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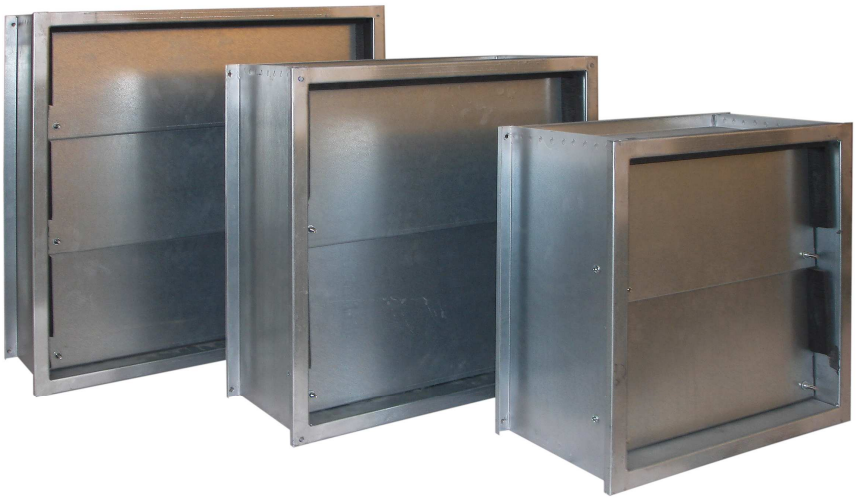
TECHNICAL AND OPERATIONAL DOCUMENTATION

Overpressure-bleed damper of mcr PL1 type



FIRE VENTILATION SYSTEMS DEPARTMENT

GDAŃSK 2008

CONTENTS:

1. INTRODUCTION

The aim of this Technical and Operational Documentation is to acquaint the user with the purpose, construction, principle of operation, correct installation and operation of the product.
The Documentation contains also additional information on operating conditions, maintenance, and terms of guarantee of the product.
The Documentation concerns the entire group of overpressure dampers of mcr PL1 type. Observing the recommendations contained in this Documentation shall ensure correct functioning of the device as regards fire protections of rooms, as well as safety of the system users.

2. SUBJECT MATTER OF THE DOCUMENTATION

The subject matter of the present Technical and Operational Documentation are:

- Rectangular overpressure-bleed dampers mcr PL1

3. PURPOSE OF THE DEVICE

Application

Dampers of mcr PL1 type are used as bleed dampers in overpressure systems of staircases. These devices can also be applied in any premises that are protected against smoke with overpressure. The function of the dampers is to maintain an adequate differential pressure before and behind their partition, thus operating as so-called safety valves that prevent the increase of pressure above a set value, e.g. in a protected staircase. The devices meet the requirements of the PN-EN 12101-6 standard.

Fire Resistance

The device does not feature fire resistance, as it is not required for its correct operation.

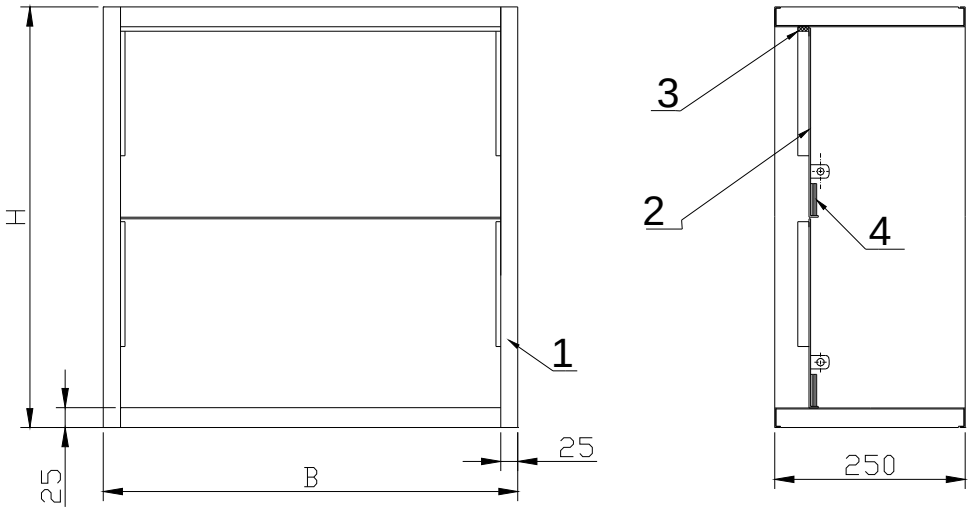
Execution Versions

- Wall-mounted - S
- Duct-mounted - K

4. CONSTRUCTION AND PRINCIPLE OF OPERATION

Construction

The mcr PL1 damper consists of a casing made of galvanised steel sheet, 1.25 mm thick (1), with an embedded baffle made of rotating blades (2). Individual blades of the baffle are made of galvanised steel sheet of a specially designed shape. Owing to their multi-layer design, the rotating blades do not move outside the casing of the damper. Individual blades of the baffle feature weights that impose load on the baffle (4). The weights are made of steel straps of a suitable mass and shape that provide the device with a required working point and the speed of action and reaction to changing pressures. Along the width of the damper, polyethylene straps gaskets are glued in order to provide better tightness of the device (3).
In order to limit an opening angle of blades, steel opening and closing limiters are mounted on the casing of the damper. The design and manufacturing of the device provide the fast reaction that complies with the PN-EN 12101-6 standard.



Operation

Dampers are closed in a normal operation. When the differential pressure exceeds the threshold value of 50 Pa (set by the Manufacturer), the blades open rapidly, thus levelling the pressure, which drops below the threshold activating value. After the reduction of pressure in the protected space, the damper returns to the stand-by status automatically due to the weights mounted on its blades. The rapid reaction of the device to changing pressure enables a suitable flow of an air stream.

Driving and Tripping Systems

The driving system of mcr PL1 dampers is made of suitably selected steel weights that are mounted on blades of the device.

Dimensions

Mcr PL1 dampers are manufactured in the following dimensions:

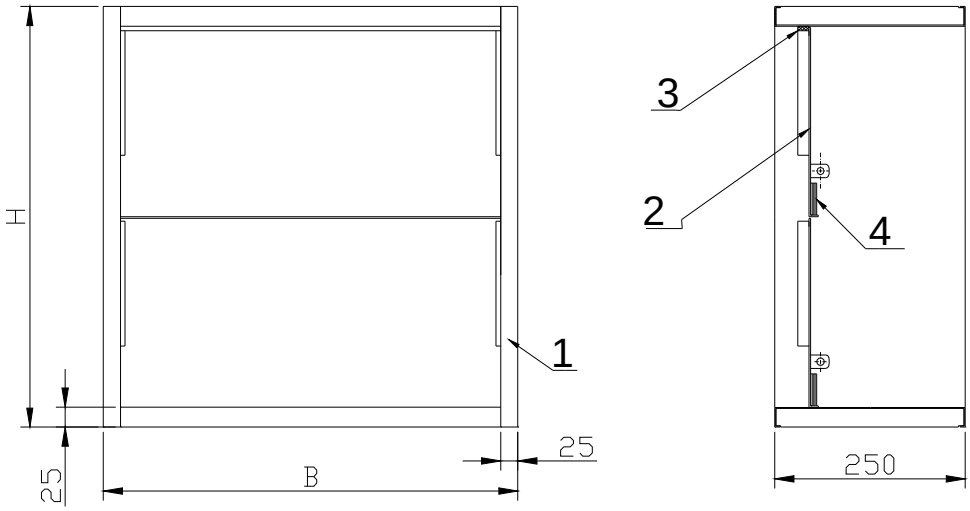
Height	**Breadth B [mm]**											
H [mm]	**450**	**550**	**650**	**800**	**900**	**1100**	**1300**	**1350**	**1600**	**1650**	**1800**	**1950**
450	1(450)				2(450)			3(450)			4(450)	
550		1(550)				2(550)				3(550)		
650			1(650)				2(650)					3(650)
800				1(800)					2(800)			
900	2(450)				4(450)			6(450)			8(450)	
1100		2(550)				4(550)				6(550)		
1300			2(650)				4(650)					6(650)
1350	3(450)				6(450)			9(450)			12(450)	
1600				2(800)					4(800)			
1650		3(550)				6(550)				9(550)		
1800	4(450)				8(450)			12(450)			16(450)	
1950			3(650)				6(650)					9(650)

Marking:
1 number of dampers in a set
(..) sizes of dampers in a set

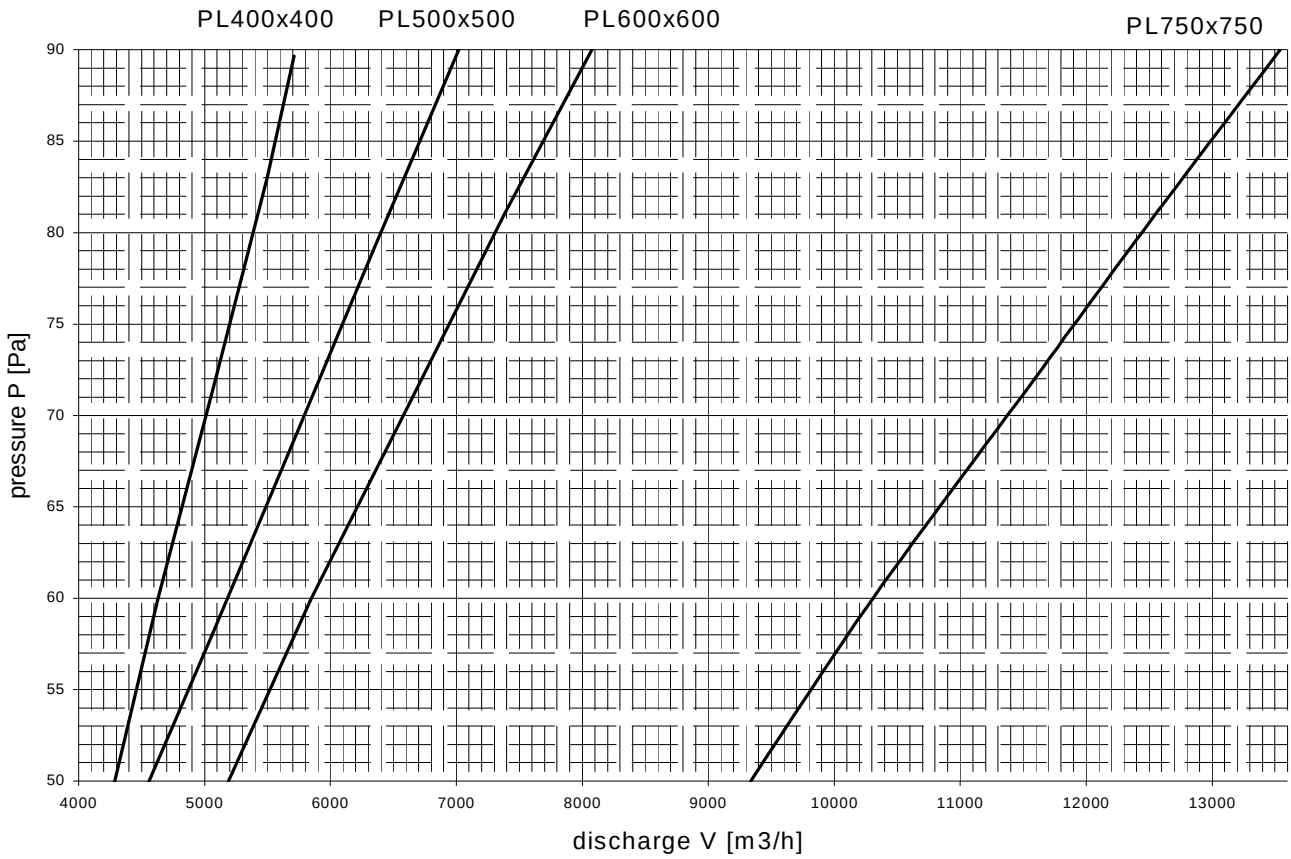
Note:
H and B sizes are gross dimensions of dampers.

If larger dimensions of dampers are required (for bigger airflows), the devices are provided by the Manufacturer as multi-assembly sets (damper sets). Assembly sets are made of a suitable number of single dampers of the basic type as well as flat bars and connecting elements.

Basic dimensions of mcr PL1 dampers have been presented on the drawing below.



Technical characteristics



NOTE – Net dimensions of the dampers have been given in the characteristics.

5. DESIGNATION OF THE DAMPER

mcr PL1 B x H / Z

- Z – version (K – duct-mounted, S – wall-mounted)
- B x H – gross dimensions of the damper: breadth x height [mm]
- mcr PL1 – commercial designation – a damper without accessories

6. INSTALLATION OF THE DEVICE

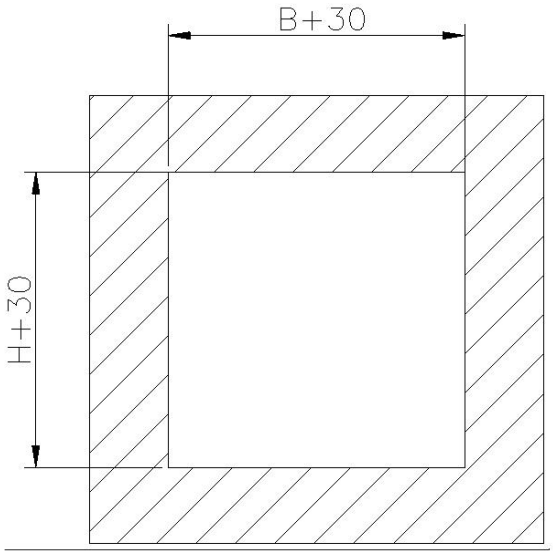
The mcr PL1 damper is designed for **vertical installation**. Due to the special operation of the device and the applied technical solutions, the damper has to be mounted in a suitable position according to the instructions given on the casing by the manufacturer.

6.1. PRE-INSTALLATION INSPECTION

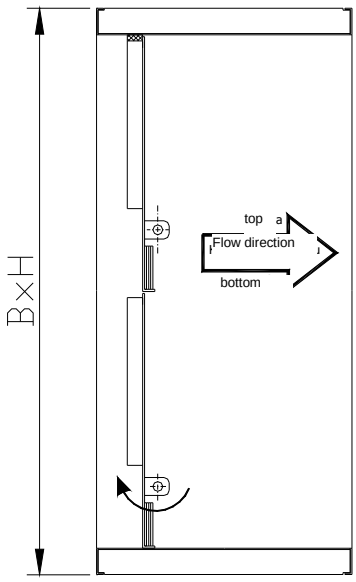
Each damper is inspected before packing and shipment by the manufacturer. After unpacking at the recipient, perform visual inspection to check if the casing has not been deformed and whether the damper has not been damaged during transport.

6.2. INSTALLATION OPENING

The minimum size of the opening permitting correct installation of the damper is (B+30)x(H+30)mm.



Installation opening



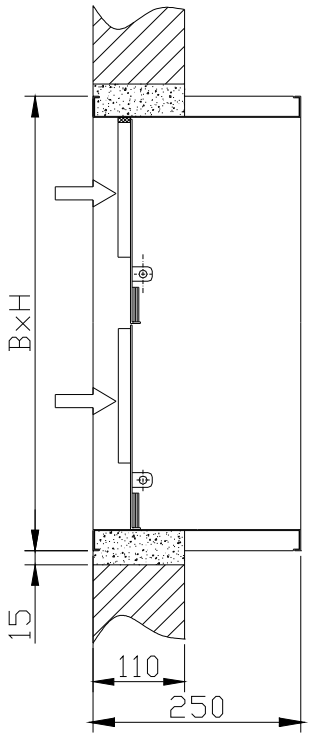
Direction and position of a damper installation

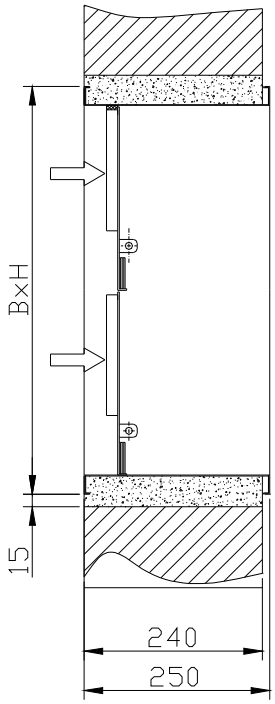
6.3. EMBEDDING

Before embedding, the damper should be placed in the partition (wall), in an opening prepared beforehand, or outside the partition in a mounted support structure. After that, the damper should be **levelled** and fixed. Blades of the damper have to be set horizontally. The damper has to be mounted according to the instructions on the label. Then install the strutting elements and fix the device using masonry mortar, carefully preventing the mortar, glue and paint from getting onto the operating elements of the damper (baffles, limiters and gaskets).
For this purpose, carefully protect the damper with protective film or other covering material before installation, until the masonry and finishing work is completed. After the concrete mortar sets, remove the brackets and open individual blades of the damper manually to check if they operate correctly.

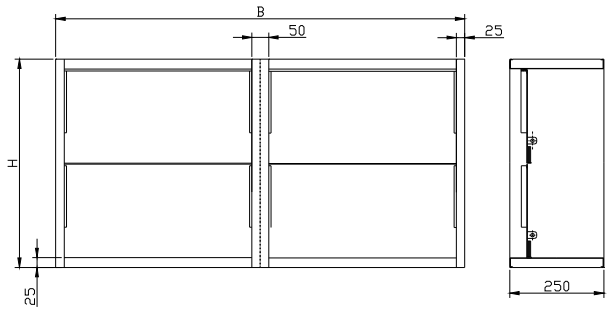
Connection of the embedded damper to the ventilation duct must be executed coaxially. During installation of the damper in the partition, a damage of the damper body, and in particular any stresses in the body, must not be allowed. The damper must not constitute a 'supporting element' of the ventilation system or duct on which it is installed. It is not allowed to drill through the damper casing, drive in bolts, screws or other elements passing through the casing to the inside of the damper, as such elements may block the rotations of the baffle and damage damper elements. After connecting the ventilation duct, check again if the damper operation is correct.

Example of installation in concrete and brickwork walls

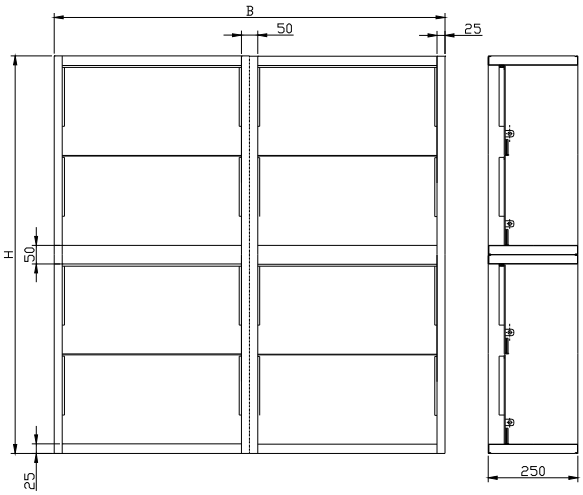




Examples of multi-damper sets



A set of two dampers



A set of four dampers

6.4. ELECTRICAL CONNECTIONS

A damper is an entirely mechanical device that features no electrical parts that would require electrical connections.

7. TRANSPORT AND STORAGE CONDITIONS

The dampers are packed in cartons or placed on pallets. The dampers are protected against damage using protective film or other covering material. The dampers may be transported using any means of transport, provided that they are protected against weather conditions.
Dampers placed on means of transport should be protected against shifting during transport. After each transport, each damper should be visually inspected. The damper must not be hit or dropped. During handling and installation, attention should be paid to the damper baffle.
The dampers should be stacked in no more than 2 layers vertically, in closed rooms ensuring protection against external weather conditions. In the case of storing of the dampers on the ground, they should be placed on protective pads in order to protect the dampers against deformation and damage.

8. MAINTENANCE AND SERVICE

In order to ensure correct and undisturbed operation, the damper should be inspected and actuated on a regular basis. The damper Manufacturer requires service inspections of the device to be performed once per six months. Every inspection of the damper should be recorded in a required report. The service inspection should be performed by the damper Manufacturer or by a company possessing adequate Authorisation to perform service and surveys, issued by the Manufacturer.

9. TERMS OF GUARANTEE

1. The Manufacturer provides a guarantee for the delivered product for 12 months from the date of issuing the invoice, unless the guarantee period is specified in a separate contract.
2. Any faults revealed during the guarantee period, which prevent correct operation of the product, shall be rectified within 21 days from the date of reporting, unless the time for rectifying the faults is specified in a separate contract.
3. The guarantee is extended by the period from reporting the fault to finishing the guarantee repair.
4. If any faults preventing further correct operation of the product are found in the product, the Manufacturer shall replace the faulty product with a product of full value with no financial consequences to the purchaser.
5. The guarantee does not include the operations performed by the purchaser/user, specified in the Documentation.
6. The Manufacturer is absolved from the guarantee and any obligations resulting from the guarantee if:
   a) the product has mechanical damage created due to:
      - improper transport or unloading using own means of the purchaser
      - improper installation using own forces of the purchaser
      - improper operating of the product
   b) faults arise in result of improper storage of the product
   c) the purchaser/user has introduced structural modifications on their own
   d) installation of the product has been performed by the purchaser on their own, not in accordance with the Documentation
   e) faults arise in result of maintenance of the product not in accordance with the Documentation
   f) a rating plate of the product is removed
7. In the complaint procedure for the product, the Manufacturer deducts the equivalent of the elements missing or damaged through the purchaser's/user's fault and the cost of their replacement.