

MRA-D

Mechanical Smoke and Heat Exhaust Ventilation Systems

Roof

Mechanical Smoke and Heat Exhaust Ventilation Systems are essential components of modern fire protection concepts. In the event of a fire, they efficiently extract smoke and heat, keeping escape routes clear of smoke and thereby protecting lives. Thanks to their high efficiency and adaptability, they meet the highest safety standards and can be integrated into a wide variety of building types.

Typical Applications

These systems are used in buildings with complex spatial structures, such as industrial and warehouse facilities, underground car parks, shopping centers, high-rise buildings, or public institutions like schools and hospitals. They ensure smoke-free escape routes, clear visibility, and help minimize damage.



Compact Design:

Innovative fan design saves space and simplifies integration into building structures.

CE CERTIFIED
EN 12101-3

High Temperature Classes:

Suitable for operating temperatures from 200°C to 600°C – ideal for demanding fire protection requirements.

Flexible Installation Options:

Fans can be installed on roofs or walls, depending on structural conditions.

Daily Ventilation:

The systems can also be used for regular building ventilation outside of fire events.

Cost Savings Through Turnkey Solutions:

Planning, implementation, and integration of ventilation ducts and electrical installations from a single source ensure efficiency and reduce interface issues.

Recommended Combinations:

Can be supplemented with roof connections and smoke curtains for a comprehensive protection concept.

Project Coordination with Authorities:

All systems are planned in close coordination with the relevant authorities to ensure full compliance with legal requirements.

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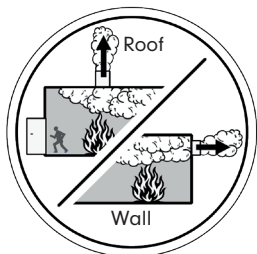
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Custom Design:

Mechanical smoke extraction systems are available in a wide range of configurations and cover a broad spectrum of applications.

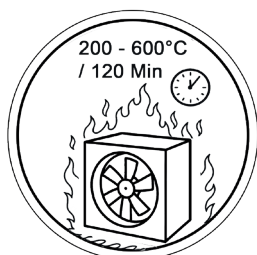
Each system is individually designed and tailored to the specific area of use, regulatory requirements, structural conditions, and performance specifications.



Temperature Classes:

Available for operating temperatures ranging from 200 °C to 600 °C. Smoke extraction systems must maintain full functionality at a defined temperature for a specified duration. This is classified according to temperature classes defined in EN 12101-3, specific to each device. For example:

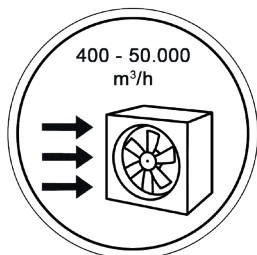
- F300 / 120 = Max. 300°C for at least 120 minutes
- F400 / 120 = Max. 400°C for at least 120 minutes
- F600 / 120 = Max. 600°C for at least 120 minutes



Air Volume:

Available for air volumes ranging from 400 to 50,000 m³/h. The performance of a smoke extraction system is defined by its air handling capacity. Key factors determining the required air volume include:

- Type of building (e.g., industrial, office, underground garage)
- Room volume
- Required smoke extraction rate
- Temperature class (e.g., F400)

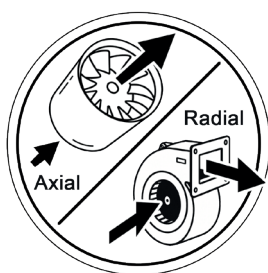


Installation Location:

Roof or wall.

The installation location of mechanical smoke extractors is generally determined by the building's structural conditions and its surroundings.

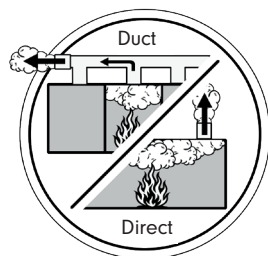
Additional key factors include noise emissions, exposure to weather conditions, and the required performance level of the system.



Fan Design:

Axial Fans: Air intake and discharge are aligned in the same direction. These fans are available in high-performance versions but allow only a straight airflow without additional ducting.

Centrifugal (Radial) Fans: Air intake and discharge are offset by 90°. They allow redirection of the airflow without additional components but are limited in their maximum performance.



Air Ducting Configuration:

When direct exhaust is not feasible due to structural constraints or cost considerations, smoke can be extracted via ductwork. Examples include:

- Centralized extraction from multiple rooms or floors
- A centralized system can be more cost-effective
- Regulations specifying the exhaust outlet location
- Structural limitations that prevent a heavy extraction unit

Accessories:

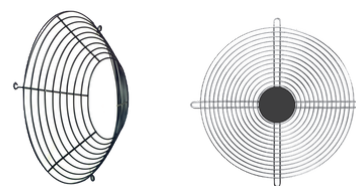
The core component of any mechanical smoke extraction system is the fan, whose design determines the overall performance of the system.



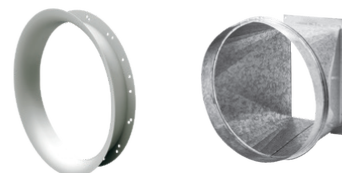
With the appropriate accessories, the system can be adapted to the specific requirements of each project.

These accessories include:

Protective grilles



Nozzles / Flanges



Bases / Filters / Ducts



Electrical components / Mounting materials

