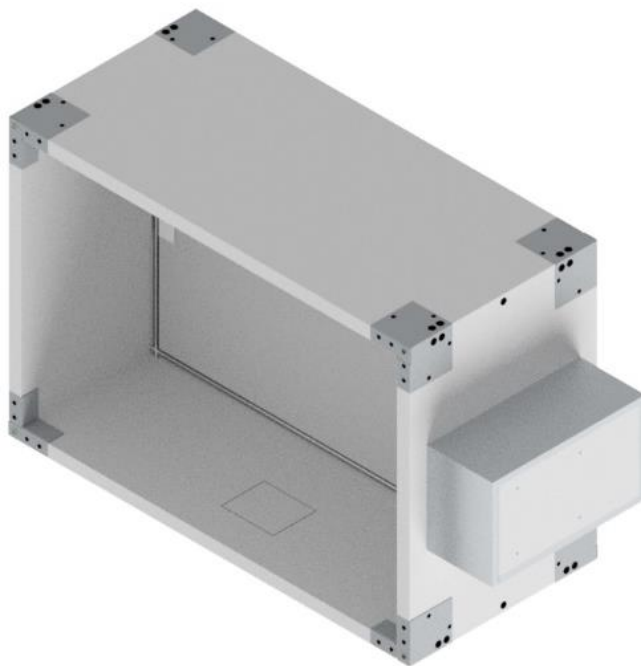


**OPERATION AND
MAINTENANCE MANUAL
(OMM)**

**Fire damper type
mcr FID B**



Version FID B 23.10.30.5

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Technical Manual designations

- Option available
- Option unavailable

CAUTION

All previous issues of this Technical Manual expire on the date of issue hereof. The Technical Manual does not apply to the fire dampers manufactured before its date of issue.

CAUTION

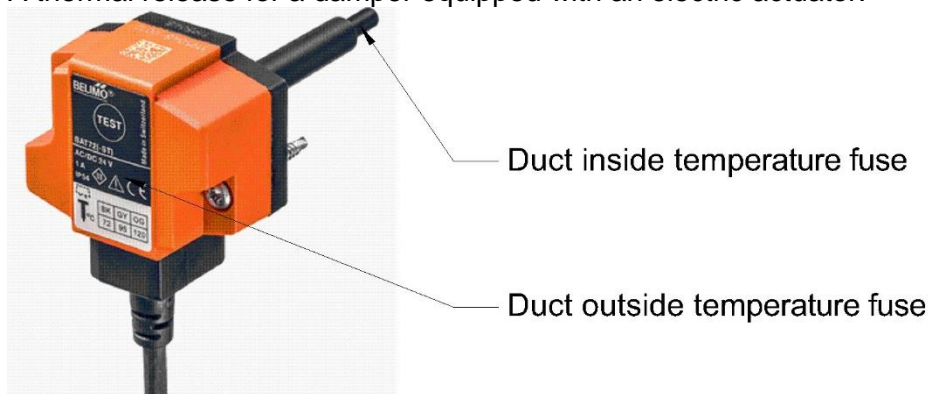
The product should be stored and used in rooms where:

- there is no access to dust, gases, caustic vapors and other aggressive chemical vapors that can destroy the insulating elements and structural elements;
- the flaps 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.



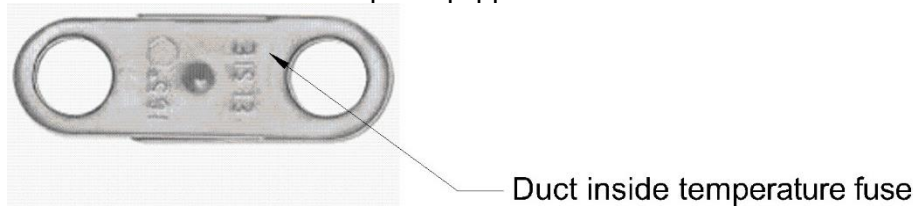
In the case of cut-off and transfer fire dampers, the device is equipped with a thermal release containing one-time temperature fuses. During normal operation, the above mentioned element should be protected against the affect of the permissible temperature T_{max} (see the table below). When it is exceeded, the temperature fuses may operate, which is a normal operation and is not covered by the guarantee or warranty.

A thermal release for a damper equipped with an electric actuator:



| | | |
|----------------------------------|------------------------|------------------------|
| Thermal fuse for temperature | 72 °C | 95 °C |
| Temperature fuse inside the duct | $T_{max} 40\text{ °C}$ | $T_{max} 60\text{ °C}$ |
| Outdoor temperature fuse | $T_{max} 40\text{ °C}$ | $T_{max} 40\text{ °C}$ |

A thermal release for a damper equipped with KW1 or RST mechanism:



| | | |
|----------------------------------|------------------------|------------------------|
| Thermal fuse for temperature | 72 °C | 95 °C |
| Temperature fuse inside the duct | $T_{max} 40\text{ °C}$ | $T_{max} 60\text{ °C}$ |

1. INTRODUCTION

The purpose of this operation and maintenance manual is to get the user acquainted with the intended use, design, the principle of operation, correct installation and operation of the product. The manual also includes additional information about the operating conditions, maintenance and warranty conditions of the product.

2. SUBJECT

This manual concerns the entire group of single-plane fire dampers type mcr FID B. Compliance with the Manual guidelines ensures correct functioning of the device in terms of fire protection of rooms as well as safety of the system users.

3. DEVICE INTENDED USE

Application

Single-plane fire dampers type mcr FID B (square cross-section) may be used as:

- fire dampers – mcr FID B/S
- smoke control dampers for fire ventilation systems – mcr FID B/V
- smoke control dampers for mixed fire ventilation systems – mcr FID B/M
- transfer dampers – mcr FID B/T
- relief dampers – mcr FID B/V

Caution:

Smoke control dampers for fire ventilation systems the mcr FID B/V and smoke control dampers for mixed fire ventilation systems the mcr FID B/M, have one declaration of performance in accordance with the requirements of law.

The marker -M and the word "mixed" used in the document are trademarks used by the manufacturer. The construction and execution of the above dampers is the same regardless of the commercial mark.

The mcr FID B dampers have the MA feature (manual activate). This means that the damper partition can change its position during a fire (the damper can open or close). The damper can be operated without deteriorating its fire properties for 25 minutes.

Dampers classified as "MA" can be used wherever a multi-stage fire scenario is required, wherever manual control of the smoke exhaust system by authorized units is allowed during a fire (e.g. the need to "manually" change the position of the damper partitions and "overrides" of the smoke exhaust system automatically started in the wrong fire zone).

The dampers cannot be operated in systems exposed to dust, except for when they are included in a special, individually developed programme of service and technical inspections.

Fire resistance

The damper type mcr FID B has the following fire resistance:

| | | | | | | | | | |
|--------------------------------|-----------------------------|-----------------------------|-------------------------------|-----------------------------|---------------------------------|-----------------------------|-----------------------------|-------------------------------|-----------------------------|
| <input type="checkbox"/> EI60S | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> EI120S | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |
| <input type="checkbox"/> EI60 | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> EI120 | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |
| <input type="checkbox"/> E60S | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> E120S | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |
| <input type="checkbox"/> E60 | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> E120 | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |

mcr FID B single-plane fire dampers

Execution versions

mcr FID B dampers can be made as rectangular dampers.

Dimension type series

mcr FID B fire dampers are manufactured in the following size ranges:

Width: 200 to 1200 mm

Height: 200 to 800 mm

Width: 600 mm

Aside from the standard dimensions, the fire dampers may also be manufactured in intermediate sizes. The damper casing can be made longer on request. Maximum surface area of type mcr FID B dampers: 0,96 m². The minimum damper surface area is 0,04 m².

4. DESIGN AND OPERATING PRINCIPLE

Design

The mcr FID B dampers consist of a casing with a rectangular cross-section consisting of fireproof boards, a movable cut-off partition and an actuator operated manually or remotely. The cut off partition of the dampers is made of a fireproof boards and is set in a sheet-metal profile. There is a ventilation gasket on the inside of the housing. Retaining sections made of fireproof boards are attached to the inner surface of the housing, limiting the movement of the rotating partition. The sections are covered with a ventilation gasket. Corners made of steel, galvanized or stainless steel are attached to the outer surface of the housing in the corners. For chemically aggressive environments, special enclosures are used, where the fireproof boards are impregnated.

Function

The operating principle and behaviour of the mcr FID B single-plane dampers depend on their application versions:

fire dampers – mcr FID B/S

In the normal operating position the dampers are open. The dampers are closed (to the safety position) as follows:

automatically, by tripping 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

smoke control dampers for fire ventilation systems – mcr FID B/V

In the normal operating position the dampers are open or close depending on the function. The dampers are closed/ opened as 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. The damper blade can change position without loss of device functionality for 25 minutes from the time of activation of operation.

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

smoke control dampers for mixed fire ventilation systems – mcr FID B/M

In the normal operating position the dampers are open or close depending on the function. The dampers are closed/ opened as 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. The damper blade can change position without loss of device functionality for 25 minutes from the time of activation of operation.

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

mcr FID B single-plane fire dampers

transfer fire dampers – mcr FID B/T

In the normal operating position the dampers are open or closed. The dampers are switched to the safety position as 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 FID B/V

In the normal operating position the dampers are open or closed. The dampers are switched to the safety position as 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. The damper blade can change position without loss of device functionality for 25 minutes from the time of activation of operation.

It is possible to manually service check the proper performance of the dampers with electrical actuators by placing a special hex wrench in the socket marked on the actuator and rotating it to set the damper isolating partition in the relevant position. Rotate the wrench slowly, smoothly and carefully. Rotating the wrench too fast or too rapidly may damage the internal actuator gear or the drive transmission system. It is possible to manually service check the proper performance of the integrated damper with the trigger control gear by pressing the lever on the gear. The mcr T2 tester is recommended to check the proper performance of dampers with electric actuators.

CAUTION

Never pull directly on the damper isolation partition to open or close the device. This may result in damage of the self-locking driving gear of the damper that is not covered by warranty. It is recommended that the fire damper were opened and closed when the ventilation system is turned off.

Trigger control gears

The following trigger control gears are available for the mcr FID B fire dampers:

Electric actuator:

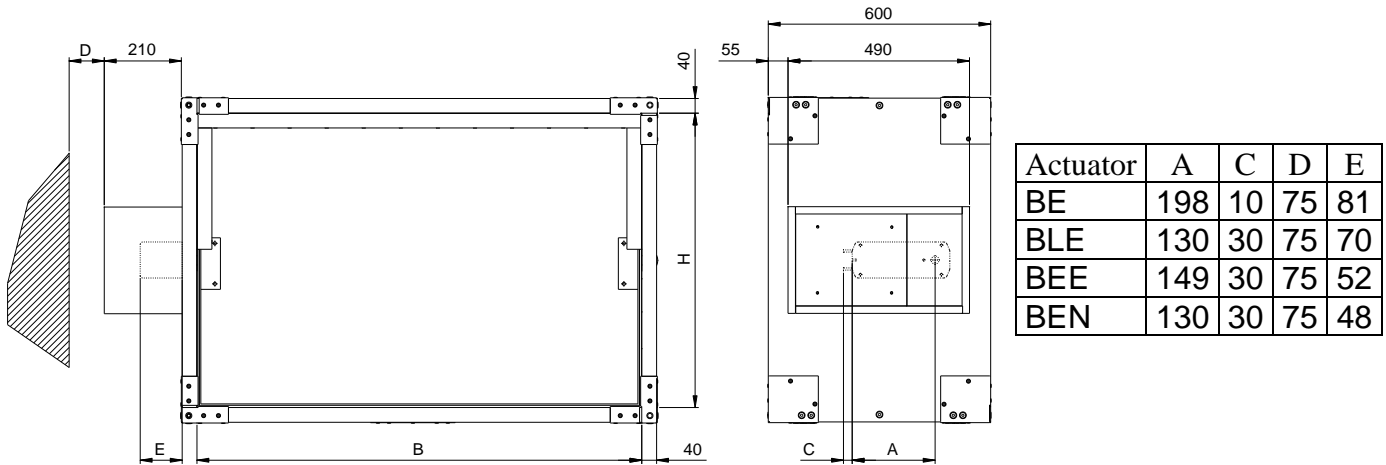
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| <input type="checkbox"/> BF 230-T | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input checked="" type="checkbox"/> BE 230 | <input type="checkbox"/> /S | <input checked="" 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 checked="" type="checkbox"/> /V | <input checked="" 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 type="checkbox"/> BEN 230 | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> BEN 24 (-ST) | <input type="checkbox"/> /S | <input checked="" type="checkbox"/> /V | <input checked="" type="checkbox"/> /V-M | <input type="checkbox"/> /T |
| <input type="checkbox"/> MF 230-T | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> MF 24-T | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |
| <input type="checkbox"/> MLF 230-T | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> MLF 24-T | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |

Spring gear:

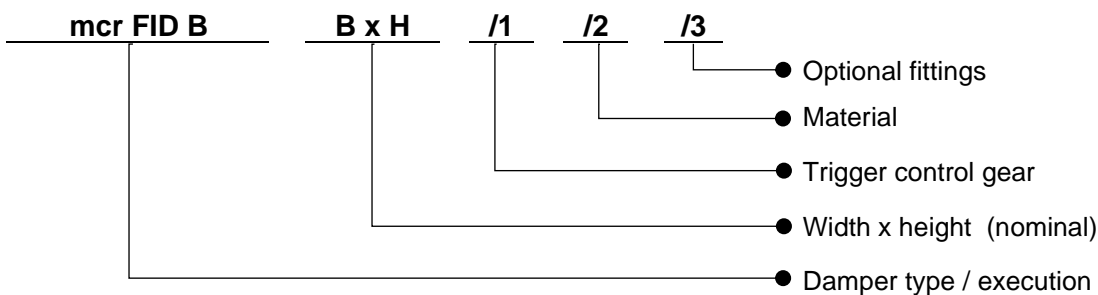
| | | | | | | | | | |
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| <input type="checkbox"/> RST | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> RST/KW1/S | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |
| <input type="checkbox"/> RST/KW1/24P | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> RST/KW1/24I | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |
| <input type="checkbox"/> RST/KW1/230P | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T | <input type="checkbox"/> RST/KW1/230I | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |

mcr FID B single-plane fire dampers

Basic dimensions



5. DEVICE IDENTIFICATION



6. DEVICE ASSEMBLY

CAUTION

During the assembly of the damper and installation finish, future access to the device and removal of the trigger control gear must be considered to enable servicing and inspection.

The mcr FID B dampers can be installed at a distance from the following building partitions:

- walls with a wooden structure of the thickness required for fire resistance
- walls made of boards with the thickness required for fire resistance
- masonry walls of the thickness required for fire resistance
- masonry walls made of bricks or blocks of the thickness required for fire resistance
- rigid floor with the thickness required for fire resistance

Additionally, the dampers can be installed:

- outside the partitions (walls, ceilings)
- in modules (multiple dampers sets)

6.1. PRE-ASSEMBLY INSPECTION

Each fire damper is factory inspected by the manufacturer prior to packing and shipping. Upon unpacking the delivered fire damper, visually examine it for any damage in transport or casing deformation.

6.2. INSTALLATION OPENING

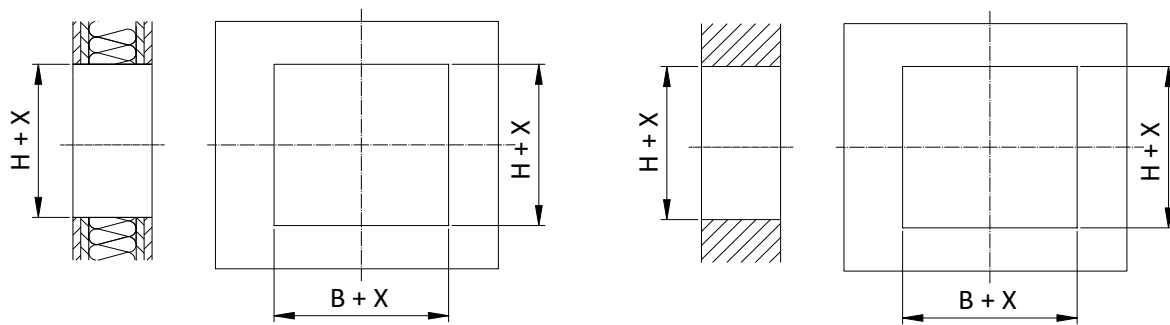
The minimum size of the hole made in the fire partition when installing the damper on the duct passing through this partition (wall or ceiling) is, depending on the thickness of the fire protection board of the duct, as follows:

- fire protection duct wall thickness 40mm: X min. 160 mm
- fire protection duct wall thickness 50mm: X min. 180 mm

mcr FID B single-plane fire dampers

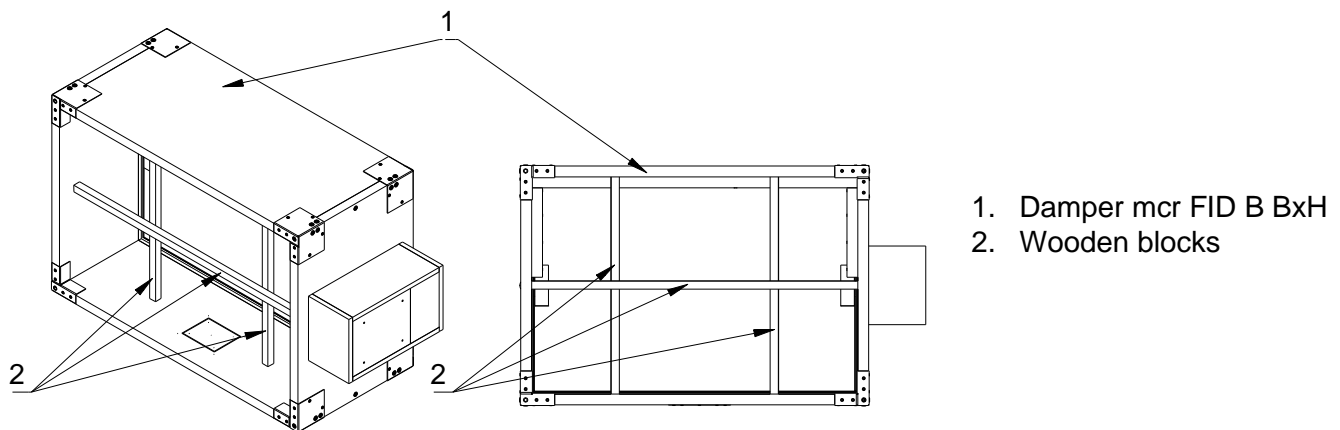
fire protection duct wall thickness 60mm

X min. 200 mm



Preparation of the installation opening

6.3. EMBEDDING / FIXING THE DAMPER



1. Damper mcr FID B BxH
2. Wooden blocks

Protecting the damper against buckling

The mcr FID B fire damper will work properly if the isolation partition rotation axis is horizontal. The trigger control gear may be located on the right or on the left hand side of the damper at any direction of air flow.

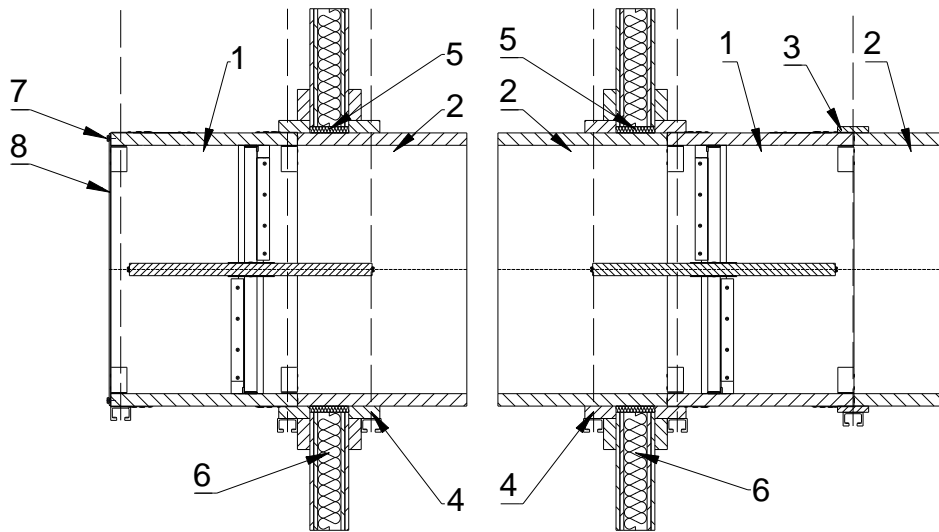
The dampers can be installed on the vertical or horizontal section of the fire ventilation duct across the duct or on the surface of the sides of the duct. The damper can also be installed in a construction shaft used for fire ventilation. Acceptable assembly is shown in the figures further in the document.

The damper is installed on a duct or shaft in the same way as the construction of self-supporting ducts made of fire boards. Please ensure that the internal dimensions of the channel on which the damper is mounted are not smaller than the $B \times H$ dimensions of the damper and allow free rotation of the damper partition. It is important that after installing the damper on a duct or shaft, manually activate the damper partition, checking whether it rotates correctly (does not interfere with casing elements, etc.).

The embedded fire damper must be coaxially connected to the ventilation duct. Protect the fire damper casing from damage, and specifically from straining the casing during the installation process. The fire damper cannot bear the load of the ventilation duct or the ventilation system in which it is installed. Drilling the damper enclosure or driving screws, bolts or other elements that pierce through the casing to the inside of the damper is prohibited. A mounting frame RB is used to connect a steel ventilation duct. Once connected to the ventilation ducts, re-verify the fire damper performance. With the installation finished, carefully clean the fire damper and make sure that there is no debris which could influence proper performance of the device.

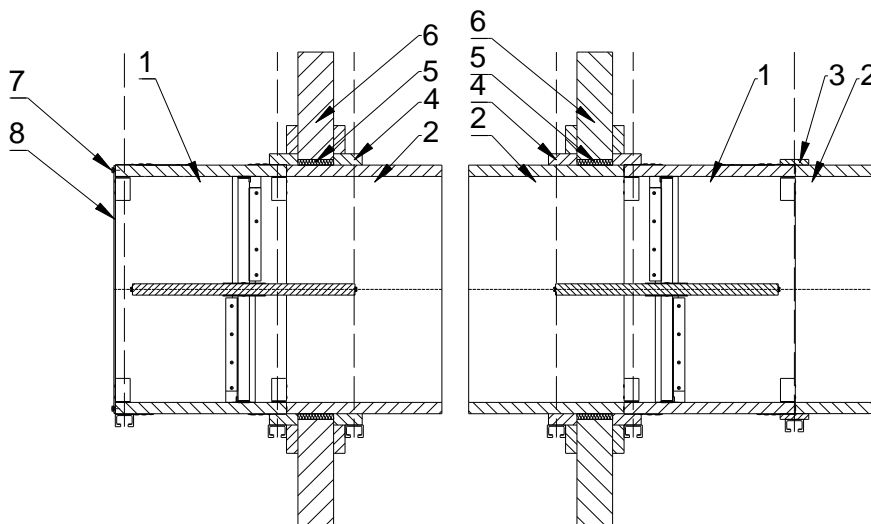
CAUTION

It is crucial to keep the device embedding envelope so that the trigger control gear is outside of the wall envelope and easily accessible.



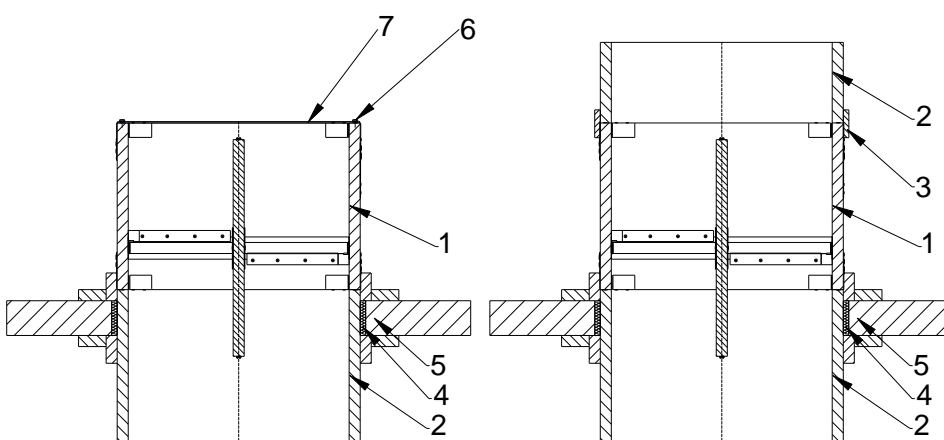
1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of ceiling hanger
5. System of installation transition of the fireproof duct
6. Panel wall
7. M10x20 screw
8. MWB system grille

Installation of damper in panel walls



1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of ceiling hanger
5. System of installation transition of the fireproof duct
6. Panel wall
7. M10x20 screw
8. MWB system grille

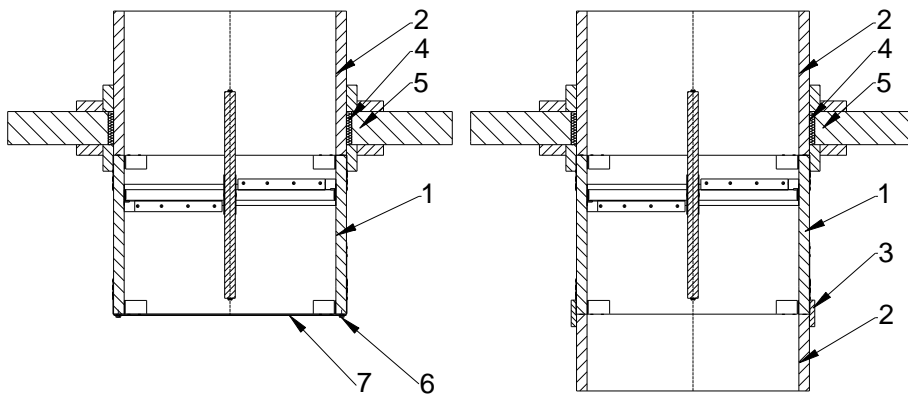
Installation of damper in rigid floor



1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of installation transition of the fireproof duct
5. Rigid floor
6. M10x20 screw
7. MWB system grille

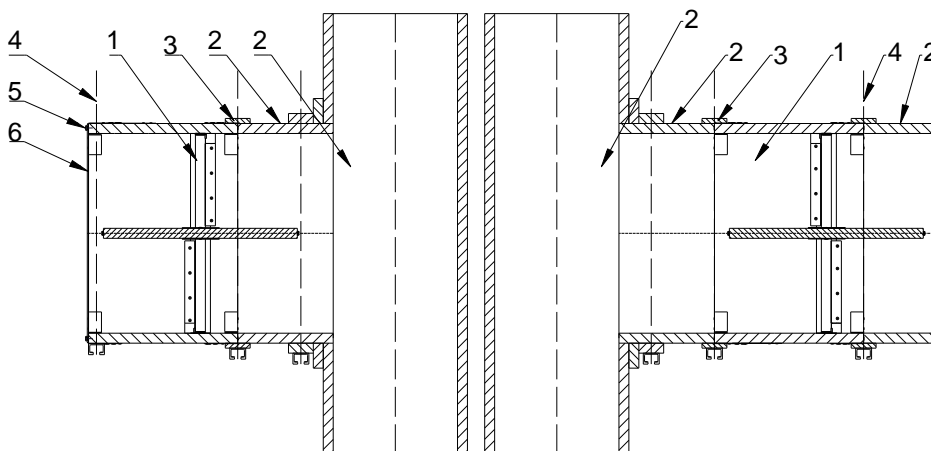
Installation of damper in rigid floor – above the rigid floor

mcr FID B single-plane fire dampers



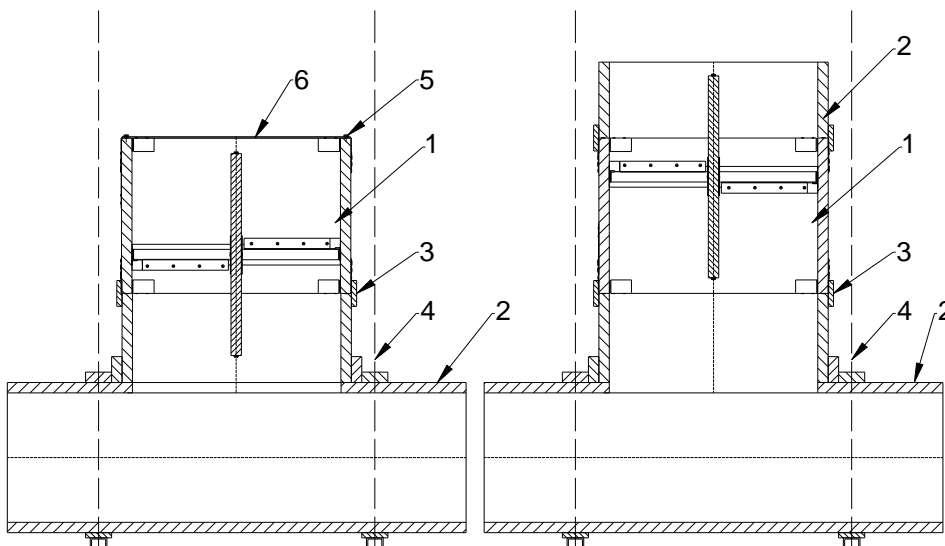
1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of installation transition of the fireproof duct
5. Rigid floor
6. M10x20 screw
7. MWB system grille

Installation of damper in rigid floor – below the rigid floor



1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of ceiling hanger
5. M10x20 screw
6. MWB system grille

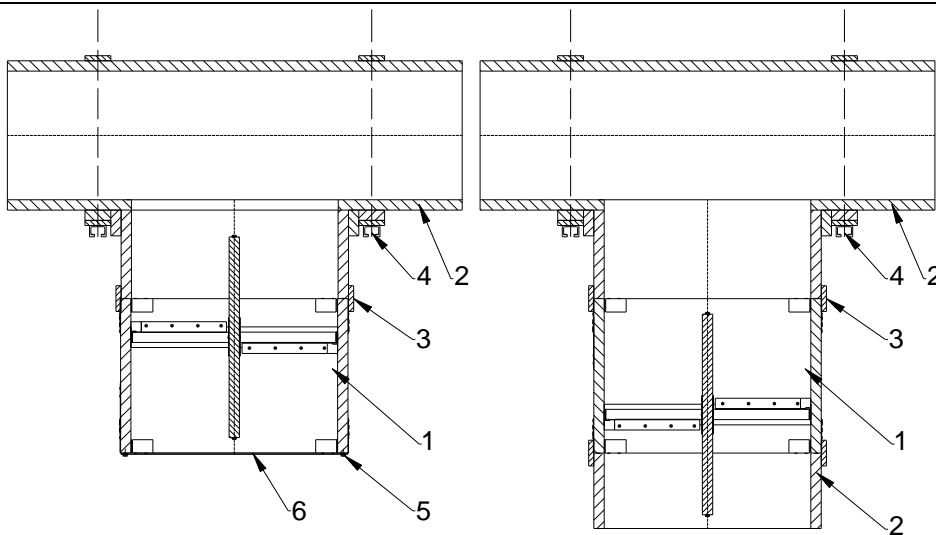
Installation of the damper on horizontal ducts



1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of ceiling hanger
5. M10x20 screw
6. MWB system grille

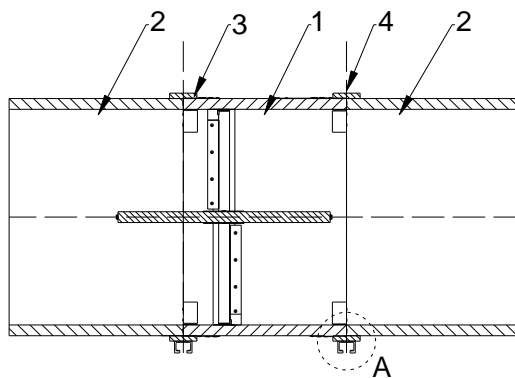
Installation of the damper on vertical ducts

mcr FID B single-plane fire dampers



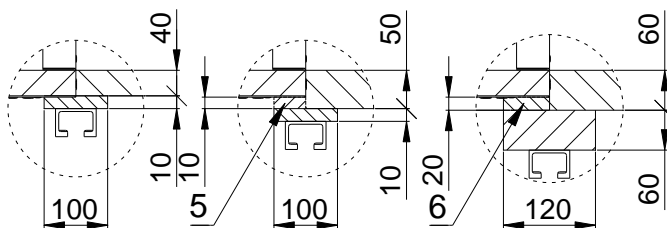
1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of ceiling hanger
5. M10x20 screw
6. MWB system grille

Installation of the damper on vertical ducts



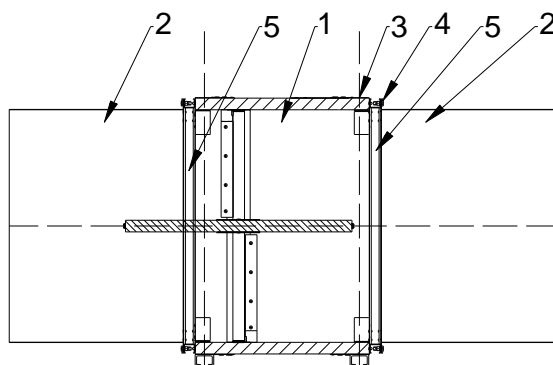
1. mcr FID B BxH damper
2. Multi-zone smoke extract duct - eg made of fire-rated boards
3. A strip of fire-resistant board along the entire length of the side BxH
4. System of ceiling hanger

Variants of detail A:



5. A strip of fire-resistant board along the entire length of the side BxH with dimensions 10x50mm
6. A strip of fire-resistant board along the entire length of the side BxH with dimensions 20x50mm

Connection of a multi-zone fireproof duct, e.g. made of fire-rated boards



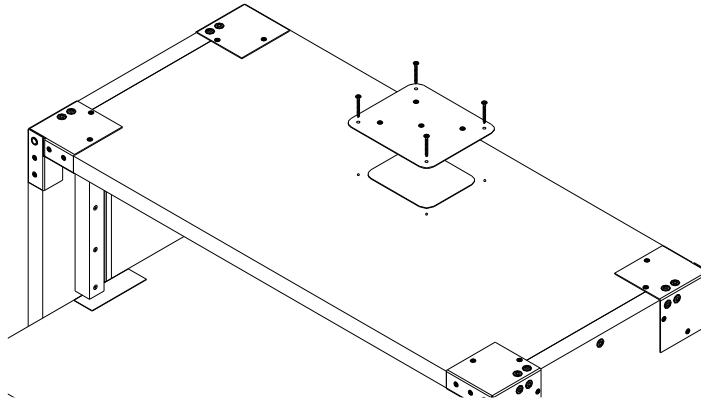
1. mcr FID B BxH damper
2. Single-compartment smoke extract duct - eg metal one
3. System of ceiling hanger
4. M10x20 screw
5. RB mounting frame

Connection of a single-compartment fireproof duct, e.g. made of metal sheets

mcr FID B single-plane fire dampers

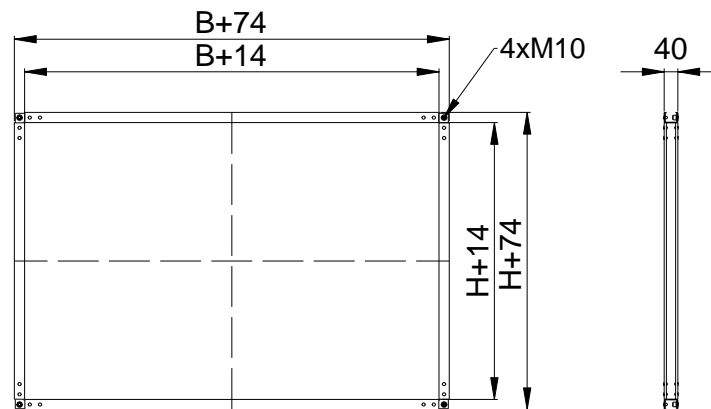
CAUTION

Smoke extraction duct should be made in accordance with the duct manufacturer's guidelines. The ducts must have adequate fire resistance in accordance with the fire resistance provided for the entire solution. Seal all connections between the damper and the ducts with appropriate mortar / glue / gaskets, ensuring fire resistance. The damper in vertical position in fire ventilation systems may be mounted across the horizontal smoke extract duct or on the sides of the horizontal smoke extract duct or on the surface of any side of the vertical smoke extract duct.



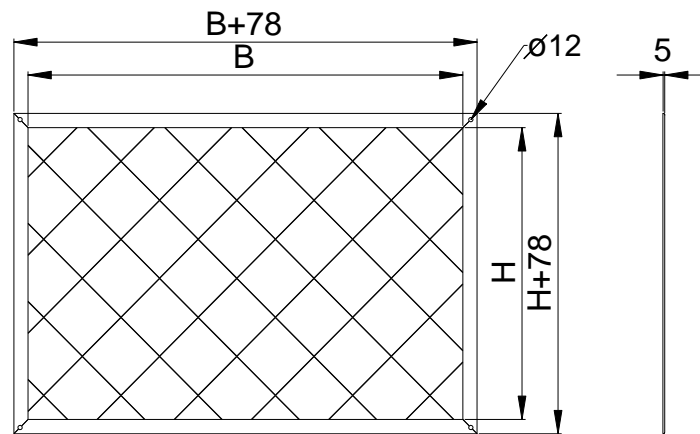
Inspection access

The mcr FID B damper is factory-equipped with an access inspection, thanks to which the connected duct and the damper can be inspected without the need to disassemble the installation. The inspection can be opened by unscrewing the 4 extreme screws as shown in the drawing above.



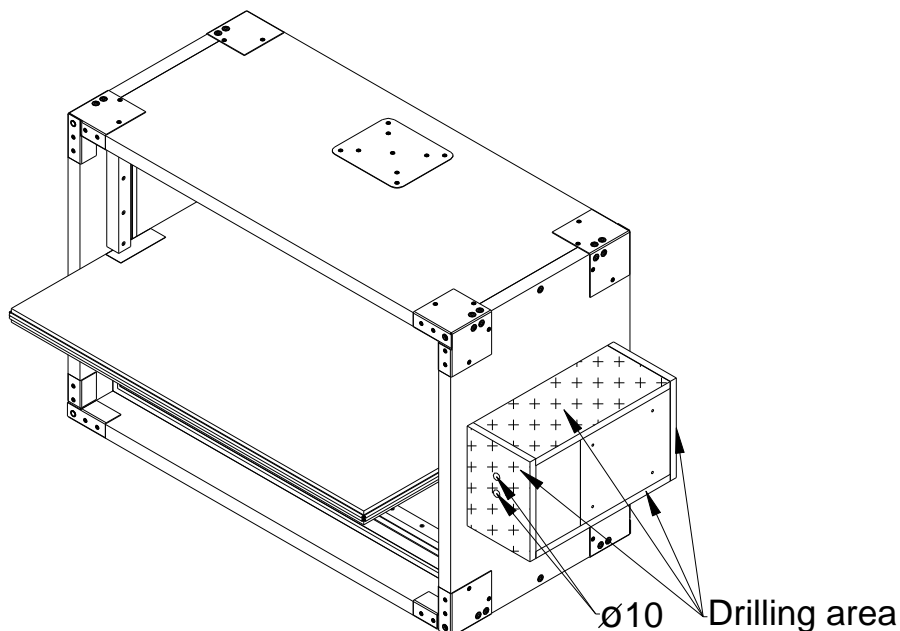
RB connecting subframe

The mcr FID B damper can be delivered by the manufacturer with a system assembly frame for single-compartment fire ventilation ducts. Flanges allow the connection of ventilation ducts with the use of clamps for fixing ducts. M10 rivet nuts located in the corners of the frame allow for centering the ducts. If the RB assembly frame is assembled on its own, the connection should be sealed with fire rated material that provides the appropriate fire resistance for the application.



MWB system grille

The mcr FID B damper can be delivered by the manufacturer with a system cover grille. In case of specific architectural requirements, the structure of the system masking grilles allows covering the damper and the grille with additional masking grilles.



Introduction of electric cables for electric power supply of the actuator

The introduction of electric cables to power the actuator should be done by drilling the actuator casing with a $\text{Ø}10$ drill. The openings can be made in any plane of the casing marked in the drawing above. After inserting the cables, fill the gap between the cable and the actuator housing with fire rated material ensuring appropriate fire resistance, provided for the application, or use appropriate electric glands. The power and control cables must have adequate fire resistance that guarantees the supply of the control signal to the device in the event of a fire.

6.4. ELECTRICAL CONNECTIONS

With the fire damper properly installed and embedded connect the electrical system wiring to the fire damper, if the device features controls or other parts that require electric power supply. The following shows the connection diagrams and basic electrical data for the trigger control gears supplied with the mcr FID B fire dampers.

mcr FID B single-plane fire dampers

Electric actuators – electrical specification

| Actuator type | Location of the damper isolation partition |
|---|---|
| <ul style="list-style-type: none"> - Belimo BFL series - Belimo BFN series - Belimo BF series - Mercor MLF series - Mercor MF series | Open isolation partition – actuator indication: 90 Closed isolation partition – actuator indication: 0 |
| <ul style="list-style-type: none"> - Belimo serii BE - Belimo serii BLE - Belimo serii BEE - Belimo serii BEN | Open isolation partition – actuator indication: 0 Closed isolation partition – actuator indication: 90 |

| Technical specifications | BF 24, BF24-T, BF24-TN, MF 24T | BF230, BF230-T, BF230-TN, MF 230T |
|---------------------------------|--------------------------------|-----------------------------------|
| Power supply | AC 24V 50/60Hz DC 24V | AC 220-240V 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, 250V | 2xSPDT 3 A, 250V~ |
| - 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 circuit breaker | 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) |

| Technical specifications | BE24, BE24-ST | BE230 | BLE24, BLE24-ST | BLE230 |
|---------------------------------|---------------------------|------------------------|--------------------------|------------------------|
| Power supply | AC 24V 50/60Hz DC 24 V | AC 220-240V 50/60 Hz | AC 24V 50/60Hz DC 24V | AC 220-240V 50/60 Hz |
| Power demand: | | | | |
| - for spring tensioning | 12 W | 8 W | 7.5 W | 5 W |
| - for spring holding | 0,5W | 0,5 W | 0,5 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 6(3) A, 250V | 2xSPDT 6(3) A, 250V | 2xSPDT 3A, AC 250V | 2xSPDT 3A, AC 250V |
| - activation position [degrees] | 3°, 87° | 3°, 87° | 3°, 87° | 3°, 87° |
| Torque: | | | | |
| - motor | 40 Nm | 40 Nm | 15 Nm | 15 Nm |
| - locking | 50 Nm | 50 Nm | 20 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 circuit breaker | 6x0,75 mm ² | 6x0,75 mm ² | 6x0,75 mm ² | 6x0,75 mm ² |
| Movement time: (0-90°) | | | | |
| - motor | 60s | 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 | BEE24, BEE24-ST | BEE230 | BEN24, BEN24-ST | BEN230 |
|--------------------------|---------------------------|----------------------|--------------------------|----------------------|
| Power supply | AC 24V 50/60Hz DC 24 V | AC 220-240V 50/60 Hz | AC 24V 50/60Hz DC 24V | AC 220-240V 50/60 Hz |
| Power demand: | | | | |
| - for spring tensioning | 2,5 W | 3,5 W | 3 W | 4 W |
| - for spring holding | 0,1W | 0,4 W | 0,1 W | 0,4 W |

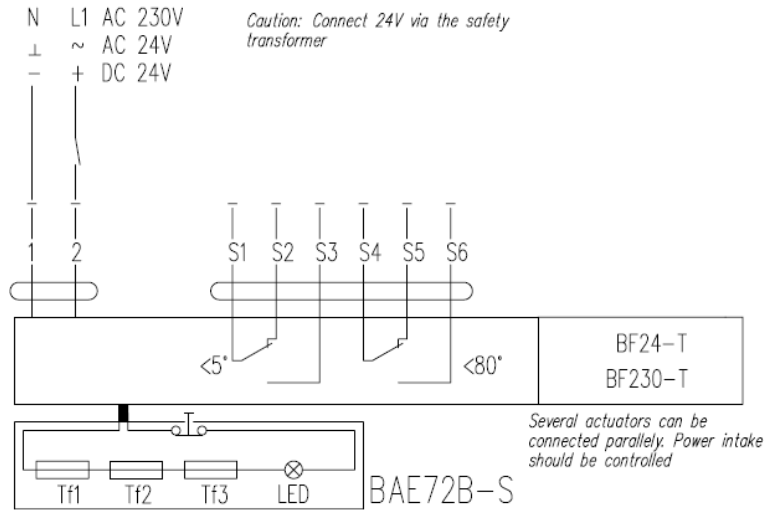
mcr FID B single-plane fire dampers

| | | | | |
|---------------------------------|------------------------|------------------------|------------------------|------------------------|
| 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 3A AC 250V | 2xSPDT 3A AC 250V | 2xSPDT 3A, AC 250V | 2xSPDT 3A, AC 250V |
| - 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 = 0.9 m) | 3x0,75 mm ² | 3x0,75 mm ² | 3x0,75 mm ² | 3x0,75 mm ² |
| - auxiliary circuit breaker | 6x0,75 mm ² | 6x0,75 mm ² | 6x0,75 mm ² | 6x0,75 mm ² |
| Movement time: (0-90°) | | | | |
| - motor | 60s | 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) |

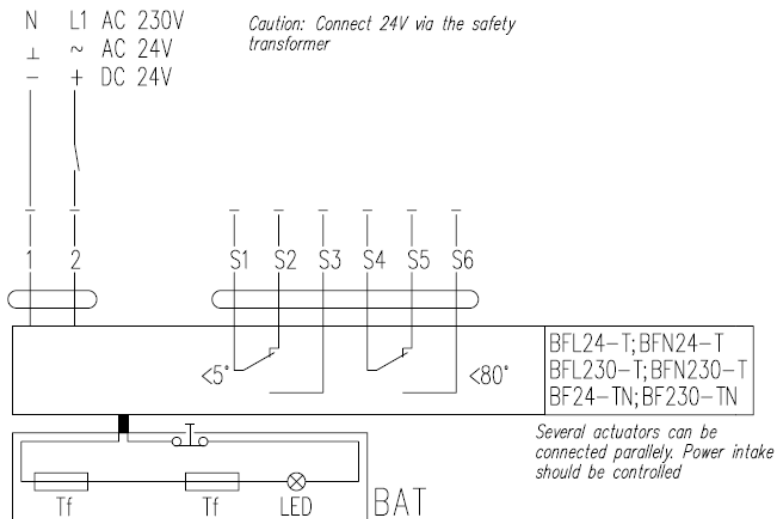
| Technical data | BFL24, BFL24-T | BFL230, BFL230-T | BFN24, BFN24-T | BFN230, BFN230-T |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Power supply | AC 24 V 50/60 Hz DC 24 V | AC 220-240 V 50/60 Hz | AC 24 V 50/60 Hz DC 24 V | AC 220-240V 50/60 Hz |
| Power demand: | | | | |
| - when putting the spring under tension | 2.5 W | 3,5 W | 4 W | 5 W |
| - when in standby | 0.7 W | 1.1 W | 1.4 W | 2.1 W |
| Apparent power | 4 VA | 6.5 VA | 6 VA | 10 VA |
| Protection class | III | II | III | II |
| IP rating | IP 54 | IP 54 | IP 54 | IP 54 |
| auxiliary switch: | 2 x PDT 3(0.5) A AC 250V | 2 x PDT 3(0.5) A AC 250V | 2 x SPDT 3(0.5) A, 250 V | 2 x SPDT 3(0.5) A, 250 V |
| - activation point [degrees] | 5°, 80° | 5°, 80° | 5°, 80° | 5°, 80° |
| Torque: | | | | |
| - motor | 4 Nm | 4 Nm | 9 Nm | 9 Nm |
| - spring | 3 Nm | 3 Nm | 7 Nm | 7 Nm |
| Wire connection: | | | | |
| - motor (length: 0.9 m) | 2 x 0.75 mm ² | 2 x 0.75 mm ² | 2 x 0.75 mm ² | 2 x 0.75 mm ² |
| - auxiliary switch | 6 x 0.75 mm ² | 6 x 0.75 mm ² | 6 x 0.75 mm ² | 6 x 0.75 mm ² |
| Movement time (0-90°): | | | | |
| - motor | 60 s | 60 | 60 s | 60 s |
| - return spring | ≈ 20 s | ≈ 20 s | ≈ 20 s | ≈ 20 s |
| Working temperature range | -30 ...+55°C | -30 ...+55°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) |

| Technical specifications | MLF 24T | MLF 230T |
|---------------------------------|----------------------------|----------------------------|
| Power supply | AC 24V 50/60Hz DC 24 V | AC 220-240V 50/60 Hz |
| Power demand: | | |
| - for spring tensioning | 5 W | 5 W |
| - for spring holding | 2.5 W | 3 W |
| Sizing (apparent power) | 7 VA | 7 VA |
| Appliance class | III | II |
| Ingress protection rating | IP 54 | IP 54 |
| Auxiliary circuit breaker: | 2xSPDT 6 (1.5)A AC 250V | 2xSPDT 6 (1.5)A AC 250V |
| - activation position [degrees] | 5°, 80° | 5°, 80° |
| Torque: | | |
| - motor | 4 Nm | 4 Nm |
| - spring | 4 Nm | 4 Nm |
| Cable connection: | | |
| - motor (L = 0.9 m) | 2x0.75 mm ² | 2x0.75 mm ² |
| - auxiliary circuit breaker | 6x0.75 mm ² | 6x0.75 mm ² |
| Movement time: (0-90°) | | |
| - motor | 40-75 s | 40-75 s |
| - return spring | ≈20s | ≈20s |
| Operating temperature range | - 30 ...+50°C | - 30 ...+50°C |
| Sound pressure level: | | |
| - motor | max. 45 dB (A) | max. 45 dB (A) |
| - spring | ~ 62 dB (A) | ~ 62 dB (A) |

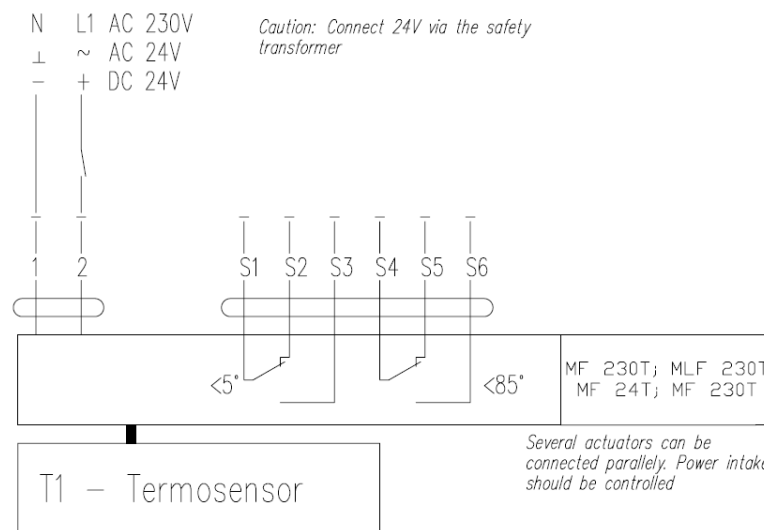
mcr FID B single-plane fire dampers



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

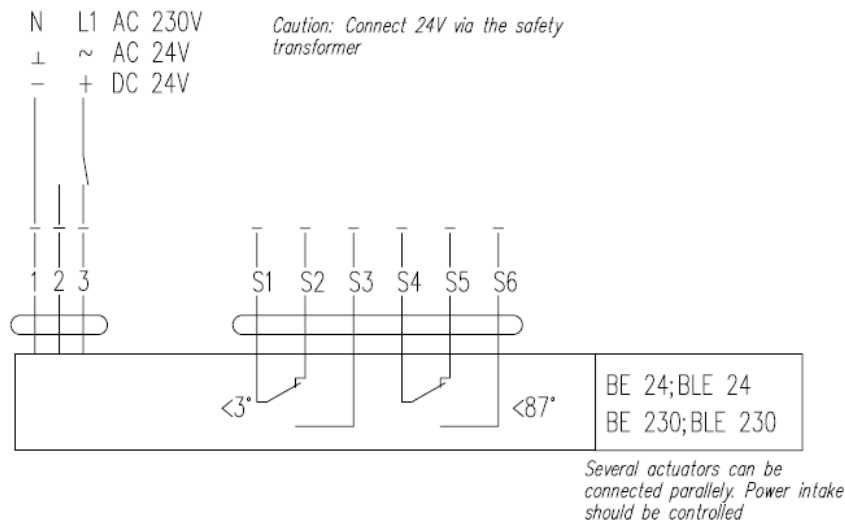


Connection diagram for the BFL24-T, BFL230-T, BFN24-T, BFN230-T, BF24-TN and BF230-TN actuators

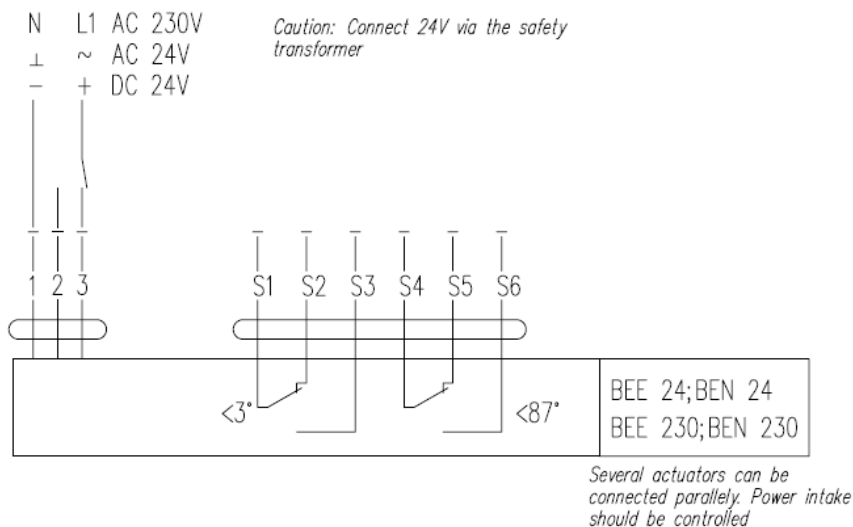


Connection diagram for the MLF 24T, MLF 230T, MF 24T, MF 230T

mcr FID B single-plane fire dampers



Connection diagram for the BE24, BLE24, BE230 and BLE230 actuators



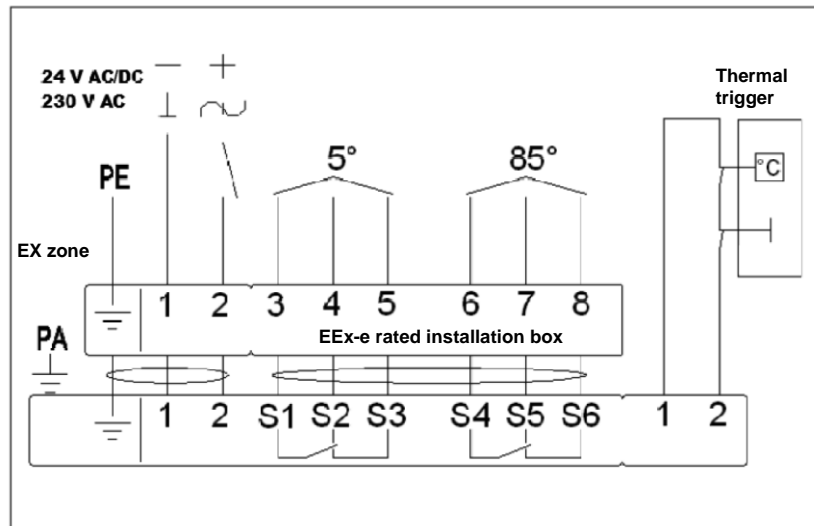
Connection diagram for the BEE24, BEN24, BEE230 and BEN230 actuators

Note:

The BE, BLE, BEE and BEN 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 24V±10% or 230V±10%. Power supply devices other than listed above may cause malfunction and will not be covered by the warranty 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 VDC-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 6A (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°) | | |
| - motor | 150 s | 150 s |
| - return spring | ≈20s | ≈20s |
| Ambient temperature | - 20 ...+50°C | - 20 ...+50°C |



Connection diagram for the EXBF actuators

Caution:

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

RST/KW1 trigger control gear

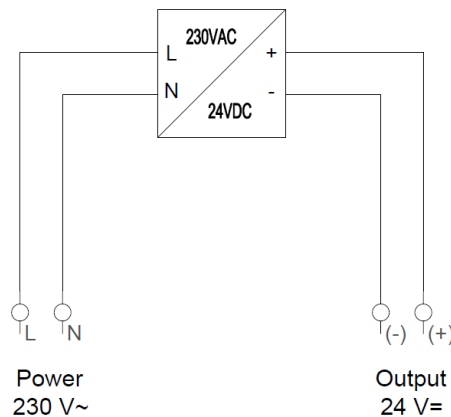
The RST/KW1/S version has the limit switches installed in the gear itself. The electrical connections shall be made by connecting the properly labelled conductors to the electrical system. A fusible trigger is installed in the gear. The dampers with the RST/KW1/230I, RST/KW1/230P mechanisms, are supplied 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 | 230V AC | 230V 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 |
| Thermal trigger trip point | 72°C +2°C | | | | |
| WK1d / WK2d limit switch | NO/NC (switching contact) 5A, 230V 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. 2s - spring | | | | |
| Sense of rotation | CCW | | | | |
| Gear weight | 1.2 kg | 1.4 kg | 1.4 kg | 1.5 kg | 1.5 kg |

| KW1 gear power supply: | WK1 limit switch | WK2 limit switch |
|------------------------|--|--|
| Wire number: 1-2 | Wire number: 3-4 – NO (normally open) Wire color: green / gray | Wire number: 6-7 – NO (normally open) Wire color: brown / pink |
| | Wire number: 4-5 – NC (normally closed) Wire color: gray / blue | Wire number: 7-8 – NC (normally closed) Wire color: pink / yellow |

-MP 230/24



Connection diagram for transformer module type MP230/24

Caution! - The location of the limit switches is shown for the fire damper in the safety position

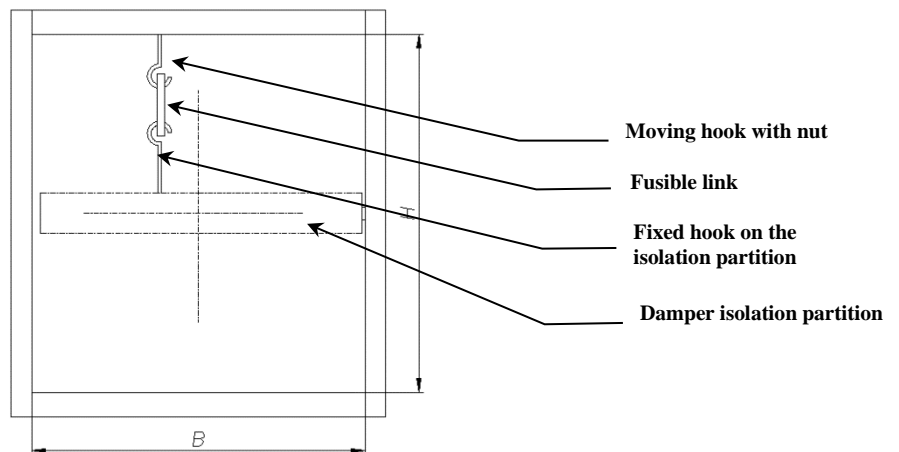
For proper operation of a device equipped with electrical actuators, it is recommended that the rated voltage housed tolerance of $24V \pm 2\%$ or $230V \pm 2\%$. Power supply devices other than listed above may cause malfunction and will not be covered by the warranty conditions.

RST trigger control gear

In the RST version the limit switches are independent units installed inside the fire damper casing. The fusible release is located on the damper isolation partition. The driving spring is installed on the damper isolation partition.

Installation of the RST fusible release:

- Move partition to the open position
- Install the fusible link on the hooks attached to the fire damper casing and the isolation partition
- Tighten the nut to lock the hook on the fire damper casing



Caution

The drawing is indicative only and applies both to the rectangular and circular form versions.

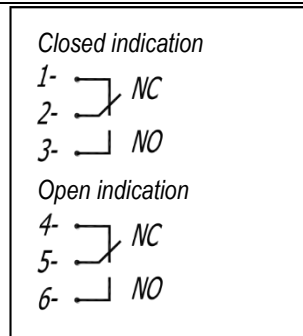
Independent limit switches – RST version

WK1 – single switch – indicates that the fire damper is closed.

WK2 – tandem of switches – indicates that the fire damper is closed or open.

Switch technical specifications

| | |
|------------------------------------|--|
| WK1 and WK2 limit switch | 1xNO/1xNC SPDT (switching contact) 5A, 230V AC |
| Limit switch operating temperature | -25 ... +85°C |
| Body | Plastic |



Caution

When the isolation partition closes, the closed indication limit switch is switched over (contacts 2-3 are closed).

Electric connection diagram of WK1 and WK2 limit switches

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;
- 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 SA requires periodic technical inspection and maintenance at least every 12 months throughout its operating life, i.e. during the warranty and post-warranty period. Inspection and maintenance may only be carried out by the manufacturer or contractors authorised by MERCOR SA to service its products.

Regular service inspections of fire protection equipment is mandatory in Poland according to § 3 Section 3 of the Polish Regulation of the Ministry of the Interior and Administration of 7 June 2010 on the fire protection of buildings, other structures and areas (Polish Journal of Laws, Year 2010, No. 109 Item 719).

Do these recommended actions in the inspection intervals:

- Check the electrical connections, especially for all mechanical damage.
- Inspections of the condition of the supply voltage for the devices, which allowed the following tolerances:
 - 24V±10% for electric actuators
 - 24V±2% for electromagnetic release mechanism
 - 230V ±10% for electric actuators
 - 230V±2% for electromagnetic release mechanism
- Check the equipment casing, especially for all mechanical damage.
- Check for any obstructions to proper performance of the equipment.

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 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 SA Service Department, serwis@mercors.com.pl, tel. +48 58 341 42 45 ext. 170, fax: +48 58 341 39 85, from 8 AM to 4 PM (Mo-Fri).

9. WARRANTY TERMS & CONDITIONS

1. "MERCOR" SA grants 12 months of warranty for the equipment quality from the date of purchase, unless the sales contract states otherwise.
2. Submit each warranty claim to "MERCOR" SA in 7 days from the date of discovery of a warranty eligible defect
3. Submit warranty claims by calling at: tel. +48 58 341 42 45, by fax: +48 58 341 39 85, by e-mail: reklamacje@mercors.com.pl or by traditional mail: "MERCOR" SA, ul. Grzegorza z Sanoka 2, 80-408 Gdańsk, Poland.
4. If physical defects of equipment are found during the warranty period, "MERCOR" SA warrants and represents to remove them in shortest possible time from serving the written warranty claim with the proof of purchase or sales contract, subject to Item 10.
5. "MERCOR" SA has the right to extend the time of repair if the defect removal is complicated or requires purchase of custom components or spare parts.
6. The warranty liability only covers all defects arising from causes present in the equipment at the date of sale.
7. Defects caused by improper operation or otherwise as listed in Item 10 herein, the buyer / warranty beneficiary will be charged with the costs of their removal.
8. Condition for rectifying defects is that the applicant makes the site/localisation where devices are installed available, in particular, ensuring: the lift in the case of devices mounted at a height above 3m, free access to the rooms where the devices were installed and necessary revisions, dismantling thermal insulation, disassembling suspended ceilings, disassembling other installations, if they prevent free access to the device.
9. If the device can not be repaired at the place of its installation, "MERCOR" SA reserves the necessity of its disassembly, possible delivery to the address indicated by "MERCOR" SA and re-assembly. The cost of this operation lies with the buyer / holder of the guarantee.
10. The warranty does not cover:
 - Any damage or failure of the equipment caused by improper operation, tampering, failure to conduct periodic technical inspection and/or maintenance established in the Operating and Maintenance Manual, section "SERVICING AND MAINTENANCE".
 - Any damage beyond reasonable control of "MERCOR" SA, and specifically: caused by force majeure, such as torrential rainfall, flooding, hurricanes, inundation, lightning strike, power grid overvoltage, explosion, hail, collision with aircraft, fire, avalanche, landslide and indirect damage due to those causes. Torrential rainfall is understood as any rainfall with the effectiveness factor of 4 or higher in accordance with the definition of the Polish Institute of Meteorology and Water Management - National Research Institute (IMGW-PIB). If the effectiveness factor value specified in the preceding sentence cannot be reasonably established, the actual condition and extent of damage shall be considered at the site of their origin as the action of torrential rain. Hurricane is understood as any wind with a minimum speed of 17.5 m/s (and damage shall be recognised as caused by hurricanes if the effects of such weather phenomenon has been found in the direct vicinity of the damaged property).
 - Damage due to failure to immediately report any defect found.
 - Deterioration in the quality of coatings due to natural weathering/ageing.
 - Defects caused by abrasive or aggressive cleaning agents.
 - Damage caused by aggressive external influence, specifically chemical or biological in nature, or when the origin of which is related to the production processing or activity carried out within the facility protected by the equipment or in its direct vicinity.
 - Wearing parts and consumables (e.g. gaskets/seals), unless they have defects of workmanship and/or material.
 - Damage caused by improper transport, handling, unloading and/or storage of the equipment.
 - Damage caused by installation of the equipment in violation of this Operating and Maintenance Manual and/or good construction practice.

mcr FID B single-plane fire dampers

- The equipment and/or parts thereof with removed or damaged nameplate (rating plate) and/or warranty seals.
11. The buyer/warranty rights holder is required to operate the equipment properly and carry out technical inspection and maintenance in accordance with the section "MAINTENANCE AND SERVICING" in the following Operating and Maintenance Manual.
 12. This warranty shall be made immediately void and null if:
 - The buyer/warranty rights holder modifies the product design without prior authorisation from "MERCOR" SA.
 - Periodic technical inspection and/or maintenance is not carried out per schedule and/or is carried out by unauthorised personnel or service providers not authorised to do so by "MERCOR" SA and/or the equipment has not been properly operated.
 - Unauthorised personnel attempts any intervention in the product outside of the normal operation and maintenance of this equipment.
 - The device's thermal trigger was affected by a temperature greater than Tmax (page 3 of the Operation Manual).
 13. Any circumstances listed in Item 10 will relieve "MERCOR" SA from the obligation of surety.

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



2434

MERCOR S.A. and 380-470

21

2434-CPR-0031

PN-EN 12101-8:2012 (EN 12101-8:2011)
Smoke control damper – multi and single zone

mcr FID B

| | |
|---|---|
| Nominal activation conditions/sensitivity: - Closing/opening during the test and the right time | Manual activation – positive result |
| Response time: - Closure time | Manual activation – positive result |
| Reliability: | 10 000 cycles - positive result |
| Fire resistance: - Integrity E - Insulation I - Smoke leakage S - Mechanical stability (E category) - Maintenance of the cross section (E category) | EI 120 (v _{ed} h _{od} i< -- >o)S 1500C ₁₀₀₀₀ MAmulti |
| Durability: - time delay - maintenance of certainly operation | positive result positive result |