

Overpressure kit for the protection of escape routes

Experience shows that many casualties are caused by the spread of smoke in fire escapes and connecting areas. AF M 500 is a variable flow pressurization system in accordance with the Italian Ministerial Decree (November 30, 1983) concerning safe and smoke-free areas. This equipment is designed to grant smoke-free access to the stairways by pressurizing the rooms adjacent to them ('filter-rooms' or simply "filters")

AF M500 is composed of two distinct elements: the pressurization unit and the power control unit.

Components and features

Pressurization Unit:

Large-scale electric fan. It can be connected to ducts with diameters included between 200 and 300 mm to pull fresh air from outside to inside the building.

The pressurization unit is developed to generate a positive pressure of at least +0.30 mbar in less than 1 second and for at least 120 minutes

Supply and Control Unit:

High capacity batteries ensure large autonomy (about 3 hours) even in emergency conditions (electric black out).

An automatic safety device stops the electric fan when the pressure inside the filter exceeds set values. An electronic circuit board, placed on the same power drive, enables to monitor the system status by displaying different LEDs:

Network status (on-off) (LED 1-green)

Batteries Voltage (LED 2-green)

Low Voltage (Batteries) (LED 3-red)

Fan malfunctioning (LED 4-red)

On going malfunctioning (LED 5-red)

On going Fan (LED 6-red)

Connect NA-NC outputs to the centralized fire control unit.

Complete instructions will be provided with the product.

Derived versions

AF M 500 B: version equipped with a ventilation unit " brushless " if a continuous operation is planned.

AF M 400: version with a control unit and an integrated ventilation with simplified power management.



Dimensions: 400x400x200 mm



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Installation AF M 500

AF M 500 must be connected to the automatic smoke detection system. We can provide you with a simple detection system to be installed in the rooms adjacent to the filter zone (EN 54).

As a matter of safety and ease of assembly, all the parts that make up this device must be installed in the smoke filter..

Testing conditions

The presence of small openings such as the areas between the door and the floor increase the power needed to generate a positive pressure in the room. AF M500 has been certified in a room with 4 doors (three with an opening and one door with two openings) with an open section between the door and the floor of: 800x2100 mm, 900x2100 mm, 1000x2100 mm, 2400x2350 mm.

Local volume of the smoke filter : up to 150 m3.

Connection ducts' certifications

Total duct length up to 20 m: use ducts with \varnothing 200 mm

Total duct length above 20 m (max 50m): use ducts with \varnothing 300 mm

In case ducts pass through areas with potential fire load they should be protected to prevent their temperature to reach critical levels and generate fire in other compartments.

This protection can be achieved through the application of the flexible fireproof mat AF FIREGUARD 3 certified EI 120 according to the European standard -1366-1.

The accessory components can be provided independently from one another.

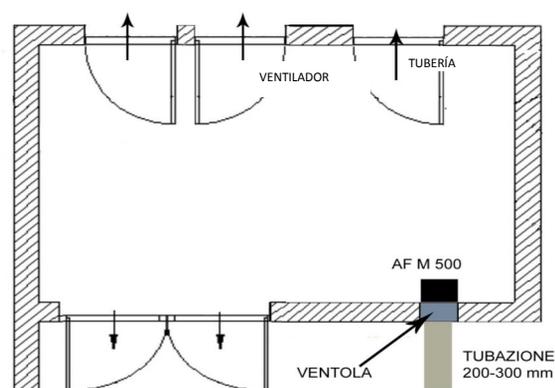
Aeraulical calculations

In case the application isn't covered by the testing conditions it might be necessary to apply additional controls to verify that the system is able to generate the desired overpressure. It might be needed to measure locally the overpressure generated or to make an analytical simulation. AF Systems has elaborated an electronic system that meets the multiple requirements necessary to calculate the final pressure generated in the room in different scenarios (ie. different number of doors, curves in the duct path...)

The professional in charge of the project will be responsible for checking the theoretical calculations case by case.

Warranty

AF Systems offers a guarantee starting from the shipping date of the unit. The company is committed to replace all the parts that could present manufacturing defects within the guarantee period.



Diametro (mm)	N. Race. 90°	N. Race. 45°	scabrezza condott. o (mm)	Spessore Porta (cm)	Dist. Porta-Pavimento (mm)	Largh. Porta (m)	scabrezza porta-pavimento (mm)	m³/h	prevalenza (pa)	DP (pa)	v (m/s)
200	2	13	0,050	5,00	4,00	5,00	1,00	704	287	32	6,22
200	2	13	0,050	5,00	4,50	5,00	1,00	722	283	38	6,38
200	2	13	0,050	5,00	5,00	5,00	1,00	734	281	25	6,49
200	2	13	0,050	5,00	5,50	5,00	1,00	742	280	18	6,56

Colonna X	Colonna Y
I	18
S	14
X	Y
Dist. Porta-Pavimento (mm)	DP (pa)
4	51,5
4,5	35,6
5	25,4
5,5	18,6

