

TECHNICAL MANUAL

Fire damper mcr WIP PROV



Version mcr WIP PROV 26.01.26.6

FIRE VENTILATION SYSTEMS

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CAUTION:



Risk of injury from sharp edges, sharp corners and thin sheet metal parts.
Be careful when working.
Wear protective gloves, safety shoes and a helmet.

Danger of pinching your finger or damaging your hand when the damper partition is in operation. Be careful.

Danger of electric shock. Do not touch live components. Work related to electrical connections may only be performed by employees with appropriate qualifications and authorizations.
Before working on electrical equipment, disconnect the power supply

Technical Manual designations

- Option available
- Option unavailable

NOTE

All previous issues of this Technical Manual expire on the date of issue hereof.

The Technical Manual does not apply to fire dampers manufactured before its date of issue.

mcr WIP PROV multi-blade fire damper

CAUTION:

The product should be stored and used in rooms where:

- there is no access to dust, gases, caustic vapors and other aggressive chemical vapors that can destroy insulating elements and structural elements;
- the dampers are not affected by direct sunlight and UV radiation;
- the maximum relative humidity does not exceed 80% at the temperature of +20
- the ambient temperature is between - 20 °C and + 40 °C;
- there are no vibrations.



In the event that harmful conditions exist or may occur in the place of use, additional measures must be taken to protect the product.

mcr WIP PROV multi-blade fire damper

1. INTRODUCTION

The purpose of this Technical Manual is to present the intended use, design, principle of operation, correct installation and operation of the mcr WIP PROV fire damper, intended for fire ventilation systems.

Prior to starting installation and operation of the device, this OMM must be reviewed in detail. Failure to follow the recommendations included in the documentation may lead to dangerous situations, damage to property and/or injuries. The manufacturer shall not be responsible for damage resulting from use that is inconsistent with this documentation.

2. SUBJECT

This Manual concerns the entire group of multi-blade fire dampers type mcr WIP PROV. Compliance with the Manual guidelines ensures correct performance of the device in terms of fire protection of rooms as well as safety of the system users.

3. INTENDED USE

Application

Type mcr WIP PROV multi-blade fire dampers may be used as:

smoke control dampers for fire ventilation systems – mcr WIP PROV / V

smoke control dampers for mixed fire ventilation systems – mcr WIP PROV / V-M

CAUTION:

Smoke control dampers for fire ventilation systems, designated as mcr WIP PROV /V, and smoke control dampers for mixed fire ventilation systems, designated as mcr WIP PROV / V-M, have a joint declaration of performance, as per the applicable legal regulations. The .../V, .../V-M designations and the word "mixed" used throughout this document are trade designations used by the manufacturer. The design and execution of the abovementioned dampers is the same, regardless of the trade designations.

The dampers cannot be operated in a system exposed to dust, unless included in a special, individually developed service and technical inspections program.

On request (non-standard execution), dampers can be made in a "version" of stainless/acid-resistant steel. This means that the elements made of galvanized steel, used in the standard version of the damper, will be replaced with stainless/acid-resistant steel. The remaining components of the damper (e.g. thermal releases, actuators, pins, blades, fire seals will be made of materials normally used for the production of the device) Moreover, dampers come as "right" and "left" versions, which means that the motor protective box will be placed on one of the sides of the damper.

Fire resistance

Type mcr WIP PROV fire dampers have the following fire resistance ratings. The fire resistance rating depends on application, method and place of installation of the damper.

EI 120 (ved i↔o) S1000 C10.000 AA multi – damper with cover grille/*

EI 90 (ved i↔o) S1000 C10.000 AA multi – damper without cover grille

EI 60 (ved i↔o) S1000 C10.000 AA multi – damper without cover grille

/* the cover grille may be placed directly adjacent to the damper or at the end of the installation in which the damper is installed.

mcr WIP PROV multi-blade fire damper

Versions

mcr WIP PROV dampers are manufactured in the following versions:

- Rectangular dampers
- Rectangular dampers with separate round connections
- Circular dampers

Dimension type series

The mcr WIP PROV fire dampers are manufactured in the following size ranges:

Type	mcr WIP PROV /V mcr WIP PROV /V-M
Width	from 110 to 1200 mm
Height	from 270 to 2300 mm
Length	135 mm
Rotation axis	Horizontal
Max. surface area	2.76 m ²
Min. surface area	0.029 m ²

In addition to standard dimensions, it is possible to make dampers with intermediate dimensions.

4. DESIGN AND OPERATING PRINCIPLE

Design

The multi-blade mcr WIP PROV damper consists of a rectangular casing made of two steel sections connected with a non-combustible plate using rivets and galvanized steel sheet fasteners, a set of movable blades rotating around their axes and a trigger control mechanism. The damper casing is made of fire resistant panels and galvanized "C" shape metal sheet profiles. The whole casing is reinforced from both sides with corners made of flat steel. Intumescent and ventilation gaskets are installed on the inside of the damper on the H vertical side. The vertical edge with the actuator is protected by means of a fire resistant panel. The engine cover is installed on the H side of the damper. Each damper blade is made of two fire resistant panels, which are displaced against each other. Along the entire blade length, on both sides, there is an intumescent gasket and a ventilation gasket, attached using staples. The damper blades revolve on their own axes, which consist of two steel pins. Each pin is mounted in a brass sleeve installed on the vertical side H of the fire damper casing.

Operating principle

The operating principle and way of working of the mcr WIP PROV multi-blade fire dampers depend on their application versions:

fire dampers – mcr WIP PROV /S

In the normal operating position, the dampers are open. Closing of the dampers (to the safety position)

- follows: automatically, by tripping the thermoelectric trigger
- manually, by pressing the control button on the thermoelectric trigger
- remotely, by tripping an electric axial actuator with a return spring caused by isolation from the voltage supply
- automatically, by tripping the thermal trigger and the driving spring.

smoke control dampers for fire ventilation systems – mcr WIP PROV /V

In the normal operating position the dampers are closed.

Opening / closing of the dampers (to the safety position) follows:

- remotely, by tripping an electric axial actuator without a return spring, as a result of applying the supply voltage to the actuator in the right manner.
- remotely, by tripping the electromagnetic release and the spring as a result of energization.

mcr WIP PROV multi-blade fire damper

smoke control dampers for mixed fire ventilation systems – mcr WIP PROV / V-M

In normal operation the dampers are closed or open, depending on the function carried out.

Opening / closing of the dampers (to the safety position) follows:

remotely, by tripping an electric axial actuator without a return spring, as a result of applying the supply voltage to the actuator in the right manner.

remotely, by tripping the electromagnetic release and the spring as a result of energization

transfer fire dampers – mcr WIP PROV /T

In the normal operating position the dampers are open. Closing of the dampers (to the safety position)

follows: automatically, by tripping the thermoelectric trigger

manually, by pressing the control button on the thermoelectric trigger

remotely, by tripping an electric axial actuator with a return spring caused by isolation from the supply voltage

automatically, by tripping the thermal trigger and the driving spring

relief fire dampers – mcr WIP PROV /T-G

In the normal operating position the dampers are open or closed. Depending on the requirements, the damper is closed or opened:

remotely, by tripping an electric axial actuator with a return spring or without a return spring (caused by connecting or isolating from the supply voltage). The actuator does not have a thermoelectric trigger. Actuator operation is initiated by the building's fire protection system.

Manual inspection of the operation of dampers with an electric actuator for maintenance purposes is possible using a dedicated wrench, which is inserted into the socket marked on the actuator and then a rotational motion allows to set the damper partition in the desired position. Rotate the wrench slowly, smoothly and carefully. Rotating the wrench too fast or too rapidly may damage the internal actuator gear or the power transmission system.

Manual inspection of the correct operation of dampers with a trigger control gear in the integrated version, performed for maintenance purposes, is possible by pressing the lever on the gear. In the case of dampers with electric actuators, manual inspection to confirm proper damper operation should be performed using an mcr T2 tester.

CAUTION:

Never pull directly on the damper blade to open or close the device. This may result in damage of the self-locking driving gear of the damper, and is not covered by guarantee. It is recommended that dampers be opened and closed when the ventilation system is deactivated.

Trigger control gears

The following trigger control gears are available for the mcr WIP PROV fire dampers:

Electric actuator:

<input type="checkbox"/> BF 230-T	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input checked="" type="checkbox"/> BE 230	<input type="checkbox"/> /S	<input checked="" type="checkbox"/> /V	<input checked="" type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input type="checkbox"/> BF 24-T (-ST)	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input checked="" type="checkbox"/> BE 24 (-ST)	<input type="checkbox"/> /S	<input checked="" type="checkbox"/> /V	<input checked="" type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input type="checkbox"/> BF 24-T-TL	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input type="checkbox"/> BLE 230	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input type="checkbox"/> BFL 230-T	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input type="checkbox"/> BLE 24 (-ST)	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input type="checkbox"/> BFL 24-T (-ST)	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input type="checkbox"/> EXBF 230	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input type="checkbox"/> BFN 230-T	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input type="checkbox"/> EXBF 24	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input type="checkbox"/> BFN 24-T (-ST)	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input type="checkbox"/> BF 230-TN	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input type="checkbox"/> BF 24-TN (-ST)	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input type="checkbox"/> BF 24-TN-TL	<input type="checkbox"/> /S	<input type="checkbox"/> /V	<input type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input checked="" type="checkbox"/> BEE 230	<input type="checkbox"/> /S	<input checked="" type="checkbox"/> /V	<input checked="" type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input checked="" type="checkbox"/> BEE 24 (-ST)	<input type="checkbox"/> /S	<input checked="" type="checkbox"/> /V	<input checked="" type="checkbox"/> /V-M	<input type="checkbox"/> /T
<input checked="" type="checkbox"/> BEN 230	<input type="checkbox"/> /S	<input checked="" type="checkbox"/> /V	<input checked="" type="checkbox"/> /V-M	<input type="checkbox"/> /T	<input checked="" type="checkbox"/> BEN 24 (-ST)	<input type="checkbox"/> /S	<input checked="" type="checkbox"/> /V	<input checked="" type="checkbox"/> /V-M	<input type="checkbox"/> /T

mcr WIP PROV multi-blade fire damper

Spring gear:

<input type="checkbox"/>	RST	<input type="checkbox"/>	/S	<input type="checkbox"/>	/N	<input type="checkbox"/>	/M	<input type="checkbox"/>	/T
<input type="checkbox"/>	RST/KW1/24P	<input type="checkbox"/>	/S	<input type="checkbox"/>	/N	<input type="checkbox"/>	/M	<input type="checkbox"/>	/T
<input type="checkbox"/>	RST/KW1/230P	<input type="checkbox"/>	/S	<input type="checkbox"/>	/N	<input type="checkbox"/>	/M	<input type="checkbox"/>	/T

<input type="checkbox"/>	RST/KW1/S	<input type="checkbox"/>	/S	<input type="checkbox"/>	/N	<input type="checkbox"/>	/M	<input type="checkbox"/>	/T
<input type="checkbox"/>	RST/KW1/24I	<input type="checkbox"/>	/S	<input type="checkbox"/>	/N	<input type="checkbox"/>	/M	<input type="checkbox"/>	/T
<input type="checkbox"/>	RST/KW1/230I	<input type="checkbox"/>	/S	<input type="checkbox"/>	/N	<input type="checkbox"/>	/M	<input type="checkbox"/>	/T

Basic dimensions

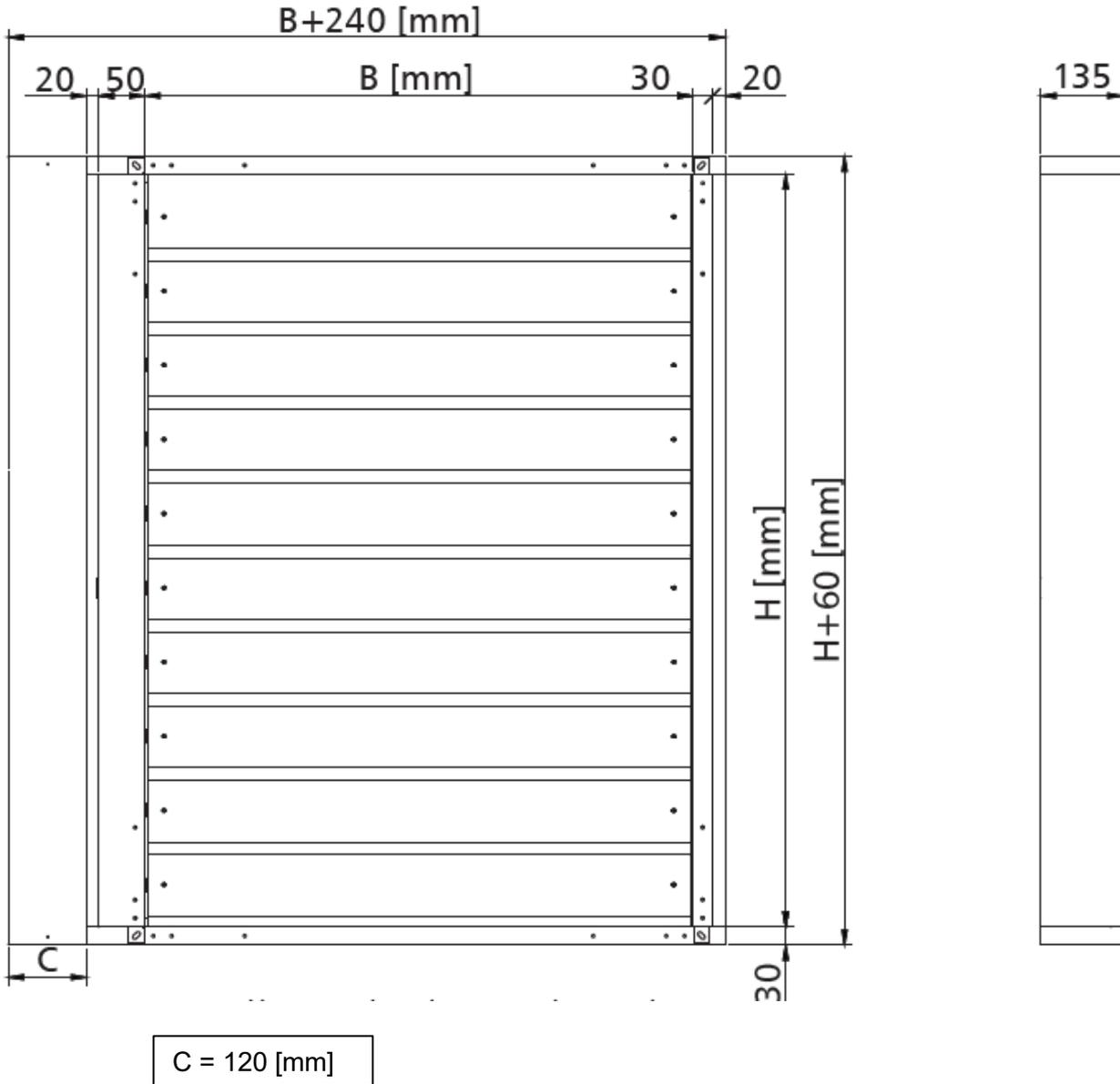
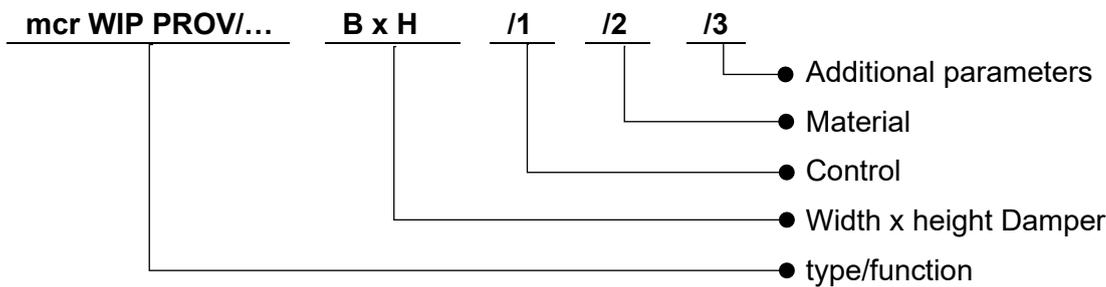


Fig. mcr WIP PROV damper with LC box for the control trigger gear

mcr WIP PROV multi-blade fire damper

5. DEVICE IDENTIFICATION



6. INSTALLATION

CAUTION:

During the installation of the damper and finishing works with it, there is a need to consider possibility of future access to the device and possibility of disassembly the control-release mechanism in order to perform maintenance or technical review (LC box).

mcr WIP PROV dampers may be installed in the vertical position with a horizontal rotation axis for the device partition blades:

- in/on walls of vertical masonry shafts, made of solid concrete,
- in/on walls of vertical masonry shafts, made of bricks or masonry units,
- in/on a vertical building shaft made of fire protection boards with the required fire resistance,
- in/on vertical shafts made of fire protection materials, with a density of at least 525 kg/m³ and a wall thickness of at least 50 [mm], tested according to EN1366-8 and/or EN1366-9
- in/on horizontal shafts made of fire protection materials, with a density of at least 525 kg/m³ and a wall thickness of at least 50 [mm], tested according to EN1366-8 and/or EN1366-9, between sections of such ducts, on the lateral walls of ducts, at duct terminations.

Additionally, the fire dampers can be installed:

- beyond walls – installation on/in horizontal ducts
- damper adjacent to damper or damper over damper
- in banks (sets)

If the damper is installed in or on the wall of a duct whose wall thickness is smaller than required, the thickness around the perimeter of the installed damper should be increased, e.g. by installing an additional board or other building element with fire-resistant properties.

6.1. PRE-ASSEMBLY INSPECTION

Each fire damper is inspected by the manufacturer before packing and shipping. After unpacking the delivered damper, visually examine it for any damage or casing deformations, which could have occurred during transport. Check whether the damper opens and closes correctly.

mcr WIP PROV multi-blade fire damper

6.2. INSTALLATION OPENING

The recommended size of the hole enabling proper installation of the mcr WIP PROV damper depends on the method and place of installation.

For a damper installed on a horizontal section of a duct made of fireproof boards, a gap of 5-10 mm should be left in the opening on each side of the flap and filled with assembly mortar around the perimeter.

For a damper mounted on a horizontal section of a duct made of fireproof boards "butt-to-side" to the duct wall, the damper should be sealed at the point where the flange meets the wall and enclosed around the perimeter with board bands with a minimum thickness of 50 mm and sealed with mounting mortar.

The damper installed in the wall of a vertical smoke exhaust duct or vertical building shaft must be equipped with a band around the perimeter (horizontal section of the duct) with a wall thickness of at least 50 mm. The gap (width 5-10 mm) between the band and the wall of the shaft/duct and between the band and the flap should be filled around the perimeter with mounting mortar.

6.3. EMBEDDING / SETTING THE DAMPER

mcr WIP PROV fire dampers can work in a vertical position where the partition (damper blades) rotation axis is a horizontal axis. The release and control mechanism can be located on the right or left side of the damper in any direction of air flow.

Prior to installation the damper at the destination site, level and immobilize the device. After these operations, manually activate the damper partition, checking that it rotates correctly (does not interfere with the housing elements, etc.). Then close the damper partition for the duration of the installation and make sure to secure the damper elements (partition, seals, gears, movable elements, limiters etc.) with foil or other covering material until masonry and finishing works are completed. The device partition must remain closed until the mortar used for its installation sets. After setting the mortar, open and close the damper again to check its correct operation. When installing mcr WIP PROV dampers, pay special attention not to expose the intumescent gaskets installed in the fire damper casing to high temperature. Proper operation of the damper is impossible, when gaskets are swollen. After installation, remove the protection elements, carefully clean the fire damper and make sure that there is no debris which could obstruct proper performance of the device. Using drills, screws, bolts or other elements that pierce through the casing to the inside of the damper is prohibited, unless such sites have been marked by the manufacturer.

mcr WIP PROV multi-blade fire damper

Installation examples:

Installation of an mcr WIP PROV damper directly on a vertical construction shaft

Admissible shaft execution versions:

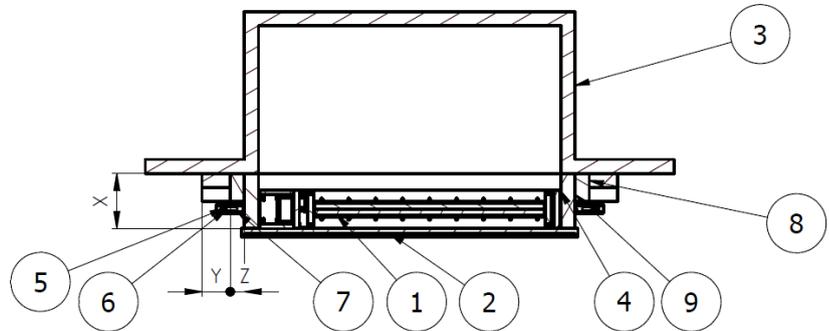
- Solid shaft - reinforced concrete, wall thickness according to the required fire resistance
- Brick shaft made of bricks, blocks, hollow bricks, wall thickness according to the required fire resistance

Shaft closing wall:

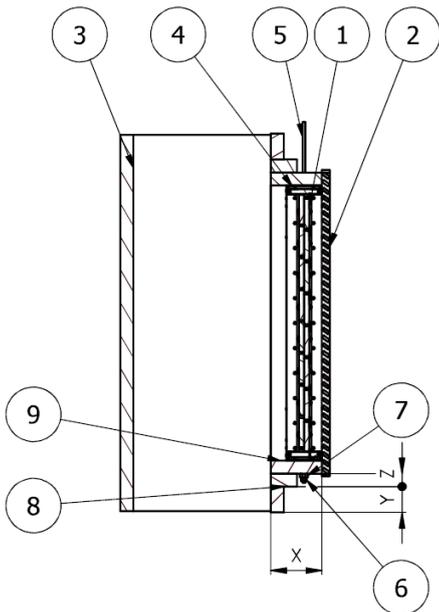
- Execution version - material: as above

- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Construction shaft
- 4 - Mounting mortar*
- 5 - Suspension system - rod
- 6 - Suspension system, mounting
- 7 - Suspension system - horizontal element
- 8 - Elements made of fireproof boards
- 9 - Horizontal section of the duct made of fireproof boards according to EN 1366-8, board thickness min. 50 mm

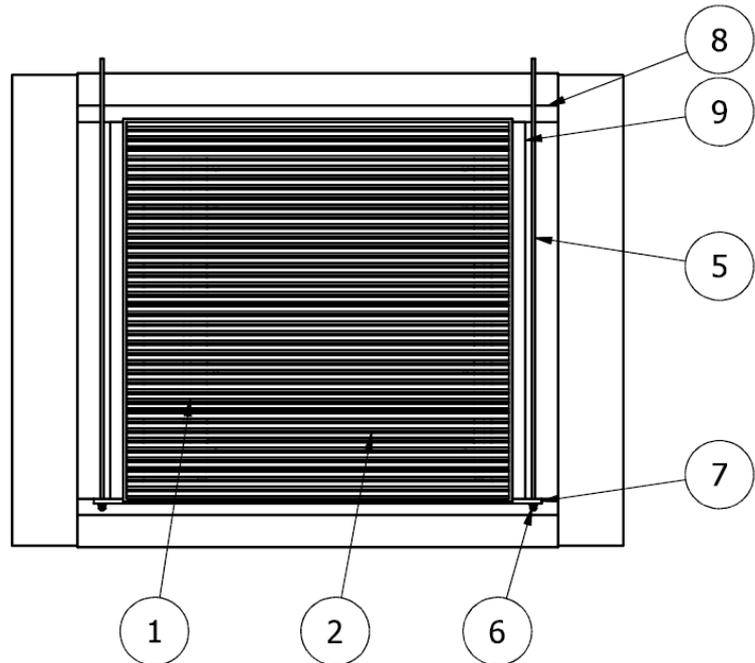
X = min 135mm
 Z = min 50 mm - board band,
 Y = min 40mm - board band,



Top view - vertical shaft



Vertical cross-section



* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper directly on a vertical construction shaft

Admissible shaft execution versions:

- Solid shaft - reinforced concrete, wall thickness according to the required fire resistance
- Brick shaft made of bricks, blocks, hollow bricks, wall thickness according to the required fire resistance

Shaft closing wall:

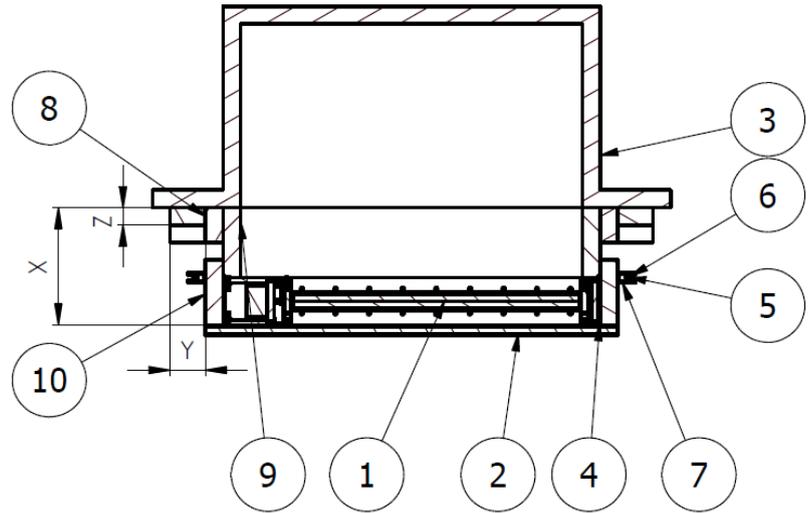
- Execution version - material: as above

- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Construction shaft
- 4 - Mounting mortar*
- 5 - Suspension system - rod
- 6 - Suspension system, mounting
- 7 - Suspension system – horizontal element
- 8 - Elements made of fireproof boards
- 9 - Horizontal section of the duct made of fireproof boards according to EN 1366-8, board thickness min. 50 mm
- 10 - Fire-retardant board band around the perimeter of the damper, board thickness min. 50 mm

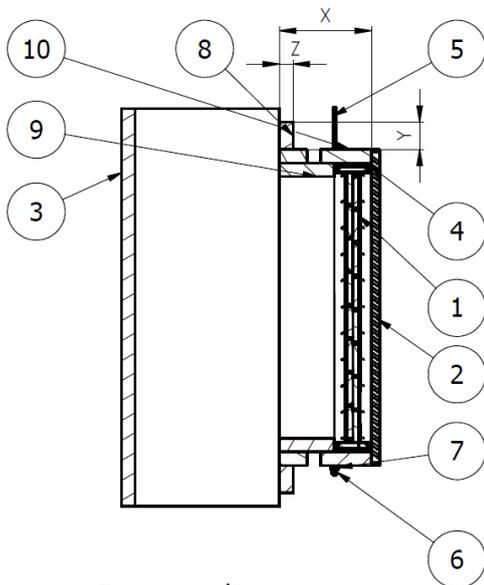
X = min 135mm

Z = min 50 mm - board band,

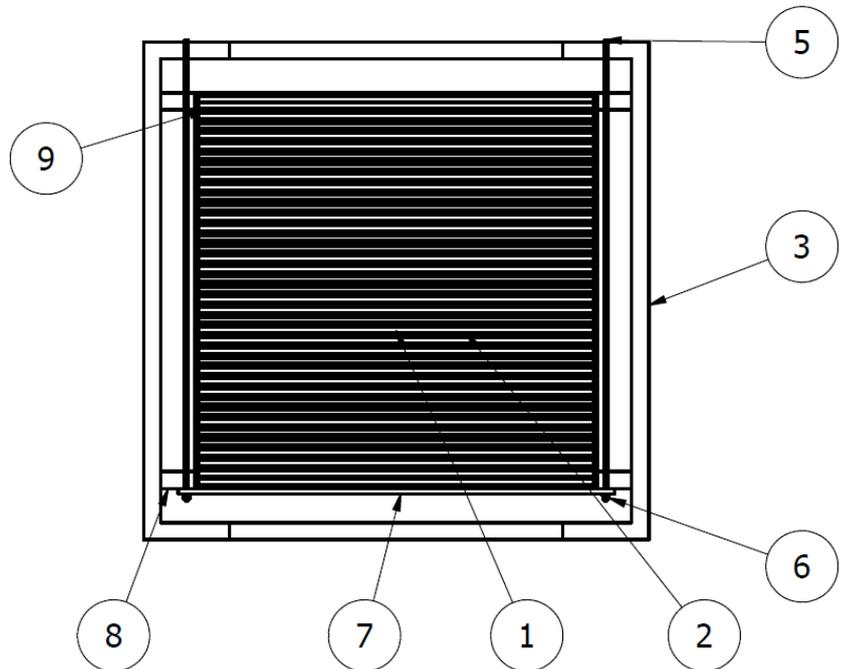
Y = min 40mm - board band,



Top view - vertical shaft



Vertical cross-section



* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper in a solid or masonry a vertical construction

shaft Admissible shaft execution versions:

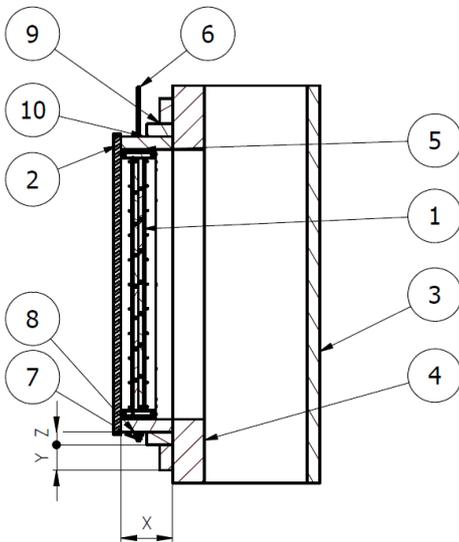
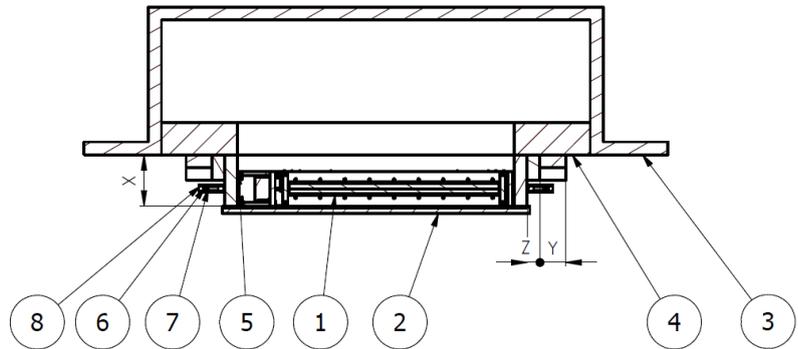
- Solid shaft - reinforced concrete, wall thickness according to the required fire resistance
- Brick shaft made of bricks, blocks, hollow bricks, wall thickness according to the required fire resistance

Shaft closing wall:

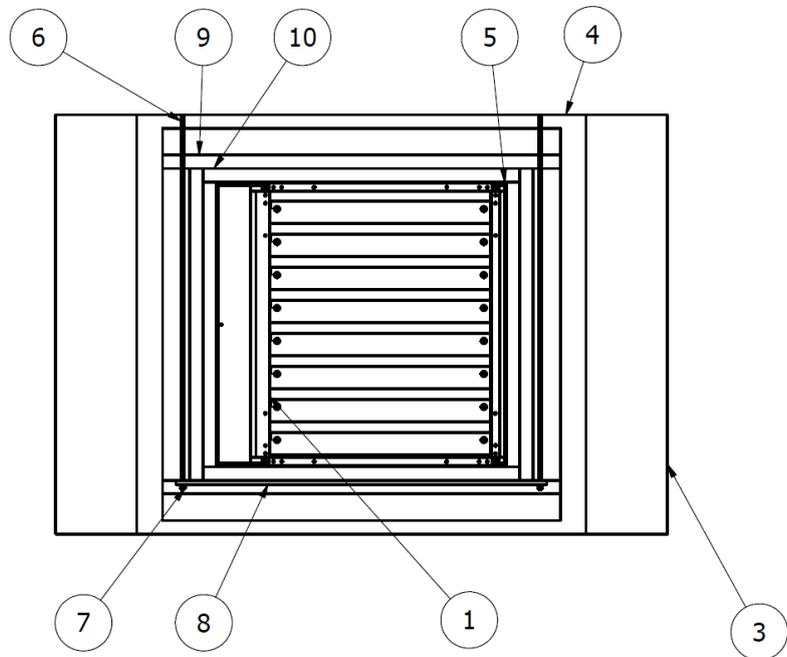
- Execution version - material: as above

- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Construction shaft
- 4 - Closing wall of the shaft
- 5 - Installation mortar*
- 6 - Suspension system, mounting
- 7 - Suspension system - horizontal element
- 8 - Suspension system, mounting
- 9 - Elements made of fireproof boards
- 10 - Horizontal section of the duct made of fireproof boards according to EN 1366-8, board thickness min. 50 mm

X = min 135mm
 Z = min 50 mm - board band,
 Y = min 40mm - board band,



Vertical cross-section



* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper on a solid or masonry a vertical construction

shaft Admissible shaft execution versions:

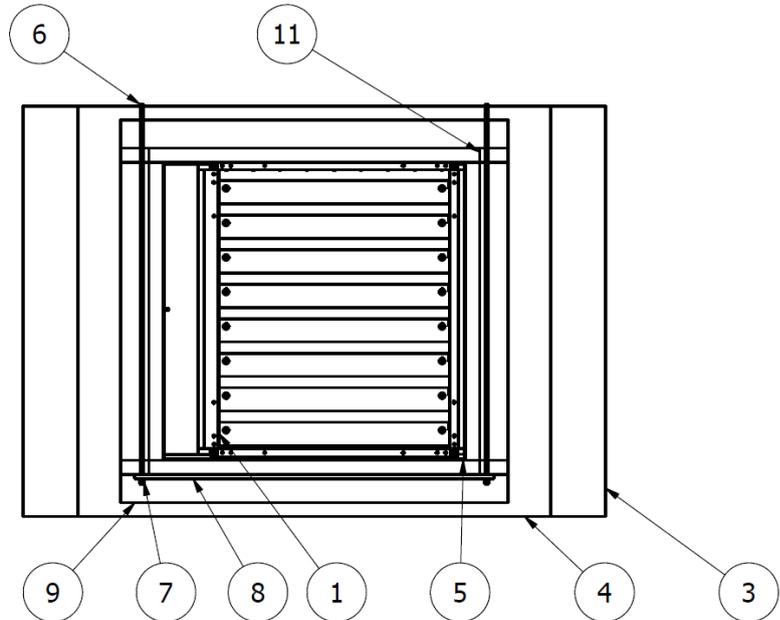
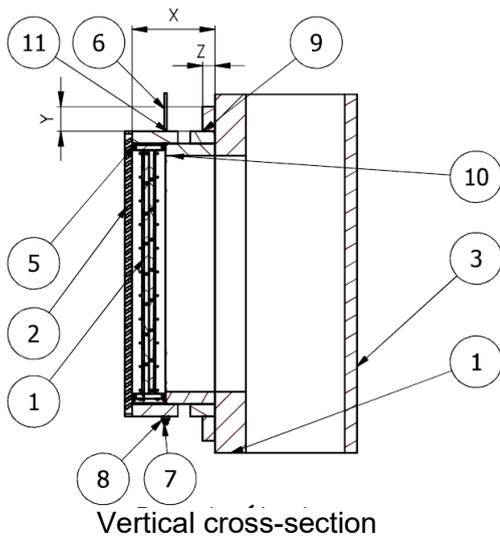
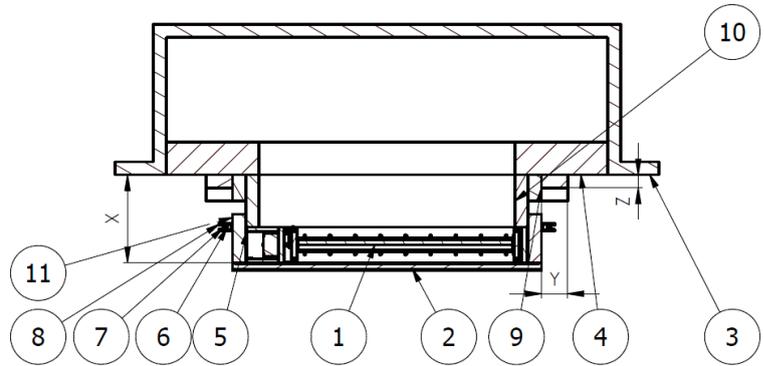
- Solid shaft - reinforced concrete, wall thickness according to the required fire resistance
- Brick shaft made of bricks, blocks, hollow bricks, wall thickness according to the required fire resistance

Shaft closing wall:

- Execution version - material: as above

- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Construction shaft
- 4 - Closing wall of the shaft
- 5 - Installation mortar*
- 6 - Suspension system, mounting
- 7 - Suspension system – horizontal element
- 8 - Suspension system, mounting
- 9 - Elements made of fireproof boards
- 10 - Horizontal section of the duct made of fireproof boards according to EN 1366-8, board thickness min. 50 mm
- 11 - Fire protection board band around the perimeter of the hatch

X = min 135mm
 Z = min 50 mm - board band,
 Y = min 40mm - board band,



* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

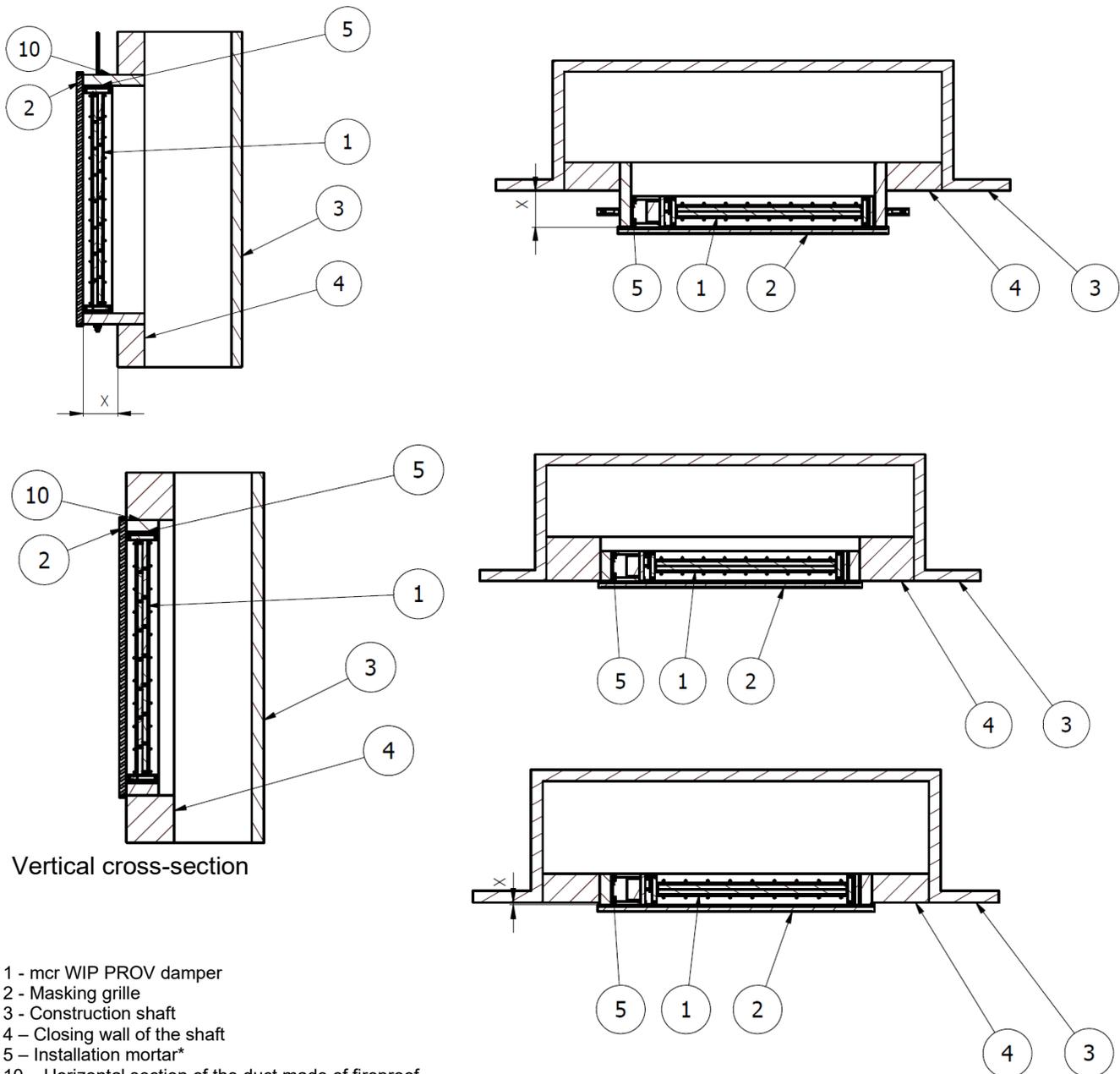
Installation of an mcr WIP PROV damper in a solid or masonry a vertical construction

shaft Admissible shaft execution versions:

- Solid shaft - reinforced concrete, wall thickness according to the required fire resistance
- Brick shaft made of bricks, blocks, hollow bricks, wall thickness according to the required fire resistance

Shaft closing wall:

- Execution version - material: as above, horizontal section of the duct according to EN1366-8, inside the shaft opening



Vertical cross-section

- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Construction shaft
- 4 - Closing wall of the shaft
- 5 - Installation mortar*
- 10 - Horizontal section of the duct made of fireproof boards according to EN 1366-8, board thickness min. 50 mm

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper in a wall made of panels, vertical construction

shaft Admissible shaft execution versions:

- Fire-resistant system wall made of boards, made in accordance with the manufacturer's recommendations of the solution used

Shaft closing wall:

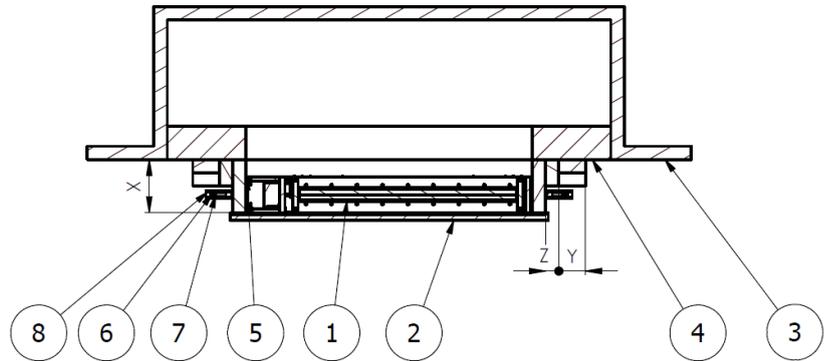
- Fire-resistant system wall made of boards, made in accordance with the manufacturer's recommendations of the solution used

- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Construction shaft
- 4 - Closing wall made of boards
- 5 - Installation mortar*
- 6 - Suspension system, mounting
- 7 - Suspension system - horizontal element
- 8 - Suspension system, mounting
- 9 - Elements made of fireproof boards
- 10 - Horizontal section of the duct made of fireproof boards according to EN 1366-8, board thickness min. 50 mm

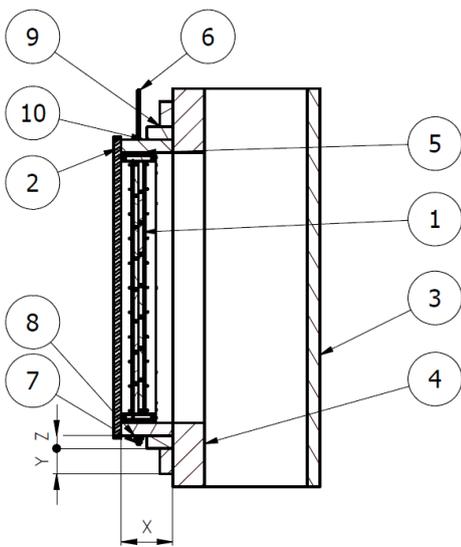
X = min 135mm

Z = min 50 mm - board band,

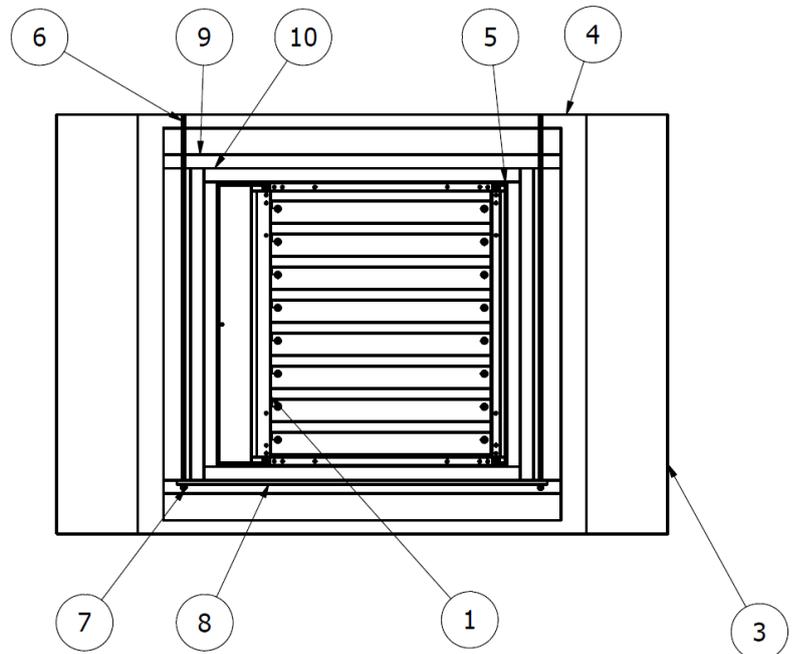
Y = min 40mm - board band,



Top view - vertical shaft



Vertical cross-section



* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper in a vertical fire ventilation duct or an air supply duct

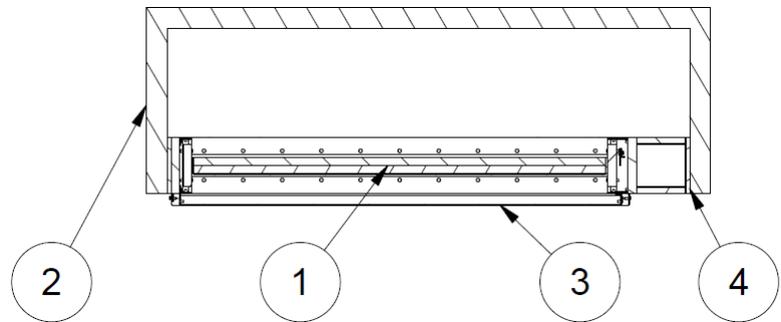
Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

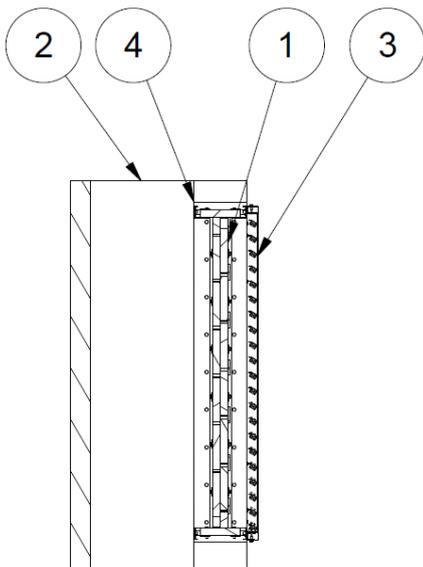
Duct closing wall:

- Execution version: material as above, installation between the walls of the duct in its lumen

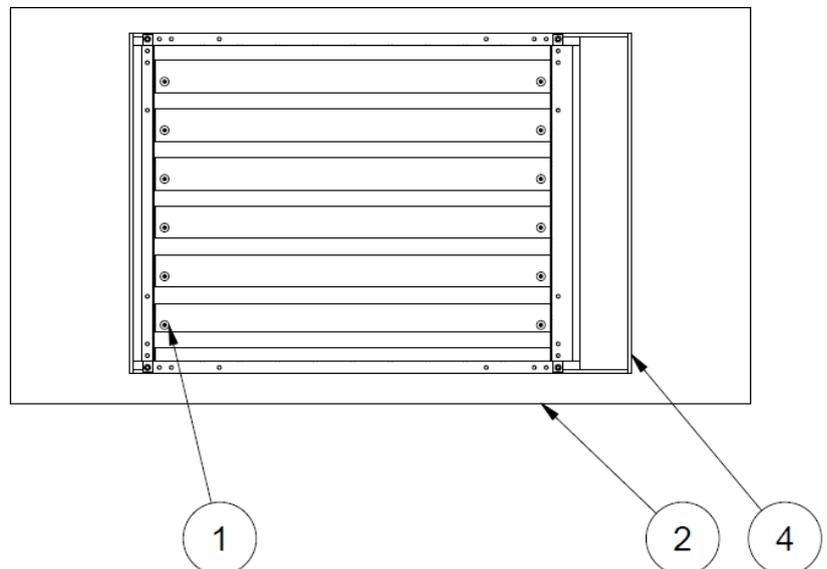
- 1 - mcr WIP PROV damper
- 2 - Self-supporting duct, made of boards
- 3 - Cover grille
- 4 - Installation mortar*



Top view – vertical duct



Vertical cross-section



* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper on a vertical fire ventilation duct or an air supply duct

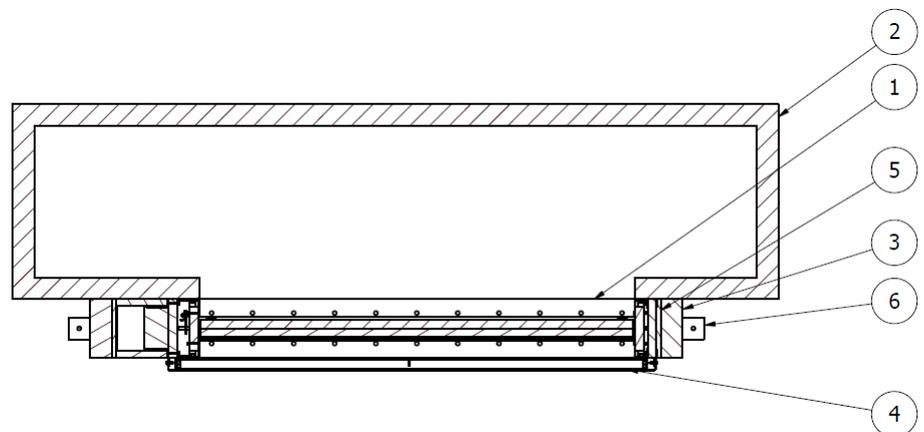
Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

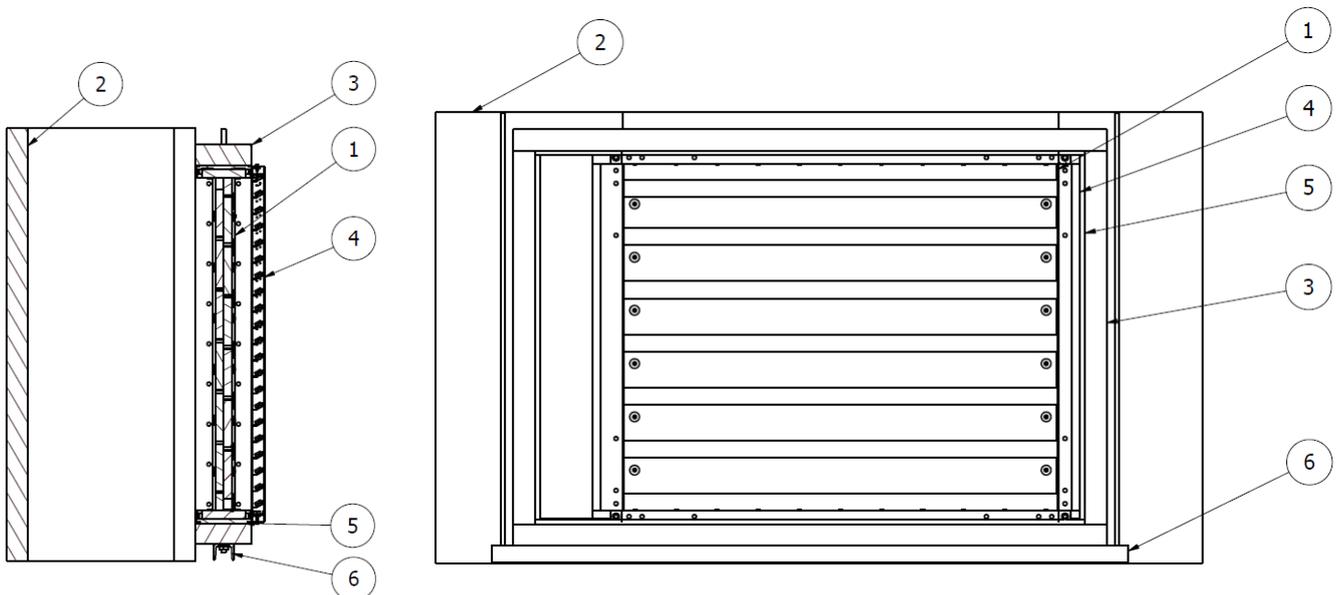
Duct closing wall:

- Installation on a duct wall, install board bands along the perimeter of the damper. Trims width: at least 135 mm, bands thickness: no less than 50 mm,

- 1 - mcr WIP PROV damper
- 2 - Self-supporting duct, made of boards, board thickness min. 50 mm
- 3 - Board installation bands, board thickness min. 50 mm
- 4 - Cover grille
- 5 - Installation mortar*
- 6 - Suspension system



Top view – vertical duct



Vertical cross-section

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper in a horizontal branch duct/section from a vertical fire ventilation duct or air supply duct

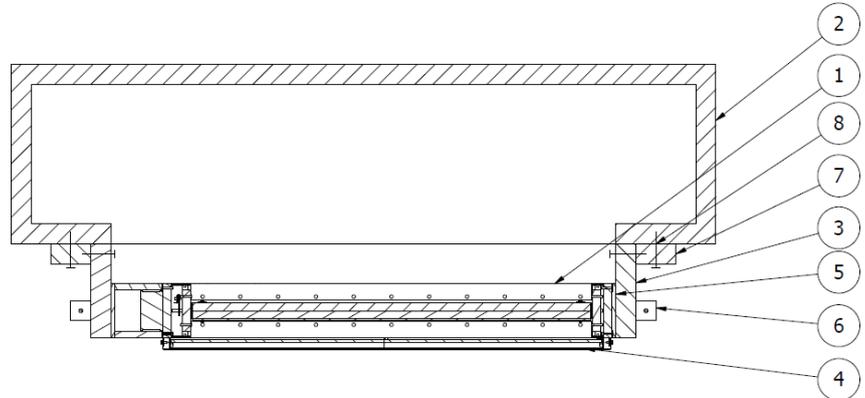
Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

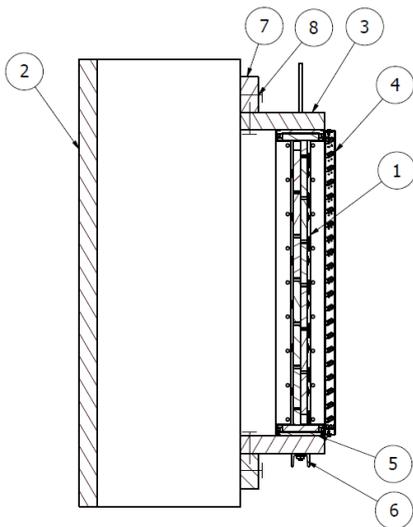
Duct closing wall:

- Installation in the duct opening, away from the vertical duct. Bands thickness: no less than 50 mm,

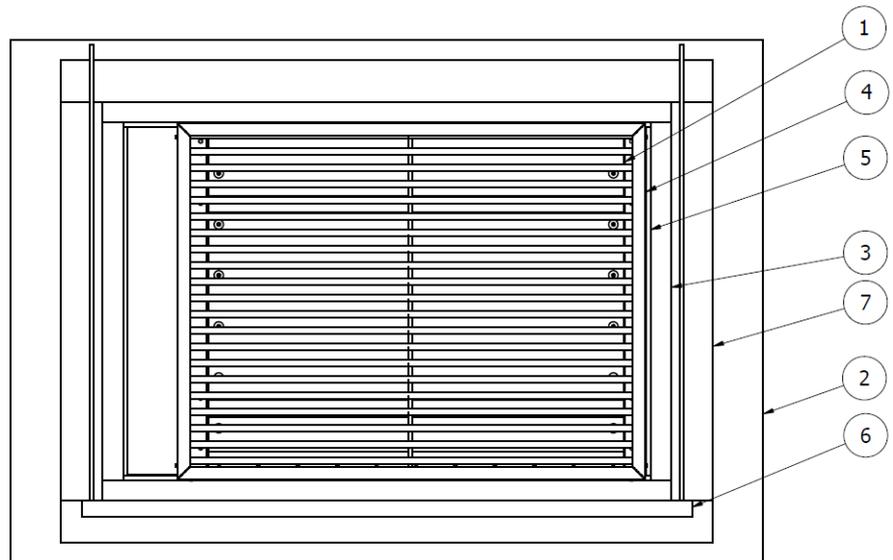
- 1 - mcr WIP PROV damper
- 2 - Self-supporting duct, made of boards
- 3 - Horizontal duct section, board thickness min. 50 mm
- 4 - Cover grille
- 5 - Installation mortar*
- 6 - Suspension system
- 7 - Additional installation trims, board thickness min. 50 mm
- 8 - Connectors, e.g. tap-screws



Top view – vertical duct



Vertical cross-section



* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper on a horizontal branch duct/section from a vertical fire ventilation duct or air supply duct

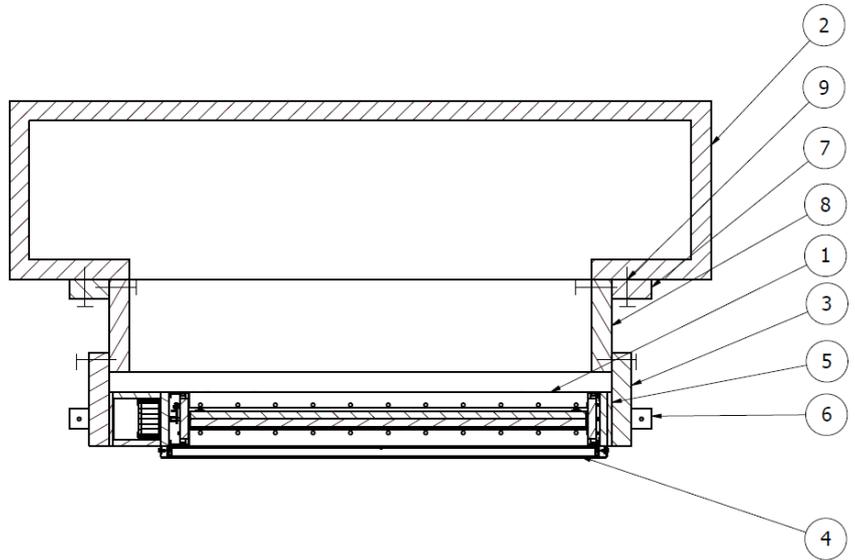
Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

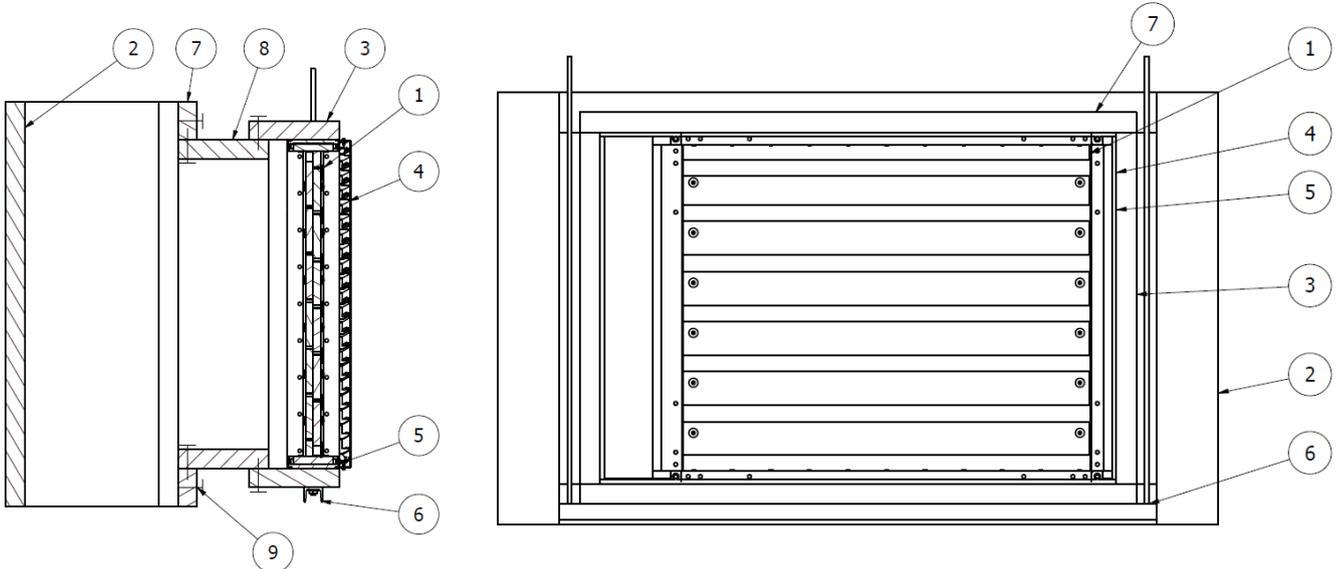
Duct closing wall:

- Installation on the duct wall (front), away from the vertical duct. Bands thickness: no less than 50 mm,

- 1 - mcr WIP PROV damper
- 2 - Self-supporting duct, made of boards
- 3 - Horizontal duct section, board thickness min. 50 mm
- 4 - Cover grille
- 5 - Installation mortar*
- 6 - Suspension system
- 7 - Additional installation trims, board thickness min. 50 mm
- 8 - Horizontal duct section, board thickness min. 50 mm
- 9 - Connectors, e.g. tap-screws



Top view – vertical duct



Vertical cross-section

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

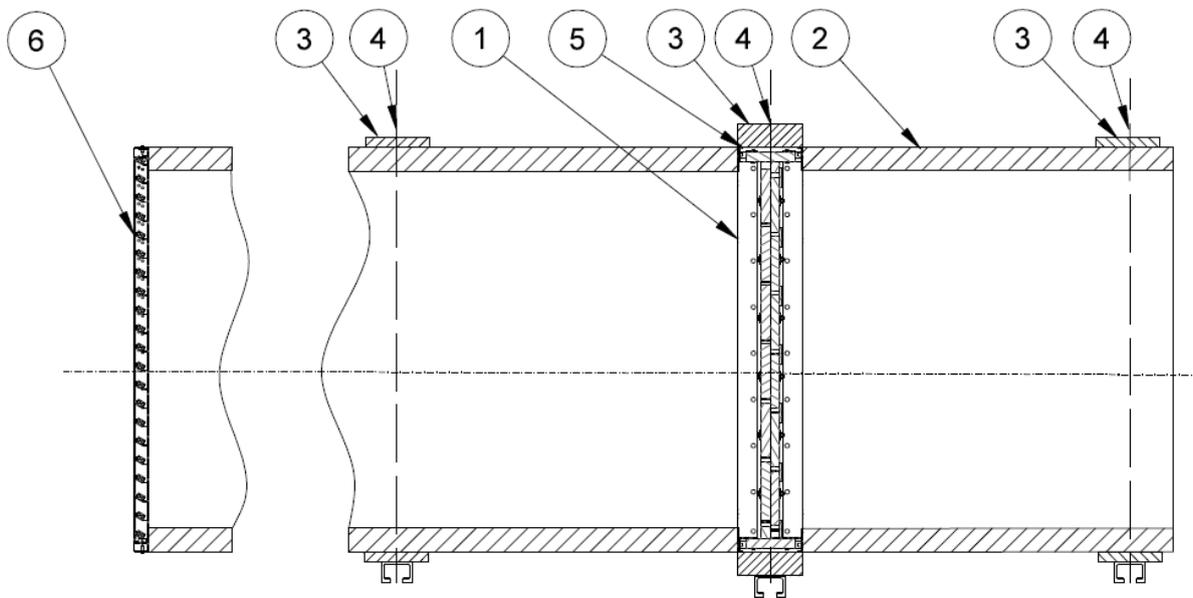
Installation of an mcr WIP PROV damper on/in a horizontal fire ventilation duct or air supply duct section

Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

Possible installation options:

- On the duct wall (front) – cover the damper along the perimeter with additional bands. Bands thickness: no less than 50 mm, trim material density: at least 525 kg/m³
- In the duct – use system trims to connect the duct sections, if required by the manufacturer of the selected solution



- 1 - mcr WIP PROV damper
- 2 - Self-supporting duct
- 3 - System bands for the duct section or trim for covering the damper
- 4 - Suspension system
- 5 - Installation mortar*
- 6 - Cover grille adjacent to the damper or at the system termination

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

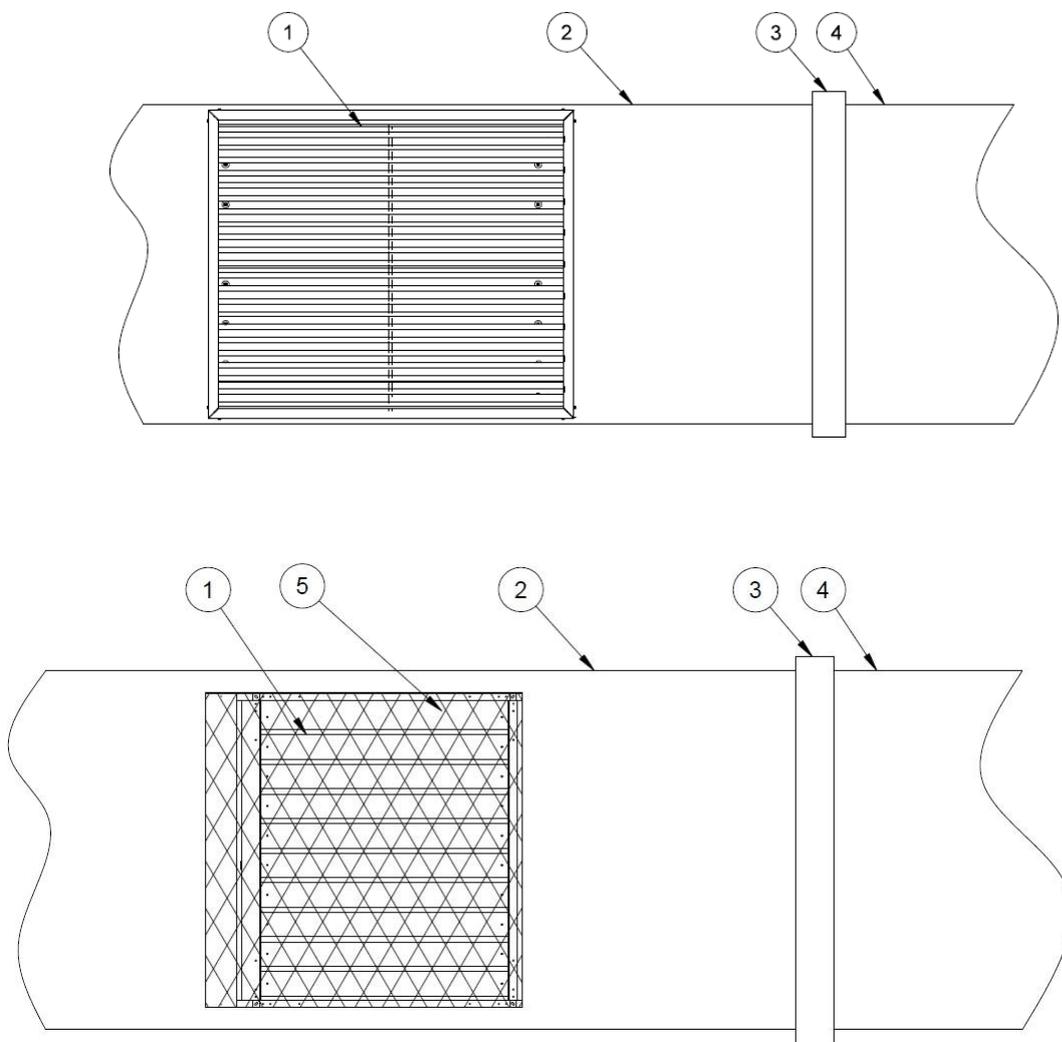
Installation of an mcr WIP PROV damper on/in a lateral wall of a horizontal fire ventilation duct or air supply duct section

Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

Possible installation options:

- On any lateral wall of a vertical duct (front) – cover the damper along the perimeter with additional trims. Bands thickness: no less than 50 mm,
- In any lateral wall of a vertical duct – if the damper protrudes beyond the duct wall, cover the damper along the perimeter with additional bands. Bands thickness: no less than 50 mm,



- 1 - Cover grille
- 2 - Horizontal duct section
- 3 - Bands – connecting duct section
- 4 - Horizontal duct section
- 5 - mcr WIP PROV damper

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

Installation of an mcr WIP PROV damper on a horizontal branch duct/section from a vertical fire ventilation duct or air supply duct

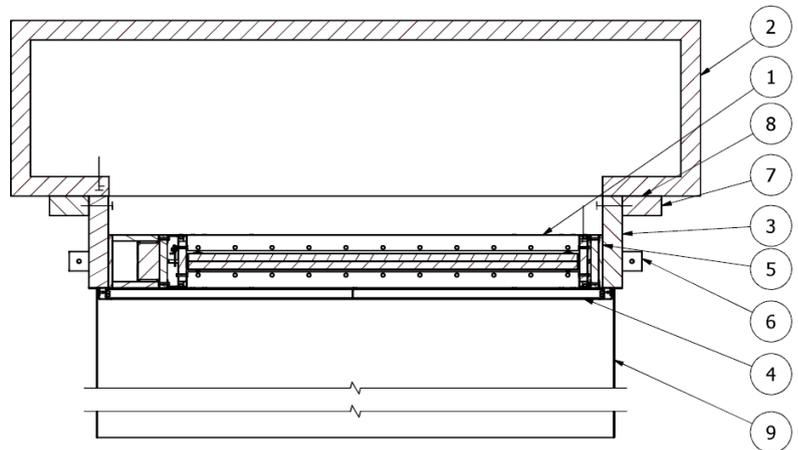
Possible duct execution versions:

- Vertical shaft, made of panels with the appropriate fire resistance rating, according to EN1366-8
- Horizontal duct made of sheet metal (single-compartment) with the appropriate fire resistance rating, according to EN1366-9 Ducting execution as per the recommendations of the selected solution's manufacturer

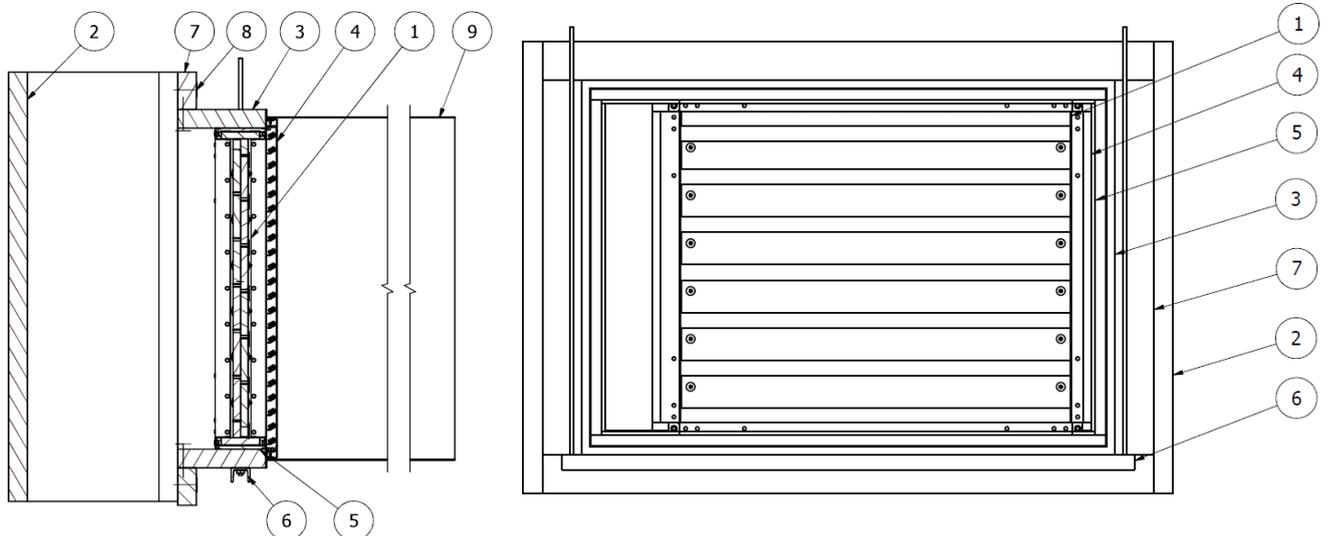
Duct closing wall:

- Installation in the wall/opening of a horizontal duct, away from the vertical duct. Trims thickness: no less than 50 mm,
- Damper connection to a single-compartment metal sheet duct.

- 1 - mcr WIP PROV damper
- 2 - Self-supporting duct
- 3 - Horizontal duct section (damper casing), board thickness min. 50 mm
- 4 - Cover grille
- 5 - Installation mortar*
- 6 - Suspension system
- 7 - Additional installation bands, board thickness min. 50 mm
- 8 - Connectors, e.g. tap-screws
- 9 - Horizontal steel duct



Top view – vertical duct



Vertical cross-section

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

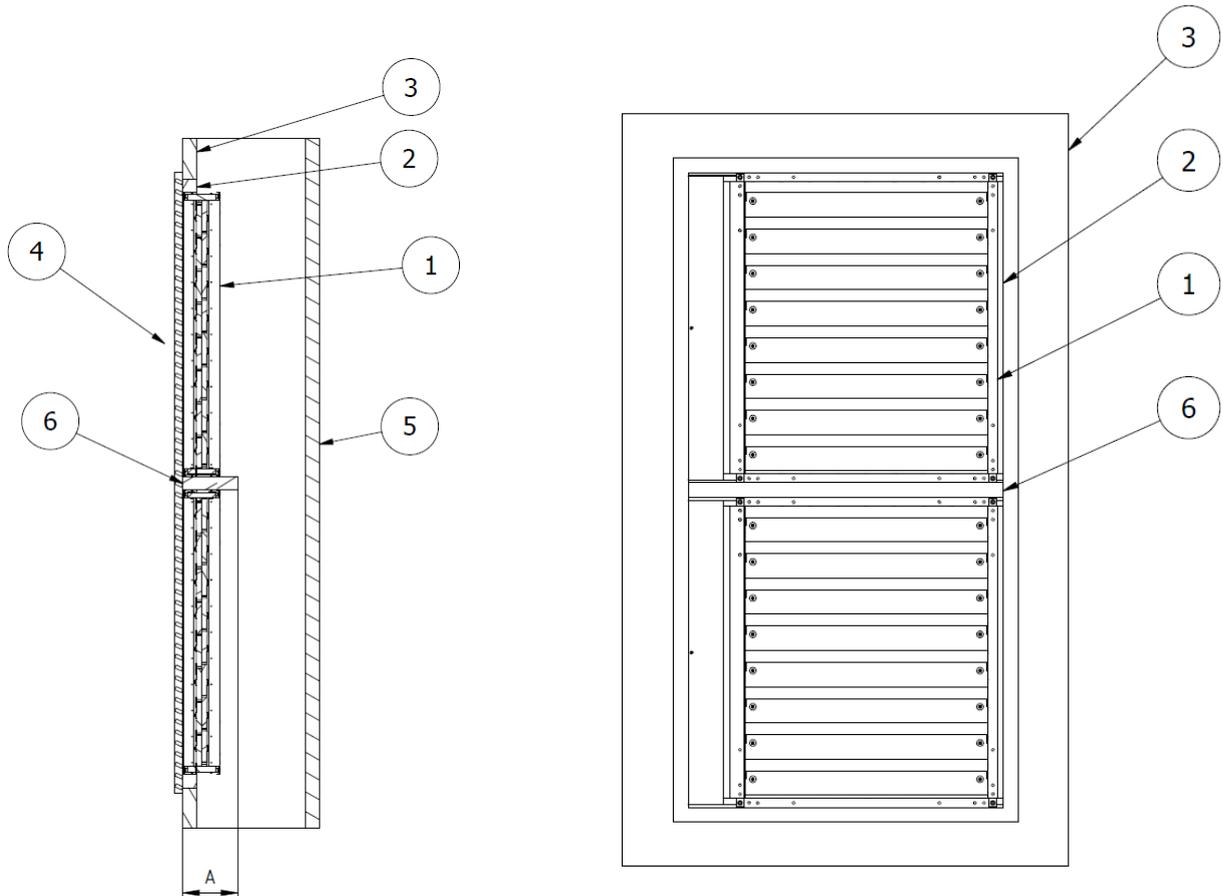
Installation of an mcr WIP PROV damper (damper above damper) on/in vertical fire ventilation duct, air supply duct

Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

Possible installation options:

- In the wall (opening) of a duct or in shaft



- 1 - mcr WIP PROV damper
- 2 - Installation mortar*
- 3 - Duct or shaft wall
- 4 - Cover grille
- 5 - Vertical duct or shaft
- 6 - Strip of a fire protection panel, thickness at least 50 mm, width A at least 135 mm, placed between the dampers, sealed with installation mortar

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

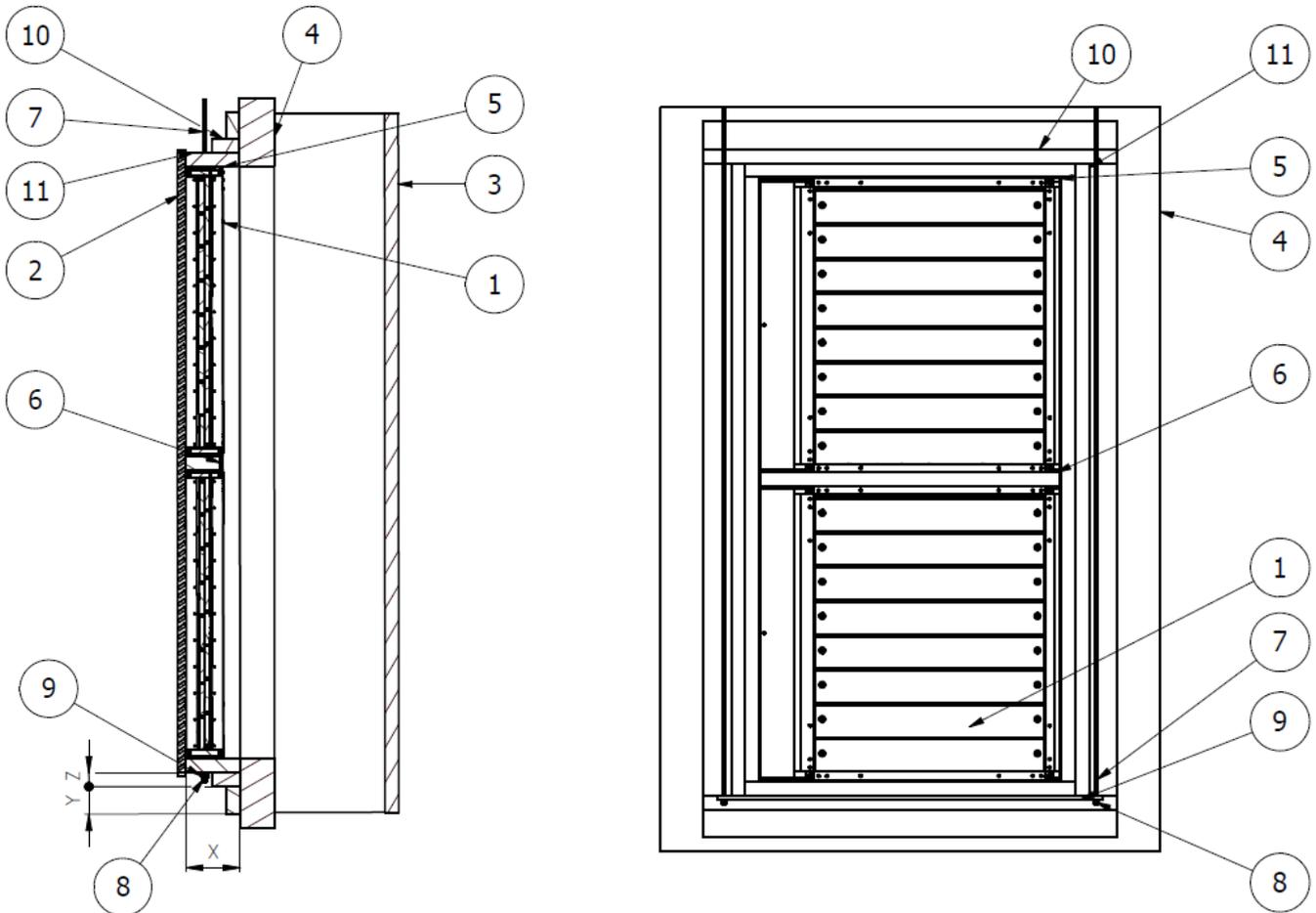
Installation of an mcr WIP PROV damper (damper above damper) on construction shaft

Admissible shaft execution versions:

- Solid shaft - reinforced concrete
- Masonry shaft made of bricks, masonry units, hollow masonry units

Possible installation options:

- On the wall (opening) of a duct or in shaft



- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Shaft wall
- 4 - Shaft wall
- 5 - Mounting mortar*
- 6 - Fire board strip, thickness min 50mm, width A, min 135mm, placed between flaps, sealed with assembly mortar
- 7 - Suspension system
- 8 - Suspension system
- 9 - Suspension system
- 10 - Plate bands, board thickness min. 50 mm
- 11 - Section of the channel made of slabs according to EN 1366-8, board thickness min. 50 mm

X= min 135mm – horizontal section of the channel
 Z= min 50 mm - board band,
 Y = min 40mm - board band,

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

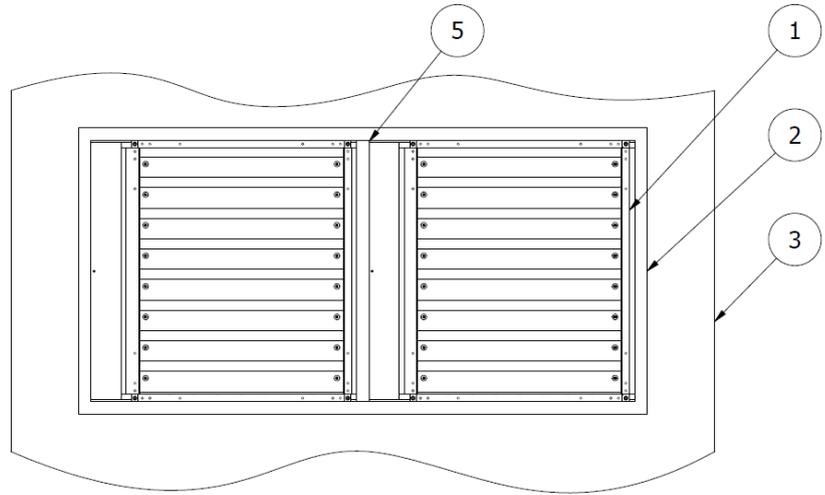
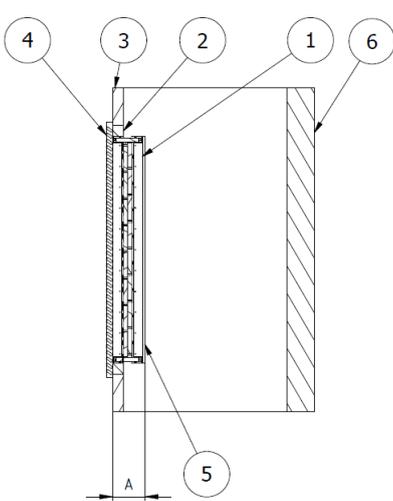
Installation of an mcr WIP PROV damper (damper adjacent to damper) on/in the wall of a vertical fire ventilation duct, air supply duct

Possible duct execution versions:

- Self-supporting duct made of boards with an appropriate fire resistance rating, according to EN1366-8, execution as per the recommendations of the selected solution's manufacturer

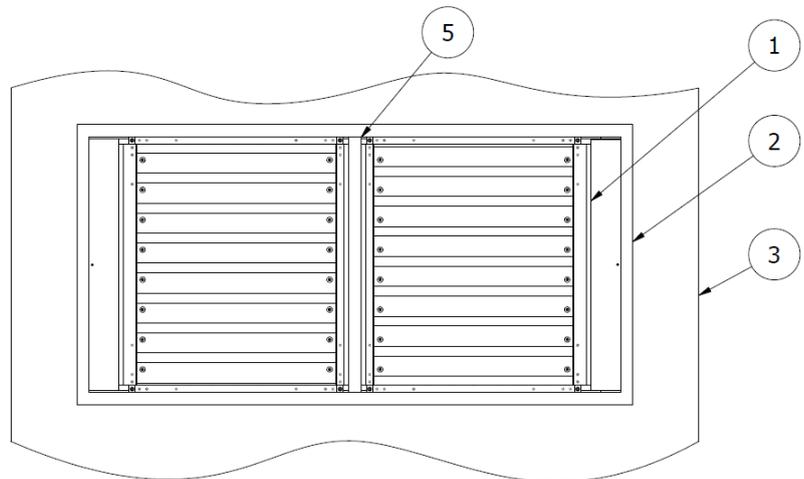
Possible installation options:

- In the duct



"Left" adjacent dampers

- 1 - mcr WIP PROV damper
- 2 - Installation mortar*
- 3 - Duct or shaft wall
- 4 - Cover grille
- 5 - Strip made fire protection board, thickness at least 50 mm, width A at least 140 mm, placed between the dampers, sealed with installation mortar



Adjacent dampers "left" and "right"

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

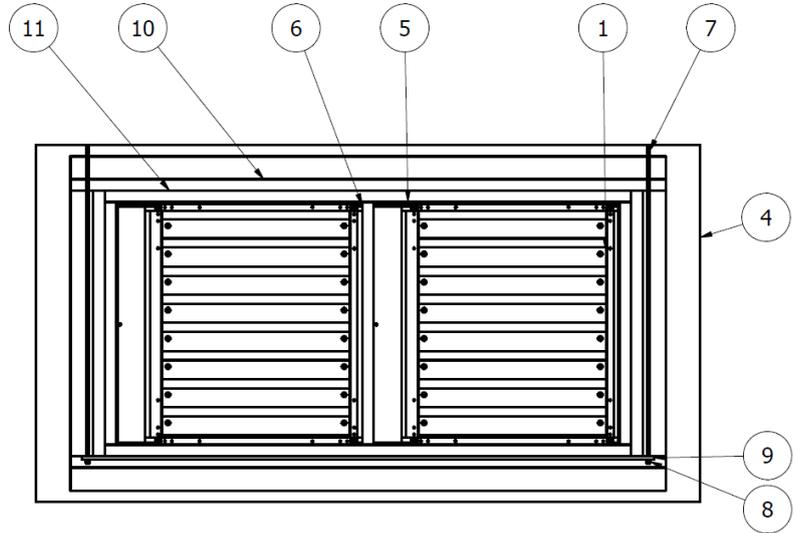
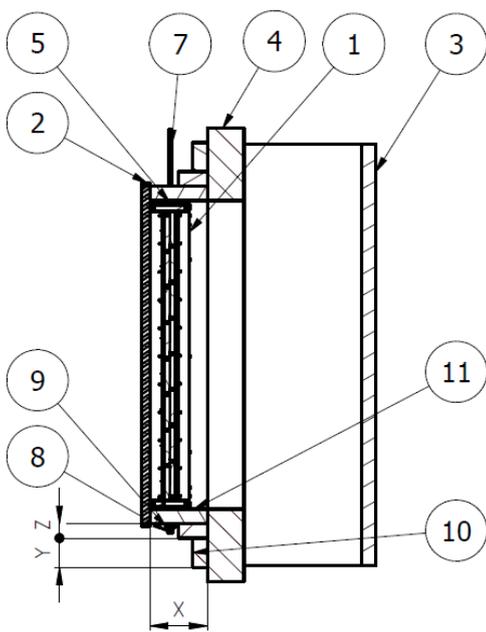
Installation of an mcr WIP PROV damper (damper adjacent to damper) on/in construction shaft

Admissible shaft execution versions:

- Solid shaft - reinforced concrete
- Masonry shaft made of bricks, masonry units, hollow masonry
-

Possible installation options:

- On shaft wall



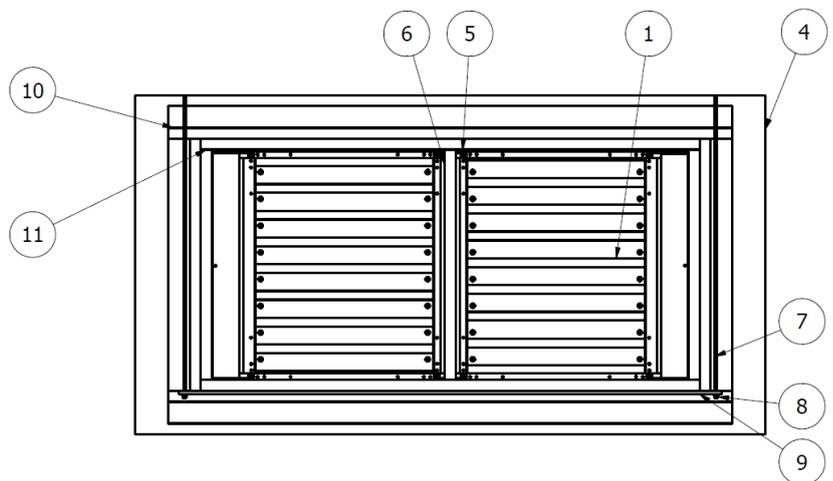
"Left" adjacent dampers

- 1 - mcr WIP PROV damper
- 2 - Masking grille
- 3 - Shaft wall
- 4 - Shaft wall
- 5 - Mounting mortar*
- 6 - Fire board strip, thickness min 50mm, width A, min 135mm, placed between flaps, sealed with assembly mortar
- 7 - Suspension system
- 8 - Suspension system
- 9 - Suspension system
- 10 - Plate bands, board thickness min. 50 mm
- 11 - section of the canal made of slabs, board thickness min. 50 mm

X= min 135mm – horizontal section of the channel

Z= min 50 mm - board band,

Y = min 40mm - board band,



Adjacent dampers "left" and "right"

* The recommended installation of the hatch is based on board adhesive mortar. The manufacturer allows the use of other materials with parameters confirming and ensuring the appropriate fire resistance class for the installation method used (e.g. gypsum mortar)

mcr WIP PROV multi-blade fire damper

CAUTION:

Smoke extraction ducts, air supply ducts should be made in accordance with the specific solution manufacturer's guidelines. The ducts must have adequate fire resistance in accordance with the fire resistance provided for the entire solution (duct and damper). Seal all connections between the damper and the ducts with appropriate mortar / glue / gaskets, ensuring fire resistance. Fire ventilation ducts must meet the requirements of the EN 1366-8 and/or EN 1366-9 standards and have the appropriate certificates for use in fire protection applications.

The damper installed on ducts should be equipped with independent duct supports (supports, rods, anchors - see drawings) at a distance of up to 100 mm from the center of the damper rotation axis. The smoke exhaust duct and the damper should not be elements supporting each other.

MWP system mesh cover grille

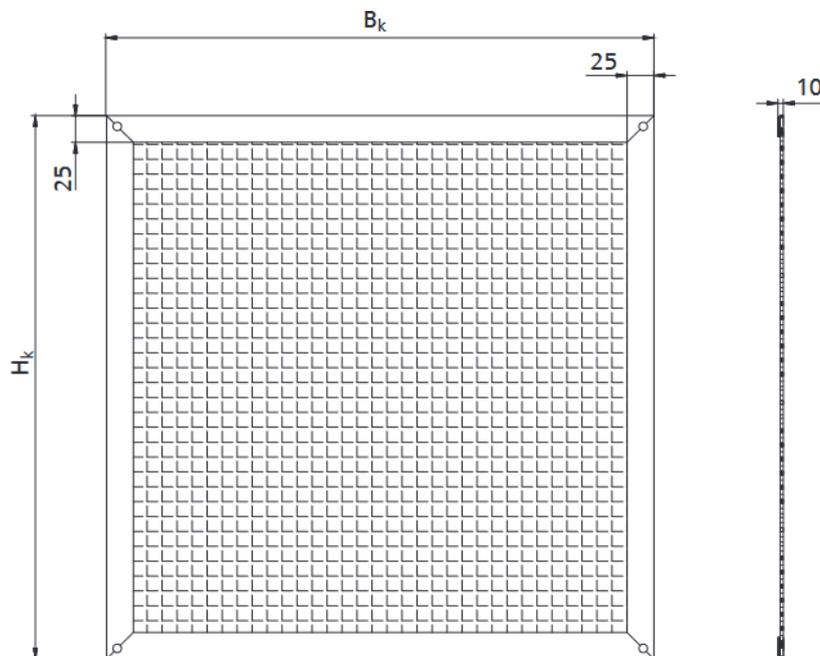


Fig. MWP cover grille for the mcr WIP PROV damper

NOTE

The mcr WIP PROV damper is supplied by the manufacturer along with a MWP system mesh cover grille. The grille and its installation on the damper or at the termination point of the system where the damper is installed is mandatory for the damper to be classified as EIS120. If there is no cover grill installed, the damper will have a resistance rating of EIS60 or EIS 90. Where additional architectural requirements apply, the design of system cover grilles allows to cover the damper and grille with additional cover grilles or to replace the MWP grille with any steel cover grille.

Connection with steel ducts

For the installation of ventilation ducts are provided the rivet nuts in the corners of the damper. In case of need for additional anchorage of the ventilation duct to the damper, it is possible to use hexagon—type self-tapping screws K type ST 3,5x13mm made of galvanized steel according to DIN 7504. The element may be attached to the steel frame of the damper along the perimeter at the sites marked on the following drawing with a dashed line:

mcr WIP PROV multi-blade fire damper

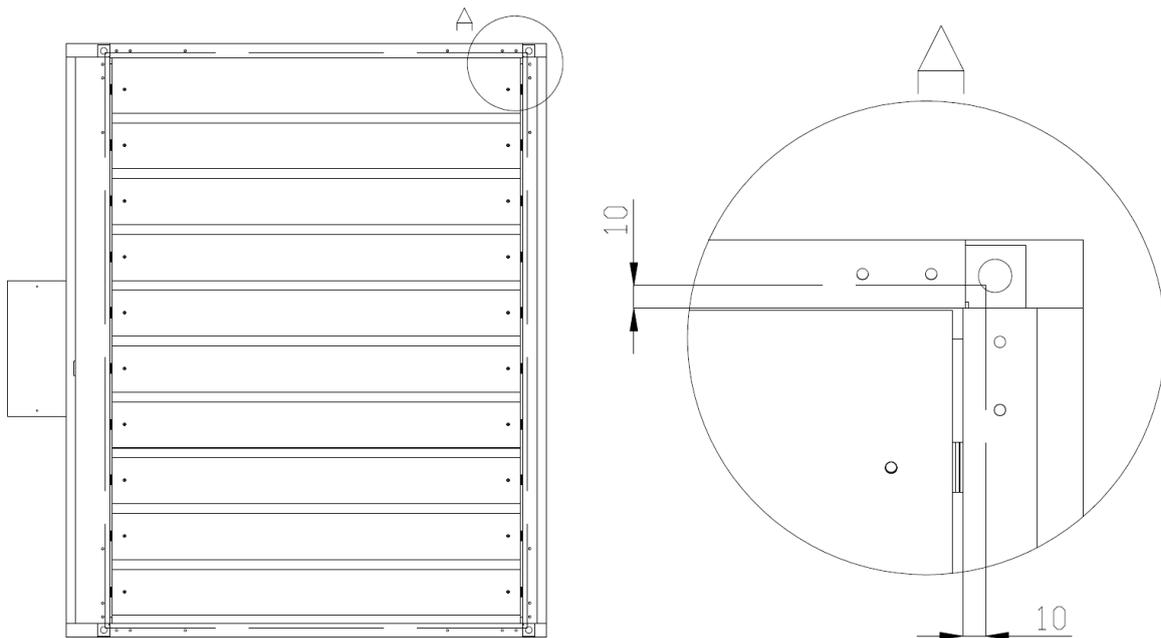


Fig. Installation of steel ventilation ducts with an mcr WIP PROV damper

MST lamella-type cover grille

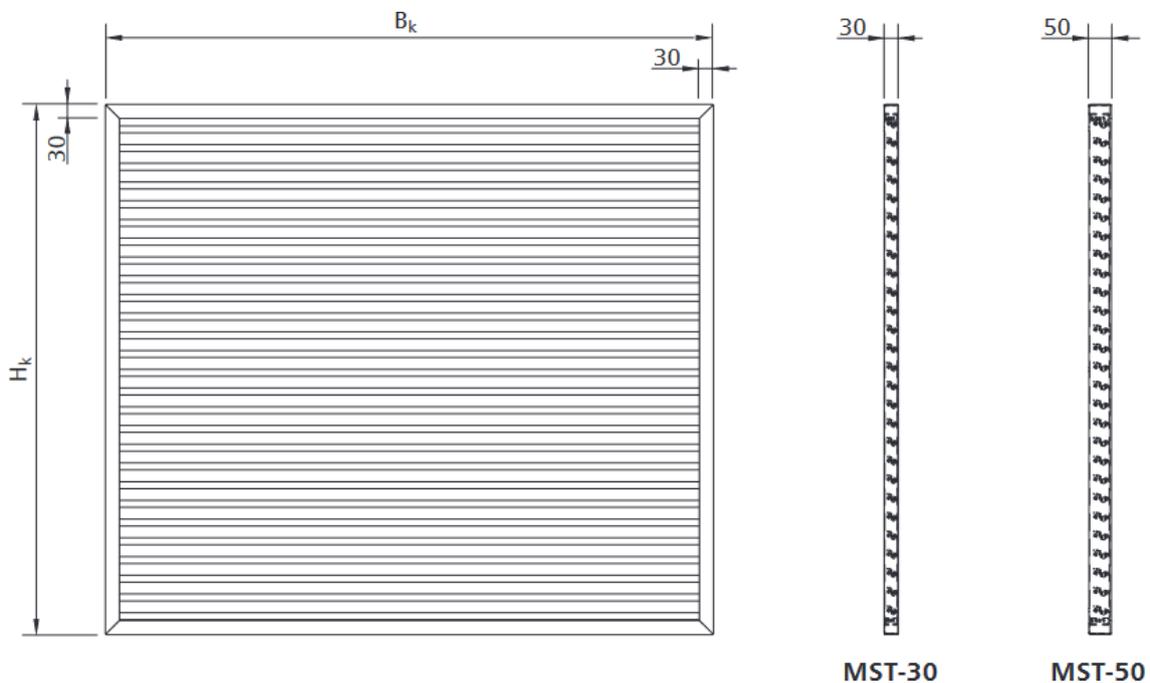


Fig. MST Cover grille for the mcr WIP PROV damper

An alternative solution for an MWP cover grille is an MST lamella-type cover grille. The grille is available in two variants: MST-30 and MST-50.

The grille consists of the internal body, which is attached to the wall by means of screws, as well as an external cover frame, attached onto the body following installation. This solution ensures that the installation screws are not visible, which guarantees high aesthetic parameters of the solution. As standard, the cover grille is painted RAL 9010. It may be painted into any RAL colour upon demand.

mcr WIP PROV multi-blade fire damper

6.4. ELECTRICAL CONNECTIONS

If the damper has control elements or other parts which need to be connected to the electrical grid, they should be connected after correct mounting of fire damper in the wall. Connection diagrams and basic electrical data of control-release mechanisms with which fire dampers mcr WIP PROV are supplied are shown below. Gears admitted to use with the damper have been marked under item 4 of this Technical Manual.

Electric actuators – electrical specification

Actuator type	Location of the damper isolation partition
- Belimo BFL series - Belimo BFN series - Belimo BF series	Open isolation partition – actuator indication: 90° Closed isolation partition – actuator indication: 0°
- Belimo BE series - Belimo BLE series - Belimo BEE series - Belimo BEN series	Open isolation partition – actuator indication: 0° Closed isolation partition – actuator indication: 90°

Technical specifications	BF 24, BF24-T, BF24-TN	BF230, BF230-T, BF230-TN
Power supply	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz
Power demand:		
- for spring tensioning	7 W	8.5 W
- for spring holding	2 W	3 W
Sizing (apparent power)	10 VA	11 VA
Appliance class	III	II
Ingress protection rating	IP 54	IP 54
Auxiliary circuit breaker:	2xSPDT 6 (3) A, 250 V	2xSPDT 3 A, 250 V~
- activation position [degrees]	5°, 80°	5°, 80°
Torque:		
- motor	18 Nm	18 Nm
- spring	12 Nm	12 Nm
Cable connection:		
- motor (L = 0.9 m)	2x0.75 mm ²	2x0.75 mm ²
- auxiliary switch	6x0.75 mm ²	6x0.75 mm ²
Movement time: (0-90°)		
- motor	120 s	120 s
- return spring	16 s	16 s
Operating temperature range	- 30 ...+50°C	- 30 ...+50°C
Sound pressure level:		
- motor	max. 45 dB (A)	max. 45 dB (A)
- spring	~ 63 dB (A)	~ 63 dB (A)

mcr WIP PROV multi-blade fire damper

Technical specifications - actuators	BE24, BE24-ST	BE230	BLE24, BLE24-ST	BLE230
Power supply	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz
Power demand: - for spring tensioning - for spring holding	12 W 0.5W	8 W 0.5 W	7.5 W 0.5 W	5 W 1 W
Sizing (apparent power)	18 VA	15 VA	9 VA	12 VA
Appliance class	III	II	III	II
Ingress protection rating	IP 54	IP 54	IP 54	IP 54
Auxiliary circuit breaker:	2xSPDT	2xSPDT	2xSPDT	2xSPDT
	6(3) A, 250 V	6(3) A, 250 V	3 A, AC 250 V	3 A, AC 250 V
- activation position [degrees]	3°, 87°	3°, 87°	3°, 87°	3°, 87°
Torque: - motor - locking	40 Nm 50 Nm	40 Nm 50 Nm	15 Nm 20 Nm	15 Nm 20 Nm
Cable connection:				
- motor (L = 0.9 m)	3x0.75 mm ²	3x0.75 mm ²	3x0.75 mm ²	3x0.75 mm ²
- auxiliary switch	6x0.75 mm ²	6x0.75 mm ²	6x0.75 mm ²	6x0.75 mm ²
Movement time: (0-90°) - motor	60 s	60 s	30 s	30 s
Operating temperature range	- 30 ...+50°C	- 30 ...+50°C	- 30 ...+50°C	- 30 ...+50°C
Sound pressure level: - motor	max. 62 dB (A)	max. 62 dB (A)	max. 62 dB (A)	max. 62 dB (A)

Technical specifications - actuators	BEE24, BEE24-ST	BEE230	BEN24, BEN24-ST	BEN230
Power supply	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz
Power demand: - for spring tensioning - for spring holding	2.5 W 0.1 W	3.5 W 0.4 W	3 W 0.1 W	4 W 0.4 W
Sizing (apparent power)	5 VA	6 VA	6 VA	7 VA
Appliance class	III	II	III	II
Ingress protection rating	IP 54	IP 54	IP 54	IP 54
Auxiliary circuit breaker:	2xSPDT 3 A AC 250 V	2xSPDT 3 A AC 250 V	2xSPDT 3 A, AC 250 V	2xSPDT 3 A, AC 250 V
- activation position [degrees]	5°, 80°	5°, 80°	5°, 80°	5°, 80°
Torque: - motor	25 Nm	25 Nm	15 Nm	15 Nm
Cable connection:				
- motor (L = 1 m)	3x0.75 mm ²	3x0.75 mm ²	3x0.75 mm ²	3x0.75 mm ²
- auxiliary switch	6x0.75 mm ²	6x0.75 mm ²	6x0.75 mm ²	6x0.75 mm ²
Movement time: (0-90°) - motor	60 s	60 s	30 s	30 s
Operating temperature range	- 30 ...+55°C	- 30 ...+55°C	- 30 ...+55°C	- 30 ...+55°C
Sound pressure level: - motor	max. 58 dB (A)	max. 58 dB (A)	max. 58 dB (A)	max. 58 dB (A)

mcr WIP PROV multi-blade fire damper

Technical specifications - actuators	BFL24, BFL24-T	BFL230, BFL230-T	BFN24, BFN24-T	BFN230, BFN230-T
Power supply	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz
Power demand:				
- for spring tensioning	2.5 W	3.5 W	4 W	5 W
- for spring holding	0.8 W	1.1 W	1.4 W	2.1 W
Sizing (apparent power)	4 VA	6.5 VA	6 VA	10 VA
Appliance class	III	II	III	II
Ingress protection rating	IP 54	IP 54	IP 54	IP 54
Auxiliary circuit breaker:	2xSPDT	2xSPDT	2xSPDT	2xSPDT

- activation position [degrees]	3(0.5) A AC 250 V 5°, 80°	3(0.5) A AC 250 V 5°, 80°	3(0.5) A, 250 V 5°, 80°	3(0.5) A, 250 V 5°, 80°
Torque:				
- motor	4 Nm	4 Nm	9 Nm	9 Nm
- spring	3 Nm	3 Nm	7 Nm	7 Nm
Cable connection:				
- motor (L = 0.9 m)	2x0.75 mm ²	2x0.75 mm ²	2x0.75 mm ²	2x0.75 mm ²
- auxiliary switch	6x0.75 mm ²	6x0.75 mm ²	6x0.75 mm ²	6x0.75 mm ²
Movement time: (0-90°)				
- motor	60 s	60	60 s	60 s
- return spring	20 s	20 s	20 s	20 s
Operating temperature range	- 30 ...+50°C	- 30 ...+50°C	- 30 ...+55°C	- 30 ...+55°C
Sound pressure level:				
- motor	max. 43 dB (A)	max. 43 dB (A)	max. 55 dB (A)	max. 55 dB (A)
- spring	~ 62 dB (A)	~ 62 dB (A)	~ 67 dB (A)	~ 67 dB (A)

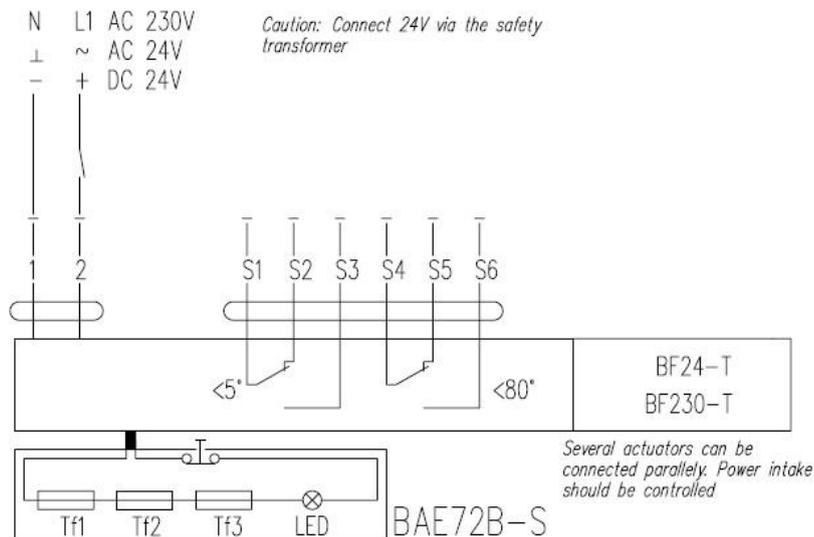


Fig. Connection diagram for the BF24-T and BF230-T actuators

mcr WIP PROV multi-blade fire damper

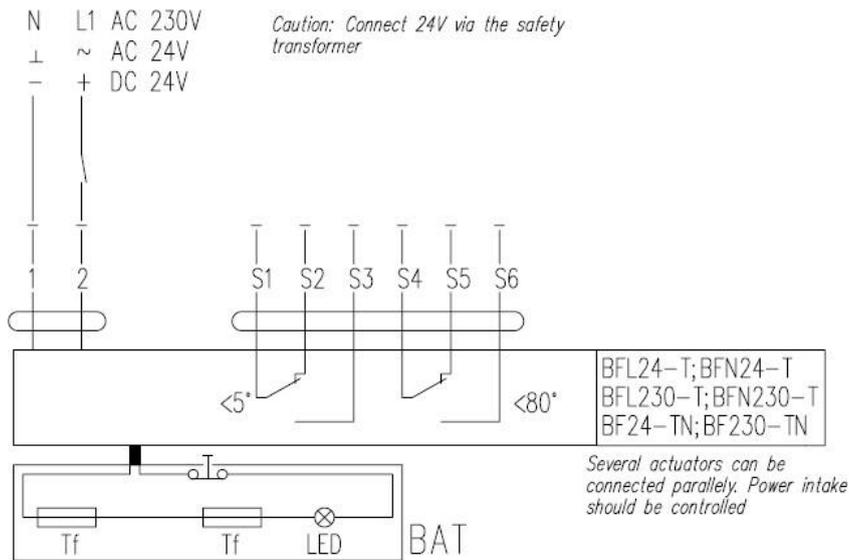


Fig. Connection diagram for the BFL24-T, BFL230-T, BFN24-T, BFN230-T, BF24-TN and BF230-TN

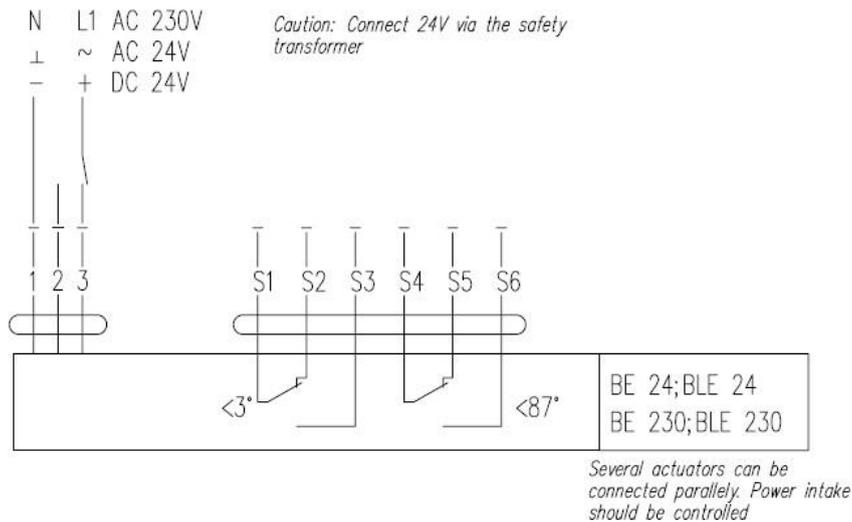


Fig. Connection diagram for the BE24, BEE24, BEN24, BE230, BEE230 and BEN230 actuators

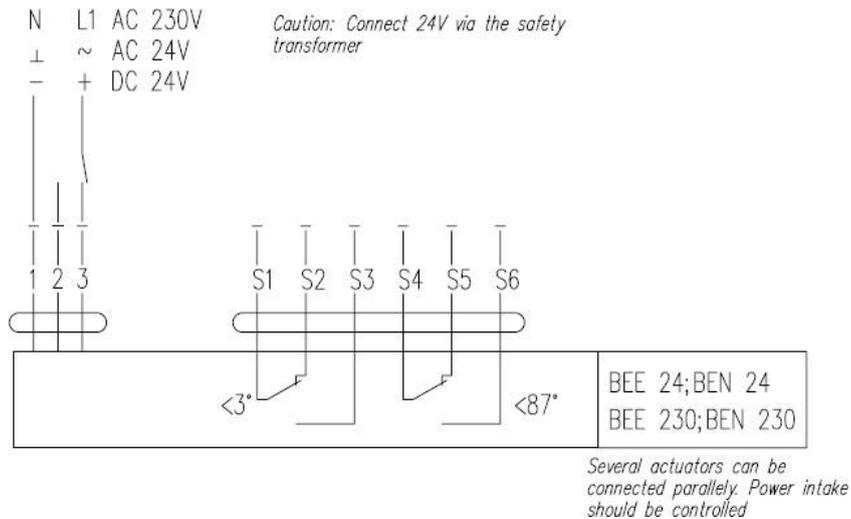


Fig. Connection diagram for the BEE24, BEN24, BEE230 and BEN230 actuators

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Caution

The BE and BEN, BEE actuator operating control requires a three-wire system. The actuator sense of rotation is switched by applying the supply voltage to terminal 2 or 3, depending on the desired sense. The location of the limit switches for all types of actuators is shown for the position without voltage. For proper operation of a device equipped with electrical actuators, it is recommended that the rated voltage housed tolerance of 24 V±10% or 230 V±10%. Power supply devices other than listed above may cause malfunction and will not be covered by the guarantee conditions.

EXBF actuators

Technical specifications	EXBF 24	EXBF 230
Zone	1, 2, 21, 22	
ATEX classification	II 2 GD EEx d IIC T6	
Power supply	24 V AC ±20% 50/60 Hz / 24 V DC-10/+20%	230 V AC ±14% 50/60 Hz
Power demand:		
- for spring tensioning	7 W	8 W
- for spring holding	2 W	3 W
Sizing (apparent power)	10 VA	12.5 VA
Ingress protection rating	IP 66	IP 66
Auxiliary circuit breaker	2 x SPDT 6 A (3) max 250 V AC	2 x SPDT 6 A (3) max 250 V AC
: - activation position	5°, 80°	5°, 80°
Torque:		
- motor	18 Nm	18 Nm
- spring	12 Nm	12 Nm
Movement time: (90°C)		
- motor	150 s	150 s
- return spring	20 s	20 s
Ambient temperature	-20 ...+50°C	- 20 ...+50°C

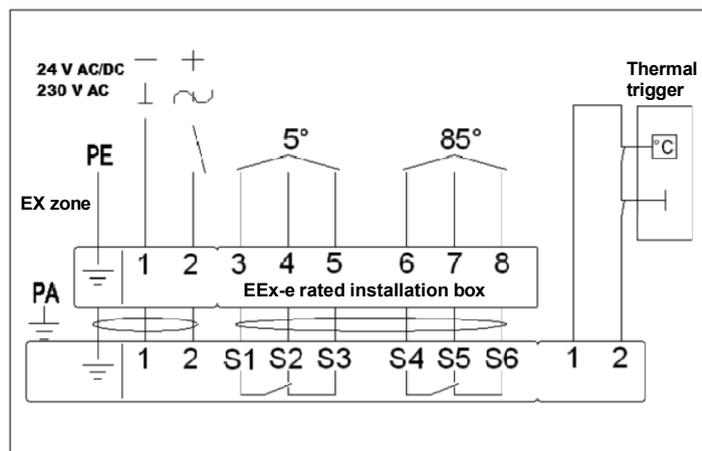


Fig. Connection diagram for EXBF actuators

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Caution:

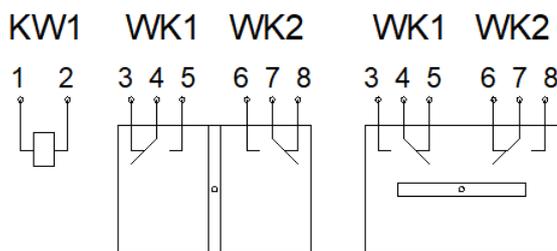
For proper operation of a device equipped with electrical actuators, it is recommended that the rated voltage housed tolerance of 24 V±10% or 230 V±10%. Power supply devices other than listed above may cause malfunction and will not be covered by the guarantee conditions.

RST/KW1 trigger control gear

The RST/KW1/S version has limit switches installed in the gear itself. The electrical connections shall be made by connecting properly labelled conductors to the electrical system. A fusible trigger is installed in the gear. The dampers with the RST/KW1/230I, RST/KW1/230P mechanisms, are supplied with the RST/KW1/24... triggering and control mechanism, together with the 230/24V transformer module type MP230/24. For the trigger and control mechanism of the "impulse" type damper, adequate power must be provided to ensure that the control signal is supplied to the device in the event of fire.

	RST/KW1/S	RST/KW1/24I	RST/KW1/24P	RST/KW1/24I +MP230/24	RST/KW1/24I +MP230/24
Supply voltage	X	24 V – 48 V DC	24 V – 48 V DC	230 V AC	230 V AC
Power consumption	X	3.5 W	1.6 W	4.5 W	2.5 W
Holding force	X	12 daN	12 daN	12 daN	12 daN
Operating temperature	72°C +2°C				
of the thermal trigger					
WK1d / WK2d limit switch	NO/NC (switching contact) 5 A, 230 V AC				
Switch trigger	3°, 87° – tolerance: +/- 2°				
Limit switch operating temperature	-25 ...+85°C				
Electrical connection	X	- release: cable 0.6 m, 2x0.5 mm ² - limit switch: cable 0.6 m, 6x0.5 mm ²			
Rotation angle	92°				
Movement time	Max. 2 s - spring				
Sense of rotation	Left				
Gear weight	1.2 kg	1.4 kg	1.4 kg	1.5 kg	1.5 kg

KW1 mechanism power supply	WK1 limit switch	WK2 limit switch
Wire no. 1–2	Wire no. 3–4, NC type (normally closed) green / gray	Wire no. 6–7, NO type (normally open) Brown / pink
	Wire no. 4–5, NO type (normally open) Gray / blue	Wire no. 7–8, NC type (normally closed) Pink / yellow



- 1-biały/white
- 2-czerwony/red
- 3-zielony/green
- 4-szary/gray
- 5-niebieski/blue
- 6-brązowy/brown
- 7-różowy/pink
- 8-żółty/yellow

mcr WIP PROV multi-blade fire damper

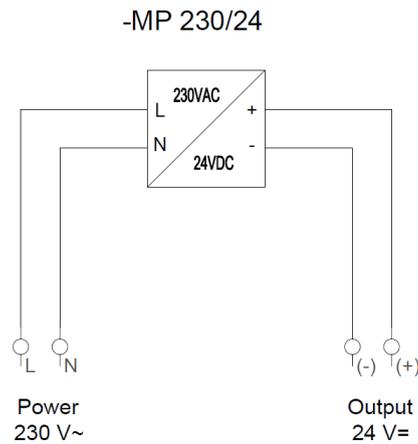


Fig. Connection diagram for 230/24 V transformer module type MP230/24.

Caution

The location of the limit switches is shown for the fire damper in the safety position.

The RST/KW1 trigger control can work with the MP230/24 module. If the MP230/24 module is installed, the fire damper can be powered/controlled with 230 V AC voltage.

The proper performance of the device with electric actuators requires the rated supply voltage of 24 V \pm 2% or 230 V \pm 2%, as applicable. Power supply devices other than listed above may cause malfunction and will not be covered by the guarantee conditions.

7. TRANSPORT & STORAGE CONDITIONS

Fire dampers are packaged in cardboard boxes or placed on pallets. Dampers are protected against damage by film or another covering material. Damper transport may take place using any means of transport, provided they are protected against weather factors. Dampers placed on means of transport should be secured against shifting of position during transport. Before installing dampers, control each of them visually. Do not move the damper by holding by the connection cable or put a device on a release and control mechanism. Do not hit or drop the damper. When moving and installing, support the damper on the sides or edges of the body.

Dampers should be stored in closed rooms that provide protection against external weather conditions. In the case dampers are stored on the ground, place them on protection pads in order to protect them against damage.

Storage should take place in rooms where:

- there is no access to dust, gases, caustic vapors and other aggressive chemical vapors that can destroy insulating elements and structural elements;
- the dampers are not affected by direct sunlight and UV radiation;
- the maximum relative humidity does not exceed 80% at the temperature of +20 °C;
- the ambient temperature is between - 20 °C and + 40 °C;
- there are no vibrations.

8. MAINTENANCE AND SERVICING

The equipment from MERCOR L&V requires periodic technical inspection and maintenance at least every 12 months throughout its operating life, i.e. during the guarantee and warranty period, as well as after this period. Inspection and maintenance may only be carried out by the manufacturer or contractors authorised by MERCOR L&V to service its products

mcr WIP PROV multi-blade fire damper

The obligation to carry out regular service inspections of fire protection devices results from the § 3 Section 3 of the Regulation by the Minister of Internal Affairs and Administration of 7 June 2010 on fire protection of buildings, other civil structures and areas (Dz. U. 2010, no. 109 item 719).

The following activities are recommended for the user between inspections:

- Check the electrical connections, especially for all mechanical damage.
- Verify the power supply values for the equipment with the following tolerances:
 - 24 V \pm 10% for electric actuators
 - 24 V \pm 2% for electromagnetic triggers
 - 230 V \pm 10% for electric actuators
 - 230 V \pm 2% for electromagnetic triggers
- Check the device casing, especially for mechanical damage.
- Check for any obstructions to proper operation of the equipment.
- Check the condition of gaskets.

To facilitate the activities under service inspection, servicing and warranty claim response, e.g. visual inspection or repairs, the equipment user/operator shall provide physical access to the equipment by removing thermal insulation, suspended ceiling, and other installations, as required and applicable to warrant unobstructed access. Inspection ports, e.g. type mcr KRW, are recommended for the equipment installed in ducts. In the case of roof mounted equipment, provide access to the area (via ladders or elevated platforms).

Refer all matters related to technical inspection, maintenance and servicing of this equipment to the MERCOR L&V Service Department, serwis@mercor.com.pl, tel. +48 58 341 42 45 ext. 170, from 8 AM to 4 PM (Mo-Fri).

9. GUARANTEE/WARRANTY TERMS & CONDITIONS

1. MERCOR L&V provides a 12-month quality guarantee and warranty for the equipment, counting from the date of purchase, unless the contract stipulates otherwise.
2. The purchaser is obliged to check the Products in terms of quality and quantity upon receipt.
3. Any defects, shortages or damage noticed must be entered in the receipt documents or on the consignment note and reported in writing to MERCOR L&V, with all damage to the shipment or product documented with photographs.
4. Reports of damage to the shipment, product or quantity shortages must be sent in writing to MERCOR L&V within 24 hours of the date of receipt of the shipment.
5. Defects not visible at the time of delivery must be reported immediately to MERCOR L&V together with photographic documentation, and reports of quality defects must be made no later than within 5 working days of the date of receipt of the Products.
6. MERCOR L&V reserves the right not to consider the above-mentioned reports in the event of failure to provide (receive) photographic documentation or after the above-mentioned deadlines have been exceeded.
7. Complaints can be made by telephone: 58/341-42-45, by fax: 58/341-39-85, by e-mail: reklamacje@mercor.com.pl or by sending a letter to the following address: MERCOR L&V, ul. Grzegorza z Sanoka 2, 80-408 Gdańsk.
8. If, during the warranty and guarantee period, physical defects covered by the warranty and/or guarantee become apparent, MERCOR L&V undertakes to remove them as soon as possible, counting from the date of receipt of a written notification and delivery of proof of purchase (contract, invoice, delivery document), subject to point 14.
9. MERCOR L&V reserves the right to extend the repair time in the case of complex repairs or repairs requiring the purchase of non-standard components or spare parts.
10. Liability under the warranty and guarantee covers only defects arising from causes inherent in the equipment sold.
11. In the case of defects arising as a result of improper use of the equipment (not in accordance with the technical documentation) or other reasons specified in point 14, the Buyer/warranty holder may be charged with the costs of their removal.
12. The condition for the removal of defects is that the reporting party provides full access to the work site, in particular ensuring: a lift in the case of devices installed at a height of more than 3 m, free access to

mcr WIP PROV multi-blade fire damper

the rooms where the devices are installed and the necessary inspections, removal of thermal insulation, removal of suspended ceilings, removal of other installations if they prevent free access to the device.

13. If it is not possible to repair the device at the place where it is installed, MERCOR L&V reserves the right to dismantle it, deliver it to the address indicated by MERCOR L&V and reassemble it. The cost of this operation shall be borne by the purchaser/warranty holder.
14. The warranty and guarantee do not cover:
 - damage and failure of devices caused by improper operation (not in accordance with the technical documentation), interference by the user or persons not authorised by MERCOR L&V, lack of periodic technical inspections, failure to perform maintenance activities described in the 'MAINTENANCE AND SERVICE' section of this document;
 - damage to equipment caused by reasons other than those attributable to MERCOR L&V, in particular: random events such as torrential rain, flooding, hurricanes, flooding, lightning strikes, power surges, explosions, hail, aircraft crashes, fire, avalanches, landslides and secondary damage resulting from the above causes. Torrential rain is defined as rain with a yield coefficient of at least 4, as determined by the Institute of Meteorology and Water Management (IMiGW). If it is not possible to determine the coefficient referred to in the preceding sentence, the actual condition and extent of damage at the place where it occurred, which will indicate the effect of torrential rain, will be taken into account. A hurricane is considered to be wind with a speed of not less than 17.5 m/s (damage is considered to have been caused by a hurricane if hurricane activity has been confirmed in the immediate vicinity);
 - damage resulting from failure to comply with the obligation to immediately report a discovered defect;
 - deterioration in the quality of coatings caused by natural ageing processes;
 - defects caused by the use of abrasive or aggressive cleaning agents;
 - damage caused by aggressive external factors, in particular chemical and biological factors, or whose origin is related to production processes and activities carried out in the facility or in its immediate vicinity, where the equipment was installed;
 - parts subject to natural wear and tear during operation (e.g. seals), unless they have a manufacturing defect;
 - damage caused by improper transport, unloading or storage of the equipment;
 - damage caused by installation that does not comply with the technical documentation and good construction practice;
 - devices or their parts in the event of breakage or damage to the nameplate or warranty seals.
15. The warranty and guarantee shall expire with immediate effect if:
 - The buyer/warranty and guarantee beneficiary makes structural changes on their own without prior agreement with MERCOR L&V,
 - periodic technical inspections and maintenance activities were not performed on time or were performed by unauthorised persons or a service provider not authorised by MERCOR L&V, or if the equipment was operated incorrectly,
 - there has been any interference by persons not authorised by MERCOR L&V – apart from activities falling within the scope of normal operation of the equipment.
16. The purchaser/warranty and guarantee holder is obliged to operate the equipment properly (in accordance with the technical documentation) and to carry out periodic technical inspections and maintenance activities in accordance with the rules described in this document in the section 'MAINTENANCE AND SERVICE'.

The relevant provisions of the Polish Civil Code shall apply to all matters not regulated in these Guarantee/Warranty Terms & Conditions.

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2434

MERCOR Light&Vent Sp. z o.o. (MERCOR L&V) and 380-470

24

2434-CPR-0374

PN-EN 12101-8:2012 (EN 12101-8:2011)

**Fire ventilation smoke control damper – single- and multi-zone
mcr WIP PROV /V and mcr WIP PROV /V-M**

Nominal operation conditions/efficiency: - Closing/Opening at the right time and within an admissible time	Automatic actuation – positive result
Response time: - closure time	Automatic actuation – positive result
Reliability:	10,000 cycles – positive result
Fire resistance: - Integrity E - Insulation I - Smoke leakage S - Mechanical stability (E class) - Maintenance of the cross section (E class)	EI 120 (v _{ed} i< -- >o)S 1000C 10 000 AAmulti EI 90 (v _{ed} i< -- >o)S 1000C 10 000 AAmulti EI 60 (v _{ed} i< -- >o)S 1000C 10 000 AAmulti
Durability: - with time-delay - operational reliability retained	Positive result Positive result