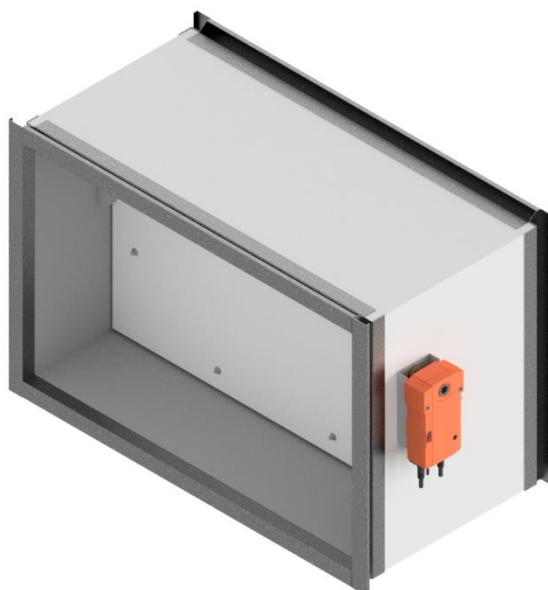


**OPERATION AND
MAINTENANCE MANUAL
(OMM)**

**Fire damper type
mcr FID 240**



Version FID S 240 22.12.29.3

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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.**

mcr FID 240 single-blade fire dampers

CAUTION

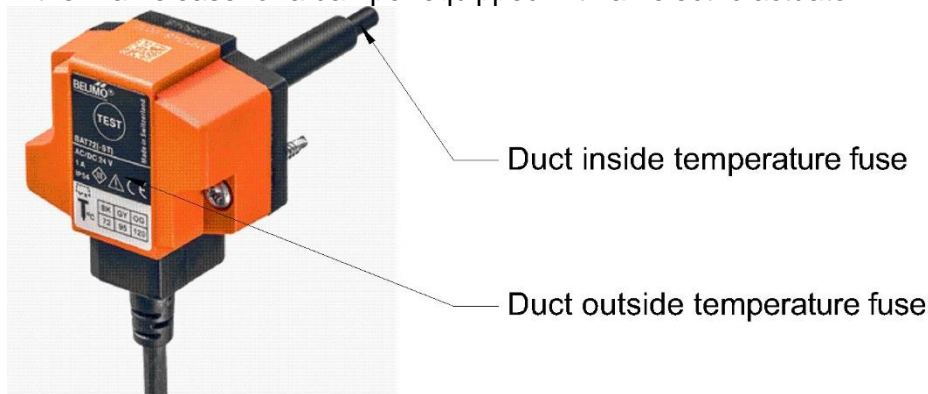
The product should be stored and used in rooms where:

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



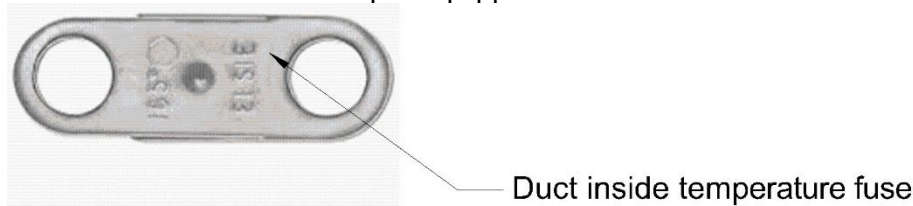
In the case of cut-off and transfer fire dampers, the device is equipped with a thermal release containing one-time temperature fuses. During normal operation, the above mentioned element should be protected against the affect of the permissible temperature Tmax (see the table below). When it is exceeded, 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 | Tmax 40 °C | Tmax 60 °C |
| Outdoor temperature fuse | Tmax 40 °C | Tmax 40 °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 | Tmax 40 °C | Tmax 60 °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.

Before starting the installation and operation of the device, carefully read the contents of this Operation Manual. Failure to follow the instructions in the documentation may lead to dangerous situations, damage to property or health. The manufacturer is not liable for any damage resulting from use that is inconsistent with this documentation.

2. SUBJECT

This manual concerns the entire group of single-blade fire dampers type mcr FID 240 . 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-blade fire dampers type mcr FID 240 may be used as:

- fire dampers – mcr FID 240 /S
- smoke control dampers for fire ventilation systems – mcr FID 240 /V
- smoke control dampers for mixed fire ventilation systems – mcr FID 240 /V-M
- transfer dampers – mcr FID 240 /T
- relief dampers – mcr FID 240 /G

Caution:

Smoke control fire dampers for fire ventilation systems the mcr FID 240 /V and fire dampers for mixed fire ventilation systems the mcr FID 240 /V-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 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 240 /... 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 checked="" type="checkbox"/> EI240S | <input checked="" 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"/> EI240 | <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"/> E240S | <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"/> E240 | <input type="checkbox"/> /S | <input type="checkbox"/> /V | <input type="checkbox"/> /V-M | <input type="checkbox"/> /T |

depending on application, method and place of installation of the damper.

Form versions

The available mcr FID 240 can be made as rectangular dampers.

Dimension type series

mcr FID 240 fire dampers are manufactured in the following size ranges:

- Width: 200 to 1000 mm
- Height: 200 to 800 mm
- Width: 250 to 400 mm

Aside from the standard dimensions, the fire dampers may also be manufactured in intermediate sizes. Maximum surface area of type mcr FID 240 dampers: 0,73 m².

4. DESIGN AND OPERATING PRINCIPLE

Design

The mcr FID 240 single-blade fire dampers comprise a casing with a rectangular cross-section, a moving isolation partition and a trigger control gear which is tripped remotely or automatically by tripping a thermal trigger. The damper casing and moving isolation partition is made of fire-proof panel. The isolation partition is set in a reinforcement profile made of metal sheet. The inner side of the fire damper casing features an intumescent gasket. There are stop shapes fastened to the inner casing surface and made of fire-proof panel, which limit the rotating motion of the isolation partition. The damper has both ends of body with flanged connections.

Function

The operating principle and behaviour of the mcr FID 240/... single-blade dampers depend on their application versions:

fire dampers – mcr FID 240 /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
- 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

smoke control dampers for fire ventilation systems – mcr FID 240 /V

In the normal operating position the dampers are closed. The dampers are opened (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
- 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 240 /V-M

In normal operation the dampers are closed or open, depending on the function carried out. The dampers are opened/closed (to the safety position) as follows:

- remotely, by tripping the electrical axial actuator without a return spring in order to apply supply voltage to the actuator in the right manner
- remotely, by tripping the electromagnetic release and a spring as a result of applying the voltage

transfer fire dampers – mcr FID 240 /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 240 /V

In normal operation the dampers are closed or open, depending on the function carried out. The dampers are opened/closed (to the safety position) as follows:

- remotely, by tripping the electrical axial actuator without a return spring in order to apply supply voltage to the actuator in the right manner

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. The mcr T2 tester is recommended to check the proper performance of dampers with electric actuators.

mcr FID 240 single-blade fire dampers

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 240 fire dampers:

Electric actuator:

| | | | | |
|----------------|----|----|------|----|
| BF 230-T | /S | /V | /V-M | /T |
| BF 24-T (-ST) | /S | /V | /V-M | /T |
| BF 24-T-TL | /S | /V | /V-M | /T |
| BFL 230-T | /S | /V | /V-M | /T |
| BFL 24-T (-ST) | /S | /V | /V-M | /T |
| BFN 230-T | /S | /V | /V-M | /T |
| BFN 24-T (-ST) | /S | /V | /V-M | /T |
| BF 24-TN (-ST) | /S | /V | /V-M | /T |
| BEE 230 | /S | /V | /V-M | /T |
| BEN 230 | /S | /V | /V-M | /T |
| MF 230-T | /S | /V | /V-M | /T |
| MLF 230-T | /S | /V | /V-M | /T |

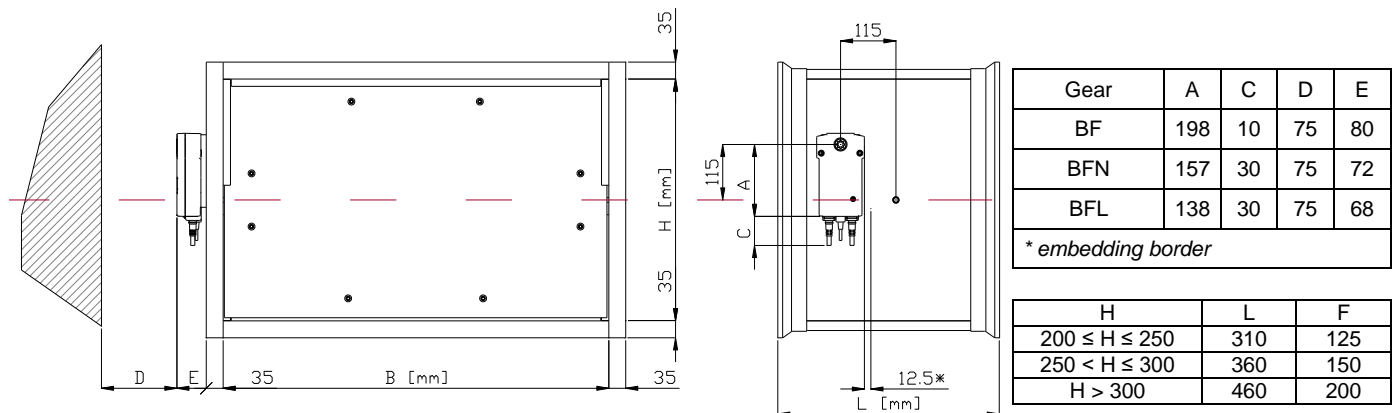
| | | | | |
|--------------|----|----|------|----|
| BE 230 | /S | /V | /V-M | /T |
| BE 24 (-ST) | /S | /V | /V-M | /T |
| BLE 230 | /S | /V | /V-M | /T |
| BLE 24 (-ST) | /S | /V | /V-M | /T |
| EXBF 230 | /S | /V | /V-M | /T |
| EXBF 24 | /S | /V | /V-M | /T |
| BF 230-TN | /S | /V | /V-M | /T |
| BF 24-TN-TL | /S | /V | /V-M | /T |
| BEE 24 (-ST) | /S | /V | /V-M | /T |
| BEN 24 (-ST) | /S | /V | /V-M | /T |
| MF 24-T | /S | /V | /V-M | /T |
| MLF 24-T | /S | /V | /V-M | /T |

Spring gear:

| | | | | |
|--------------|----|----|------|----|
| RST | /S | /V | /V-M | /T |
| RST/KW1/24P | /S | /V | /V-M | /T |
| RST/KW1/230P | /S | /V | /V-M | /T |

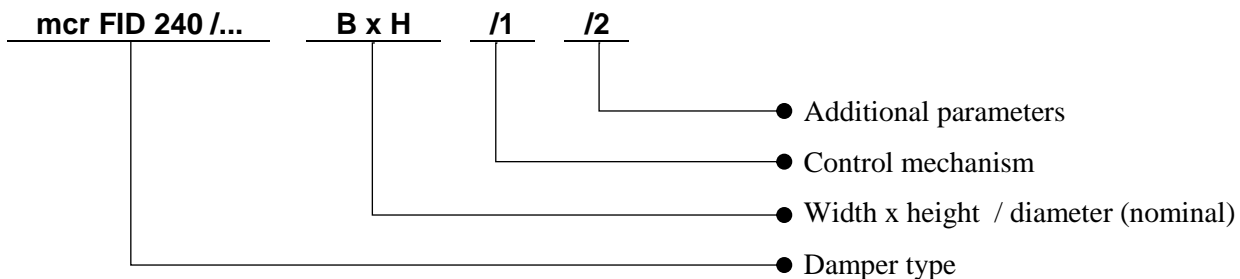
| | | | | |
|--------------|----|----|------|----|
| RST/KW1/S | /S | /V | /V-M | /T |
| RST/KW1/24I | /S | /V | /V-M | /T |
| RST/KW1/230I | /S | /V | /V-M | /T |

Basic dimensions



mcr FID 240 fire damper with actuator

5. DEVICE IDENTIFICATION



All exact trade markings of devices are available in the Technical Guide.

6. DEVICE ASSEMBLY

CAUTION

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

The mcr FID 240 dampers can be installed in the following building partitions (i.e. walls or ceilings):

- masonry and concrete walls min. 150 mm thick
- masonry walls of bricks or blocks min. 150 mm thick
- panel walls min. min. 125 mm thick
- floor slabs min. min. 150mm thick

Additionally, the dampers can be installed:

- outside of walls
- in modules (multiple damper sets)

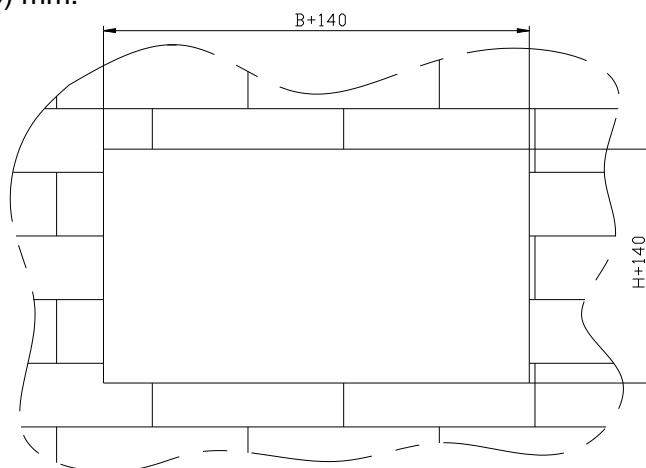
The mcr FID 240 fire dampers may also be installed in partitions with a lower class of fire resistance. In this case the damper fire resistance is equal to the partition fire resistance if the smoke tightness is met. When installing the fire damper in a wall the thickness of which is below the required minimum, increase the thickness at the installation location e.g. by adding an extra slab or other suitable construction material around the damper circumference.

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.

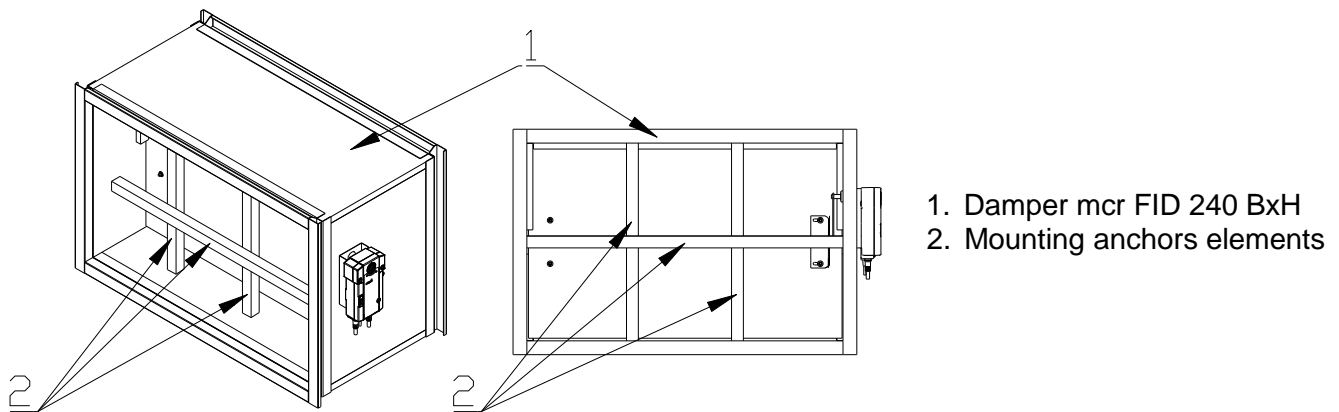
6.2. INSTALLATION OPENING

The recommended dimensions of the installation opening that permits correct installation of the rectangular damper is $(B+140) \times (H+140)$ mm.



Preparation of the installation opening

6.3. EMBEDDING / FIXING THE DAMPER



Protecting the damper against buckling

The mcr FID 240 fire damper will work properly if the isolation partition rotation axis is horizontal. The triggering and control mechanism may be located on the right or on the left hand side of the damper at any direction of air flow.

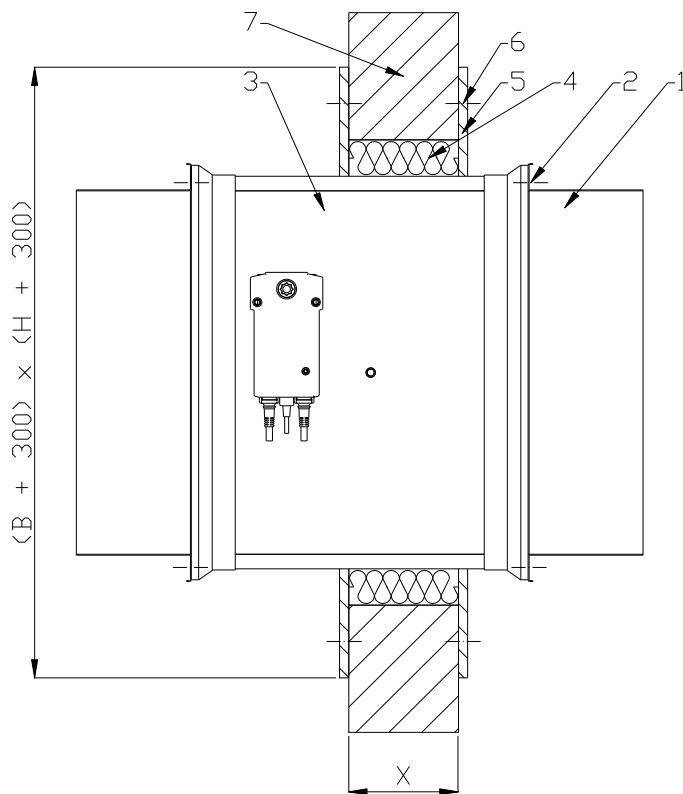
Before embedding/fixing, place the damper axially aligned within the partition (the wall or ceiling which separates the fire zones) in the finished installation opening. Level the device and secure in place. Next, actuate the damper isolation partition by hand to verify that the rotation is correct (i.e. there is no collision with the damper casing parts, etc.). Close the damper isolation partition. Install the bracing as shown in the figure. Carefully fill the gap between the damper casing and the wall with a proper wool with non-flammability class A1 confirmed by a certificate, and the density and thickness ensuring fire resistance not lower than the resistance of the wall in which the damper is installed. Do not let the wool get into the damper actuation components (i.e. the trigger control gear, the isolation partition, gaskets and stops). To do this, the fire damper must be covered with plastic film or other suitable material and remain so until the embedding and finishing is done. Then mount the plasterboard bands around the damper body. The moving isolation partition must remain closed throughout the installation. After installation, remove the supports and reopen and close the damper to check if it works properly.

In order to ensure the fire resistance of the fire separation element, it is mandatory to keep the embedding envelope boundary: the damper isolation partition rotation axis must be within the wall envelope.

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. Once connected to the ventilation ducts, re-verify the fire damper performance. During the installation of the mcr FID 240 fire damper mind specifically that the thermal trigger (a fusible element) must not be damaged or exposed to high temperature (from fire, and welding/soldering equipment), which might trigger it (it is a single use element and not subject to warranty replacement). Do not expose the intumescent gaskets installed in the fire damper casing to high temperature. Swollen gaskets make it impossible to close the damper. 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. Ventilation duct
2. Sheet-metal screw ST4.2x16
3. Damper mcr FID 240 BxH
4. Sealing - mineral wool*
5. GK board band on the entire side of BxH
6. Mounting anchor
7. Wall
- X. Wall thickness

Installation of the mcr FID 240 fire damper in masonry and concrete walls.

*The recommended installation of the damper in a dry system is based on wool of min. 140 kg / m³ and a thickness of 50 mm with A1 non-flammability class.

The manufacturer allows the use of other materials with parameters that confirm and ensure the appropriate class of fire resistance for the applied method of assembly.

6.4. ELECTRICAL CONNECTIONS

After the damper has been properly installed and embedded, if it has control elements or other elements that require electrical installation, connect the cables of this installation to the damper. Connection diagrams and basic electrical data of the release and control mechanisms supplied with the mcr FID 240 fire dampers are presented below.

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 |

mcr FID 240 single-blade fire dampers

| 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 - for spring holding | 7 W 2 W | 8,5 W 3 W |
| Sizing (apparent power) | 10 VA | 11 VA |
| Appliance class | III | II |
| Ingress protection rating | IP 54 | IP 54 |
| Auxiliary circuit breaker: - activation position [degrees] | 2xSPDT 6 (3) A, 250V 5°, 80° | 2xSPDT 3 A, 250V~ 5°, 80° |
| Torque: - motor - spring | 18 Nm 12 Nm | 18 Nm 12 Nm |
| Cable connection: - motor (L = 0.9 m) - auxiliary circuit breaker | 2x0,75 mm ² 6x0,75 mm ² | 2x0,75 mm ² 6x0,75 mm ² |
| Movement time: (0-90°) - motor - return spring | 120 s 16 s | 120 s 16 s |
| Operating temperature range | - 30 ...+50°C | - 30 ...+50°C |
| Sound pressure level: - motor - spring | max 45 dB (A) ~ 63 dB (A) | max 45 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 - 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: - activation position [degrees] | 2xSPDT 6(3) A, 250V 3°, 87° | 2xSPDT 6(3) A, 250V 3°, 87° | 2xSPDT 3A, AC 250V 3°, 87° | 2xSPDT 3A, AC 250V 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) - auxiliary circuit breaker | 3x0,75 mm ² 6x0,75 mm ² | 3x0,75 mm ² 6x0,75 mm ² | 3x0,75 mm ² 6x0,75 mm ² | 3x0,75 mm ² 6x0,75 mm ² |

mcr FID 240 single-blade fire dampers

| | | | | |
|-----------------------------|---------------|---------------|---------------|---------------|
| Movement time: (0-90°) | 60s | 60 s | 30 s | 30 s |
| - motor | | | | |
| 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 - for spring holding | 2,5 W 0,1W | 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: - activation position [degrees] | 2xSPDT 3A AC 250V 5°, 80° | 2xSPDT 3A AC 250V 5°, 80° | 2xSPDT 3A, AC 250V 5°, 80° | 2xSPDT 3A, AC 250V 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°) | 60s | 60 s | 30 s | 30 s |
| - motor | | | | |
| 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) |

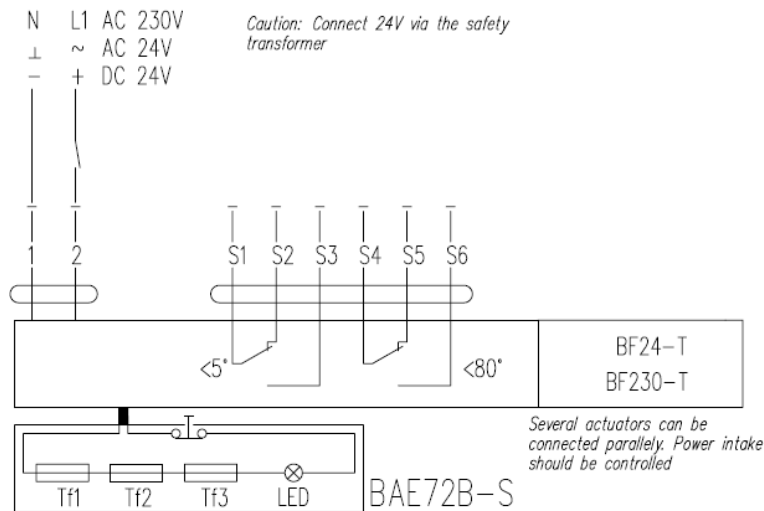
| Technical data | BFL24, BFL24-T | BFL230, BFL230-T | BFN24, BFN24-T | BFN230, BFN230-T |
|---|--|--|---|---|
| Power supply | AC 24 V 50/60 Hz DC 24 V | AC 220-240 V 50/60 Hz | AC 24 V 50/60 Hz DC 24 V | AC 220-240V 50/60 Hz |
| Power demand: - when putting the spring under tension - when in standby | 2.5 W 0.7 W | 3,5 W 1.1 W | 4 W 1.4 W | 5 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: - activation point [degrees] | 2 x PDT 3(0.5) A AC 250V 5□, 80□ | 2 x PDT 3(0.5) A AC 250V 5□, 80□ | 2 x SPDT 3(0.5) A, 250 V 5□, 80□ | 2 x SPDT 3(0.5) A, 250 V 5□, 80□ |
| Torque: | | | | |

mcr FID 240 single-blade fire dampers

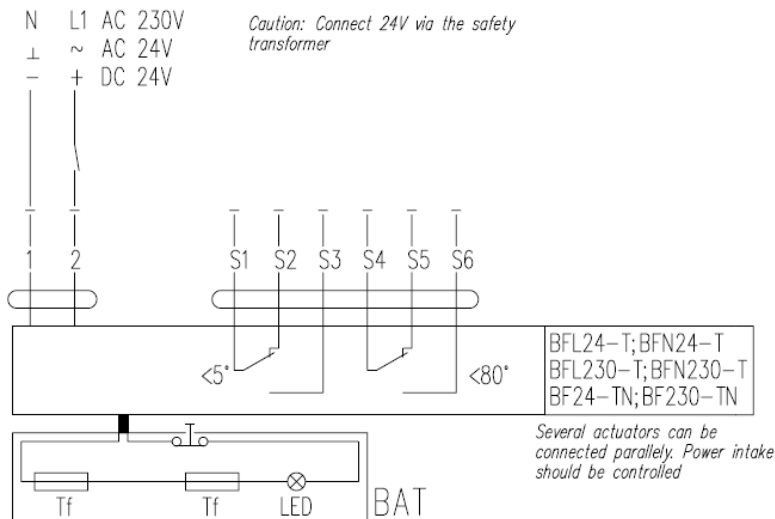
| | | | | |
|---|--|--|--|--|
| - motor - spring | 4 Nm 3 Nm | 4 Nm 3 Nm | 9 Nm 7 Nm | 9 Nm 7 Nm |
| Wire connection: – motor (length: 0.9 m) – auxiliary switch | 2 x 0.75 mm ² 6 x 0.75 mm ² | 2 x 0.75 mm ² 6 x 0.75 mm ² | 2 x 0.75 mm ² 6 x 0.75 mm ² | 2 x 0.75 mm ² 6 x 0.75 mm ² |
| Movement time (0–90°): - motor - return spring | 60 s ≈ 20 s | 60 s ≈ 20 s | 60 s ≈ 20 s | 60 s ≈ 20 s |
| Working temperature range | –30 ...+55°C | –30 ...+55°C | –30 ...+55°C | –30 ...+55°C |
| Sound pressure level: - motor - spring | max 43 dB (A) ~ 62 dB (A) | max 43 dB (A) ~ 62 dB (A) | max 55 dB (A) ~ 67 dB (A) | max 55 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 - for spring holding | 5 W 2.5 W | 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: - activation position [degrees] | 2xSPDT 6 (1.5)A AC 250V 5□, 80□ | 2xSPDT 6 (1.5)A AC 250V 5□, 80□ |
| Torque: - motor - spring | 4 Nm 4 Nm | 4 Nm 4 Nm |
| Cable connection: - motor (L = 0.9 m) - auxiliary circuit breaker | 2x0.75 mm ² 6x0.75 mm ² | 2x0.75 mm ² 6x0.75 mm ² |
| Movement time: (0-90°) - motor - return spring | 40-75 s □20s | 40-75 s □20s |
| Operating temperature range | - 30 ...+50°C | - 30 ...+50°C |
| Sound pressure level: - motor - spring | max. 45 dB (A) ~ 62 dB (A) | max. 45 dB (A) ~ 62 dB (A) |

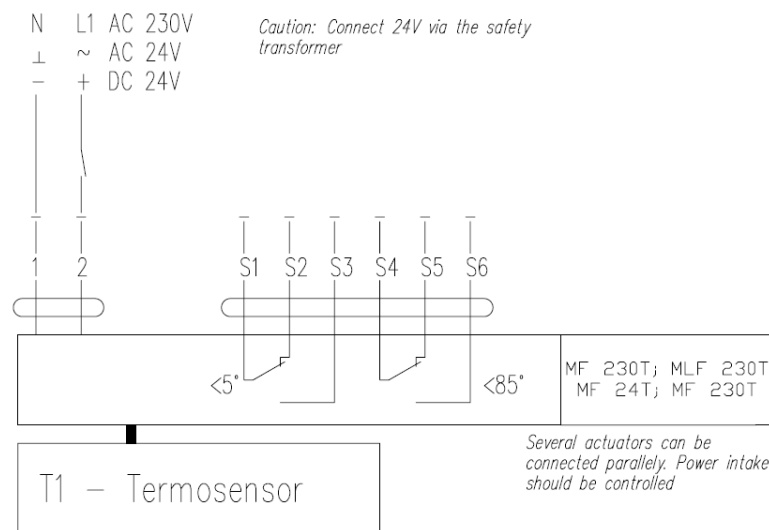
mcr FID 240 single-blade fire dampers



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

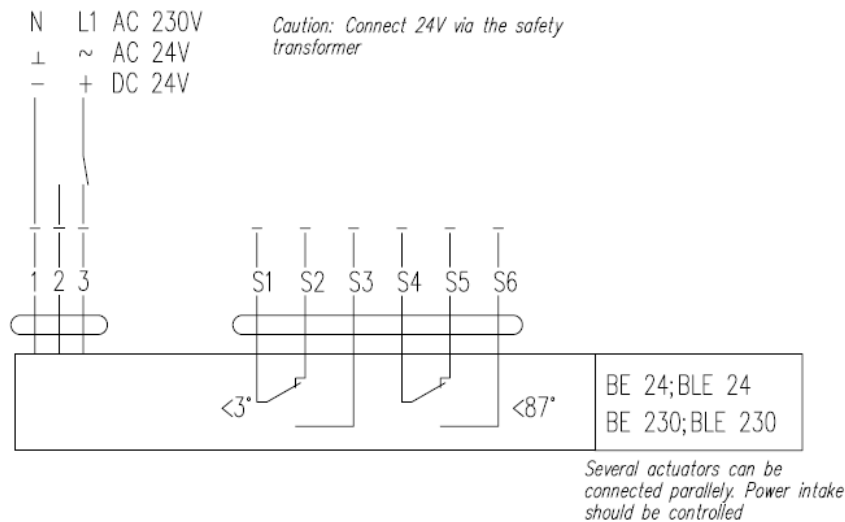


Connection diagram for the BFL24-T, BFL230-T, BFN24-T, BFN230-T, BF24-TN and BF230-TN actuators

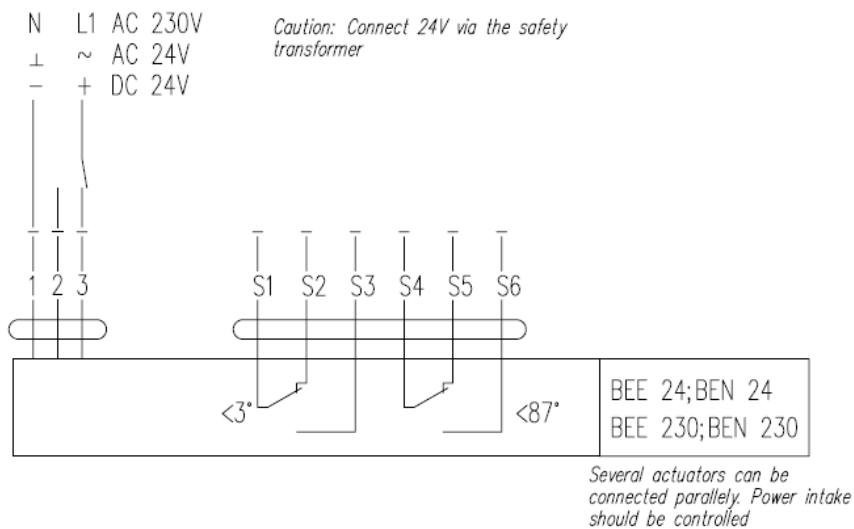


Connection diagram for the MLF 24T, MLF 230T, MF 24T, MF 230T

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



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

Note:

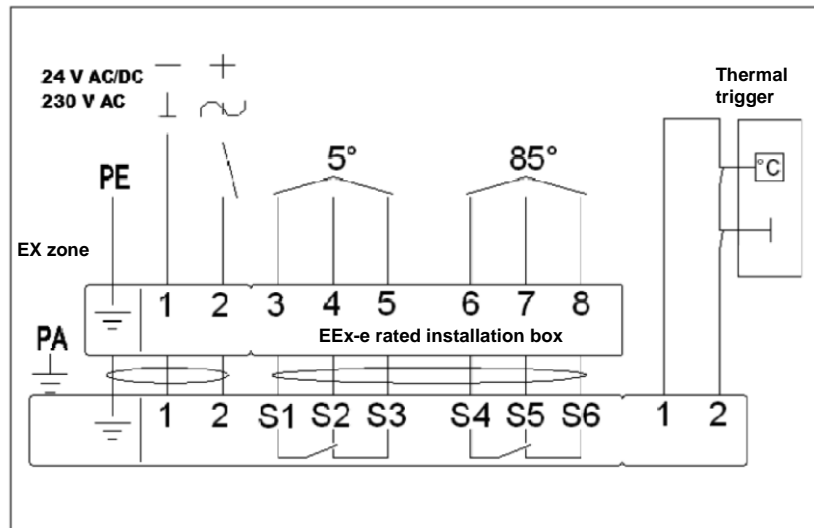
The BE and BLE actuator operating control requires a three-wire system. The actuator sense of rotation is switched by applying the supply voltage to terminal 2 or 3, depending on the desired sense. The location of the limit switches for all types of actuators is shown for the position without voltage. 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 |

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| | | |
|----------------------------|------------------------------|------------------------------|
| Auxiliary circuit breaker: | 2 x SPDT 6A (3) max 250 V AC | 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.

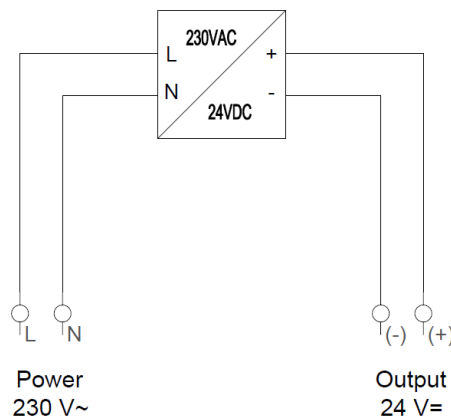
| | RST/KW1/S | RST/KW1/24I | RST/KW1/24P | RST/KW1/24I +MP230/24 | RST/KW1/24I +MP230/24 |
|------------------------------------|--|---|-------------------|--------------------------|--------------------------|
| Supply voltage | X | 24 V – 48 V DC | 24 V – 48 V DC | 230V AC | 230V AC |
| Power consumption | 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 | | | |

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| | | | | | |
|-------------------|------------------|--------|--------|--------|--------|
| 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

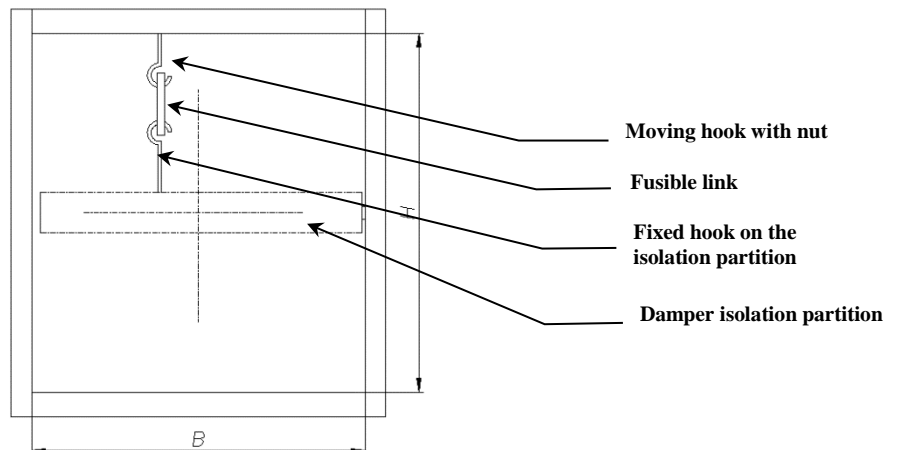
For proper operation of a device equipped with electrical actuators, it is recommended that the rated voltage housed tolerance of $24V \pm 2\%$ or $230V \pm 2\%$. Power supply devices other than listed above may cause malfunction and will not be covered by the warranty conditions.

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:

- Switch the fire damper isolation partition open
- 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.

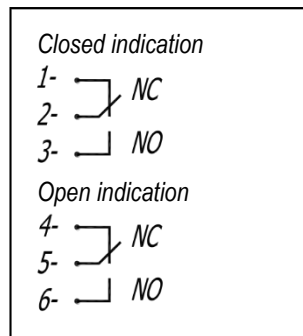
Independent limit switches – RST version

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

WK2 – tandem of two 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

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- 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.

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- 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.
 - 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.

| | |
|---|------------------------------------|
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| MERCOR S.A. and 48-593 | |
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| 1391-CPR-2021/0123 | |
| PN-EN 15650:2010 (EN 15650:2010) Fire damper mcr FID 240 | |
| Nominal activation conditions / sensitivity: - sensor activation temperature - reliability sensor | Positive result Positive result |
| Response time: - closure time | 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 240 (v _e i< -- >o)S |
| Operation time durability: - sensor activation temperature - reliability sensor | Positive result Positive result |
| Operational reliability stability: - opening / closing cycle test | Positive result |