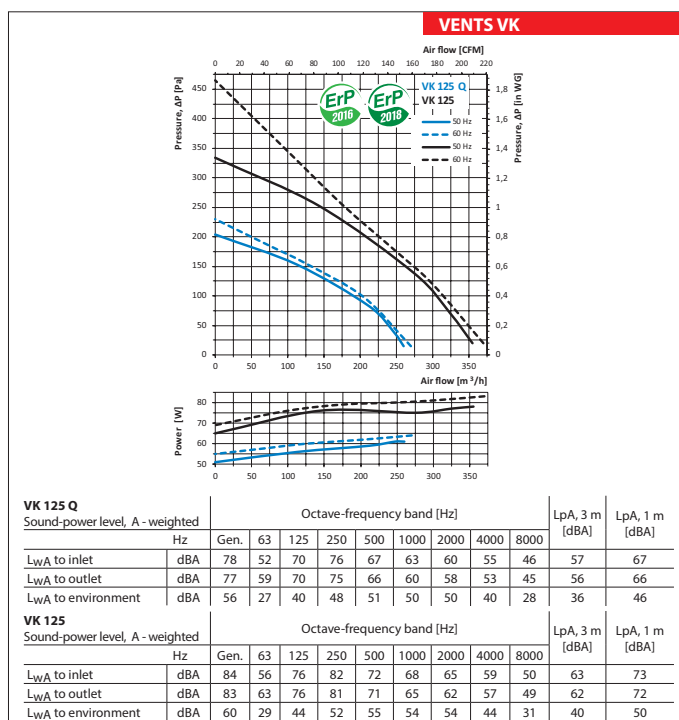
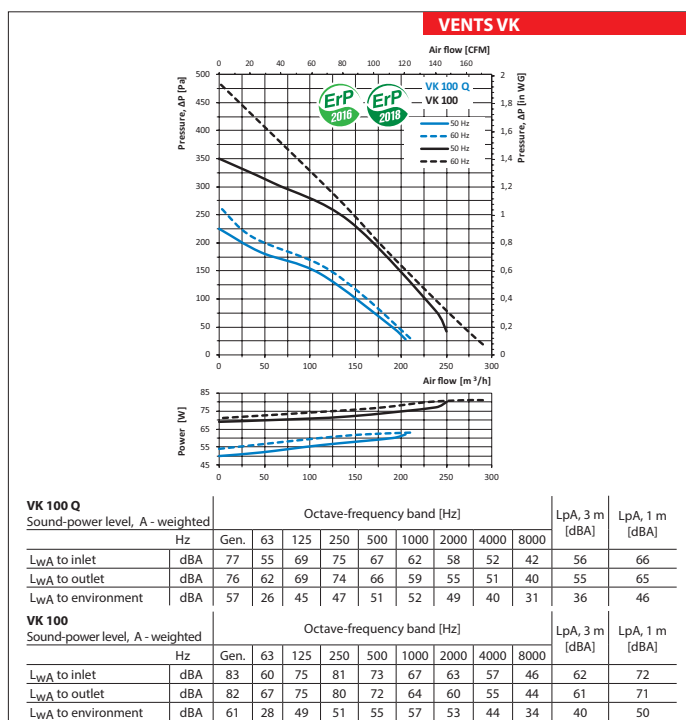
Thus, in timer delay pattern the delay timer activates every time when the fan speed changes.



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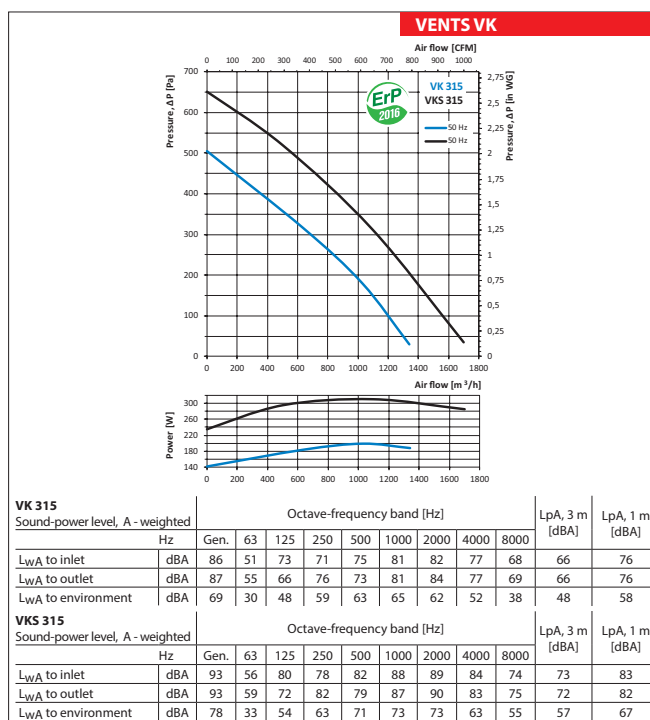
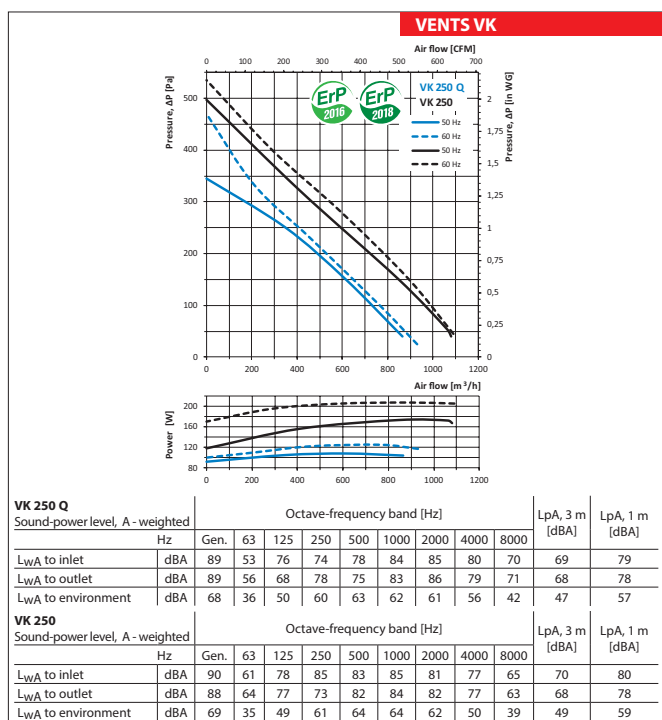
Technical data

	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 [m ³ /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



Technical data

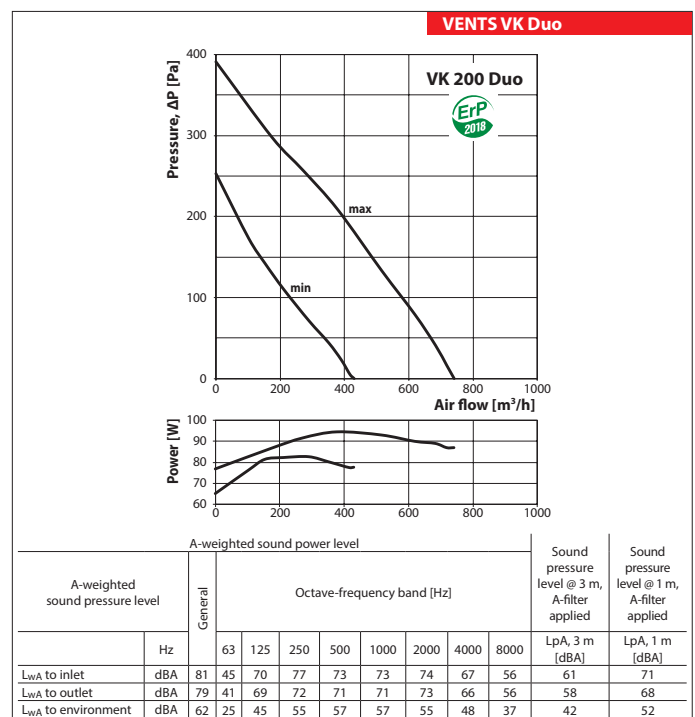
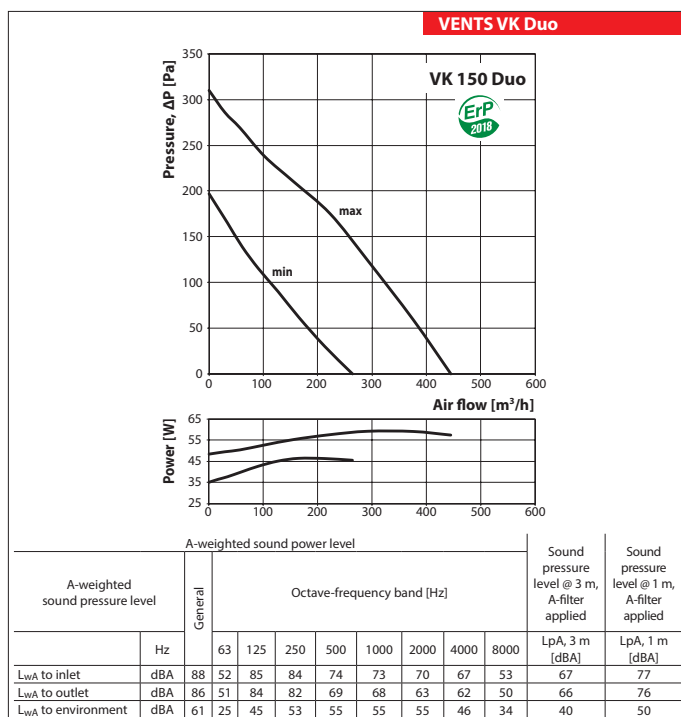
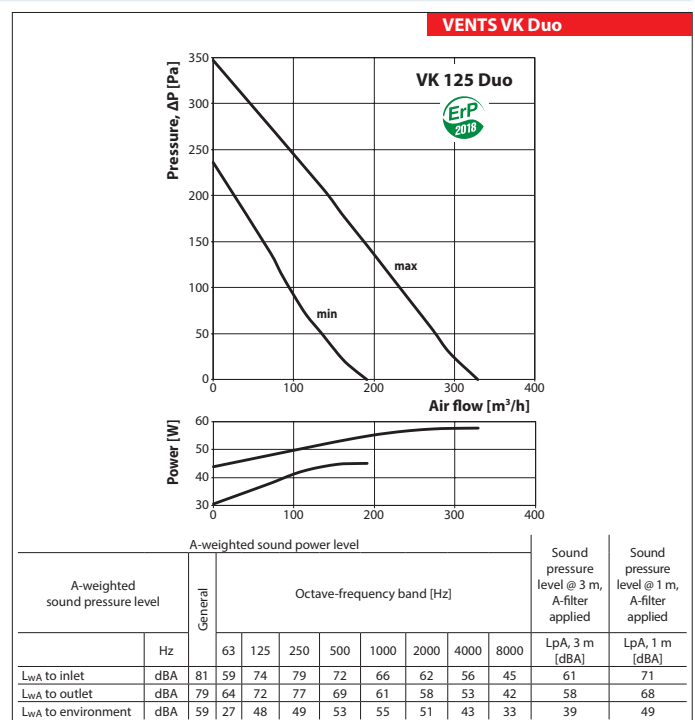
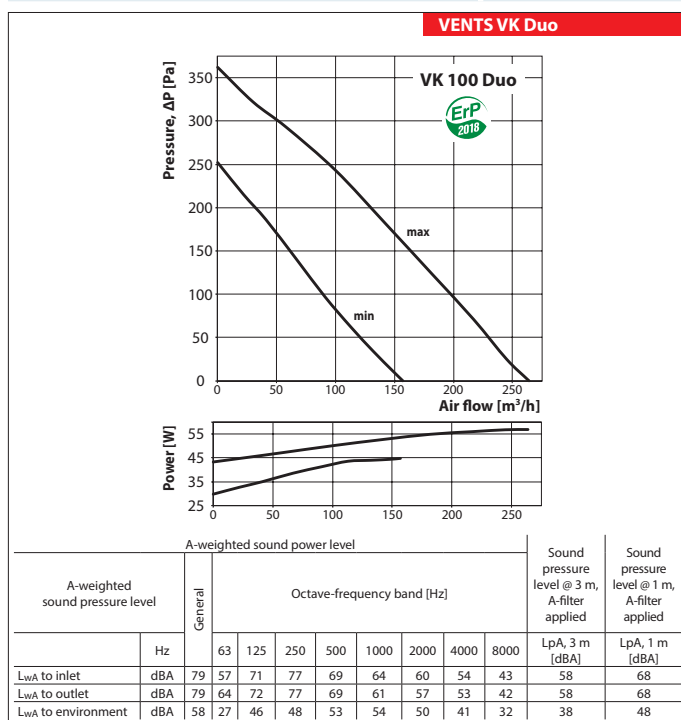
	VK 200		VKC 200		VK 250 Q		VK 250		VK 315		VKC 315	
Voltage [V]	1~230		1~230		1~230		1~220-240		1~230		1~230	
Frequency [Hz]	50	60	50	60	50	60	50	60	50	60	50	50
Power [W]	107	132	173	216	108	135	173	207	200	200	310	310
Current [A]	0.47	0.58	0.76	0.94	0.47	0.9	0.76	0.9	0.88	0.88	1.36	1.36
Maximum air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



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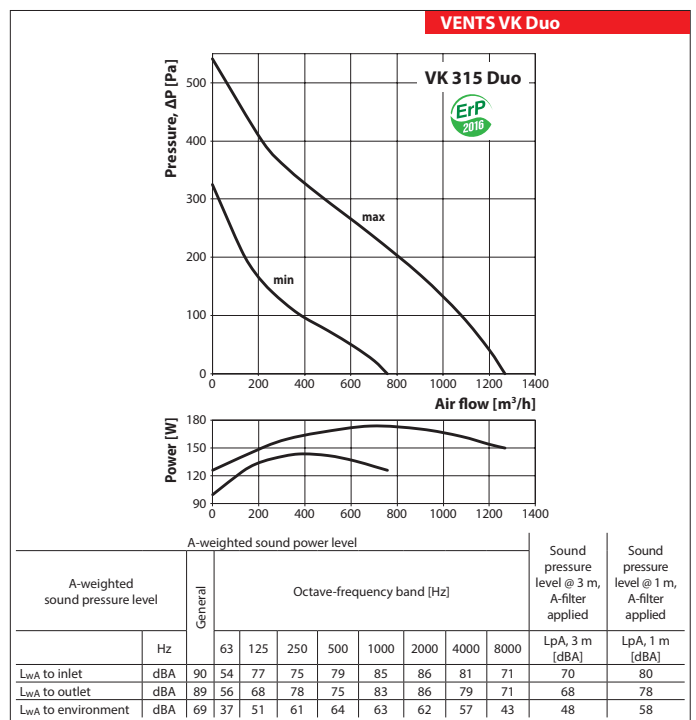
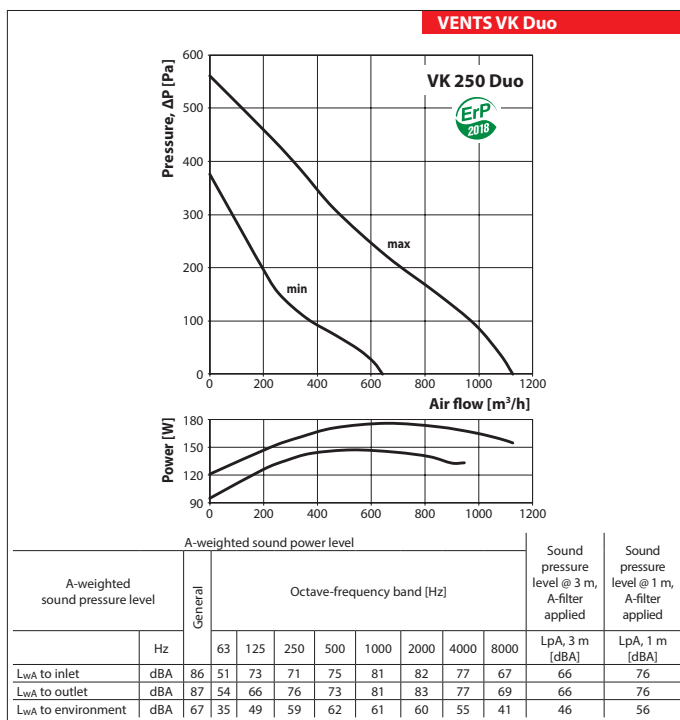
Technical data

	VK 100 Duo		VK 125 Duo		VK 150 Duo		VK 200 Duo	
Speed	min	max	min	max	min	max	min	max
Voltage [V/50 Hz]	1~ 230							
Power [W]	45	57	45	58	46	59	83	95
Current [A]	0.21	0.25	0.21	0.26	0.22	0.26	0.37	0.43
Maximum air flow [m³/h]	157	264	191	329	264	445	430	741
RPM [min⁻¹]	1820	2440	1810	2380	1805	2420	1920	2470
Noise level at 3 m [dBA]	38		39		40		42	
Transported air temperature [°C]	-25 +55							
SEC class	D		D		D		C	
Protection rating	IPX4							



Technical data

	VK 250 Duo		VK 315 Duo	
Speed	min	max	min	max
Voltage [V/50 Hz]	1~ 230			
Power [W]	147	176	143	173
Current [A]	0.66	0.76	0.68	0.76
Maximum air flow [m³/h]	642	1126	758	1268
RPM [min ⁻¹]	1940	2370	1870	2410
Noise level at 3 m [dBA]	46		48	
Transported air temperature [°C]	-25 +55			
SEC class	C		-	
Protection rating	IPX4			



Fan overall dimensions

Model	Dimensions [mm]								Weight [kg]
	∅D	∅D1	B	L	L1	L2	L3		
VK 100 Q / VK 100 / VK 100 Duo	100	250	270	230	30	27	30	2.01	
VK 125 Q / VK 125 / VK 125 Duo	125	250	270	220	30	27	30	2.2	
VK 150 / VK 150 Duo	150/160	300	310	286	30	30	30	2.45	
VK 200 / VK 200 Duo	200	340	354	276	30	30	40	3.0	
VKS 200	200	340	354	276	30	30	40	4.3	
VK 250 Q / VK 250 / VK 250 Duo	250	340	354	265	30	30	40	4.3	
VK 315 / VK 315 Duo	315	400	414	276	40	55	40	4.85	
VKS 315	315	400	414	276	40	55	40	4.85	

