

# AXIAL PRESSURIZATION AND SMOKE EXTRACTION FANS

Standard sizes 1400 and 1600 mm



2020

## SMOKE EXTRACTION PRODUCT CATALOGUES

MEDIUM PRESSURE AXIAL FANS AND  
AXIAL SMOKE EXTRACTION FANS



**VENTS**  
2020

CENTRIFUGAL SMOKE  
EXTRACTION FANS



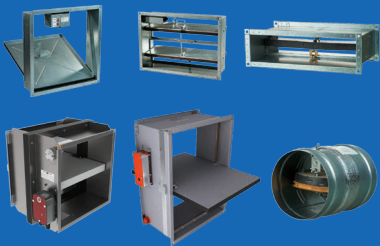
**VENTS**  
2020

SMOKE EXTRACTION VENTILATION  
FOR PARKING PREMISES



**VENTS**  
2020

FIRE SAFETY DAMPERS



**VENTS**  
2020

MEDIUM PRESSURE AXIAL FANS AND  
AXIAL SMOKE EXTRACTION FANS

**60 Hz**



**VENTS**  
2020

SMOKE EXTRACTION VENTILATION FOR  
PARKING PREMISES



**VENTS**  
2020

# WELCOME TO THE VENTS WORLD!



VENTS company was founded in the nineties of the XXth century.

Dynamic development of the enterprise and ongoing study of the consumer demand enabled rapid international leadership of the company in the ventilation industry.

VENTS is a powerful research and development enterprise with 2500 professionals working as a single team to ensure a full production cycle from idea to end product. The production base of the company is located at more than 60 000 m<sup>2</sup> area. It includes 16 workshops equipped under the latest international standards and each of them is comparable to a separate plant.

Modern equipment, active implementation of advanced technologies and highly automated production are the characteristic features of VENTS company.

The company undergoes rapid dynamic development; fundamental researches and effective designs in climatic equipment industry are in the focus of the company's business strategy.

The joint cooperation of the corporate design department, test laboratories and production workshops let us introduce high quality products to the market.

Special attention is paid to the manufacturing of the goods during all manufacturing stages including monitoring of the technological conditions. Technical characteristics of supplied raw materials are thoroughly checked. Quality control system which meets international standard requirements ISO 9001:2000 was implemented at the enterprise.

Environmental protection is one of the basic components of the corporate development. The technological process at the enterprise is arranged in such a way as to exclude any negative impact to the environment. To solve the global energy saving problem we develop a special climatic equipment that provides comfortable conditions for people and reduces the energy demand significantly.

Perfect quality, competitive prices, high production potential, technical capabilities and the wide product range stimulate long-term partnership and product promotion all over the world.

The VENTS ventilation products are exported to more than 90 countries and are sold through the distribution network of 120 companies worldwide. Share of the VENTS products globally is above 10%.

VENTS is a member of high-rank international organizations, the leading HVAC experts.

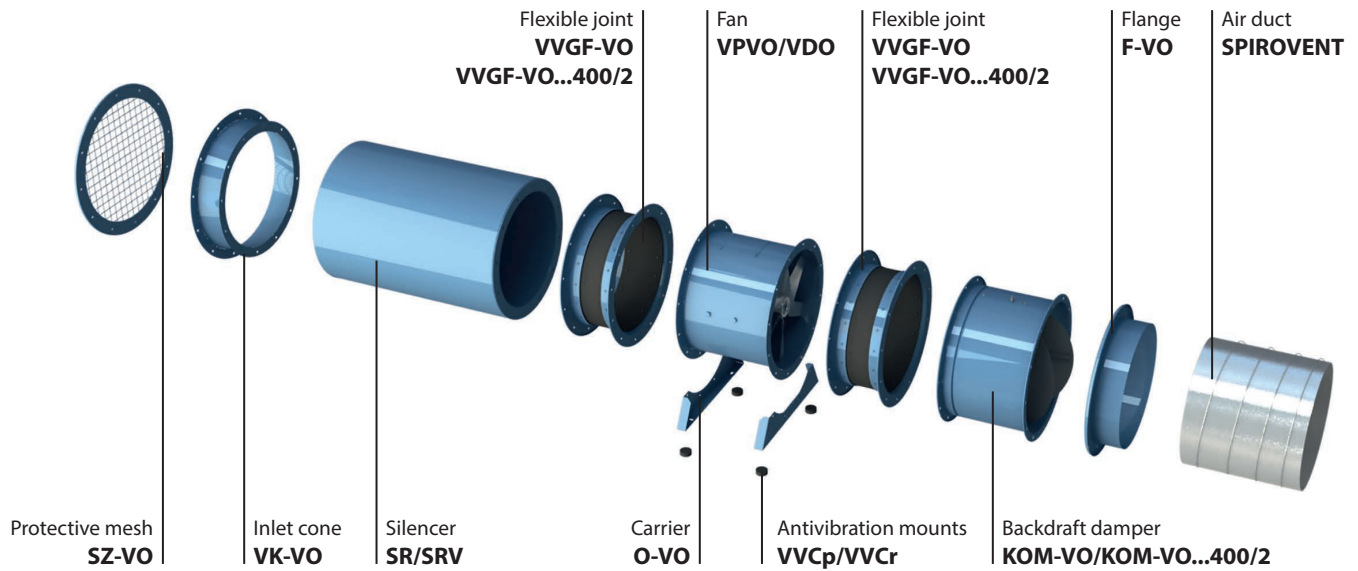
Since 2008 VENTS has been a fully-featured member of HARDI Association (Heating, Air-conditioning and Refrigeration Distributors International, USA).

Since 2010 VENTS has been a participant of AMCA Association (the Air Movement and Control Association (AMCA) International, Inc.). In 2011 VENTS successfully passed tests for compliance with AMCA standards and the VENTS products were certified for the USA market.

In 2011 VENTS joined HVI (Home Ventilation Institute, USA) Association.



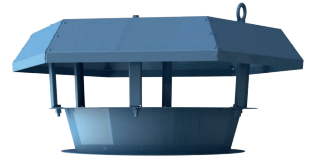
■ Complete solutions for axial fans



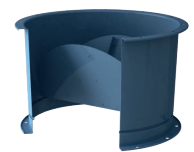
■ Installation example of axial fans on rooftop

Air pressurisation system

Smoke extraction system

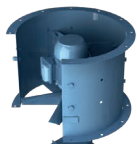


Roof hood **Z-VO**



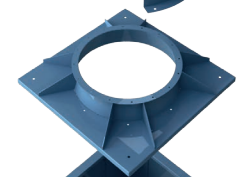
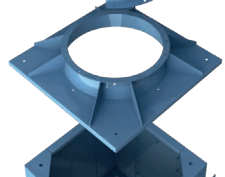
Backdraft damper **KOM1-VO**

Backdraft damper **KOM-VO...400/2**

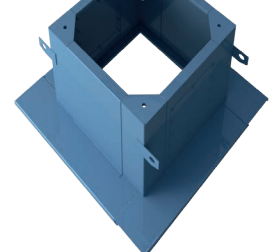
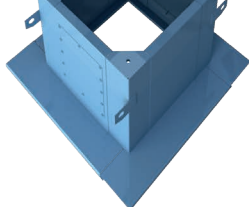


Axial fan **VPVO**

Axial smoke extraction fan **VDO**



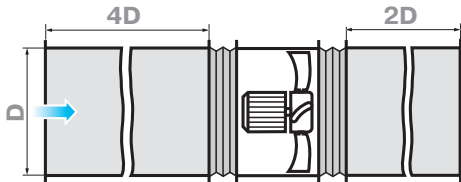
Roof adapter **PK-VO**



Mounting curb **SM-VO**

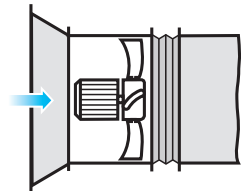
**Fan installation into an air duct system**

To ensure a uniform air flow, the fan should be preceded by a straight duct section with a cross-section area equal to half of that of the fan. The length of the duct section should be  $3 \div 4 D$  ( $D$  is the inner diameter of the fan). The length of the straight duct section downstream of the fan should be  $1.5 \div 2 D$ . Reduction of the recommended duct length values results in a drop of the fan pressure and performance. To reduce noise and vibration, use the VVG flexible joints.



**Fan installation with no upstream ducting**

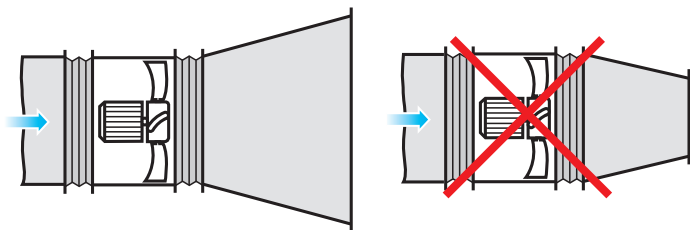
Axial fans without upstream ducting must be equipped with a VK-VO inlet cone to improve the air flow parameters.



**Fan installation with no downstream ducting**

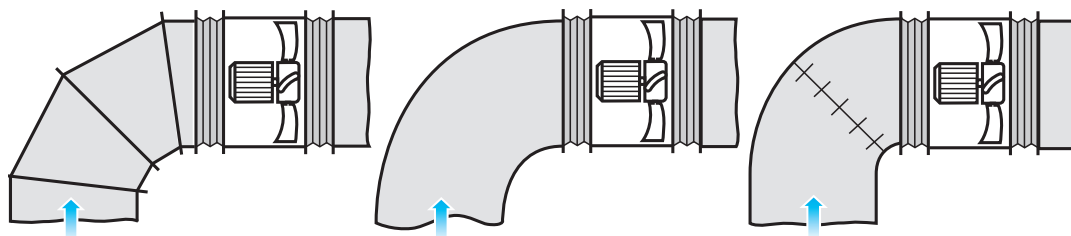
If the axial fan is a terminal device of the ventilation system (i.e. there is no downstream ducting), the unit must be equipped with a diffuser to reduce the air flow velocity and the fan dynamic pressure. Reduction of the air discharge velocity results in a significant reduction of shock losses which are proportional to the square of velocity decrement.

The fan should not be equipped with a downstream contractor.



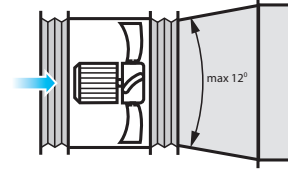
**Installation near bends**

To install the fan directly downstream of a bend (elbow), use a curved section with a large bending radius or an array of internal guide vanes.



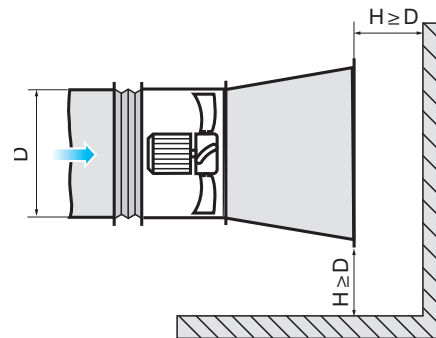
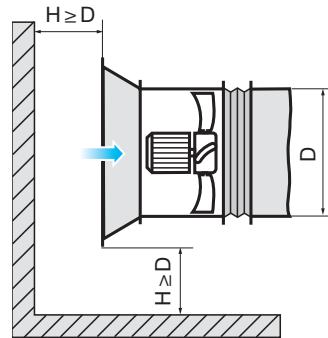
**Changing diameter installation**

When changing from a smaller diameter to a larger one use a connector diffuser with the maximum opening angle of  $12^\circ$ .

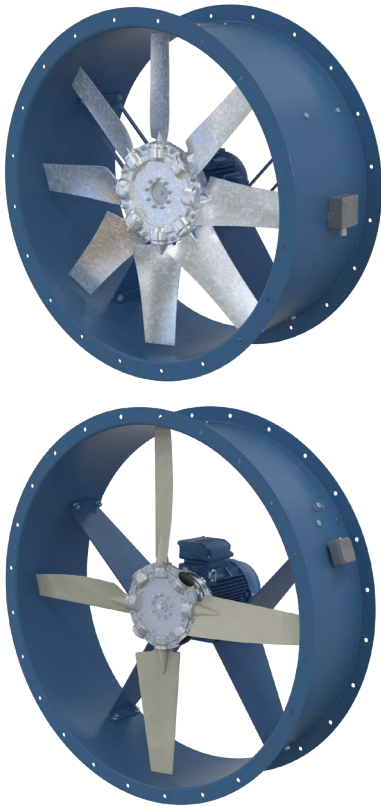


**Obstructed space installation**

To ensure normal operation of the fan in an obstructed space, make sure to provide for a sufficient distance between the inlet and outlet flanges and the floor, walls, bulky equipment and obstacles.



**VPVO/VDO**  
**1400 and 1600 mm**  
 series



**Fan air flow**

**50 Hz:**

4 poles – up to 294 000 m<sup>3</sup>/h

6 poles – up to 236 000 m<sup>3</sup>/h

**60 Hz:**

6 poles – up to 256 000 m<sup>3</sup>/h

8 poles – up to 218 000 m<sup>3</sup>/h

**Pole number:**

4, 6, 8, 4/6, 4/8

**Motor power**

**50 Hz:**

4 poles – up to 132 kW

6 poles – up to 75 kW

8 poles – up to 55 kW

**60 Hz:**

6 poles – up to 90 kW

8 poles – up to 75 kW

**Application**

The fans are used:

- as a part of a smoke extraction system for air pressurization to create a positive air pressure differential in stairway enclosures, airlock vestibules and lift shafts, to prevent spreading of smoke in premises, protect people using evacuation routes from fire hazards and enable conditions for fire-extinguishing measures.
- for extraction of smoke in case of fire and removal of hot air outside.
- in general ventilation systems in industrial, administrative and residential buildings.

The fans are rated for continuous operation at ambient air temperatures from -60 °C up to +50 °C (depends on climatic category, see the Designation key).

The fans are able to operate 2 hours at the temperatures +300 °C and +400 °C.

The fans with a fire resistance class of 200 °C/2 hours can be produced on special request.

**Design**

The metal casing with rolled flanges helps achieve outstanding rigidity and minimum clearances between the casing and the blades. There is an inspection hatch in the casing for easy maintenance.

All the casing components are powder coated for improved protection against the environmental effects.

The fan casing can be hot-dip galvanized on request.

The fan can be equipped both with a standard and a shortened casing.

**Motor**

The fans are equipped with three-phase (400 V, 50 or 60 Hz) single-speed or two-speed electric motors with IE3 energy efficiency class on request.

Motor ingress protection rating is IP55.

Power of applied electric motors:

- 4-pole – up to 132 kW, for fan size 1600 – 50 Hz.
- 6-pole – up to 90 kW, for fan size 1600 – 60 Hz.

**Impeller**

Aerodynamic impeller blades ensure high efficiency of the fan while keeping noise well under control.

The impellers are dynamically balanced.

Low weight and low moment of the impeller inertia help reduce the fan start-up time.

The fan blades can be made of the following materials:

- PAG – fiberglass reinforced polyamide for pressurization fans
- AL – die-cast aluminium for pressurization and smoke extraction fans
- ST – steel for smoke extraction fans

For smoke extraction fans, only impellers made of die-cast aluminium or steel are used, capable of operating according to the selected fire resistance class of the unit.

Please confirm the blade material while placing your order.

**Mounting**

The fans can be mounted on any flat surface or directly into a ventilation duct.

The units are suitable for both horizontal and vertical configurations.

In-duct installation requires flanges to attach the fan to the ductwork.

To attach the fan to the floor, a wall or the ceiling use the O-VO carriers (not included as standard, should be purchased separately).

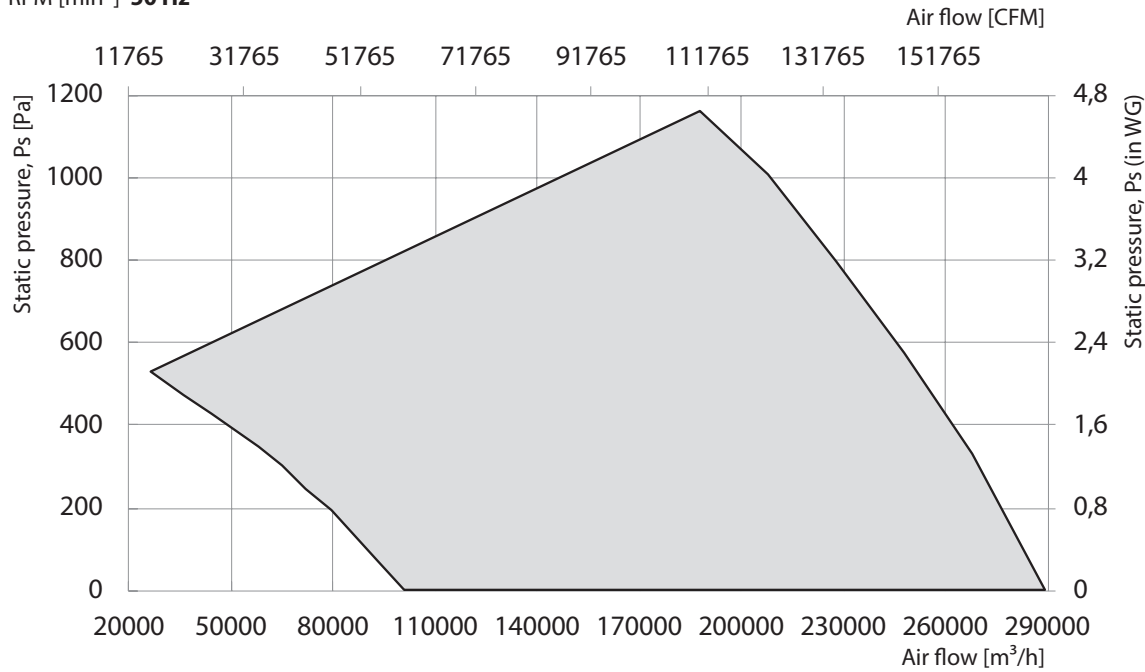
The units are suitable for installation on rooftops to provide direct supply of outdoor air to the stairway areas.

**Aerodynamic parameters for 1400 and 1600 mm fans**

Standard size: 1400, 1600

Pole number: 4

RPM [min<sup>-1</sup>] 50 Hz

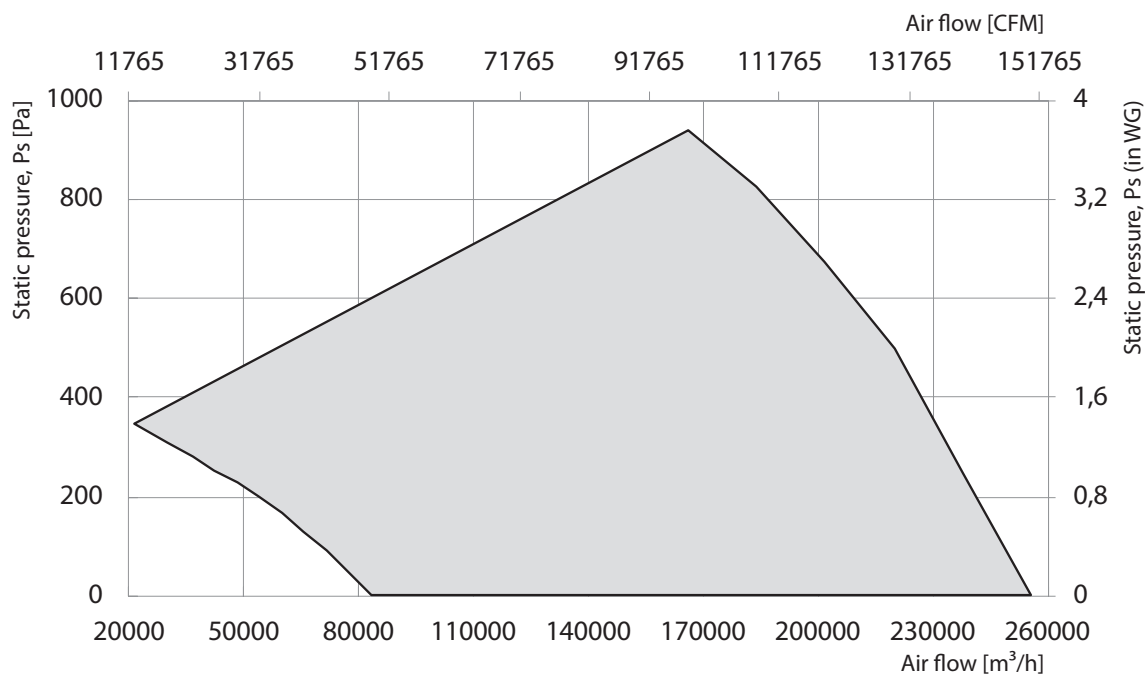


Aerodynamic parameters range for 1400 and 1600 mm fans with a 50 Hz electric motor

Standard size: 1400, 1600

Pole number: 6

RPM [min<sup>-1</sup>] 60 Hz



Aerodynamic parameters range for 1400 and 1600 mm fans with a 60 Hz electric motor

**ventilation systems**  
[www.ventilation-system.com](http://www.ventilation-system.com)

SMOKE VENTILATION SYSTEMS



VENTS reserves the rights to modify any of its products' features, designs, components and specifications at any time and without notice to maintain the development and quality of manufactured goods.

2020-12

