GERHMAN

Over Flow Unit

PRD200

Pressure Relief Damper for

Staircase Pressurization Control Systems

At Gerhman we are driven by a strong desire to continuously generate improvements. We do that by developing products and systems that are easy to use and energy efficient, together with industry-leading knowledge, support, logistics and efficient availability.

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Over Flow Unit

PRD200

Pressure Relief Damper for Staircase Pressurisation Systems

Overview

The Pressure Relief Damper (PRD200) is engineered to ensure optimal pressure management in stairwell pressurisation systems. It provides controlled air release to prevent over-pressurisation, ensuring compliance with building safety standards and facilitating safe evacuation.

Key Features

•**Automatic Pressure Regulation:** Ensures precise pressure control within the stairwell, maintaining safety and compliance.

•**Robust Construction:** Made from galvanized steel or aluminum for durability and resistance to environmental factors.

•**Adjustable Pressure Settings:** Tailored to meet project-specific requirements for pressure release levels.

•**Low Maintenance Design:** Designed for minimal servicing needs, reducing operational downtime.

•**Fire-Resistant Performance:** Certified for operation in high-temperature environments, ensuring functionality during emergencies.

Benefits

•**Enhanced Safety:** Prevents excessive pressure build-up, enabling doors to open easily during evacuation.

•**Energy Efficiency:** Reduces unnecessary energy usage by controlling airflow effectively.

•**Compliance Assurance:** Meets international standards such as EN 12101-6 and other relevant fire safety regulations.

•**Customizable Options:** Available in a range of sizes and configurations to suit diverse project requirements.

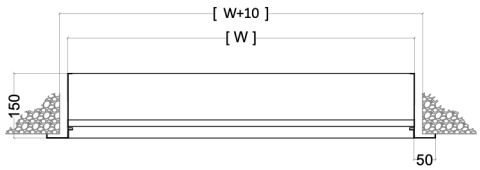
Applications

•Stairwell pressurisation systems in:

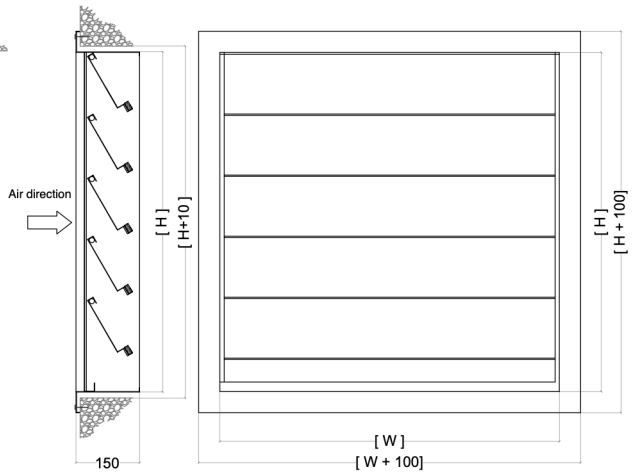
- High-rise buildings
- Hospitals
- Commercial complexes
- Residential towers
- Airports and transportation hubs

Dimensions

PRD200



Wall Mounted



Standard dimensions

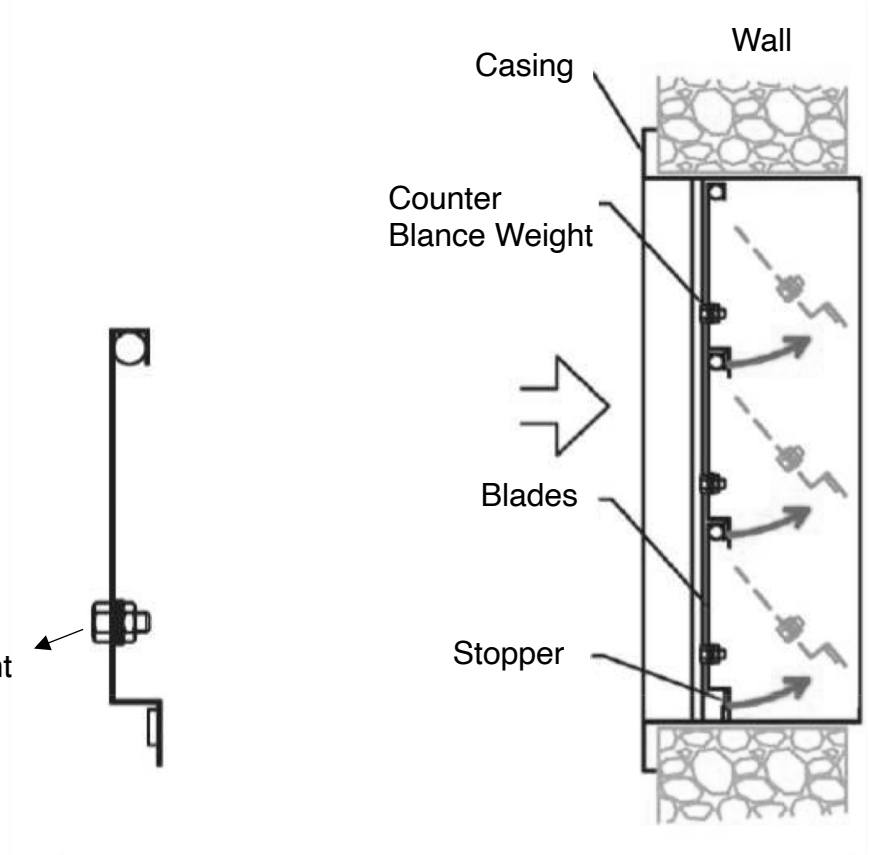
	Sizes and Free Vent Area						
WxH (mm)	300x300	400x400	500x500	600x600	700x700	800x800	900x900
Free Vent Area (sqm)	0,044	0,063	0,148	0,223	0,267	0,421	0,542
Wall Openning (mm)	320x320	420x420	520x520	620x620	720x720	820x820	920x920
Alternate opening pressures	20 - 90 Pa	20 - 90 Pa	20 - 90 Pa	20 - 90 Pa	20 - 90 Pa	20 - 90 Pa	20 - 90 Pa

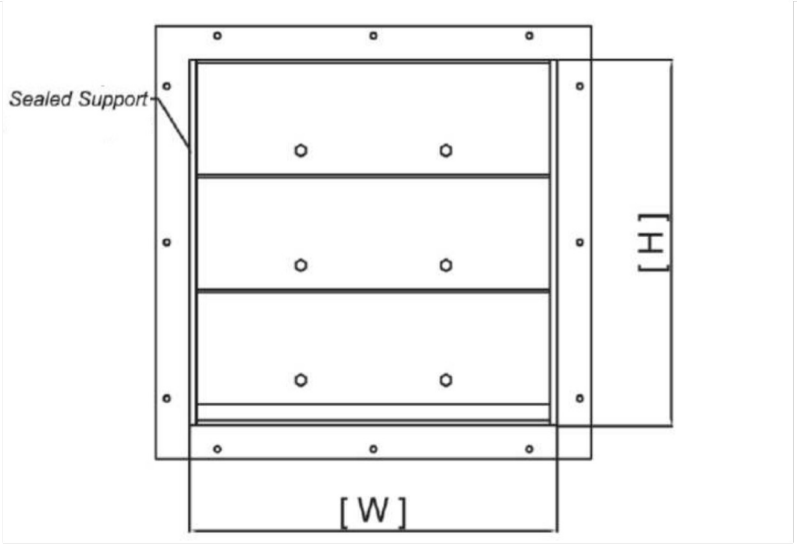
All dimension combinations

WxH	400	500	600	700	800	900	1000	1100	1200
300									
400									
600									
800									
1000									
1200									
1400									
1600									

Technical Details

PRD200

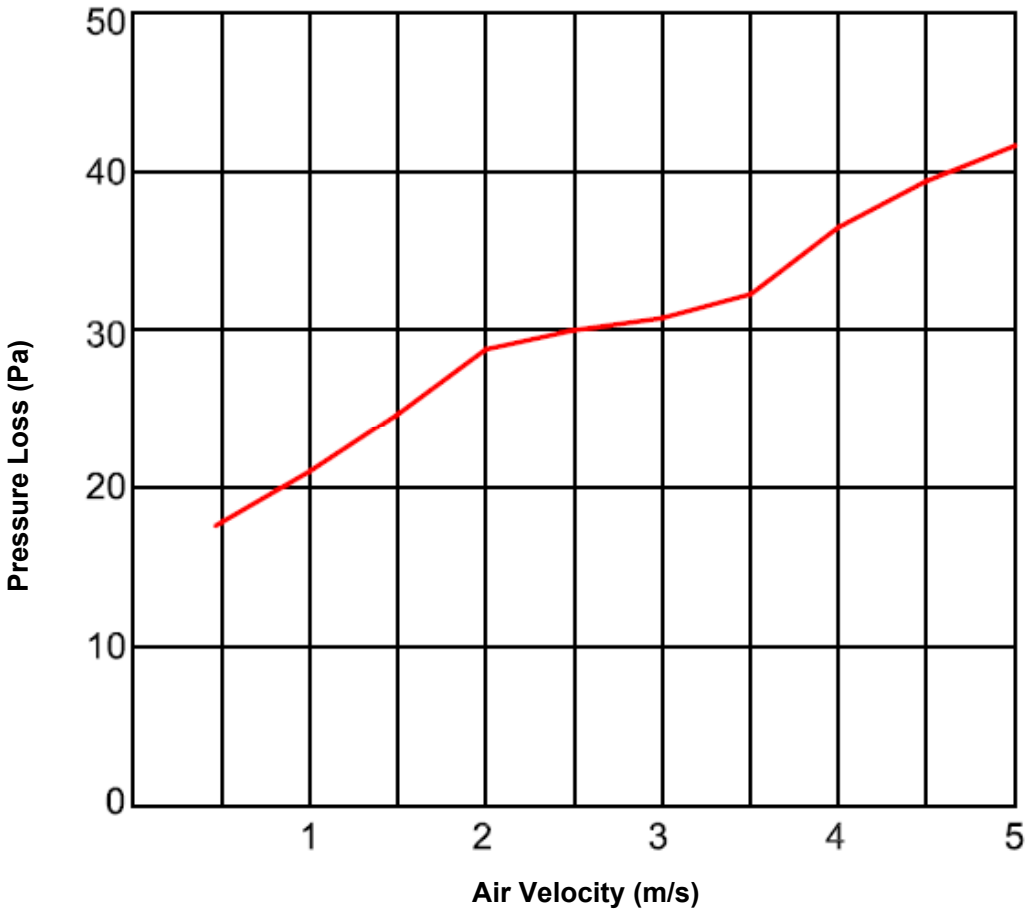




Performance Data

PRD200

Pressure Loss - Air Velocity Diagram



The area of damper cross section = W x H (m^2)
The effective area of damper cross section = W x H x 0,85 (m^2)

Performance Data

PRD200

Air Pressure Parameters in Staircase Pressurisation Systems

To ensure optimal safety and functionality, it is crucial that the installed staircase pressurisation system maintains the correct air pressure levels within the stairwell. According to the **BS EN 12101-6:2005** standard on smoke and heat control systems, specific air pressure parameters must be upheld in pressurised stairwells to prevent smoke ingress while ensuring ease of access.

Recommended Air Pressure Levels

The system must sustain air pressure levels within a range of **50 Pa to 60 Pa**. This range is critical to achieving two primary objectives:

1.Smoke Exclusion: Preventing smoke from entering the stairwell, thereby preserving it as a safe evacuation route.

2.Accessibility: Allowing doors to be easily opened without excessive force, facilitating smooth and rapid evacuation.

Role of Pressure Relief Vents

Properly designed and strategically installed **air pressure relief vents** are the most effective solution for regulating and maintaining these pressure levels. These vents:

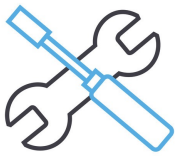
•Automatically release excess air to prevent over-pressurisation.

•Ensure consistent compliance with safety standards.

•Enhance the overall reliability and efficiency of the pressurisation system.

By maintaining precise air pressure parameters, staircase pressurisation systems not only protect lives but also help ensure adherence to stringent fire safety regulations, making them an indispensable feature in modern building designs.

Installation



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- Air supply: the damper is coupled to the duct with the fins in the same direction as the air flow.
- Air suction: the damper is coupled to the duct with the fins toward the fan.
- The damper is installed in vertical or horizontal position, such that the shaft is parallel to the floor.
- The unit is fitted with one or two counterweights, depending on damper size.
- The counterweights can be placed in multiple positions within the 360° of shaft rotation, in order to control the air pressure or volume as desired:
- The counterweight orientation can always be varied according to the resistance needed. The counterweights are placed perpendicular to the damper shafts and are composed of a threaded rod and a specific number of interchangeable weights for balancing. This assembly comes with Allen set screws to set the correct position; as a maintenance measure, it is sometimes recommended that these elements be inspected to make sure they are working properly. The inspections should be performed while the equipment is not running and the set screws should be tightened if necessary.

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Air Flow Control

PRD200 Pressure Relief Damper

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