

# Системы противодымной защиты под давлением RDA

## Технические характеристики

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# Smoke protection pressure systems (RDA)



Smoke-free systems using pressurized systems are used in areas where fire and smoke must not penetrate for a specific period of time. Controlled overpressure is created, and the space is flushed with fresh air. This prevents smoke from penetrating areas such as emergency stairwells, fire service elevators, airlocks, corridors, and escape tunnels. This keeps escape and rescue routes clear for self-rescue, as well as for firefighters.

## **A smoke protection pressure system (SPS) ...**

- ... creates a controlled overpressure in the room and keeps it smoke-free.
- ... allows humans and animals to escape safely.
- ... enables the fire service to extinguish fires quickly and effectively.

## **Overview Products**

- RDA with secured outflow via the building facade
- RDA with secured outflow via a shaft
- Flushing ventilation system (flushing of the safety room)
- RDA for a fire service elevator shaft (with outflow / flushing)
- Control sensors

## **Overview of services**

- Consulting and planning
- Delivery of the required system components
- Construction and commissioning
- Maintenance and repair
- Repair
- Accompaniment of recurring inspections by the expert

## **Areas of application of smoke protection pressure systems (RDA)**

Smoke protection pressure systems are used in areas where smoke must not penetrate, such as emergency stairwells, fire service elevators, airlocks, corridors, and escape tunnels. If a second escape route is required but not available, a safety stairwell can be provided. This compensates for the first and second structural escape routes.

However, it is stipulated that fire and smoke must not enter a safety stairwell. Smoke protection pressurization systems are used for this purpose. They are also used in fire service elevators to allow firefighters to proceed safely up to the smoke threshold. This pressurizes the fire service elevator shaft to prevent smoke from entering. Underground escape and rescue routes are also usually pressurized to ensure they remain smoke-free and usable.

## **Functions and types of smoke protection pressure systems (SPS)**

The stairwell is kept smoke-free by controlled overpressure. The pressure difference to the atmosphere is a maximum of 50 Pascal. The difference must not exceed this limit to ensure safe door opening forces. Since the doors to the emergency stairwell are constantly opening and closing during an escape, a regular pressure drop occurs in the stairwell. The system must have a pressure measuring point that transmits the pressure difference in the stairwell to the system control system and regulates the system back to a maximum of 50 Pascal.

In the event of a fire, the smoke protection pressure system is activated via the fire alarm system, the manual control unit, or connected smoke detectors. Dampers in the outside air intake duct and the exhaust opening in the emergency stairwell open. The fans are activated with a time delay, flushing the stairwell with fresh air. Any smoke that may have entered before the fire was triggered is diluted and flushed out.

After the flushing phase, the outlet opening is moved to a defined intermediate position, allowing a pressure buildup corresponding to the permissible door opening force of 100 N or the specified pressure differential. When doors are opened, the volume flow increases to achieve a flow velocity of 0.75 m/s or 2.0 m/s when flushing through the doors to the required corridor, depending on the specifications. To ensure the necessary continuity, floor-to-floor outflow via the facade or a shaft is required.

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