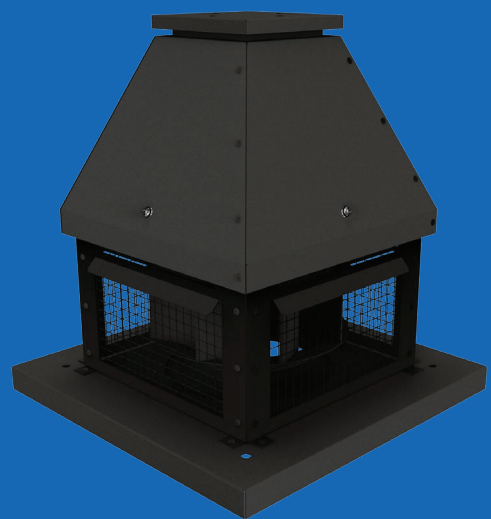
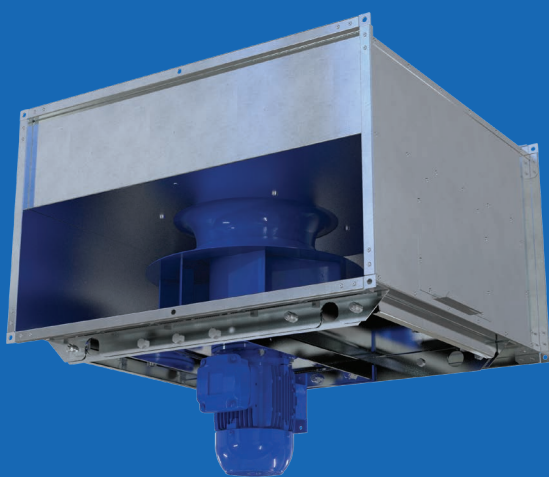
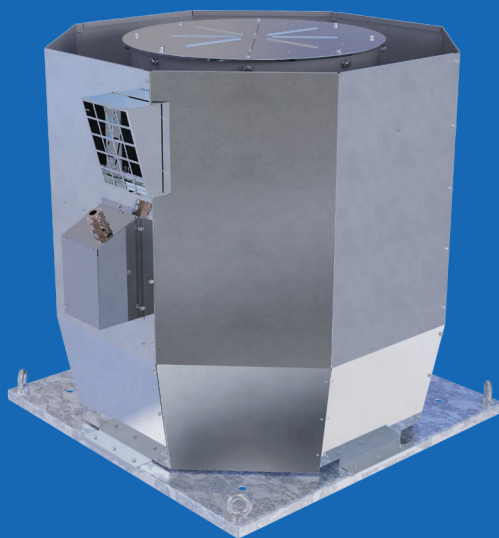


CENTRIFUGAL SMOKE EXTRACTION FANS



2022

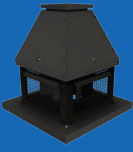

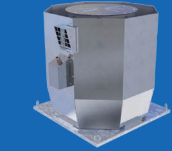
SMOKE EXTRACTION PRODUCT CATALOGUES


MEDIUM PRESSURE AXIAL FANS AND AXIAL SMOKE EXTRACTION FANS



 2020

CENTRIFUGAL SMOKE EXTRACTION FANS



 2020

SMOKE EXTRACTION VENTILATION FOR PARKING PREMISES



 2020

FIRE SAFETY DAMPERS



 2020

MEDIUM PRESSURE AXIAL FANS AND AXIAL SMOKE EXTRACTION FANS

60 Hz



 2020

SMOKE EXTRACTION VENTILATION FOR PARKING PREMISES

60 Hz



 2020

CONTENTS



About us

page
6



Smoke extraction

page
8



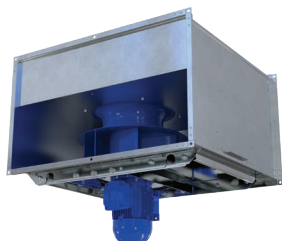
Typical smoke control system solution

page
10



Roof-mounted smoke extraction fan **VKDV-K2**

page
12



Duct rectangular smoke extraction fan **VKPD**

page
18



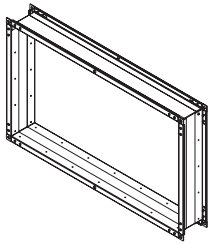
Roof-mounted exhaust gas extraction booster fan for fireplaces **VENTS VKT**

page
22



Accessories for roof-mounted smoke extraction fans

page
24



Accessories for duct smoke extraction fans

page
25



Fans with frequency converters

page
26



VLT® Micro Drive FC-51

page
27



VLT® HVAC Basic Drive FC-101

page
28

WELCOME TO THE WORLD OF VENTS!



- The company's product range includes over 50.000 items
- Over the years the company has produced 100 million fans
- The production facilities spread across 150.000 square meters of territory
- The company employs more than 3.500 professionals involved in the entire life cycle of creating ventilation equipment – from concept to high-tech product
- Among other assets the facilities include the climatic equipment research and development centre and a suite of state-of-the-art laboratories manned by 200 engineers
- The company utilises the latest metal and polymer processing technology
- 99 % of our products are made in-house
- We are the only company in the industry which develops and builds 85 % of its ventilation equipment components

Being the world's ventilation leader VENTS offers a wide range of cutting-edge ventilation equipment to satisfy most demanding customers. Since the inception, the company's products have become popular in more than 100 countries worldwide while the VENTS brand has earned a solid reputation for quality, reliability and innovation. Every tenth domestic fan in the world rolled off the assembly line of the VENTS factory. Every time you buy a product carrying the VENTS

brand you can be confident that you have made the right choice. Thanks to a comprehensive range of ventilation equipment for home, commercial and industrial applications you can always find the necessary equipment and components to suit your needs. The climatic engineering and design solutions department is tasked with developing bespoke ventilation and air conditioning systems for even the most challenging projects.

Technology of the future

The VENTS factory is not just about state-of-the-art production lines equipped with processing machines from the leading global suppliers. Today this is a full-on research and development facility spreading across 150.000 square metres of territory which includes a climatic equipment research and development centre and a comprehensive suite of state-of-the-art laboratories.

The full-time staff of more than 200 engineers are continuously seeking to improve the VENTS products. The company utilises cutting-edge metal and polymer processing technology manufacturing 99 % of its products in-house.

We are the only company in the industry which develops and builds 85 % of its ventilation equipment components including electric motors, heat exchangers as well as control and automation equipment.



Getting better every day

The world of today is nothing but stable or permanent. Each day the market comes up with new expectations with regards to ventilation equipment quality and performance. Therefore, VENTS places a strong emphasis on constant development and improvement.

To this end the company has adopted a policy which includes continuous upgrades to its process equipment fleet, implementing the latest in manufacturing technology, and holding regular training workshops for its staff. Not only does this help us keep abreast with the times –these efforts help us to exceed our customers' expectations.



Uncompromising quality

VENTS maintains a stringent quality control system to make sure that its products always meet most demanding international standards as confirmed by numerous certificates issued by the world's largest and most reputable organisations for quality control. The VENTS production process is certified according to ISO 9001:2015 international

standard for quality management systems of organizations and enterprises. The company operates in accordance with all the applicable environmental standards and continuously implements new technology in order to ensure compliance with the latest environmental regulations.

Energy efficiency and energy saving

Energy resources are finite and costly. This is why energy-saving is among the company's top priorities. We pay a special attention to using heat and electricity in the most efficient manner which helps us reduce the environmental footprint of the manufacturing process and develop

more competitive products. The outstanding energy efficiency and low power consumption of our ventilation equipment are achieved by using high-performance EC motors and heat exchangers.

Human resources: a valuable asset



Besides maintaining technical leadership and developing new technology the company also values the people that it owes its success to.

Today VENTS employs more than 3.500 professionals involved in the entire life cycle of ventilation equipment creation – from concept to high-tech product. The company strives to create a comfortable working environment for its employees to maximise their performance and encourage their professional and personal development.

Responsible corporate citizen



Being a responsible corporate citizen VENTS takes an active part in various academic and charitable initiatives. The company has a long history of cooperation with a number of educational establishments extending its support to talented youth.

The company takes an active part in student competitions and workshops sharing its wealth of practical knowledge and providing access to state-of-the-art ventilation equipment. The company employees participate in a range of charitable events and sporting competitions on a regular basis.

Following the customer's lead

VENTS uses its extensive research and technical capabilities to develop bespoke ventilation products and solutions for its customers from around the world.

Our products have earned a reputation for reliability being used in polar regions and in the Sahara desert, in the jungle of South-Eastern Asia and in the Pamir mountains.

Wherever our customers are they can always depend on prompt delivery thanks to our worldwide network of strategically located logistics centres.

The company's newest arrivals are presented by its engineers at numerous international exhibitions every year.



Welcome to the world of modern ventilation by VENTS!

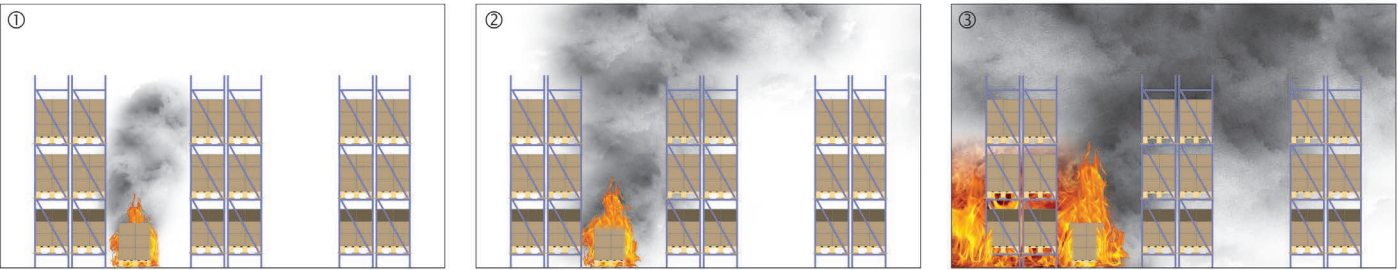
Smoke control is a complex process involving smoke extraction and fresh air supply by the supply and exhaust ventilation system of buildings in order to ensure safe evacuation of people in case of a fire in any of the spaces.



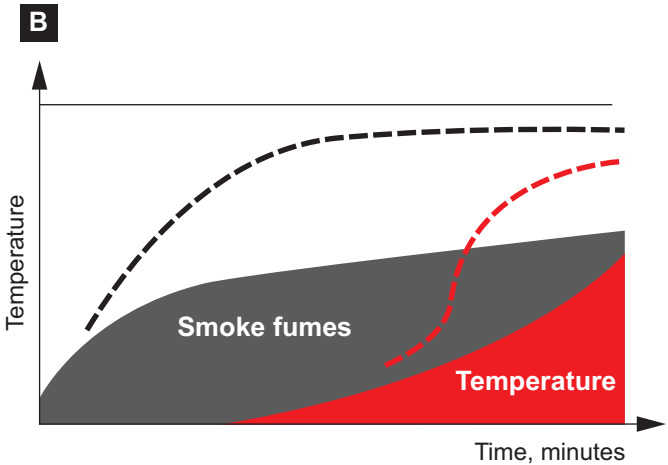
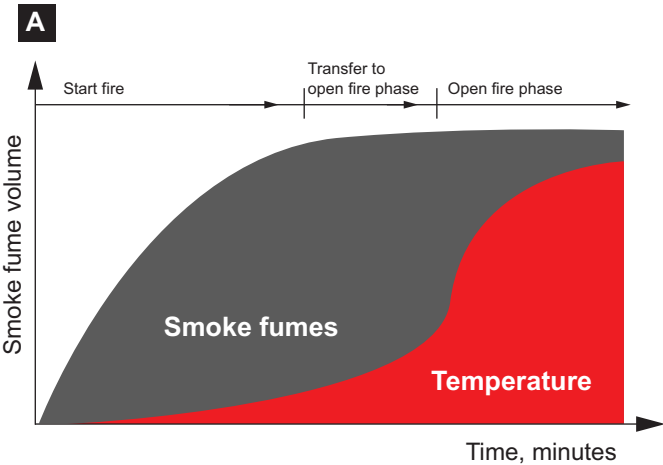
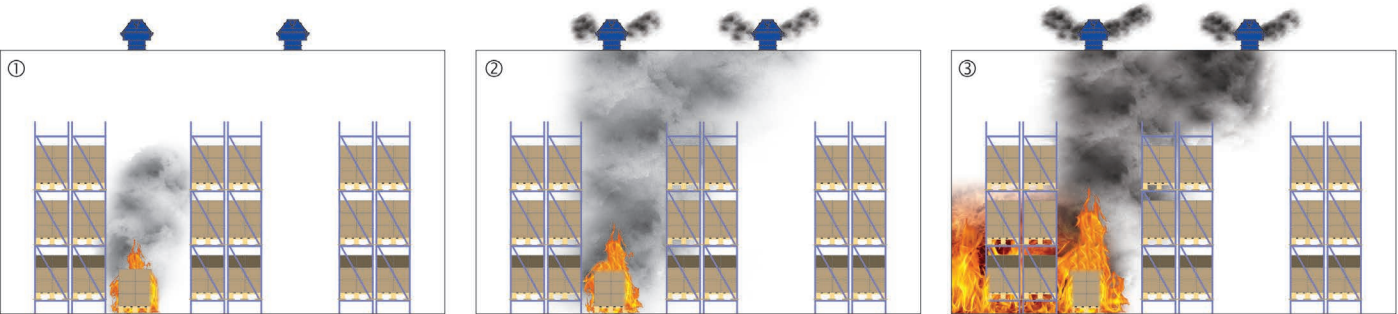
The **smoke control system** of a building or structure must ensure protection of people along the evacuation paths from the fire hazards during the time required for the personnel evacuation procedure or the entire period of fire development and control by means of extracting the combustion and thermal decomposition products and/or preventing their spreading. A smoke control system is an integral element of a utility system design including all kinds of high-rise buildings, shopping and office centres, hospital facilities, production and storage spaces etc. as well as underground structures.

i According to conclusive evidence the majority of mortalities in a fire are caused by poisoning from carbon monoxide and other combustion products. Carbon monoxide is one of the most toxic smoke components. It is carbon monoxide poisoning that accounts for 80 % the fire accident causes. Fires in closed spaces where oxygen supply is limited are especially prone to intensive carbon monoxide generation. Carbon monoxide poisoning occurs when its concentration in the inspiratory air exceeds 0.08 %. Concentration growth up to 0.32 % results in paralysis and loss of consciousness (with imminent death in about 30 minutes). Concentrations in excess of 1.2 % lead to loss of consciousness after 2-3 aspirations whereas another 2-3 minutes are fatal. Smoke spreads much faster than fire, therefore causing loss of consciousness and cardiac arrest before the victim reaches the safety outdoors. Furthermore, smoke contamination impacts spatial orientation forcing the victim to negotiate obstacles by touch and, quite often, to diverge from the escape paths.

Fire in a Building Without a Smoke Control System



Fire in a Building Equipped with a Smoke Control System



! The A chart clearly shows that at the fire origin where no fire control systems are present, the smoke fume volume rapidly becomes critical. However, the B chart shows that a fire control extraction system helps to significantly reduce the content of smoke in the gas environment which remains below the safety threshold during the entire duration of fire.

Smoke control system functions:

- ▶ Prevention of smoke spreading from the ignition source.
- ▶ Prevention of smoke transfer to the evacuation paths (maintaining acceptable conditions for the people being evacuated from the building).
- ▶ Maintaining a microclimate beyond the ignition source area to enable normal operation of fire-fighting teams.
- ▶ Protecting life of people in the building.
- ▶ Protecting property against damage.

The smoke control system elements are integrated at the initial phase of the building (residential complex, office block, warehouse facility etc.) construction. These communications must be contained in the design engineering documents specific to the life-support system. All the works specific to the design and installation of smoke control systems are strictly covered by the applicable construction standards and regulations.

Smoke control plays a paramount role in making a building safe and ensuring compliance with any and all fire safety standards and regulations. Purpose-built smoke exhaust duct lines provide additional safety and enable easy evacuation of people using corridors and stairs which are completely free of hazardous fumes.

Smoke control is a complex process affected by numerous conditions and factors, and, therefore, the design of such communication systems requires an expert qualification. Smoke control systems must only be designed by professionals since any disregard of the commonly accepted state regulations may lead to human casualties.



Smoke control systems consist of:



Smoke extraction fans which are used in emergency exhaust ventilation systems for forced extraction of smoke and heated gases and simultaneous transfer of heat generated by the fire away and beyond the limits of the serviced spaces where the ignition occurs.

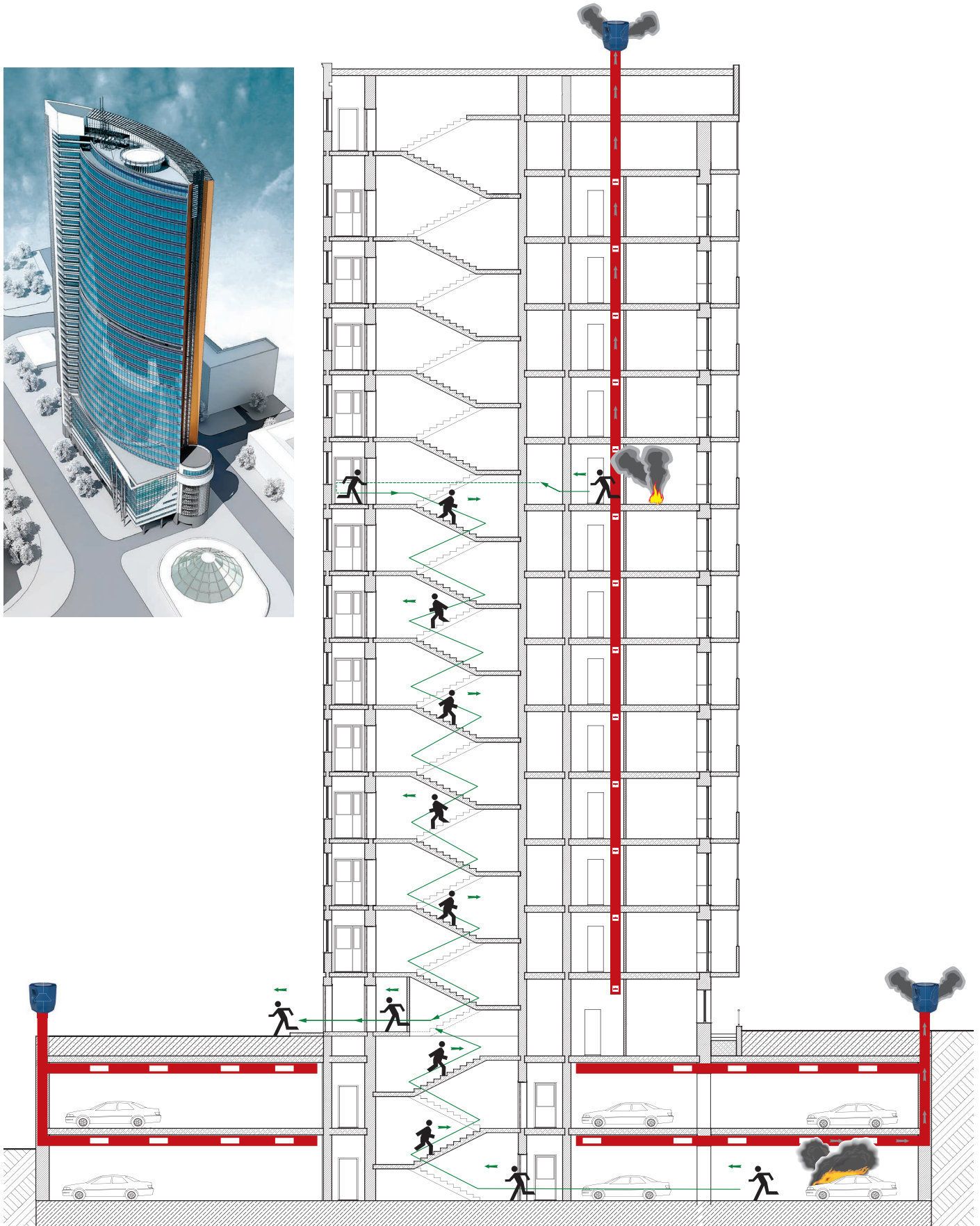
Used in production, public, residential, administrative and other spaces.

Such fans are capable of handling smoke and air mixtures with temperatures up to 600 °C.



Pressurization fans. Create a positive pressure differential in lift shafts, at landings and in air-lock corridors to prevent their contamination by smoke.

Sample scheme and operation of a smoke-extraction system in a multi-storey residential building with an underground car park



Typical smoke control system solution in case of a fire on the second floor:

Ventilation system: fire-resisting dampers KP (3) and (4) block the floor 2 (closed), thus containing the fire and smoke at the ignition floor, fire-resisting dampers KP (2) and (6) remain open enabling pressurisation of the adjacent floors 1 and 3 by the supply ventilation system while fire-resisting dampers KP (1) and (5) in the exhaust ventilation branch remain closed.

Smoke control system: smoke extraction is handled by the VKDV-K2 fan via the open KPDU (11) damper, the supply air is fed from the air pressurisation system via the open damper (8) while dampers (7), (9), (10) and (12) remain closed.



Pressurisation fan



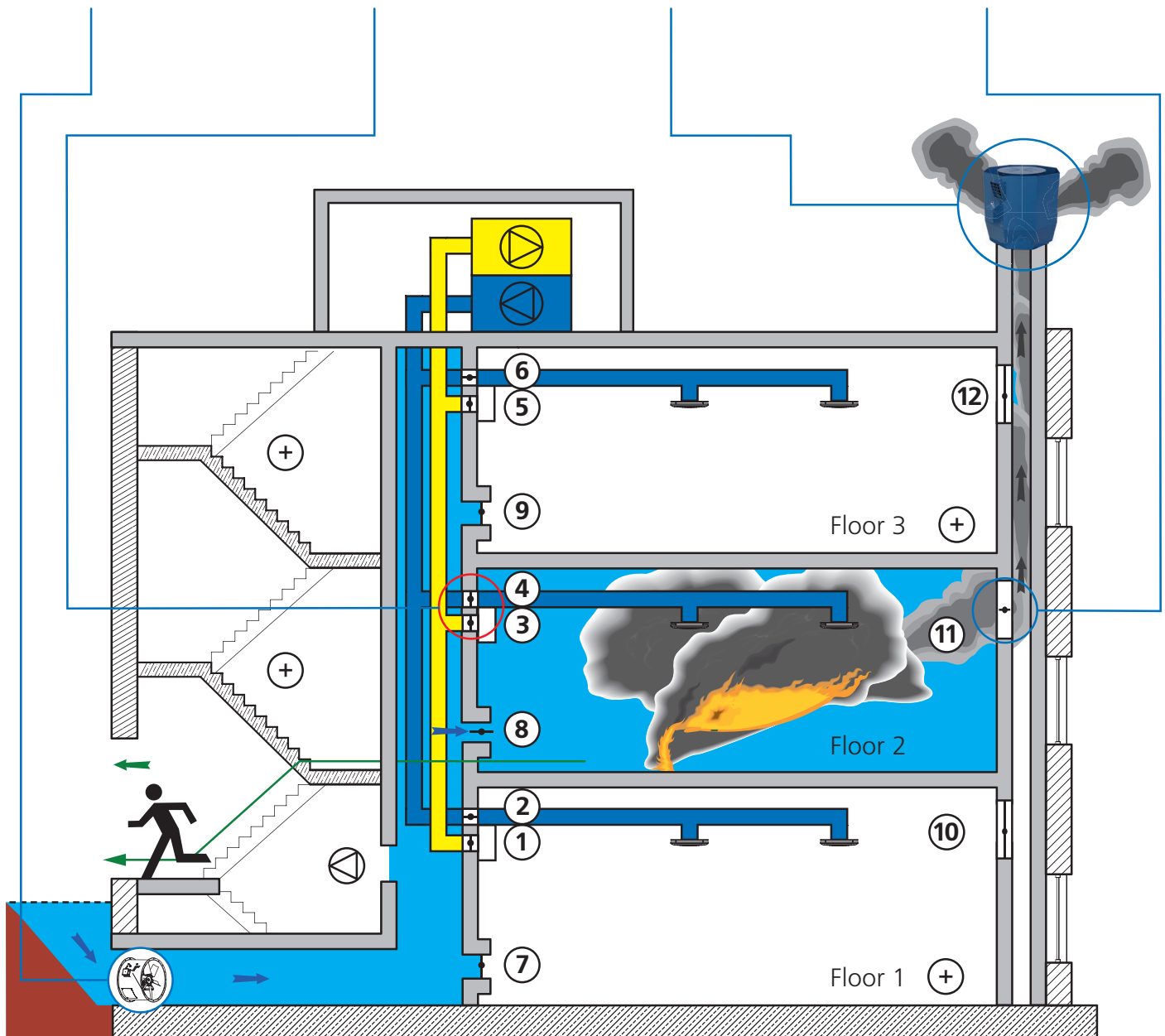
Fire-resisting damper KP*



Smoke extraction fan
VKDV-K2



Smoke damper
KPDU*



*Detailed information on dampers is provided in the "Fire dampers" catalogue.

Series
VKDV-K2



Roof-mounted centrifugal fan for smoke extraction with vertical air discharge
Air flow – up to 86 500 m³/h

■ **Application**

Smoke extraction fans are used in emergency exhaust ventilation systems for forced extraction of smoke and heated gases and simultaneous transfer of heat away and beyond the limits of the serviced spaces in case of fire.

Such units are used in production, public, residential, administrative and other spaces.

* Detailed information on the SM-VO mounting curb is given in the section "Accessories for roof-mounted smoke extraction fans".

■ **Operation**

The fans are capable of handling smoke and air mixtures with temperatures up to +600 °C for 120 minutes.

The fans can operate in conjunction with a frequency converter (hereinafter referred to as FC) or directly when connected to power supply.

The aerodynamic characteristics of the fans for mains operation are given below.

The fan can be used for general exhaust ventilation.

The fan can be designed for moderate (U), tropical (T) or maritime moderately cold (M) climate conditions.

■ **Design**

The fans are made of heat resistant steel with polymer coating providing weathering resistance.

Equipped with a protective grille against accidental touches and ingress of foreign objects.

The impeller with backward curved blades are painted with powder coating.

Can be additionally equipped with a service switch.

■ **Motor**

The fans are equipped with three-phase electric motors rated for 400 V.

The motor is located in the compartment offset from the transported air stream.

Motor ingress protection rating is IP54.

■ **Installation**

The fans can be installed directly on the roof or on the SM-VO mounting curb.

Make sure that the location provides for sufficient space as required for the fan maintenance.

SM-VO mounting curb*



Designation key:

VKDV-K2 - 630 - 6 D / 1,5 - K - U1 - 600/2 - Zn

Casing material and paint colour

_ – casing material: steel with powder painting, default colour: blue RAL5007

RALxxxx – casing material: steel with powder coating, paint colour according to RALxxxx

Zn – casing material: galvanized steel

Fire resistance

600/2 – 600 °C, 2 hours

Climatic modification (outdoor installation)

U1 – temperate climate

HL1 – cold climate

T1 – tropical climate

M1 – maritime moderately cold climate

Options

K – with a terminal box

S1 – built-in external switch

1,5 – motor power [kW]

Motor phase and operation modes

E – single-phase across-the-line motor

EP – single-phase motor with variable frequency start

D – three-phase motor

DP – three-phase motor with variable frequency start

6 – number of motor poles

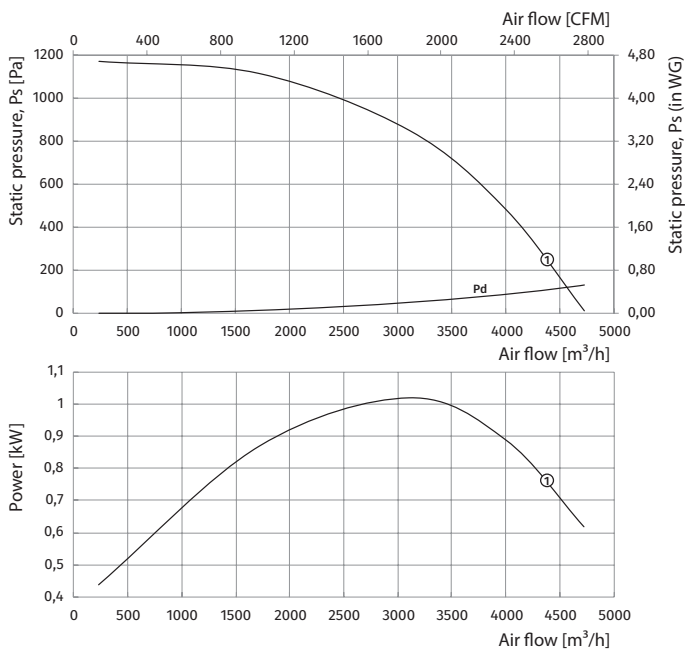
630 – impeller size [mm]

VKDV-K2 – roof-mounted centrifugal smoke extraction fan with vertical air discharge in an octagonal casing

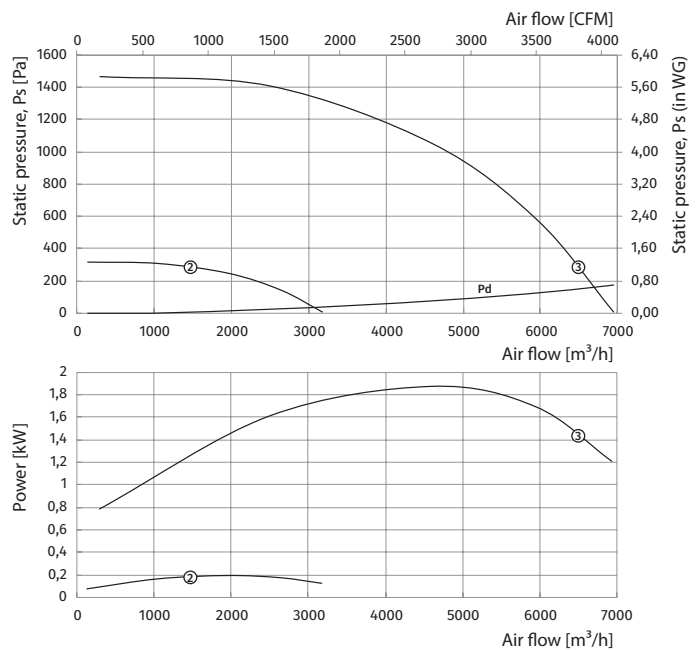
Technical data

Standard size	Number of poles	Voltage [V]	Fan model	Rated power Ny [kW]	RPM [min ⁻¹]	Curve number
315	2	3~400	VKDV-K2-315-2D/1,1-K	1,1	2880	①
355	4	3~400	VKDV-K2-355-4D/0,25-K	0,25	1335	②
	2	3~400	VKDV-K2-355-2D/2,2-K	2,2	2900	③
400	6	3~400	VKDV-K2-400-6D/0,25-K	0,25	860	④
	4	3~400	VKDV-K2-400-4D/0,55-K	0,55	1345	⑤
	2	3~400	VKDV-K2-400-2D/4-K	4	2840	⑥
450	6	3~400	VKDV-K2-450-6D/0,25-K	0,25	860	⑦
	4	3~400	VKDV-K2-450-4D/1,1-K	1,1	1400	⑧
	2	3~400	VKDV-K2-450-2D/7,5-K	7,5	2948	⑨

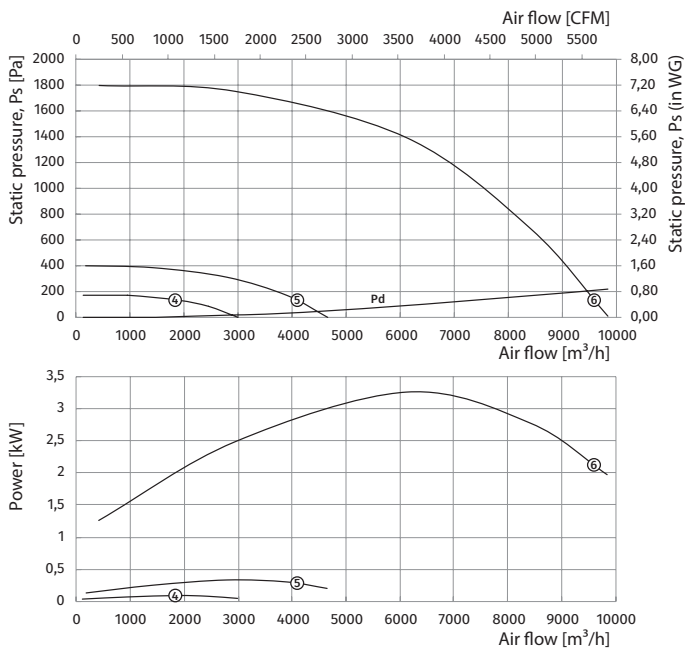
Standard size: 315



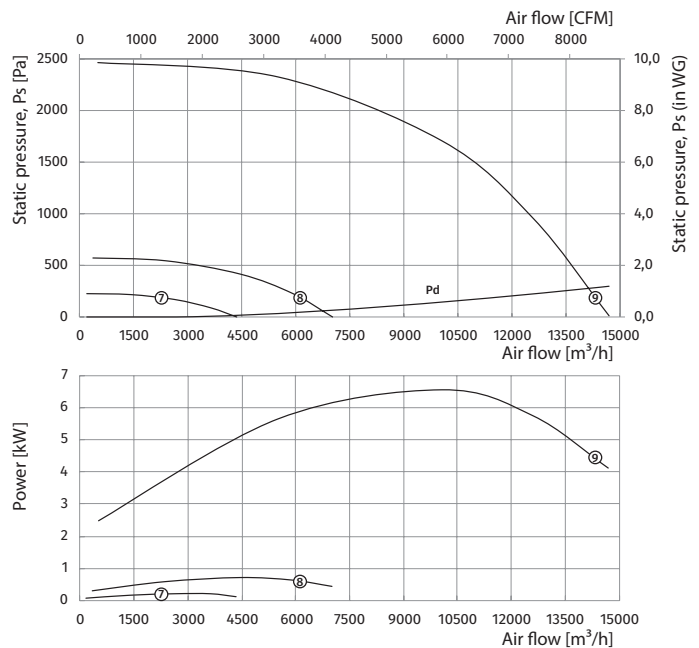
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Standard size: 400



Standard size: 450

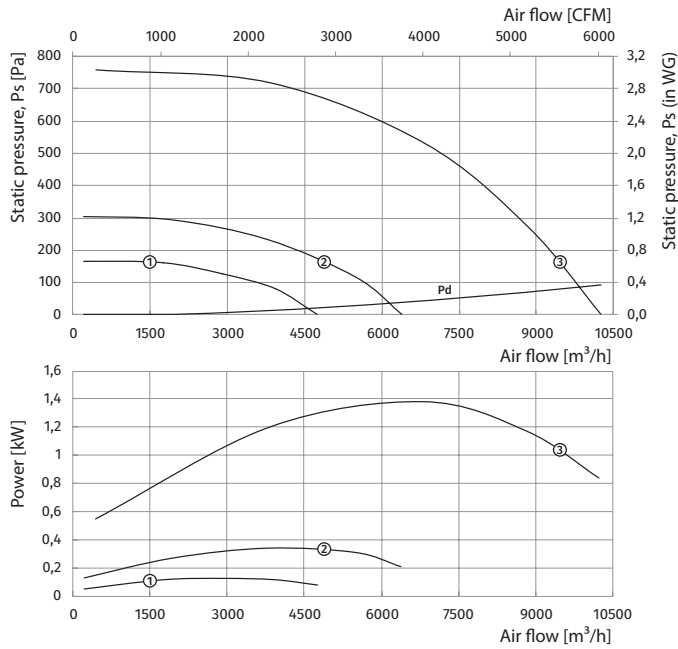


ROOF-MOUNTED SMOKE EXTRACTION FANS

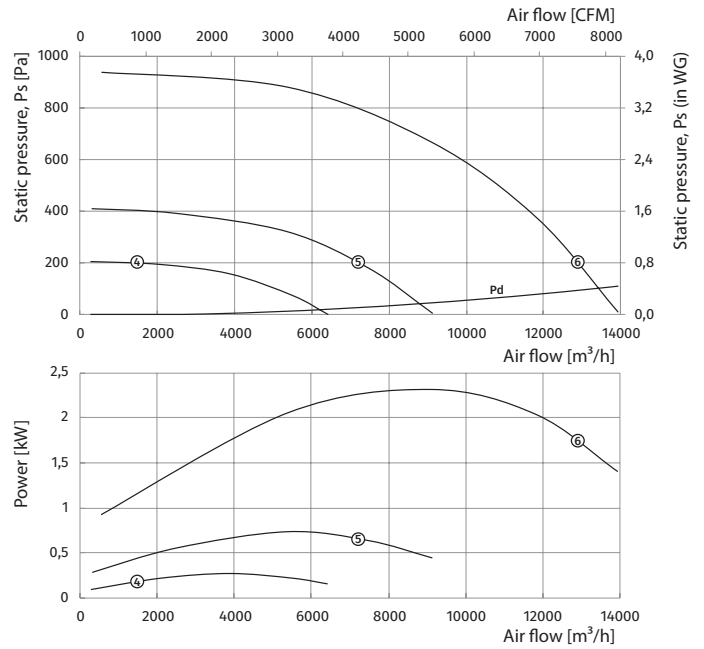
Technical data

Standard size	Number of poles	Voltage [V]	Fan model	Rated power Ny [kW]	RPM [min ⁻¹]	Curve number
500	8	3~400	VKDV-K2-500-8D/0,25-K	0,25	670	①
	6	3~400	VKDV-K2-500-6D/0,55-K	0,55	900	②
	4	3~400	VKDV-K2-500-4D/1,5-K	1,5	1430	③
560	8	3~400	VKDV-K2-560-8D/0,37-K	0,37	665	④
	6	3~400	VKDV-K2-560-6D/0,75-K	0,75	940	⑤
	4	3~400	VKDV-K2-560-4D/3-K	3	1435	⑥
630	8	3~400	VKDV-K2-630-8D/0,75-K	0,75	670	⑦
	6	3~400	VKDV-K2-630-6D/1,5-K	1,5	940	⑧
	4	3~400	VKDV-K2-630-4D/5,5-K	5,5	1400	⑨
710	8	3~400	VKDV-K2-710-8D/1,1-K	1,1	660	⑩
	6	3~400	VKDV-K2-710-6D/2,2-K	2,2	945	⑪
	4	3~400	VKDV-K2-710-4D/11-K	11	1460	⑫

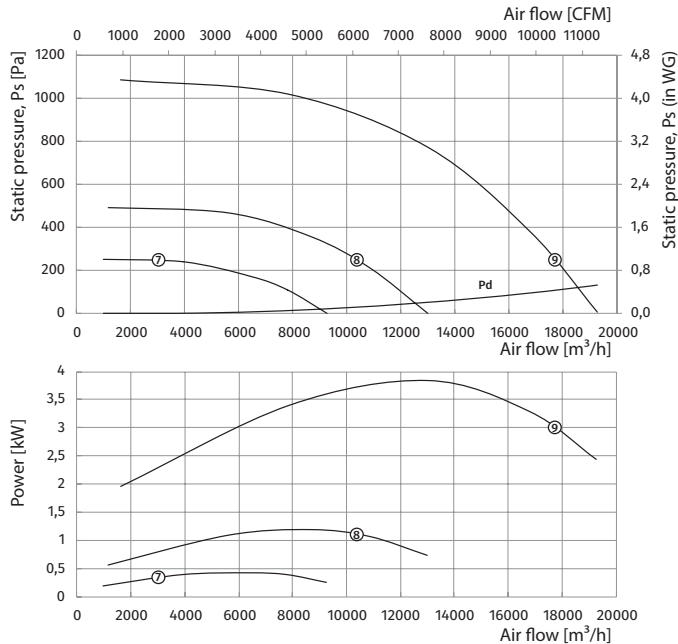
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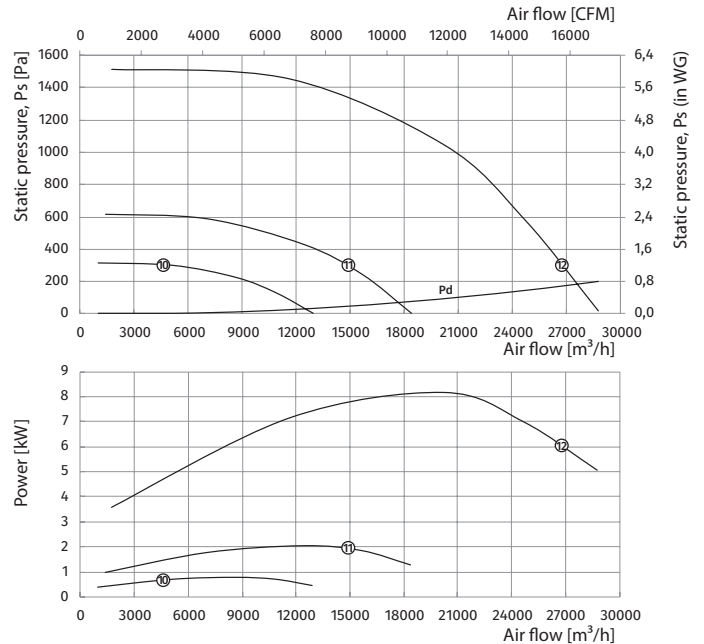
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Standard size: 630



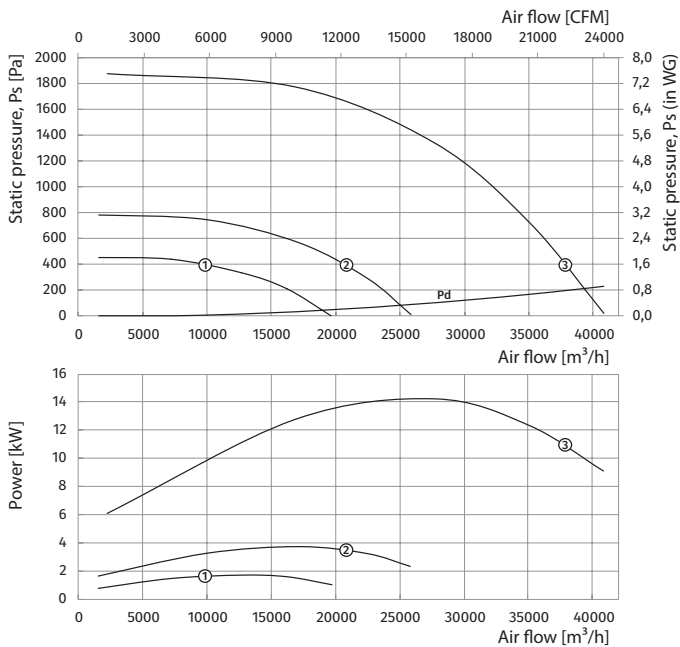
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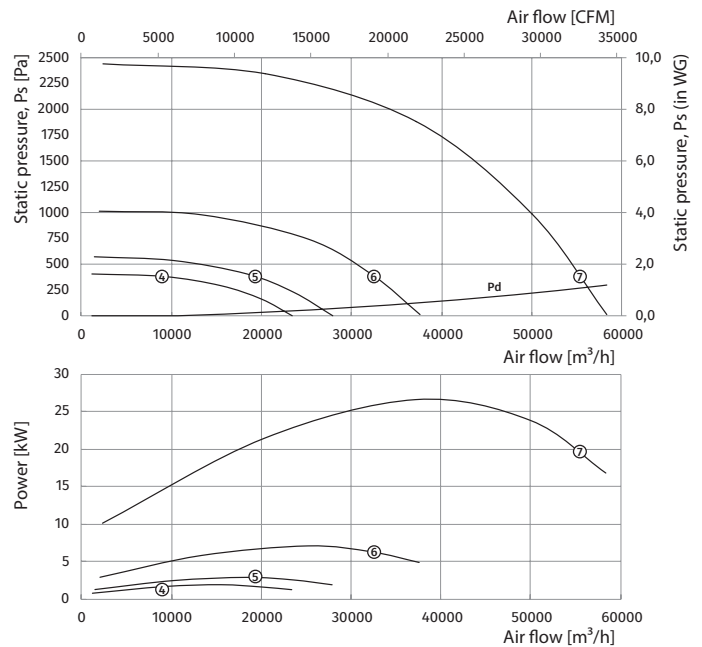
Technical data

Standard size	Number of poles	Voltage [V]	Fan model	Rated power Ny [kW]	RPM [min ⁻¹]	Curve number
800	8	3~400	VKDV-K2-800-8D/2,2-K	2,2	700	①
	6	3~400	VKDV-K2-800-6D/4-K	4	965	②
	4	3~400	VKDV-K2-800-4D/15-K	15	1460	③
900	10	3~400	VKDV-K2-900-10D/2,2-K	2,2	590	④
	8	3~400	VKDV-K2-900-8D/4-K	4	700	⑤
	6	3~400	VKDV-K2-900-6D/7,5-K	7,5	970	⑥
	4	3~400	VKDV-K2-900-4D/30-K	30	1470	⑦
1000	10	3~400	VKDV-K2-1000-10D/3-K	3	590	⑧
	8	3~400	VKDV-K2-1000-8D/7,5-K	7,5	705	⑨
	6	3~400	VKDV-K2-1000-6D/15-K	15	975	⑩
1120	10	3~400	VKDV-K2-1120-10D/7,5-K	7,5	590	⑪
	8	3~400	VKDV-K2-1120-8D/11-K	11	720	⑫
	8	3~400	VKDV-K2-1120-8D/15-K	15	730	⑬
	6	3~400	VKDV-K2-1120-6D/22-K	22	975	⑭
	6	3~400	VKDV-K2-1120-6D/30-K	30	980	⑮

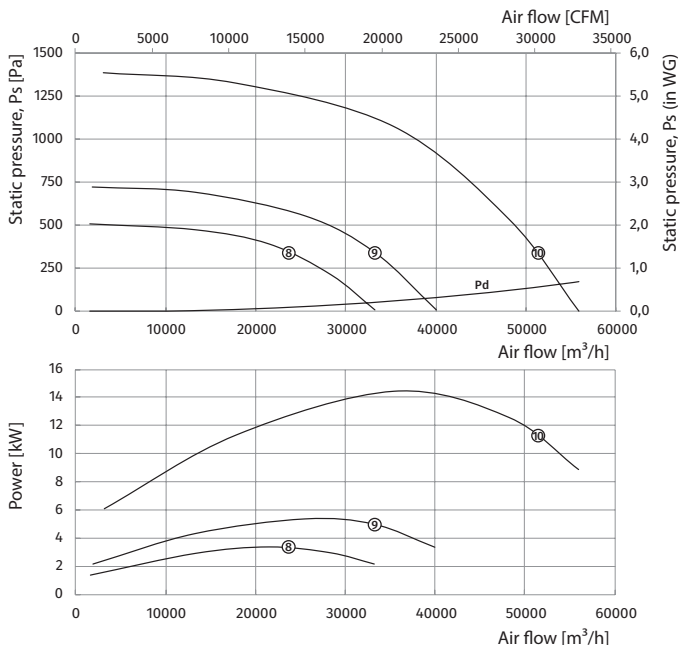
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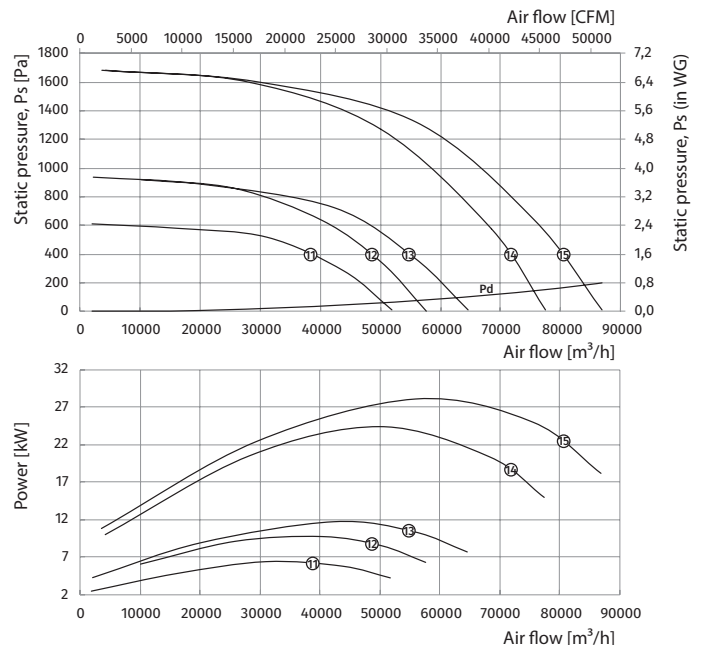
Standard size: 900



Standard size: 1000

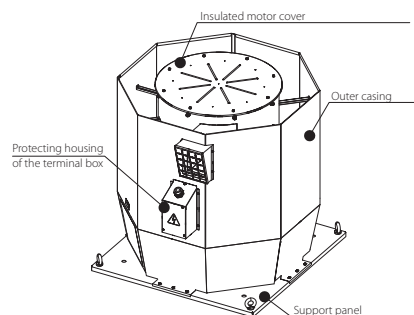
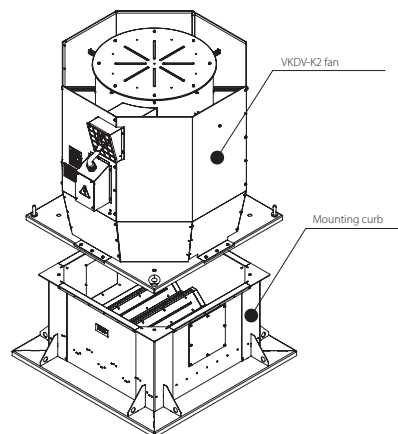
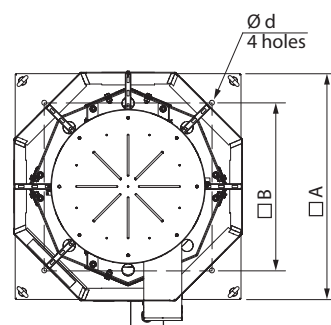
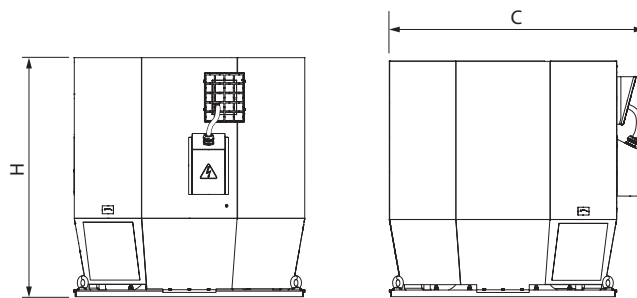


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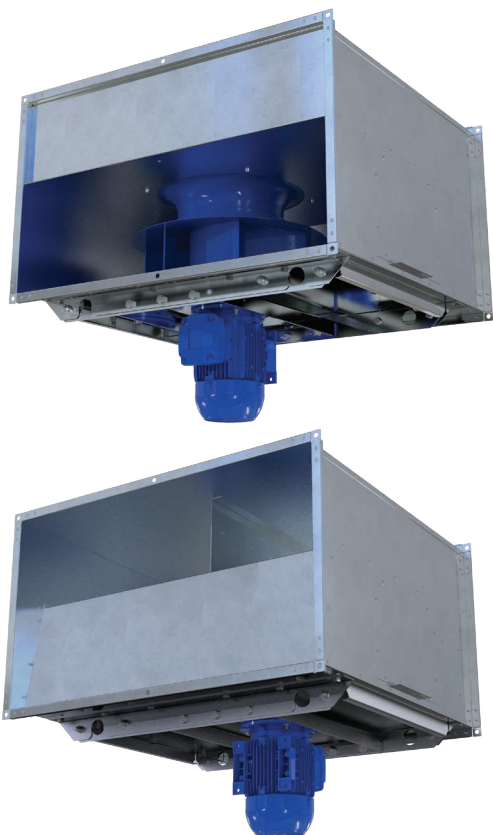


Overall dimensions of the units:

Fan model	Overall and connecting dimensions [mm]					Weight [kg]
	H	A	B	C	d	
VKDV-K2-315-2D/1,1-K	779	680	480	820	16	80
VKDV-K2-355-4D/0,25-K	744	680	480	820		73
VKDV-K2-355-2D/2,2-K	801					89
VKDV-K2-400-6D/0,25-K	772	760	580	866		82
VKDV-K2-400-4D/0,55-K						83
VKDV-K2-400-2D/4-K	897			880		112
VKDV-K2-450-6D/0,25-K	794	760	580	864		92
VKDV-K2-450-4D/1,1-K						96
VKDV-K2-450-2D/7,5-K	929	810		933		137
VKDV-K2-500-8D/0,25-K	888	830	640	950		121
VKDV-K2-500-6D/0,55-K						122
VKDV-K2-500-4D/1,5-K						128
VKDV-K2-560-8D/0,37-K	921	1000	750	1082		148
VKDV-K2-560-6D/0,75-K						151
VKDV-K2-560-4D/3-K	991			1094		163
VKDV-K2-630-8D/0,75-K	1060	1010	750	1121		200
VKDV-K2-630-6D/1,5-K						202
VKDV-K2-630-4D/5,5-K						225
VKDV-K2-710-8D/1,1-K	1105	1180	980	1257		231
VKDV-K2-710-6D/2,2-K						238
VKDV-K2-710-4D/11-K						342
VKDV-K2-800-8D/2,2-K	1237	1180	980	1311		308
VKDV-K2-800-6D/4-K						311
VKDV-K2-800-4D/15-K						385
VKDV-K2-900-10D/2,2-K	1297	1340	1050	1494		374
VKDV-K2-900-8D/4-K						435
VKDV-K2-900-6D/7,5-K						434
VKDV-K2-900-4D/30-K	1600			1524		597
VKDV-K2-1000-10D/3-K	1595	1550	1340	1686		573
VKDV-K2-1000-8D/7,5-K						557
VKDV-K2-1000-6D/15-K	1680					608
VKDV-K2-1120-10D/7,5-K	1829	1640	1340	1876	834	
VKDV-K2-1120-8D/11-K					775	
VKDV-K2-1120-8D/15-K					911	
VKDV-K2-1120-6D/22-K	1789				856	
VKDV-K2-1120-6D/30-K	1956				962	



Series
VKPD



Duct smoke extraction fan.
Air flow – up to 28 500 m³/h

■ Application

The dual-purpose fan is used in emergency exhaust ventilation systems for forced removal of smoke, heated gases and combustion products, as well as for general exhaust ventilation of shopping centres, garages, warehouses, kitchens.

■ Operation

The fan is designed to remove smoke and air mixtures up to +400 °C for 120 minutes and for continuous operation at a temperature of the transported medium up to +100 °C. The fans can be equipped with a frequency converter for controlling the rotation frequency.

■ Design

The fan casing is made of galvanized steel. The impeller with backward curved blades made of heat-resisting steel.

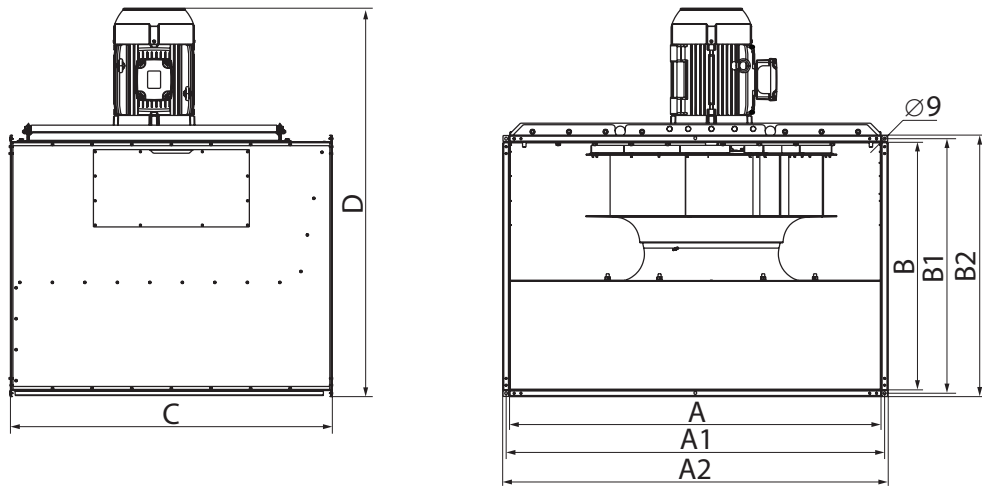
■ Motor

The fans can be equipped with a single- or three-phase electric motor. Single-speed fans are equipped with 2-, 4- or 6-pole motors. Two-speed fans are equipped with 2/4, 4/6, 4/8-pole motors. The electric motor is installed outside the air flow.

Designation key

VENTS VKPD-250-2E/0,37-500x300-60 Hz

				Frequency [Hz]
				_ – by default 50 Hz; 60 Hz – 60 Hz
				Spigot dimension [mm]
				500x300; 600x300; 600x350; 700x400; 700x500; 800x600; 900x700; 1000x800; 1200x900
				Motor power [kW]
				x – single-speed; x/x – two-speed
				Number of phases
				E – single-phase; D – three-phase
				Number of poles
				2 – if it is a single-speed fan 4 – if it is a single-speed fan 6 – if it is a single-speed fan 2/4 – if it is a two-speed fan 4/6 – if it is a two-speed fan
				Impeller standard size [mm]
				250; 280; 315; 355; 400; 450; 500; 560; 630; 710
VKPD – rectangular duct fan for smoke removal				



■ Overall dimensions [mm]

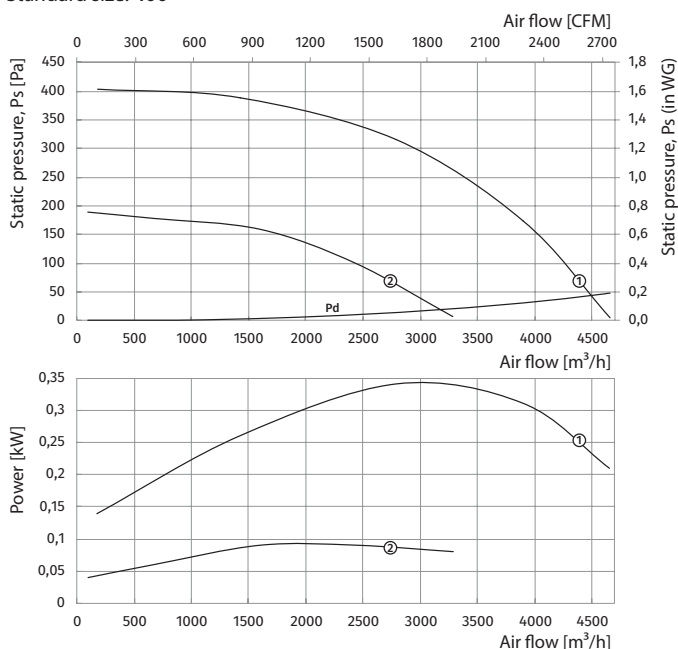
Model	Dimensions [mm]								Weight [kg]
	A	A1	A2	B	B1	B2	C	D	
VKPD-400	700	720	740	500	520	540	680	816	66
VKPD-450	800	820	840	600	620	640	800	918	83
VKPD-500	800	820	840	600	620	640	840	954	95
VKPD-560	900	920	940	700	720	740	840	1103	118

DUCT SMOKE EXTRACTION FANS

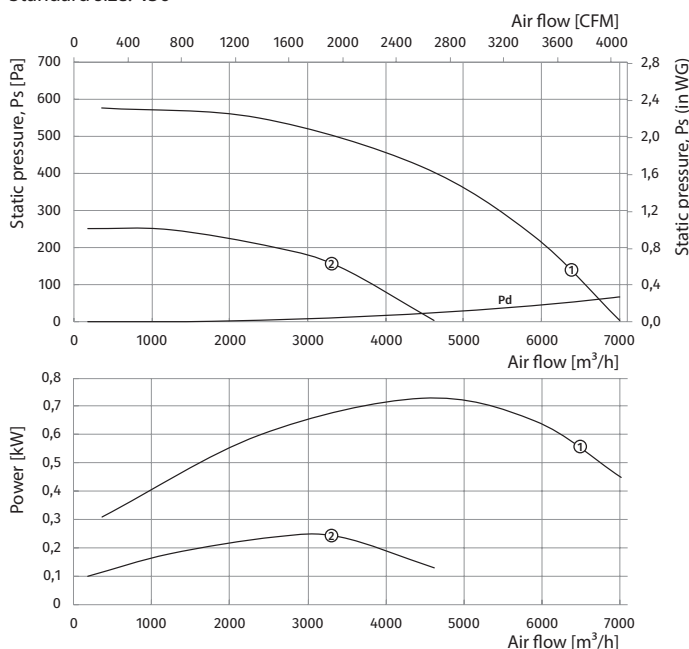
Technical data

Standard size	Number of poles	Voltage [V/60 Hz]	Fan model	Rated power Ny [kW]	RPM [min ⁻¹]	High speed chart number	Low speed chart number
400	4	3~400	VKPD-400-4D/1,1-700x500-60 ГЦ	1,1	1749	①	-
450	4	3~400	VKPD-450-4D/1,5-800x600-60 ГЦ	1,5	1744	①	-
500	4	3~400	VKPD-500-4D/2,2-800x600-60 ГЦ	2,2	1748	①	-
560	4	3~400	VKPD-560-4D/4,0-900x700-60 ГЦ	4	1764	①	-

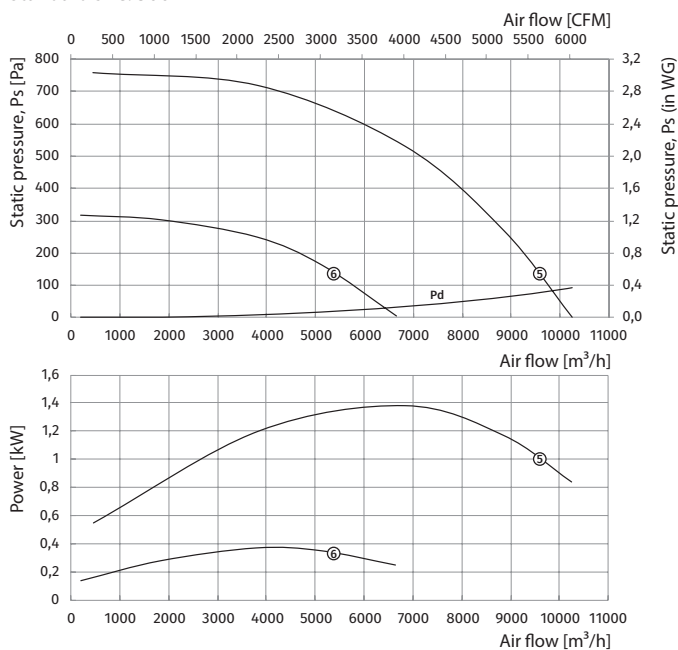
Standard size: 400



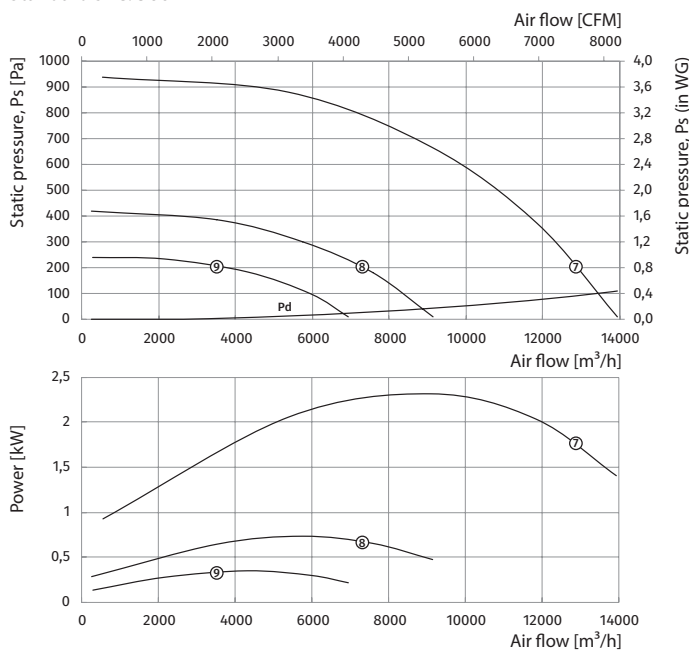
Standard size: 450



Standard size: 500



Standard size: 560



Series
VKT



Roof exhaust gas extraction booster fan for fireplaces.
Air flow up to **1000 m³/h**

■ **Application**

The fans are designed for boosting the draft and extracting smoke fumes heated up to 200 °C* for 5 hours. The units are used for extracting hot smoke from fireplaces, furnaces and hearths. The fans are also suitable for standard periodic or constant exhaust ventilation.

■ **Design**

The fan casing is made of galvanized steel with a polymer coating protecting from weather elements and aggressive environments. The fan has a protective grille to prevent accidental contact and penetration of foreign objects.

■ **Motor**

The fan is equipped with a single-phase asynchronous motor on ball bearings which contribute to a long-term uninterrupted service. The motor is offset from the transported air stream and has an integral thermal protection. The compartment housing of the motor is isolated from the hot air stream and has ventilation openings for air circulation and heat removal.

A purpose-designed impeller with backward-curved blades minimizes soot and carbon deposits for trouble-free operation and easy maintenance.

■ **Speed regulation and fan control**

The fan is connected to the power mains via a transformer or thyristor speed controller, which enables draft regulation and, consequently, maximum efficiency of the fireplace operation.

WARNING!

The fan must be turned on in case of open fire in the fireplace. When the transported air temperature is 200 °C, the fans must run at the top speed without a speed controller.

■ **Installation**

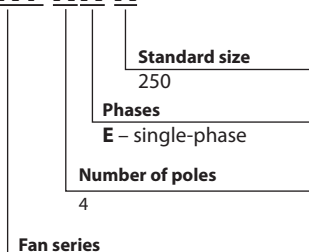
The fan is mounted on the roof on the top section of the chimney. Make sure that the location provides for sufficient space as required for the fan maintenance. The approximate temperature of the effluent gases can be determined according to the kindling colour.

*The smoke fume temperatures can be determined by putting a piece of kindling into the chimney at the level chosen for the fan installation and keeping it there for 30 minutes while the fireplace is hot.

Kindling colour	Approximate smoke fume temperature, [°C]
Unchanged	up to 150
Yellow (wheat bread crust)	200
Brown (brown bread crust)	250
Black	300
Charred kindling	400

Designation key: _____

VENTS VKT XX X



Accessories



SRS-1



RS-1-300



RS-1-400



PS-1 N(V)



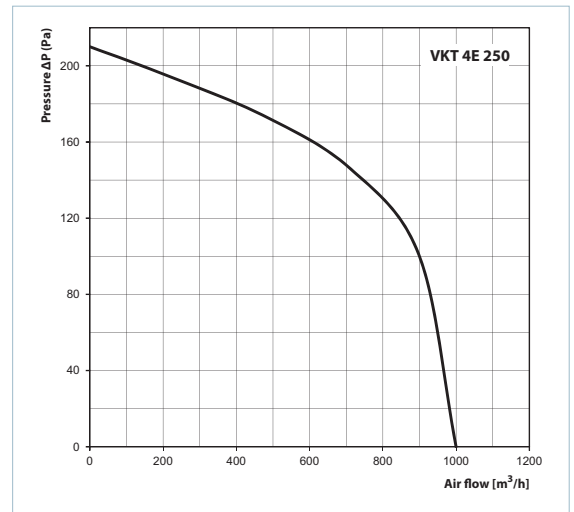
RSA5E-2-P



RSA5E-2-M

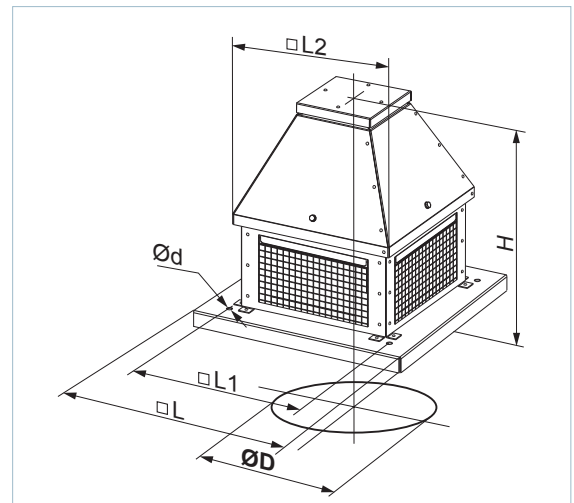
Technical data:

	VKT 4E 250
Voltage [V] at 50 Hz	1~230
Power [W]	96
Current [A]	0,6
Maximum air flow [m ³ /h]	1000
RPM [min ⁻¹]	1500
Sound pressure level at 3 m distance [dBA]	52
Max. transported air temperature [°C]	200
Ingress protection rating	IP44



Fan dimensions:

Fan Type	Dimensions [mm]						Weight [kg]
	Ø D	Ø d	H	L	L1	L2	
VKT 4E 250	250	11	434	430	330	323	14,6



VKT fan application option

Mounting curb SM-VO



■ Application

The unit is used for mounting fans on rooftops.

■ Design

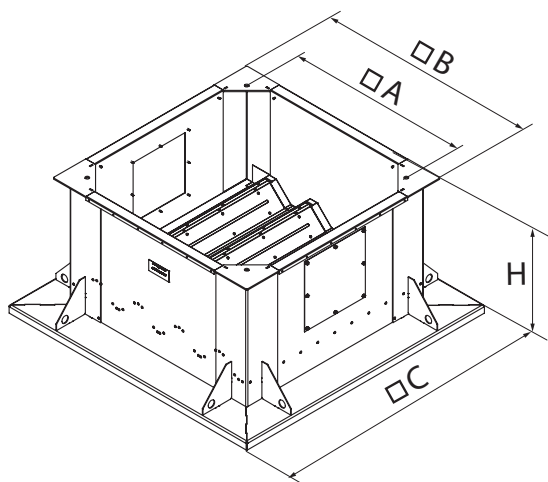
The outer frames are supported for installation on the roof. The mounting curb is equipped with a side inspection door. Modifications are available to order according to the naming system.

Overall dimensions of the SM-VO mounting curb

Name	Dimensions [mm]				Weight [kg]
	H	A	B	C	
SM-VO-0000-315/355	550	480	590	800	39,5
SM-VO-0010-315/355					43,5
SM-VO-0020-315/355					50,5
SM-VO-0100-315/355					54,5
SM-VO-0110-315/355					46
SM-VO-0120-315/355					51,5
SM-VO-0000-400/450	580	692	900	58,5	
SM-VO-0010-400/450				64	
SM-VO-0020-400/450				49	
SM-VO-0100-400/450				56	
SM-VO-0110-400/450				63	
SM-VO-0120-400/450				70	
SM-VO-0000-500	750	910	1120	56,5	
SM-VO-0010-500				66,5	
SM-VO-0020-500				72,5	
SM-VO-0100-500				82,5	
SM-VO-0110-500				68	
SM-VO-0120-500				83	
SM-VO-0000-560/630	980	1140	1350	88	
SM-VO-0010-560/630				103	
SM-VO-0020-560/630				71	
SM-VO-0100-560/630				88,5	
SM-VO-0110-560/630				92	
SM-VO-0120-560/630				109,5	
SM-VO-0000-710/800	1050	1208	1420	85	
SM-VO-0010-710/800				112	
SM-VO-0020-710/800				115	
SM-VO-0100-710/800				111	
SM-VO-0110-710/800				137	
SM-VO-0120-710/800				140	
SM-VO-0000-900	1340	1498	1710	112	
SM-VO-0010-900				151	
SM-VO-0020-900				156	
SM-VO-0100-900				140	
SM-VO-0110-900				180	
SM-VO-0120-900				185	
SM-VO-0000-1000/1120	1500	1688	1900	112	
SM-VO-0010-1000/1120				151	
SM-VO-0020-1000/1120				156	
SM-VO-0100-1000/1120				140	
SM-VO-0110-1000/1120				180	
SM-VO-0120-1000/1120				185	
SM-VO-0000-1250	1500	1688	1900	112	
SM-VO-0010-1250				151	
SM-VO-0020-1250				156	
SM-VO-0100-1250				140	
SM-VO-0110-1250				180	
SM-VO-0120-1250				185	

VENTS SM-VO-XXXX-XXX/XXX

Standard size, mm 315; 355; 400; 450; 500; 560; 630; 710; 800; 900; 1000; 1120; 1250; 1400; 1600
Damper drive type 0 – no drive; 1 – 24 V drive; 2 – 230 V drive
Built-in damper availability: 0 – no damper; 1 – exhaust damper; 2 – supply damper; 3 – smoke extraction damper
Heat insulation 0 – no heat insulation; 1 – with heat insulation
Roof type 0 – for installation on a roof without a slope; 1 – for installation on a roof with a slope
Series Mounting curb

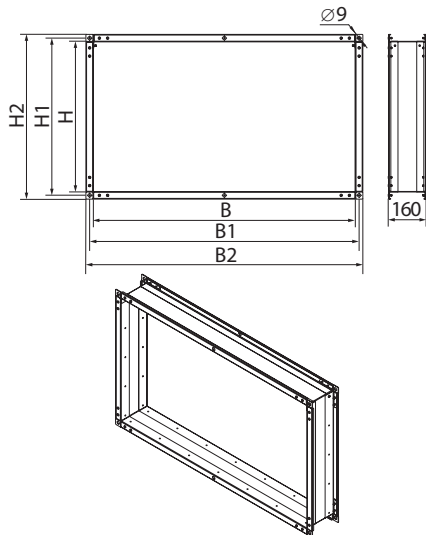


ACCESSORIES FOR INLINE SMOKE EXTRACTION FANS

Accessories selection table for VENTS VKPD fans

Fan	Heat-resistant flexible joint up to 400 °C	Protective mesh
VKPD-250...500x300	VVGF-VK-500x300	SZ-VK-500x300
VKPD-280...600x300	VVGF-VK-600x300	SZ-VK-600x300
VKPD-315...600x350	VVGF-VK-600x350	SZ-VK-600x350
VKPD-355...700x400	VVGF-VK-700x400	SZ-VK-700x400
VKPD-400...700x500	VVGF-VK-700x500	SZ-VK-700x500
VKPD-450...800x600	VVGF-VK-800x600	SZ-VK-800x600
VKPD-500...800x600	VVGF-VK-800x600	SZ-VK-800x600
VKPD-560...900x700	VVGF-VK-900x700	SZ-VK-900x700
VKPD-630...1000x800	VVGF-VK-1000x800	SZ-VK-1000x800
VKPD-710...1200x900	VVGF-VK-1200x900	SZ-VK-1200x900

VVGF-VK
Flexible joint



■ **Application**

Flexible joints cancel out any potential vibrations transmitted by the fans or air handling units to the air ducting as well as partially compensate for the air duct assembly deformations caused by temperature variation.

■ **Design**

Flexible joints are formed by two flanges joined with vibration-absorbing material and are made of polymer-coated steel and PVC tape reinforced with polyamide fabric.

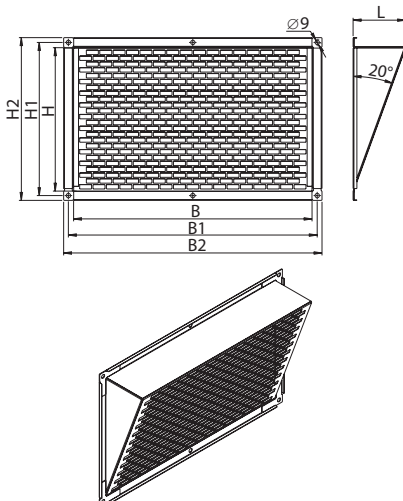
The joints are not intended to withstand any significant mechanical loads and, therefore, may not be used as load-bearing structures.

The VVGF-VK joints are designed for operation at a temperature of 400 °C for 2 hours.

■ **Overall dimensions**

Model	Dimensions [mm]					
	B	H	B1	H1	B2	H2
VVGF-VK-500x300	500	300	520	320	540	340
VVGF-VK-600x300	600	300	620	320	640	340
VVGF-VK-600x350	600	350	620	370	640	390
VVGF-VK-700x400	700	400	720	420	740	440
VVGF-VK-700x500	700	500	720	520	740	540
VVGF-VK-800x600	800	600	820	620	840	640
VVGF-VK-900x700	900	700	920	720	940	740
VVGF-VK-1000x800	1000	800	1020	820	1040	840
VVGF-VK-1200x900	1200	900	1220	920	1240	940

SZ-VK
Protective mesh



■ **Application**

Protects the fans against foreign objects.

■ **Design**

Protective mesh with 25x25 mm cells.

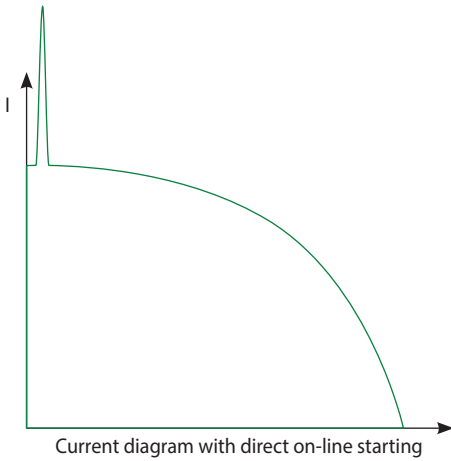
■ **Overall dimensions**

Model	Dimensions [mm]						
	B	H	B1	H1	B2	H2	L
SZ-VK-500x300	500	300	520	320	540	340	110
SZ-VK-600x300	600	300	620	320	640	340	110
SZ-VK-600x350	600	350	620	370	640	390	130
SZ-VK-700x400	700	400	720	420	740	440	145
SZ-VK-700x500	700	500	720	520	740	540	185
SZ-VK-800x600	800	600	820	620	840	640	220
SZ-VK-900x700	900	700	920	720	940	740	255
SZ-VK-1000x800	1000	800	1020	820	1040	840	295
SZ-VK-1200x900	1200	900	1220	920	1240	940	330

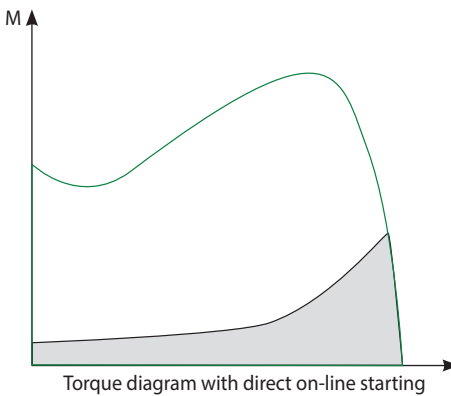
Ventilation systems put a heavy load on the electrical systems of a building. Therefore, reducing the power consumption is among the top priorities for construction project designers.

Direct on-line starting (DOL)

As a rule, smoke extraction systems utilize large high-performance fans. During starting the high inertia of the shaft causes a substantial increase in the start-up time – i.e. the time from the application of power to reaching the rated speed. As a result the motor is subjected to high starting current for a prolonged period of time.

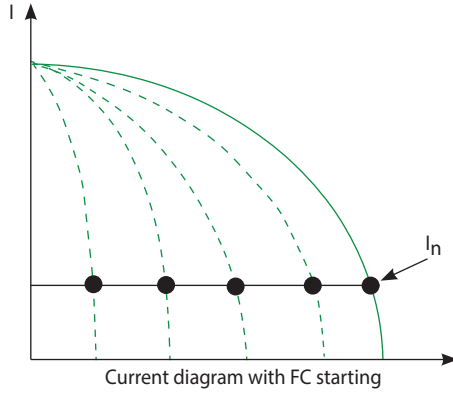


Standard switching equipment (automatic circuit breakers, contactors and motor starters) is not designed to withstand prolonged overloads causing the fan to shut down automatically during starting. Using switching equipment with a higher maximum current rating renders the electric motor protection system less sensitive. As a result the switching equipment will not be able to detect motor overload in time due to a higher current sensing threshold. Such challenges can only be addressed by utilizing a soft starter or a frequency converter to start the fan without causing a prolonged overload.

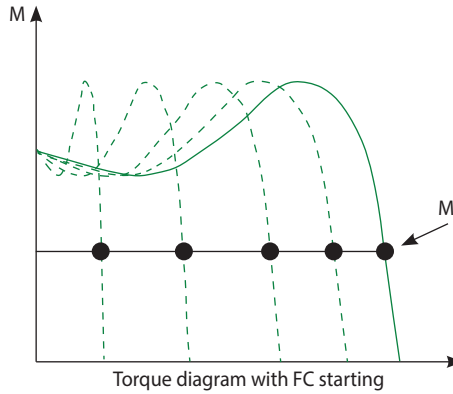


Frequency converter

A frequency converter (FC) consists of two main component blocks. One converts alternating current (50 or 60 Hz) into direct current. The other converts direct current into alternating current of variable frequency ranging from 0 to 250 Hz. By controlling the frequency output the FC offers a broad range of motor speed regulation.

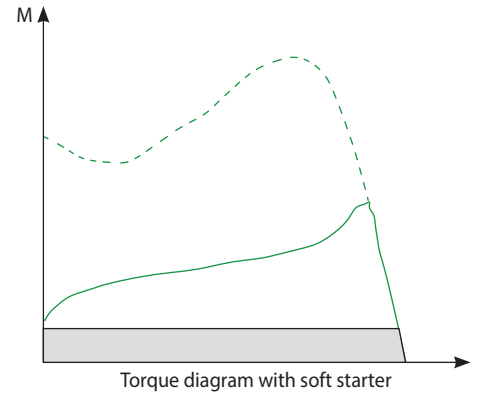
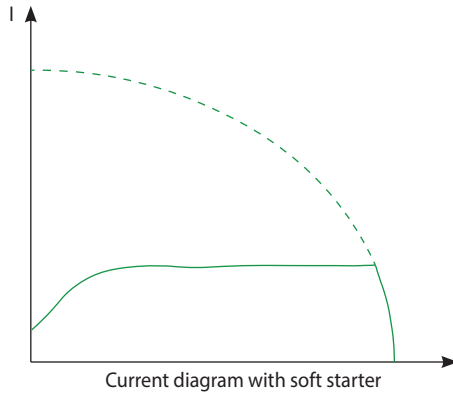


During the starting the FC raises the frequency from 0 Hz to the electrical mains frequency (50 or 60 Hz). As the frequency is increased gradually, the motor can be assumed to operate at its rated speed for a given frequency value. Furthermore, on the assumption that the motor runs at its rated speed the rated torque should be immediately available whereas the current will be approximately equal to the rated value.



Soft starter

Unlike an FC, a soft starter does not change the frequency of speed. Instead it gradually increases the voltage supplied to the motor – from the initial level to the rated level.



The very low voltage initially supplied to the motor during starting helps avoid sudden jolts. Both voltage and torque increase gradually.

Applications in ventilation systems

Using an FC or a soft starter allows to reduce the starting current thereby avoiding a loss of voltage in the electrical mains. In addition to that the starting torque and mechanical strain on equipment are also reduced which translates into extended maintenance and repair intervals. General exhaust ventilation (GV) systems and emergency smoke extraction (SE) systems of car parks, warehouses, utility and industrial spaces can be integrated into a single system at the design level. As the air flow rate a GV system is considerably lower than that in an SE system a high-capacity fan rated for smoke extraction duty runs in partial load mode. Frequency converters can be programmed for several fixed-speed settings to enable operation in GV and SE modes. The fan operating modes can be switched upon receiving an external signal from the control system. Such integration of ventilation systems allows overall cost savings.

FC-51 and FC-101. When to use

This catalogue features two series of frequency converters: FC-51 and FC-101. The FC-51 series is only suitable for general ventilation systems. When using a frequency converter in the framework of smoke exhaust ventilation, it is necessary to complete the fans with FC-101 series frequency converters due to the integrated fire mode. When this mode is activated, the integrated protection of the converter is blocked, and the converter continues to operate despite the possibility of receiving irreparable damage due to overheating or overload. In case of a fire, the FC-101 series frequency converters are capable of maintaining a higher air pressure level at landings compared to other areas of the building in order to keep the landings smoke-free.

Frequency converters Micro Drive FC-51



■ Purpose

This general-purpose variable frequency drive is designed for regulating the rotation speed of an AC electric motor with a maximum power output of 22 kW.

This unit is only suitable for general ventilation systems.

■ Features

The drive is designed to keep the forced ventilation away from the electronics. Printed circuit boards are well protected inside the drive.

■ Filter

Radio disturbance from motor cables is limited with the built-in RFI filter allowing for 15 m motor cables (screened) up to 50 m (unscreened). Meets EU norms.

■ Inputs and outputs

- 5 programmable digital inputs
- PNP/NPN logic
- 20-5000 Hz pulse input
- One 0-10 V or 0-20 mA analogue input
- One 0-20 mA analogue input
- Thermistor input (analogue or digital)
- 1 analogue output
- 1 relay, 240 V, 2 A
- RS 485
- MODBUS RTU

■ Installation

The drive is extremely compact and prepared for side-by-side mounting. A compact design allows side-by-side mounting without derating.



Control panels

Name	Ordering No.
VLT control panel LCP 11 (without a potentiometer)	132B0100
VLT control panel LCP 12 (with a potentiometer)	132B0101



Name	Ordering No.
Control panel remote mounting kit	132B0102

Frequency converter type and ordering numbers

Three-phase, 380-480 V			
Power [kW]	Current [A]	Ordering No.	Frame
0.37	1.2	132F0017	M1
0.75	2.2	132F0018	M1
1.5	3.7	132F0020	M2
2.2	5.3	132F0022	M2
3.0	7.2	132F0024	M3
4.0	9.0	132F0026	M3
5.5	12.0	132F0028	M3
7.5	15.5	132F0030	M3
11.0	23.0	132F0058	M4
15.0	31.0	132F0059	M4
18.0	37.0	132F0060	M5
22.0	43.0	132F0061	M5

Cabinet sizes (mounting flange incl.)

mm	M1	M2	M3	M4	M5
Height	150	176	239	292	335
Width	70	75	90	125	165
Depth	148	168	194	241	248

+ 6 mm with potentiometer

Frequency converters
Basic Drive FC-101



■ **Application**

This general-purpose variable frequency drive is designed for regulating the rotation speed of an AC electric motor with a maximum power output of 90 kW.

This drive is suitable for both general ventilation and smoke extraction ventilation systems.

■ **Certified fire mode**

The fire mode prevents the drive from a self-protecting shutdown. While in this mode the drive continues to perform speed regulation duty for mission-critical fans irrespective of control signals, warnings and alarms.

■ **Filter**

A built-in throttle on the DC link ensures a low harmonic load on the power mains as per the EN 61000-3-12 standard requirements.

■ **Inputs and outputs**

- Four PNP or NPN programmable digital inputs, 0-24 V DC
- 2 analogue inputs (0-10 V or 0/4-20 mA)
- 2 analogue outputs (0/4-20 mA)
- 2 relay outputs
- MODBUS RTU (RS 485)
- BACnet MSTP
- FC Protocol
- N2 Metasys
- FLN Apogee

■ **Installation**

Thanks to an ultra-compact design the drive can be easily fitted into a larger unit or panel of an air ventilation system. The casings are rated IP20/Type 1/IP21 (optional) and IP54.

Frequency converter type and ordering numbers

Power	Current	VLT® FC 101 Basic Drive 0.37-90 kW (3 x 380 – 480 V~, without a braking transistor)			
0.37	1.2		131L9861	-	-
0.75	2.2		131L9862	131NO177	131NO178
1.5	3.7		131L9863	131NO179	131NO180
2.2	5.3		131L9864	131NO181	131NO182
3	7.2		131L9865	131NO183	131NO184
4	9.1		131L9866	131NO185	131NO186
5.5	12		131L9867	131NO187	131NO188
7.5	15.5		131L9868	131NO189	131NO190
11	23		131L9869	131NO191	131NO192
15	31		131L9870	131NO193	131NO194
18	37		131L9871	131NO195	131NO196
22	42.5		131L9872	131NO197	131NO198
30	61	131L9873	131L9875	131NO201	131NO202
37	73	131L9881	131L9883	131NO205	131NO206
45	90	131L9889	131L9891	131NO209	131NO210
55	106	131L9897	131L9899	131NO213	131NO214
75	147	131L9905	131L9907	131NO217	131NO218
90	177	131L9913	131L9915	131NO221	131NO222
Casing		(E20) IP20/Chassis	(E20) IP20/Chassis	IP54	IP54
EMC filter		(H2) RFI class A2 (for industrial areas)	(H3/H4) RFI class A1/B (for residential areas)	(H2) RFI class A2 (for industrial areas)	(H3) RFI class A1/B (for residential areas)
Control panel		(X) without panel	(X) without panel	Integrated	Integrated

VLT® Basic frequency converters rated up to 22 kW are fitted with circuit boards with a special class 3C3 protective coating. For frequency converters rated higher than 22 kW this protective coating is optional while, the 3C2 coating is standard.

VLT® FC 101 Basic Drive frequency converter options

Order code	Description	Order code	Description
132B0200	Operator's digital panel	132B0243	Decoupling plate for H7 standard size, large size
132B0201	Kit for remote mounting of the operator panel to an IP55 cabinet, including 3 m cable	132B0209	Decoupling plate for H8 standard size
132B0202	Decoupling plate for H1 and H2 standard sizes	132B0244	External EMC filter class A1/B1 for power output from 0.37 to 2.2 kW
132B0204	Decoupling plate for H3 standard size	132B0245	External EMC filter class A1/B1 for power output from 3 to 7.5 kW
132B0205	Decoupling plate for H4 and H5 standard sizes	132B0246	External EMC filter class A1/B1 for power output from 11 to 15 kW
132B0207	Decoupling plate for H6 standard size	132B0247	External EMC filter class A1/B1 for power output from 18.5 to 22 kW
132B0242	Decoupling plate for H6 standard size, large size		
132B0208	Decoupling plate for H7 standard size		

ventilation systems

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SMOKE EXTRACTION AND VENTILATION



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2022-10

