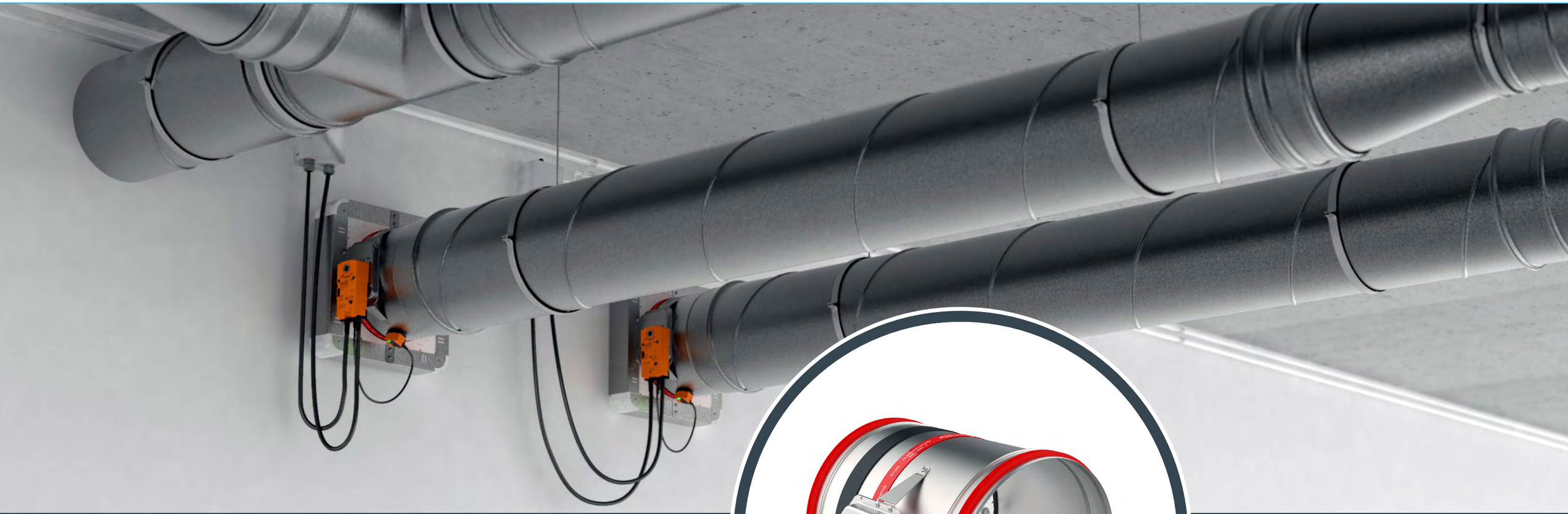
Gradna 78A, 10430 Samobor, Croatia
+385 (0)1 33 62 513
info@klimaoprema.com
www.klimaoprema.com





Product manual

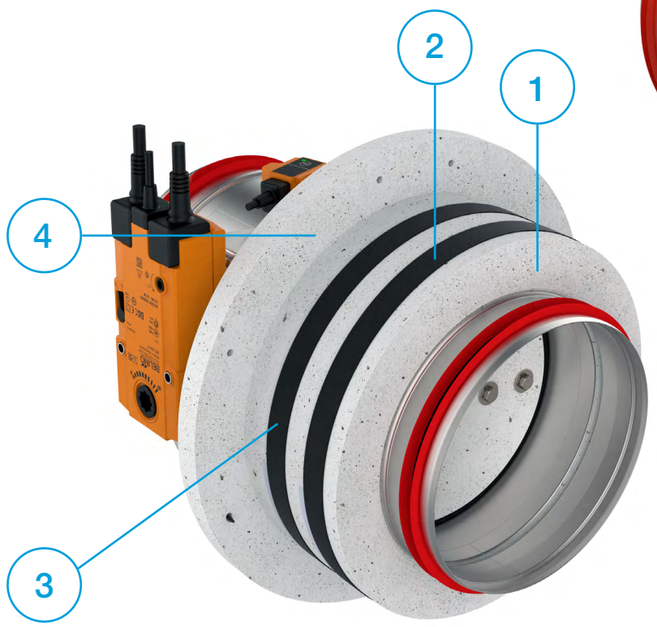
# FDC

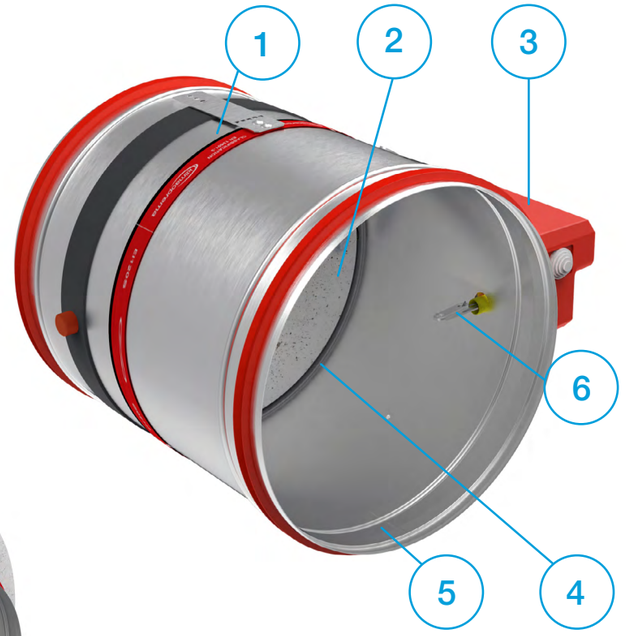
## Fire damper

Fire protection

Version 2.4.7
Issue Date: 27.10.2022.

1. Gypsum layers
2. Intumescent strip
3. Cold smoke seal
4. Contact layer




1. Galvanized steel casing
2. Fire resistant damper blade
3. Actuator
4. Intumescent joint
5. Connection flanges
6. Thermal fuse

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# PRODUCT OVERVIEW

Fire dampers FDC are used for prevention of fire spread trough the ventilation ducts and between fire sections. Fire dampers consist of steel sheet casing, calcium silicate damper blade, damper blade mechanism outside of the airflow and a manual, electromagnetic or electric actuator.

Fire damper casing is made out of galvanized steel sheet. Variants produced from stainless steel and powder coated steel are also available. Calcium silicate blade is equipped with brass bearings and seals made out of polyurethane and elastomer rubber.

Fire dampers FDC25 are produced up to size d315 and have 25 mm thick damper blade. Fire dampers FDC40 are produced in sizes from d355 till d800 and have 40 mm thick damper blade.

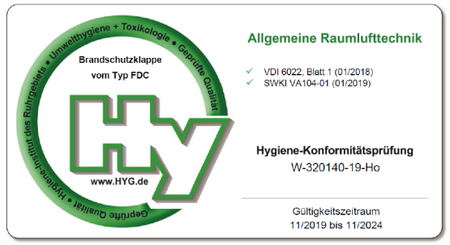
FDC25 fire dampers are equipped with R25 manual mechanism and FDC40 fire dampers are equipped with R40 manual mechanism.

Manual spring return mechanism is equipped with thermal fuse that is triggered automatically when the temperature inside the duct reaches 72 °C. It can also be activated manually by the push of the button on the mechanism. Additional equipment for manual mechanism include end contact switches for damper position signalling. Electromagnetic actuators feature spring return mechanism with electromagnet for remote activation. Additional equipment for electromagnetic mechanism include end contact switches for damper position signalling. Rearming of the electromagnetic actuator is manual.

Fire dampers with electric actuators are equipped with Belimo actuator drives in 24 V or 230 V versions. Activation of fire dampers equipped with electric drives can be via 72 °C or 95 °C thermal fuse or remotely via control signal. Rearming of the electric fire damper can also be done remotely via control signal. All electric actuators are equipped with end switches for position signalling.

ATEX rated versions of fire dampers can be delivered with Schischek 24 V / 230 V electric actuators that are rated for installation in explosive atmosphere areas.

All fire dampers are tested according to the EN 1751 for airtightness and retain class 3 leakage on the closed damper blade and class C on the casing air leakage.










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# TESTS AND CERTIFICATES

All our dampers are submitted to a number of tests by official test institutes. Reports of these tests form the basis for the approvals of our dampers. Fire dampers are also suitable for installation in buildings with high hygienic demands such as hospitals, clinics and pharmaceutical areas.

To confirm this, out products are tested by an independent Institute of Hygiene, based in Gelsenkirchen, Ruhr, and comply with directives and guidelines in VDI 6022.

Our FDC damper contains an EPD certificate. EPD or Environmental Product Declaration is a document that transparently communicates the performance or impact on the environment of any product or material during its lifetime.
The EPD is usually valid for five years and is produced according to the relevant standards. The EPD is made in accordance with EN 15804+A2 & ISO 14025/ ISO 21930.
FDC Environmental Product Declaration

# FIRE RESISTANCE CLASSIFICATION

FDC fire resistance is tested according to EN 1366-2 “Fire resistance tests for service installations- Part 2: Fire dampers”. Classification of the fire dampers is defined according to EN 13501-3 Fire classification of construction products and building elements.

Installation in both, vertical and horizontal axis of rotation of the dampers blade is acceptable (with the axis angle 0 - 360°).
Fire resistance of fire damper depends on classification of walls or ceilings. It is allowed to install products to walls or ceilings only according to products Declaration of Performance. Walls or ceilings with greater fire resistance can also be used. Fire damper should be installed according to the installation manual which can be found within this document.

Please consult latest Declaration of Performance:

www.klimaoprema.com/fdc/dop

For more information about certificates, visit our website:

www.klimaoprema.com/fdc

**E** - Integrity
**I** - Insulation
**120/90/60** - Classification time in minutes
**S** - Smoke leakage
**ve** - Damper installed in vertical compartment
**ho** - Damper installed in horizontal compartment
**i↔o** - Fire performance criteria are met on both sides

CE

# TECHNICAL DATA

Fire damper casing is manufactured from galvanized steel sheet, but on demand can be produced out of:

- Galvanized steel and powder coated
- Stainless steel
  EN 1.4401 (AISI 316)
- Stainless steel
  EN 1.4401 (AISI 316) and powder coated

Fire damper for areas with potentially explosive atmospheres are also available





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## Product label

1 - Casing air leakage classification
2 - Serial number
3 - Production date
4 - Type
5 - Dimension of the fire damper
6 - Mechanism type
7 - Nominal voltage
8 - Signalisation (end contacts)
9 - IP protection
10 - Free space
11 - Thermal fuse temperature
12 - Number of the European standard and year of its publication
13 - Declaration of performance
14 - Classification according to EN 13501-3
15 - Barcode
16 - CE mark

## Product specifications

| | |
|---|---|
| Nominal sizes FDC | 100 - 800 [mm] |
| Casing length | 380 mm |
| Temperature range | -20 °C ... 50 °C |
| Release temperature | 72 °C (standard) or 95 °C (optional with electric actuator) |
| Volume flow rate range | up to 21700 $m^3/h$ |
| Differential pressure range | up to 1000 Pa |
| Casing air leakage | Class C, EN 1751 |
| Closed blade air leakage | Class 3, EN 1751 |
| Upstream velocity | < 12 m/s |
| EC conformity | EN 13501-3, EN 1366-2, EN 15650, EN 1751, CPR no.305/2011 |
| Declaration of performance | DoP 711/2020_12 |

## Pressure drop tables

Pressure drop values are described with the “Zeta” values for each size. The exact pressure drop in [Pa] is calculated using the following formula:

$$\Delta p\ [Pa] = \zeta * v^2 * 0{,}6$$

where ζ is Zeta value from the tables below, v is airflow velocity in [m/s]

| **FDC25** | d100 | d125 | d160 | d200 | d250 | d315 |
|---|---|---|---|---|---|---|
| ζ | 1,759 | 0,852 | 0,545 | 0,445 | 0,340 | 0,293 |

| **FDC40** | d355 | d400 | d450 | d500 | d560 | d630 | d710 | d800 |
|---|---|---|---|---|---|---|---|---|
| ζ | 0,428 | 0,389 | 0,344 | 0,325 | 0,312 | 0,232 | 0,206 | 0,179 |

## Dimensional range

| | Diameter [mm] | Cross section [$dm^2$] | Net area [$dm^2$] |
|---|---|---|---|
| FDC25 | 100 | 0,74 | 0,50 |
| | 125 | 1,17 | 0,87 |
| | 160 | 1,93 | 1,55 |
| | 200 | 3,05 | 2,56 |
| | 250 | 4,79 | 4,18 |
| | 315 | 7,64 | 6,87 |
| FDC40 | 355 | 9,73 | 8,33 |
| | 400 | 12,37 | 10,79 |
| | 450 | 15,69 | 13,91 |
| | 500 | 19,39 | 17,41 |
| | 630 | 30,86 | 28,36 |
| | 710 | 39,24 | 36,42 |
| | 800 | 49,86 | 46,68 |

# MODELS

## Casings

**FDC25**
Cylindrical fire damper with 25 mm damper blade and fire classification up to EI120S. Sizes range from d100 till d315.

**FDC40**
Cylindrical fire damper with 40 mm damper blade and fire classification up to EI120S. Sizes range from d355 till d800.

**FDC25 - APP**
Cylindrical fire damper with integrated Applique installation frame with 25 mm damper blade and fire classification up to EI90S.
Sizes range from d100 till d315.

**FDC25 - MF1/MF2**
Cylindrical fire damper with integrated MF1 installation frame with 25 mm damper blade and fire classification up to EI60S. Sizes range from d100 till d315.

**FDC40 - MF2**
Fire damper with integrated MF2 installation frame with 40 mm damper blade and fire classification up to EI90S. Sizes range from d355 till d800.




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## Actuators

**R (R-S)**
Manual operating mechanism, optionally with end switches (R-S). In case of fire, the fire damper closes automatically. Damper closing can be initiated either by thermal fuse melting, or by manual activation on the operating mechanism. Upon closure, damper blade is locked in closed position and can only be opened manually. Thermal fuse melting point is 72 °C.

**EMS-S**
Electromagnetic operating mechanism, comes with end switches as standard. In case of fire, the fire damper closes automatically. Damper closing can be initiated either by thermal fuse melting or remotely by triggering the electromagnet. Electromagnet is constantly under power and activates closing of the damper blade in case the power cuts out. Upon closure, damper blade is locked in closed position and can only be opened manually. Thermal fuse melting point is 72 °C.

**M230-S**
Belimo 230 V electro motor operating mechanism, comes with integrated end switches. In case of fire, the fire damper closes automatically.
Damper closing can be initiated either by thermoelectric release device or remotely by triggering the electro motor. Upon closure, damper blade is locked in closed position and can be opened by sending a signal to electro motor. Standard thermoelectric release point is 72 °C, optional 95 °C.

**M24-S**
Belimo 24 V electro motor operating mechanism, comes with integrated end switches. In case of fire, the fire damper closes automatically.
Damper closing can be initiated either by thermoelectric release device or remotely by triggering the electro motor. Upon closure, damper blade is locked in closed position and can be opened by sending a signal to electro motor. Standard thermoelectric release point is 72 °C,
optional 95 °C.

**M24-S-ST**
Belimo 24 V electro motor operating mechanism, comes with integrated end switches. In case of fire, the fire damper closes automatically.
Damper closing can be initiated either by thermoelectric release device or remotely by triggering the electro motor. Upon closure, damper blade is locked in closed position and can be opened by sending a signal to electro motor. Standard thermoelectric release point is 72 °C,
optional 95 °C. Actuator is additionally equipped with connection plug for easy connection with power supply and communication modules.

**EX**
ATEX rated fire dampers are equipped with Schischek ExMax-5.10-BF actuators, ExPro-TT thermal switches and ExBox-BF plenum boxes.
Optional casing can be produced in AISI 316 stainless steel.

## Ordering key

| (1) Damper type | | (2) Dimension | | (3) Mechanism type | | (4) Mounted accessories |
|---|---|---|---|---|---|---|
| **FDC25** | - | **d250** | - | **M230-S** | - | **IH** |

**(1)** **FDC25** - d100 to d315
**FDC40** - d355 to d800
**FDC25-APP** - d100 to d315
**FDC25-MF1** - d100 to d315
**FDC25-MF2** - d100 to d315
**FDC40-MF2** - d355 to d800

**(2)** Damper diameter
**d100** till **d800**

**(3)** **R** - manual drive
**R-S** - manual drive with limit switches
**M230-S** - electric actuator AC/DC 230 V
**M24-S** - electric actuator AC/DC 24 V
**M24-S-ST** - electric actuator AC/DC 24 V with connection plug
**EMS-S** - electromagnetic drive
**EX** - electric actuator Schischek ExMax -5.10-BF +ExPro-TT+ExBox-BF

**(4)** **IH** - inspection hatch

# FDC25 / FDC40 - R (manual mechanism)

- Automatic closure when the temperature in the duct exceeds 72 °C
- Manual rearming with handle
- Manual unlocking possible for periodical test of fire damper
- Optional with end position switches (-R-S)
- FDC25 fire dampers are equipped with R25 manual mechanism
- FDC40 fire dampers are equipped with R40 manual mechanism



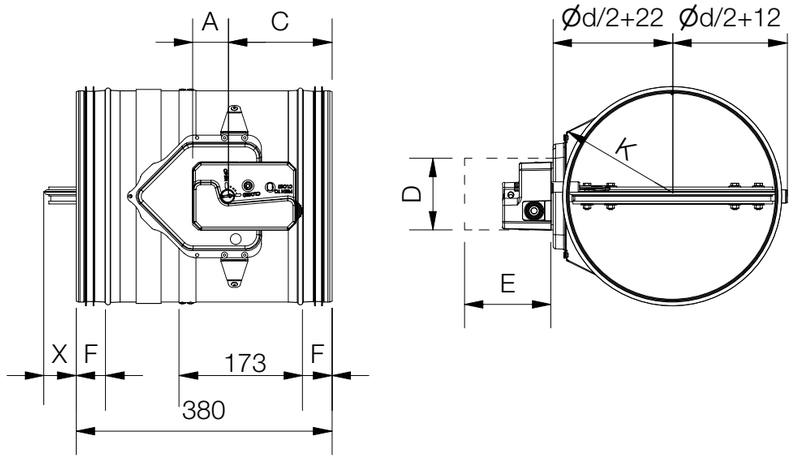
| | FDC25-R | | | | | | FDC40-R | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 100 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 | 560 | 630 | 710 | 800 |
| **Weight [kg]** | 3,8 | 4,2 | 4,7 | 5,4 | 6,3 | 7,7 | 11,9 | 13,5 | 15,4 | 17,5 | 20,4 | 23,6 | 27,7 | 33,7 |
| **K [mm]** | 120 | 128 | 140 | 155 | 176 | 204 | 221 | 242 | 265 | 289 | 317 | 351 | 389 | 433 |

*K - Dimension of the minimum installation opening

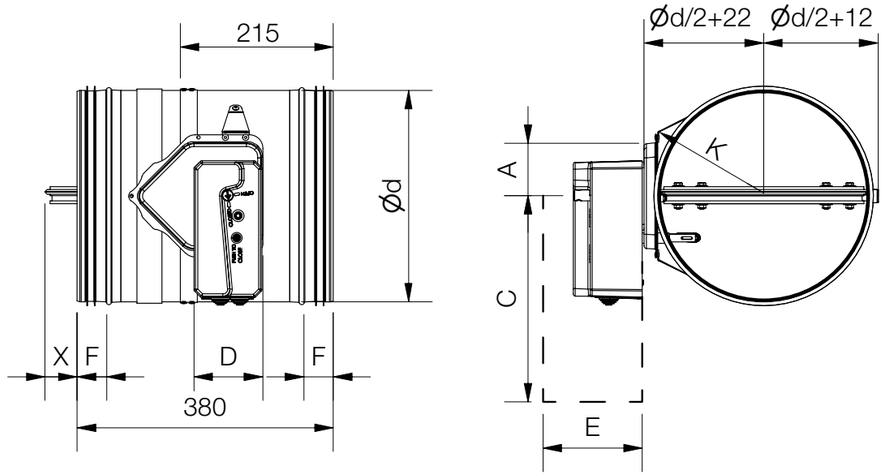

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## FDC25-R25 (up to d315)




## FDC40-R40 (d355 up to d800)




| **Product** | **A** [mm] | **C** [mm] | **D** [mm] | **E** [mm] | **F** [mm] |
|---|---|---|---|---|---|
| FDC 25 | 55 | 150 | 105 | 150 | 42 |
| FDC 40 | 55 | 200 | 105 | 200 | 42 |

Length of damper blade outside of casing (X dimension on front side):

X=(Ød/2)-110 [mm]

*If the damper is larger than Ø540, use formula (Y dimension on back side):

Y=(Ød/2)-270 [mm]

# FDC25/FDC40 - EMS (solenoid actuator)

- Electromagnetic actuator with integrated limit switches and thermal fuse release mechanism (72 °C)
- Manual rearming with handle
- Remote closing with electromagnetic actuator
- Manual closing possible
- EMS - solenoid actuator is constantly under power. Actuating mechanism is tripped when the power is interrupted, or thermal fuse is melted.

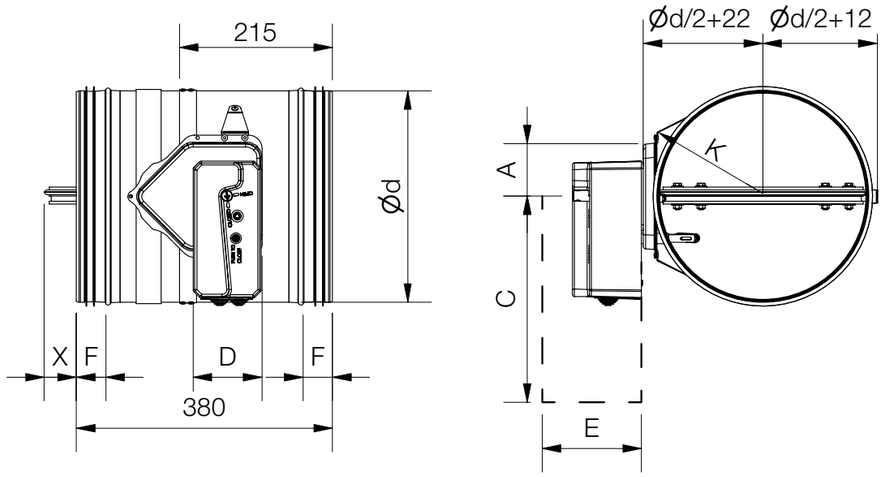


| | FDC25-EMS | | | | | | FDC40-EMS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 100 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 | 560 | 630 | 710 | 800 |
| **Weight [kg]** | 5,3 | 5,7 | 6,2 | 6,9 | 7,8 | 9,2 | 12,2 | 13,8 | 15,7 | 17,8 | 20,7 | 23,9 | 28 | 34 |
| **K [mm]** | 120 | 128 | 140 | 155 | 176 | 204 | 221 | 242 | 265 | 289 | 317 | 351 | 389 | 433 |

*K - Dimension of the minimum installation opening


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| **Product** | **A** [mm] | **C** [mm] | **D** [mm] | **E** [mm] | **F** [mm] |
|---|---|---|---|---|---|
| FDC 25 | 55 | 150 | 105 | 150 | 42 |
| FDC 40 | 55 | 200 | 105 | 200 | 42 |

Length of damper blade outside of casing
(X dimension on front side):

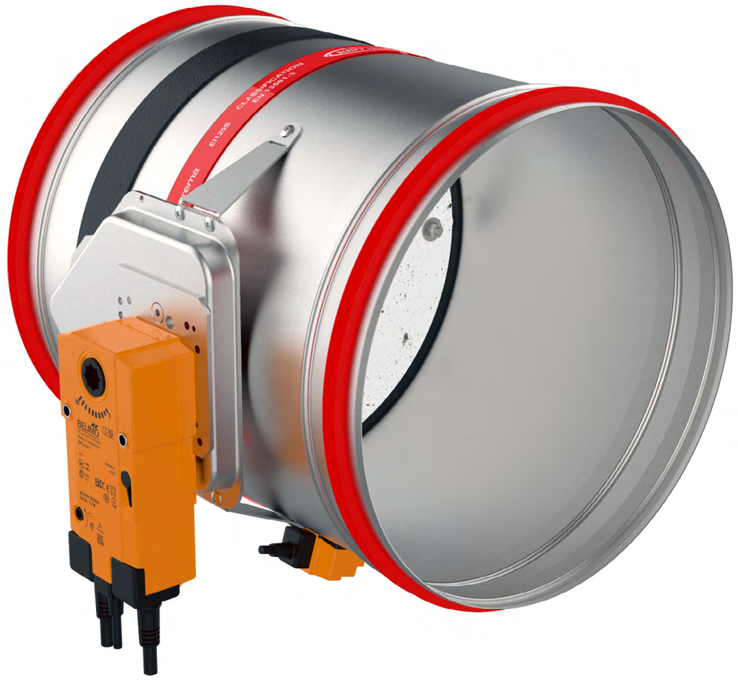
X=(Ød/2)-110 [mm]

*If the damper is larger than Ø540, use formula
(Y dimension on back side):

Y=(Ød/2)-270 [mm]

# FDC25/FDC40 - M (electric actuator)

- Thermoelectric release device (72 °C) with electric actuator and return spring
- Integrated end switches
- Fully automatic operation
- Optional 95 °C thermoelectric release device for warm air installations

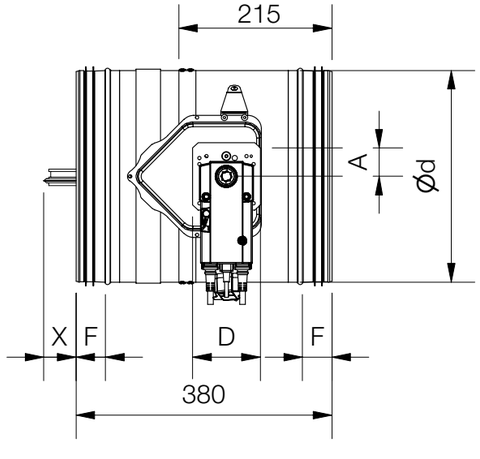


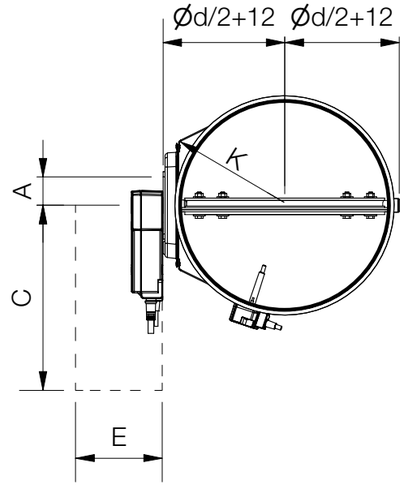
| | FDC25-M | | | | | | FDC40-M | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 100 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 | 560 | 630 | 710 | 800 |
| **Weight [kg]** | 4,5 | 4,9 | 5,4 | 6,1 | 7 | 8,4 | 11,7 | 13,3 | 15,2 | 17,3 | 20,2 | 23,4 | 29,1 | 35,1 |
| **Actuator type** | BFL | BFL | BFL | BFL | BFL | BFL | BFN | BFN | BFN | BFN | BFN | BFN | BF | BF |
| **K [mm]** | 120 | 128 | 140 | 155 | 176 | 204 | 221 | 242 | 265 | 289 | 317 | 351 | 389 | 433 |

*K - Dimension of the minimum installation opening


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| **Product** | **A** [mm] | **C** [mm] | **D** [mm] | **E** [mm] |
|---|---|---|---|---|
| BFL (M) | 25 | 200 | 90 | 120 |
| BFN (M) | 25 | 225 | 100 | 120 |
| BF (M)* | 50 | 250 | 100 | 120 |

| **Product** | **F** [mm] |
|---|---|
| FDC 25 | 42 |
| FDC 40 | 42 |

Length of damper blade outside of casing (X dimension on front side):

X=(Ød/2)-110 [mm]

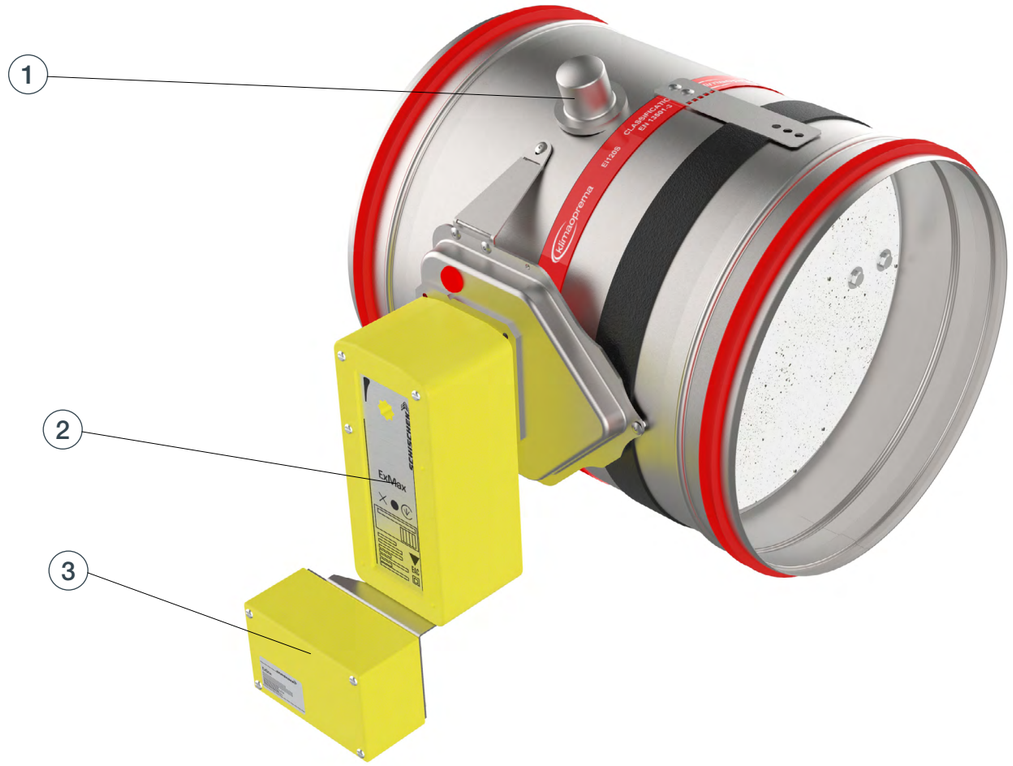
*If the damper is larger than Ø540, use formula (Y dimension on back side):

Y=(Ød/2)-270 [mm]

# FDC25/FDC40 - EX (electric actuator)

- Thermoelectric release device (72 °C) with electric actuator and return spring
- Integrated end switches
- Fully automatic operation
- The EX version of the damper comes with:
  1) Safety temperature trigger Schischek ExPro-TT
  2) Electric actuator Schischek ExMax-5.10-BF
  3) Terminal box Schischek ExBox-BF

For more information see page 43.




| | FDC25-EX | | | | | | FDC40-EX | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 100 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 | 560 | 630 | 710 | 800 |
| **Weight [kg]** | 7,9 | 8,3 | 8,8 | 9,5 | 10,4 | 11,8 | 14,8 | 16,4 | 18,3 | 20,4 | 23,1 | 26,5 | 30,6 | 36,6 |
| **Actuator type** | ATEX rated Schischek 24/230 V electric actuator+ExPro-TT+ExBox-BF | | | | | | | | | | | | | |
| **K [mm]** | 120 | 128 | 140 | 155 | 176 | 204 | 221 | 242 | 265 | 289 | 317 | 351 | 389 | 433 |

*K - Dimension of the minimum installation opening


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### Ex classification of product:

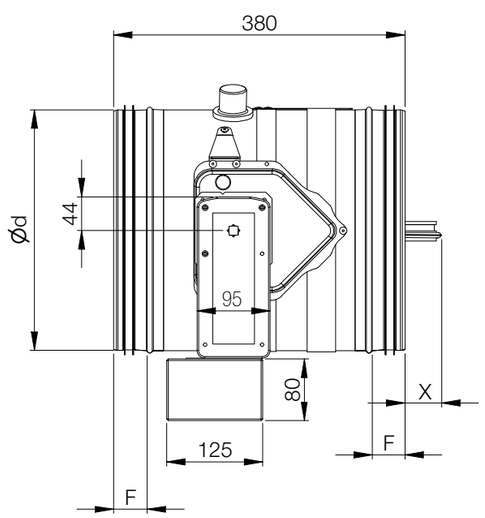
## II 2G Ex h IIC T6 Gb

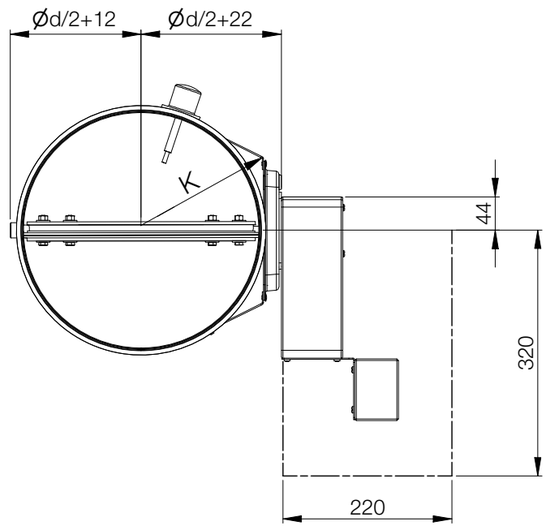
## II 2D Ex h IIIC T80°C Db

For more information about Ex classification, visit website: ATEX classification!

Type Examination Certificate Number: FIDI 21 ATEX D059. Equipment complies with the essential health and safety requirements relating to the design and construction of equipment intended to use in potentially explosive atmospheres given in annex VIII of the directive ATEX 2014/34/EU.

Please consult latest Declaration of conformity on our website:
www.klimaoprema.com/Doc




| Model | F [mm] |
|---|---|
| FDC 25 | 42 |
| FDC 40 | 42 |

Length of damper blade outside of casing (X dimension on front side):

X=(Ød/2)-110 [mm]

*If the damper is larger than Ø540, use formula (Y dimension on back side):

Y=(Ød/2)-270 [mm]

# FDC25 - APP

## Applique installation frame

- Applique kit is an installation subframe for quick and easy installation in rigid and flexible walls
- Made out of calcium silicate boards
- Quick wall mounting with screws
- Factory assembled to the fire damper



| | FDC25-APP-R | | | | | | FDC25-APP-EMS | | | | | | FDC25-APP-M | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 100 | 125 | 160 | 200 | 250 | 315 | 100 | 125 | 160 | 200 | 250 | 315 | 100 | 125 | 160 | 200 | 250 | 315 |
| **Weight [kg]** | 6,2 | 6,7 | 7,8 | 8,5 | 10,1 | 12,3 | 7,7 | 8,2 | 9,3 | 10 | 11,6 | 13,8 | 6,9 | 7,4 | 8,5 | 9,2 | 10,8 | 13 |

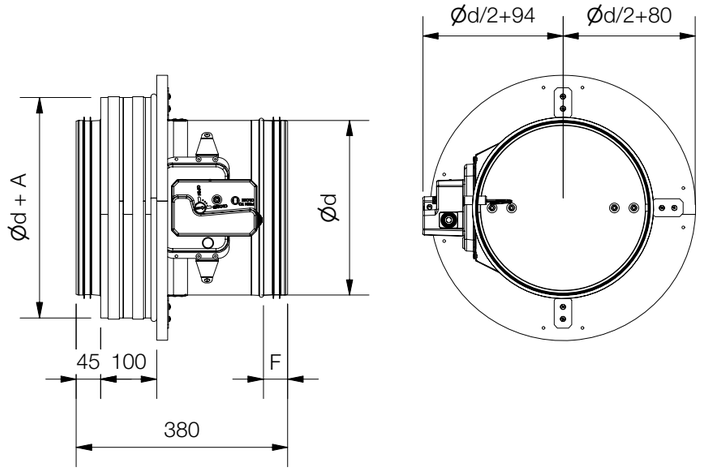

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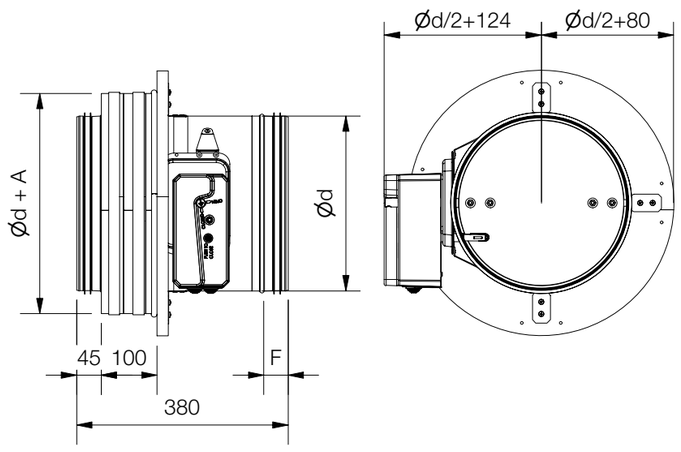

| Damper diameter Ød[mm] | Applique frame diameter Ød + A [mm] |
|---|---|
| 100 | Ød +105 mm |
| 125 - 160 | Ød + 95 mm |
| 200 - 315 | Ød + 80 mm |

| Product | F [mm] |
|---|---|
| FDC 25 | 42 |
| FDC 40 | 42 |

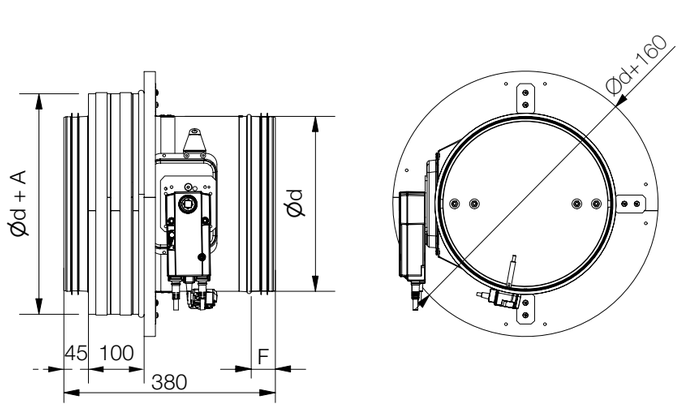
### FDC25-APP-R




### FDC25-APP-EMS




### FDC25-APP-M



# FDC25 - MF1

## MF1 installation frame

- MF1 is an installation frame for quick and easy installation in rigid and flexible walls
- Made out of calcium silicate boards
- Quick wall mounting with screws
- Factory assembled to the fire damper



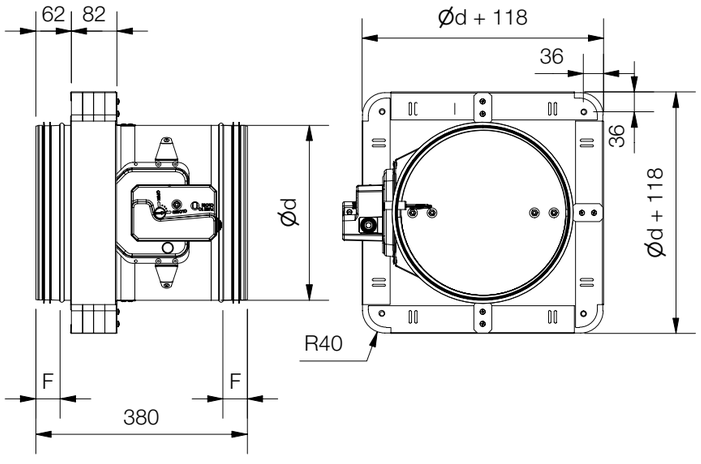
| | FDC25-MF1-R | | | | | | FDC25-MF1-EMS | | | | | | FDC25-MF1-M | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 100 | 125 | 160 | 200 | 250 | 315 | 100 | 125 | 160 | 200 | 250 | 315 | 100 | 125 | 160 | 200 | 250 | 315 |
| **Weight [kg]** | 6,6 | 7,4 | 8,7 | 10,3 | 12,5 | 15,5 | 8,1 | 8,9 | 10,2 | 11,8 | 14 | 17 | 7,3 | 8,1 | 9,4 | 11 | 13,2 | 16,2 |


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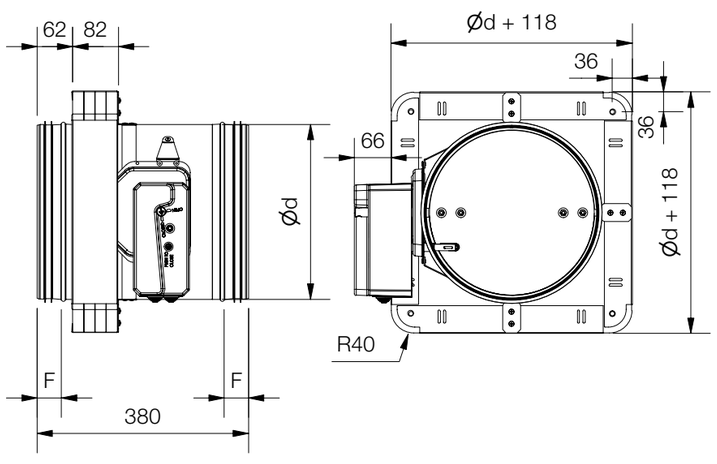



| Product | F [mm] |
|---|---|
| FDC 25 | 42 |
| FDC 40 | 42 |

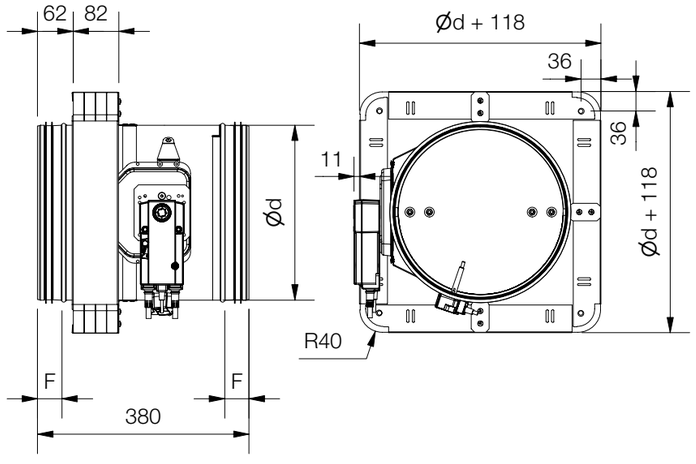
### FDC25-MF1-R




### FDC25-MF1-EMS




### FDC25-MF1-M



# FDC25 - MF2

## MF2 installation frame

- MF2 is an installation frame for quick and easy installation in rigid, flexible and shaft walls
- Made out of calcium silicate boards
- Quick wall mounting with screws
- Factory assembled to the fire damper



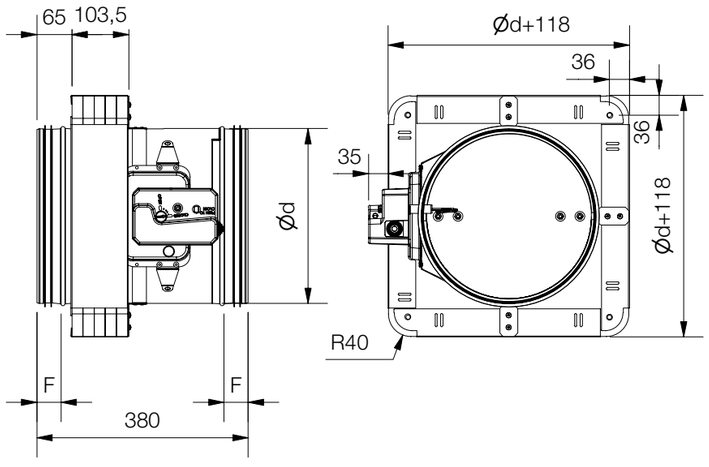
| | FDC25-MF2-R | | | | | | FDC25-MF2-EMS | | | | | | FDC25-MF2-M | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 100 | 125 | 160 | 200 | 250 | 315 | 100 | 125 | 160 | 200 | 250 | 315 | 100 | 125 | 160 | 200 | 250 | 315 |
| **Weight [kg]** | 7,1 | 8,1 | 9,6 | 11,4 | 13,8 | 17,2 | 8,6 | 9,6 | 11,1 | 12,9 | 15,3 | 18,7 | 7,8 | 8,8 | 10,3 | 12,1 | 14,5 | 17,9 |


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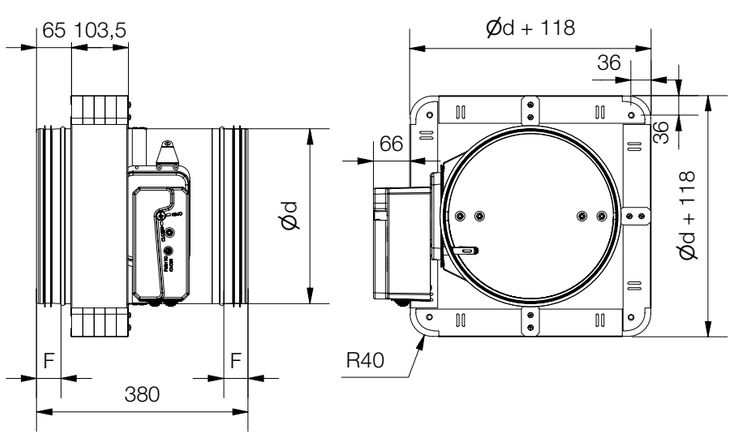



| Product | F [mm] |
|---|---|
| FDC 25 | 42 |
| FDC 40 | 42 |

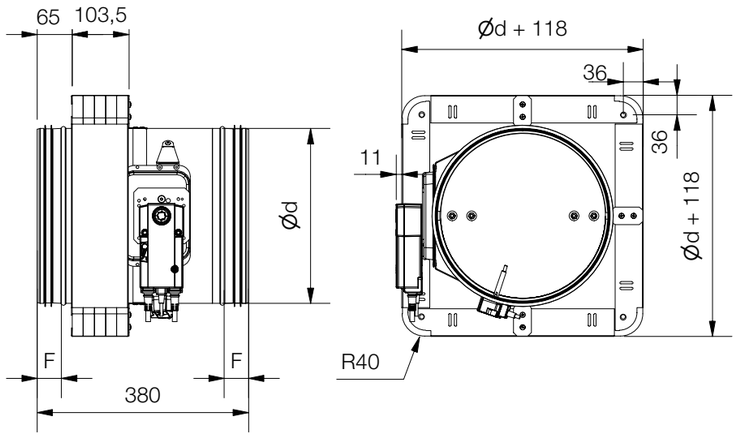
### FDC25-MF2-R




### FDC25-MF2-EMS




### FDC25-MF2-M



# FDC40 - MF2

## MF2 installation frame

- MF2 is an installation frame for quick and easy installation in rigid, flexible and shaft walls
- Made out of calcium silicate boards
- Quick wall mounting with screws
- Factory assembled to the fire damper

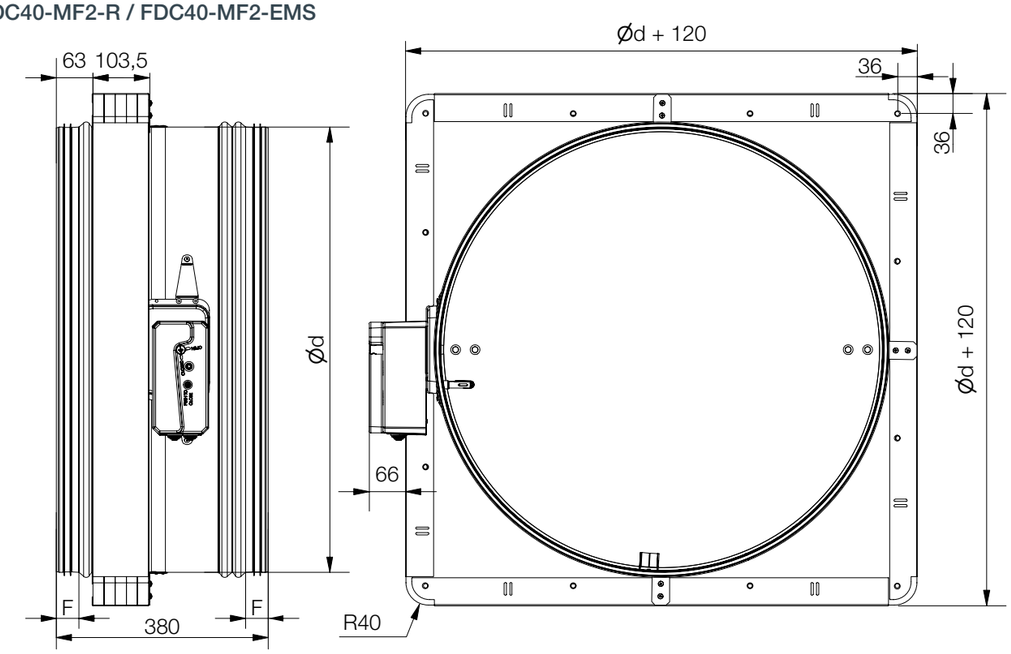


| | FDC40-MF2-R | | | | | | | FDC40-MF2-EMS | | | | | | | FDC40-MF2-M | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ød [mm]** | 355 | 400 | 450 | 500 | 560 | 630 | 800 | 355 | 400 | 450 | 500 | 560 | 630 | 800 | 355 | 400 | 450 | 500 | 560 | 630 | 800 |
| **Weight [kg]** | 22,8 | 25,9 | 29,6 | 33,6 | 39,1 | 45 | 62,8 | 23,1 | 26,2 | 29,9 | 33,9 | 39,5 | 45,3 | 63,1 | 22,6 | 25,7 | 29,4 | 33,4 | 39 | 44,8 | 64,2 |

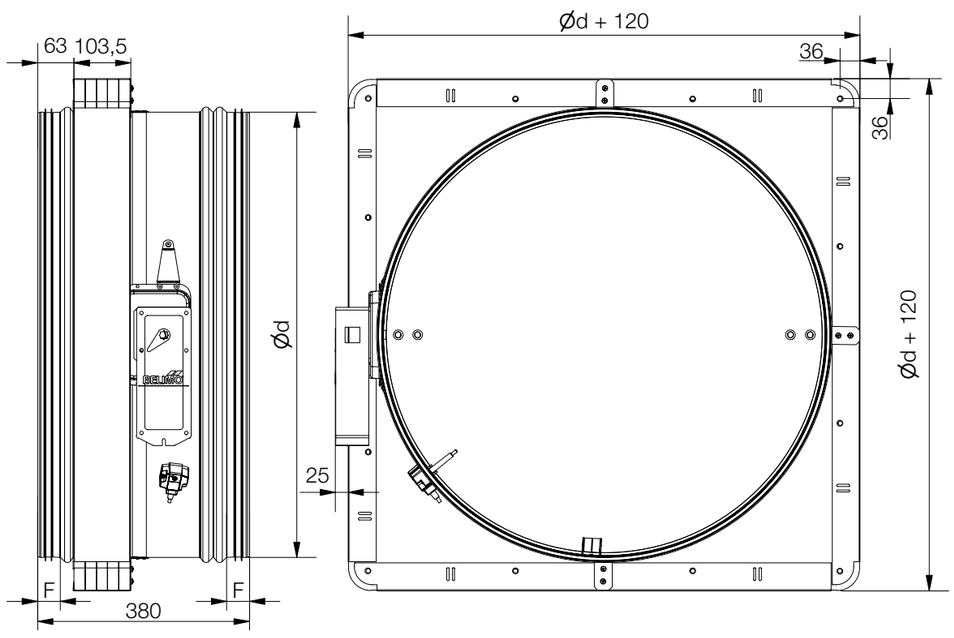

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### FDC40-MF2-R / FDC40-MF2-EMS




### FDC40-MF2-M




| Product | F [mm] |
|---|---|
| FDC 25 | 42 |
| FDC 40 | 42 |



# INSTALLATION

The FDC25/FDC40 fire damper is always tested in standardized support frames (both in a rigid wall and in a flexible wall) in accordance with EN 1366-2: 2015 table 3/4/5. The results obtained are valid for all similar support frames which have a thickness and/ or density and/or fire resistance similar or greater than the one on the test.


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The duct connected to the fire damper must be supported or hung in such a way that the damper does not carry its weight. The damper must not support any part of the surrounding construction or wall which could cause damage and consequent damper failure. It is recommended to connect the damper to a flexible connection on either end of the damper.
The damper driving mechanism can be placed on either side of the wall, however it needs to be placed so that it ensures an easy access during inspection.

- Mounting is possible with the blade axis in horizontal or in vertical position
- The installation must comply with the tests that were performed during certification
- Avoid any obstruction of the moving blade by the connected ducts
- The class of air-tightness is maintained in case the installation of the damper is made in accordance with the technical manual
- Operating temperature: 50 °C max
- For indoor use only

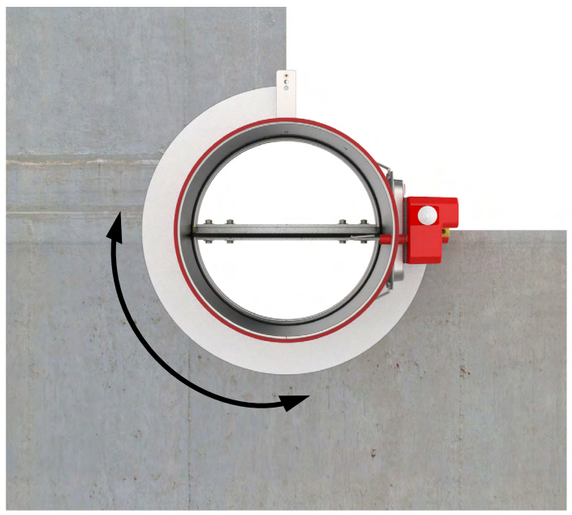
**The gap in the installation opening between the fire damper and the wall/ceiling can be increased by up to 50%, or decreased to the smallest dimension where there is sufficient room for installation of the seal!**

Recommended opening dimensions:

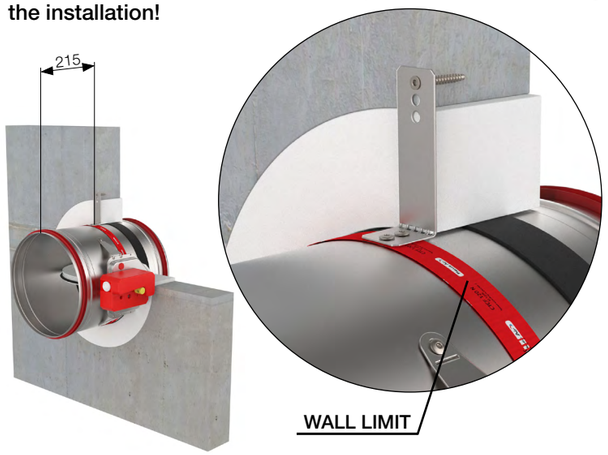
| Damper size - Ød [mm] | Gap size - A (Recommended) | Opening size - Ød+2A (Recommended) |
|---|---|---|
| Ød ≤ 160 | 42,5 mm | Ød + 85 mm |
| 200 ≤ Ød ≤ 315 | 37,5 mm | Ød + 75 mm |
| 355 ≤ Ød ≤ 450 | 32,5 mm | Ød + 65 mm |
| Ød > 450 | 27,5 mm | Ød + 55 mm |

Installation in both, vertical and horizontal axis of rotation of the dampers blade is acceptable (with the axis angle 0 - 360°).

The fire damper must be installed into a fire partition structure in such a way that the damper blade in its closed position is located inside this structure (except for Applique/ MF1/ MF2 kit installations).



To help you find the suspension plane, a bendable fixing bracket is provided on the damper body (**the use of bendable fixing brackets is not required to meet the classification**) and the red tape is placed on the casing to mark the location of the wall limit **(distance from wall limit to the end of fire damper is 215 mm)**. This does not apply for Applique/MF1/MF2 kit installations. **Check the operation of the fire damper before commencing the installation!**



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## Standard actuator positions

FDC25 ELECTRIC ACTUATOR



FDC-R25 MANUAL ACTUATOR



FDC40 ELECTRIC ACTUATOR



FDC-R40/EMS MANUAL ACTUATOR



FDC EX ACTUATOR




FDC-R40/EMS ACTUATOR
(Ød < 316)



| Range | Supporting construction | Wall thickness | Supporting construction details | Type of installation | Classification | Tested underpressure | Details | Construction type | Sealing type |
|---|---|---|---|---|---|---|---|---|---|
| d100-d800 mm | Rigid wall | ≥ 100 mm | Aerated concrete ( ≥ 550kg/m$^3$) Reinforced concrete (≥ 2200kg/m$^3$) | Gypsum plaster / Mortar | EI 120 (ve i↔o)S | 500Pa | | | |
| | | | | Mineral wool and cover boards | EI 90 (ve i↔o)S | 500Pa | | | |
| | | | | Fire Batt/ Weichschott | | 300Pa | | | |
| | Flexible wall | ≥ 70 mm | Gypsum blocks (≥ 995kg/m$^3$) | Gypsum plaster / Mortar and cover boards | EI 120 (ve i↔o)S | 500Pa | | | |
| | | ≥ 100 mm | A: Plasterboard type F (EN520), mineral wool up to 100 kg/m$^3$ B: Plasterboard type A (EN520), mineral wool up to 60 kg/m$^3$ | Gypsum plaster / Mortar and cover boards | A: EI 120 (ve i↔o)S B: EI 60 (ve i↔o)S | 500Pa | | | |
| | | | | Mineral wool and cover boards | A: EI 90 (ve i↔o)S B: EI 60 (ve i↔o)S | 500Pa | | | |
| | | | | Fire Batt/ Weichschott | A: EI 90 (ve i↔o)S B: EI 60 (ve i↔o)S | 300Pa | | | |
| | Floor/ceiling | ≥ 100 mm | Aerated concrete ( ≥ 550kg/m$^3$) Reinforced concrete (≥ 2200kg/m$^3$) | Gypsum plaster / Mortar | EI 120 (ho i↔o)S | 500Pa | | | |
| | | | | Fire Batt/ Weichschott | EI 90 (ho i↔o)S | 300Pa | | | |
| APP INSTALLATION FRAME d100-d315 mm | Rigid wall | ≥ 100 mm | Aerated concrete ( ≥ 550kg/m$^3$) Reinforced concrete (≥ 2200kg/m$^3$) | APPLIQUE (installation frame) | EI 90 (ve i↔o)S | 500Pa | | | |
| | Flexible wall | ≥ 70 mm | Gypsum blocks (≥ 995kg/m$^3$) | APPLIQUE (installation frame) | EI 90 (ve i↔o)S | 500Pa | | | |
| | | ≥ 100 mm | Plasterboard type F (EN520) | APPLIQUE (installation frame) | EI 90 (ve i↔o)S | 500Pa | | | |

## INSTALLATION

Check for more information about certificate installations in the declaration of performance:

www.klimaoprema.com/fdc/dop

Aerated concrete ( ≥ 550 kg/m$^3$) or reinforced concrete (≥ 2200 kg/m$^3$) wall, more than 100 mm thick

Gypsum blocks (≥ 995 kg/m$^3$) wall, more than 70 mm thick

Plasterboard wall, type F (EN520), Plasterboard wall, type A (EN520), more than 100 mm thick

Shaft wall, steel frame construction

Aerated concrete ( ≥ 550 kg/m$^3$) or reinforced concrete (≥ 2200 kg/m$^3$) ceiling / floor, more than 100 mm thick

## FIRE DAMPER - FDC

Gypsum plaster, mortar sealing or mortar and cover boards

Sealing with mineral wool and cover boards

Sealing with mineral wool and fireproof coating - FireBatt / Weichschott

Applique kit installation

MF1/MF2 kit installation

Remote from wall installation

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MF1/ MF2 INSTALLATION FRAME FDC25 MF1 d100-d315 mm FDC40 MF2 d355-d800 mm | Rigid wall | ≥ 100 mm | Aerated concrete ( ≥ 550kg/m³) Reinforced concrete (≥ 2200kg/m³) | MF1/MF2 (installation frame) | FDC25:EI 60 (ve i↔o)S<br>FDC40:EI 90 (ve i↔o)S | 500Pa | |
| | Flexible wall | ≥ 70 mm | Gypsum blocks (≥ 995kg/m³) | MF1/MF2 (installation frame) | FDC25:EI 60 (ve i↔o)S<br>FDC40:EI 90 (ve i↔o)S | 500Pa | |
| | | ≥ 100 mm | Plasterboard A:type A (EN520) B:type F (EN520) | MF1/ MF2 (installation frame) | A:FDC25:EI 60 (ve i↔o)S<br>B:FDC40:EI 90 (ve i↔o)S | 500Pa | |
| | Floor/ceiling | ≥ 100 mm | Aerated concrete ( ≥ 550kg/m³) Reinforced concrete (≥ 2200kg/m³) | MF1/MF2 (installation frame) | FDC25:EI120 (ho i↔o)S<br>FDC40:EI 90 (ho i↔o)S | 300Pa | |
| MF2 INSTALLATION FRAME FDC25 MF2 d100-d315mm FDC40 MF2 d355-d800 mm | Flexible wall | ≥ 90 mm | Shaft wall (steel frame) | MF2 (installation frame) | FDC25:EI 90 (ve i↔o)S<br>FDC40:EI 90 (ve i↔o)S | 500Pa | |
| ISOVER (only FDC40) | Flexible wall / Rigid wall | ≥ 100 mm | Plasterboard type F (EN520) / Aerated concrete ( ≥ 550kg/m³) Reinforced concrete (≥ 2200kg/m³) | REMOTE FROM WALL (Isover) | EI 60 (ve i↔o)S | 300Pa | |

## INSTALLATION

Check for more information about certificate installations in the declaration of performance:

www.klimaoprema.com/fdc/dop

Aerated concrete ( ≥ 550 kg/m³) or reinforced concrete (≥ 2200 kg/m³) wall, more than 100 mm thick

Gypsum blocks (≥ 995 kg/m³) wall, more than 70 mm thick

Plasterboard wall, type F (EN520), Plasterboard wall, type A (EN520), more than 100 mm thick

Shaft wall, steel frame construction

Aerated concrete ( ≥ 550 kg/m³) or reinforced concrete (≥ 2200 kg/m³) ceiling / floor, more than 100 mm thick

## FIRE DAMPER - FDC

Gypsum plaster, mortar sealing or mortar and cover boards

Sealing with mineral wool and cover boards

Sealing with mineral wool and fireproof coating - FireBatt / Weichschott

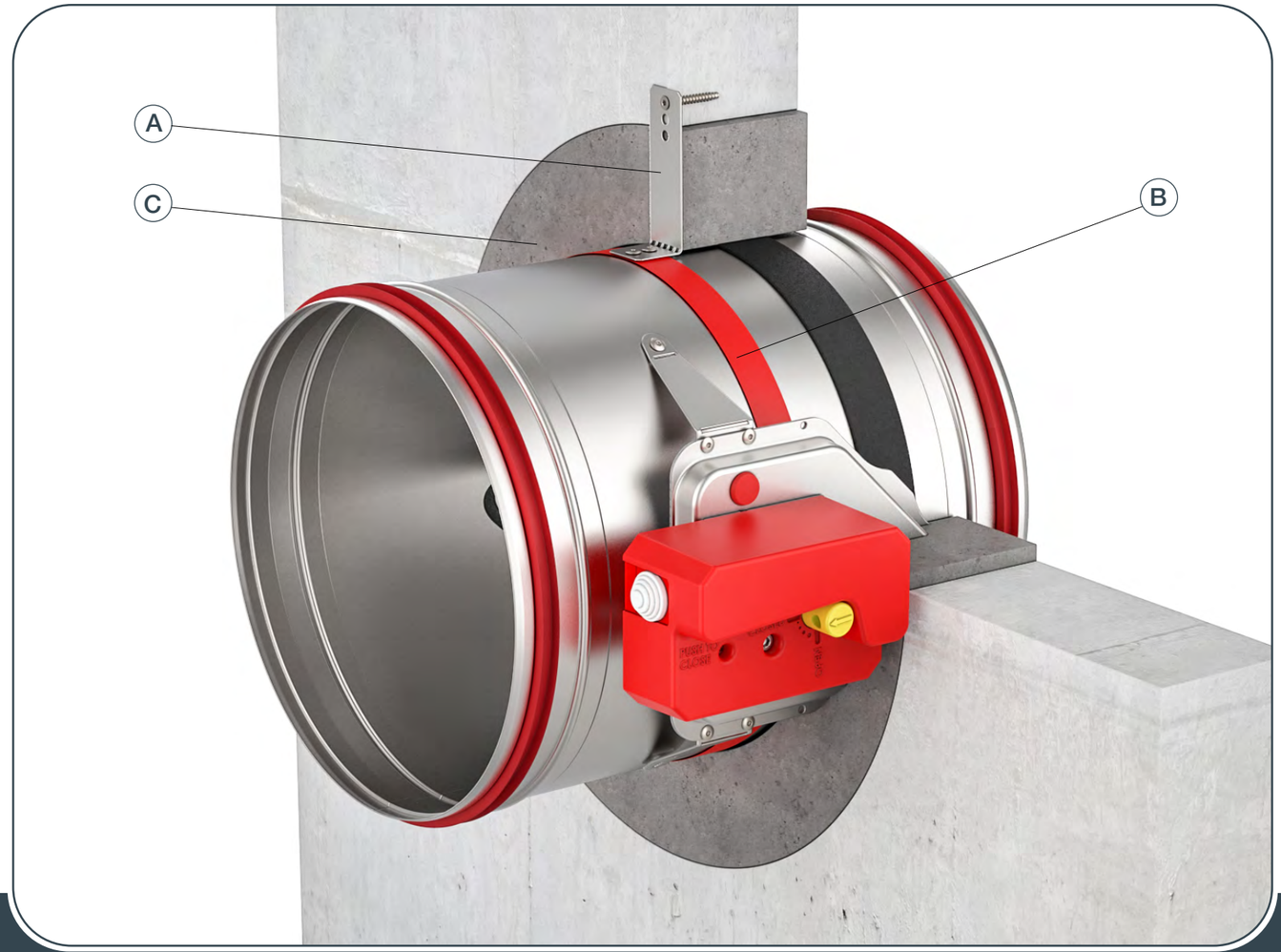
Applique kit installation

MF1/MF2 kit installation

Remote from wall installation

# Rigid wall installation (mortar sealing)

The wall is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm. Installation material is gypsum plaster or mortar **(C)**.





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Possible damper orientations

0-360°



1. Create an opening in the wall (minimal dimensions on pg.14). Bend the fixing bracket **(A)** 90°. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

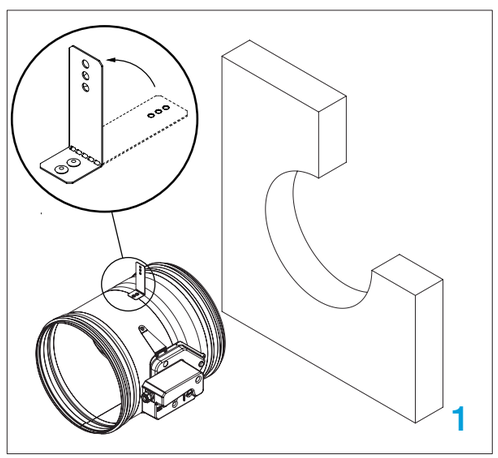
**Damper blade must be closed during the installation!**

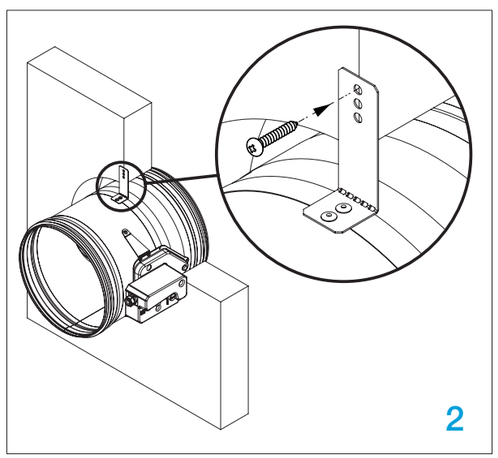
2. Fix the damper to the wall using screws. Bracket screw hole is 6 mm in diameter.

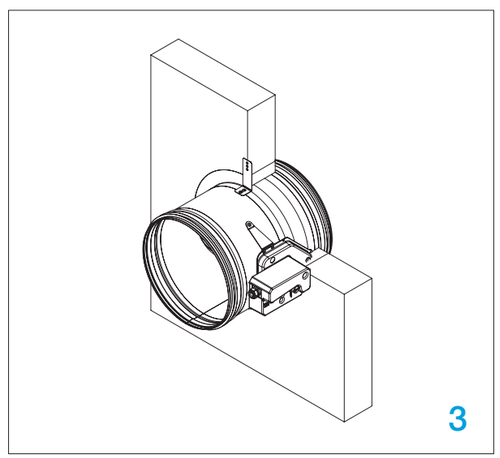
3. Fill the space between the damper and the wall with gypsum plaster or mortar **(C)**.

*Multiple fire dampers can be installed next to each other or ceiling/wall with the minimal distance of 30 mm between them, see page 38.

**Test the operation of the damper blade!**

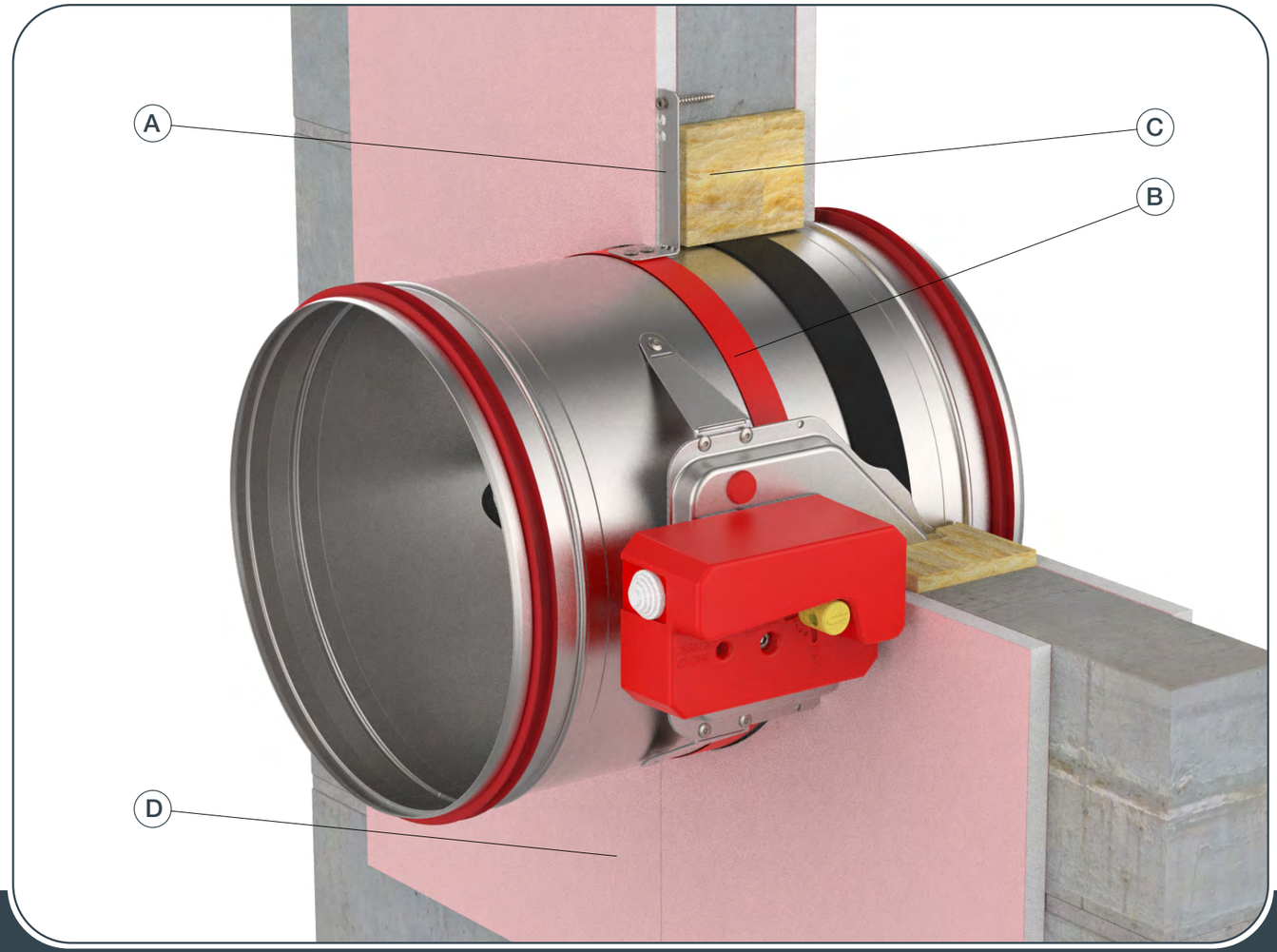


# Rigid wall installation (mineral wool sealing)

The wall is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm. Installation material is mineral wool **(C)** (minimum density of 100 kg/m$^3$) covered with plasterboard cover boards **(D)**.





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Possible damper orientations

0-360°



1. Create an opening in the wall (Ød + 80 mm) x (Ød + 80 mm). Bend the fixing bracket **(A)** 90°. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

**Damper blade must be closed during the installation!**

2. Fix the damper to the wall using screws. Bracket screw hole is 6 mm in diameter.

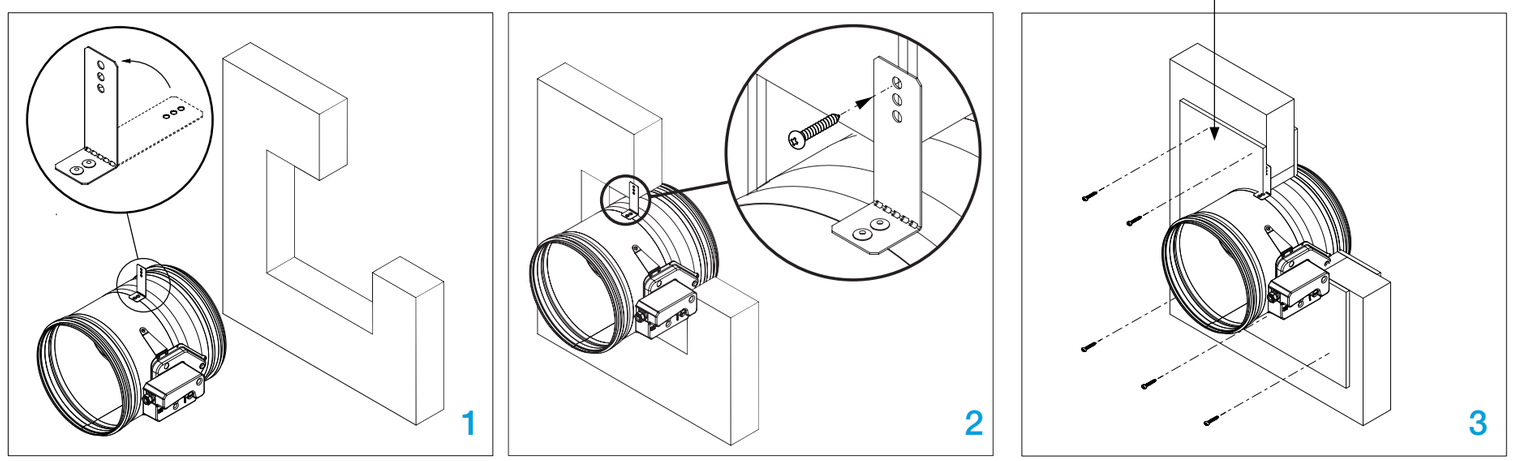
3. Fill the space between the damper and the wall with mineral wool **(C)**. Cover the mineral wool with GKF gypsum boards **(D)** (12,5 mm thick), fix them with screws.

*Multiple fire dampers can be installed next to each other or ceiling/wall with the minimal distance of 30 mm between them, see page 38.

**Test the operation of the damper blade!**

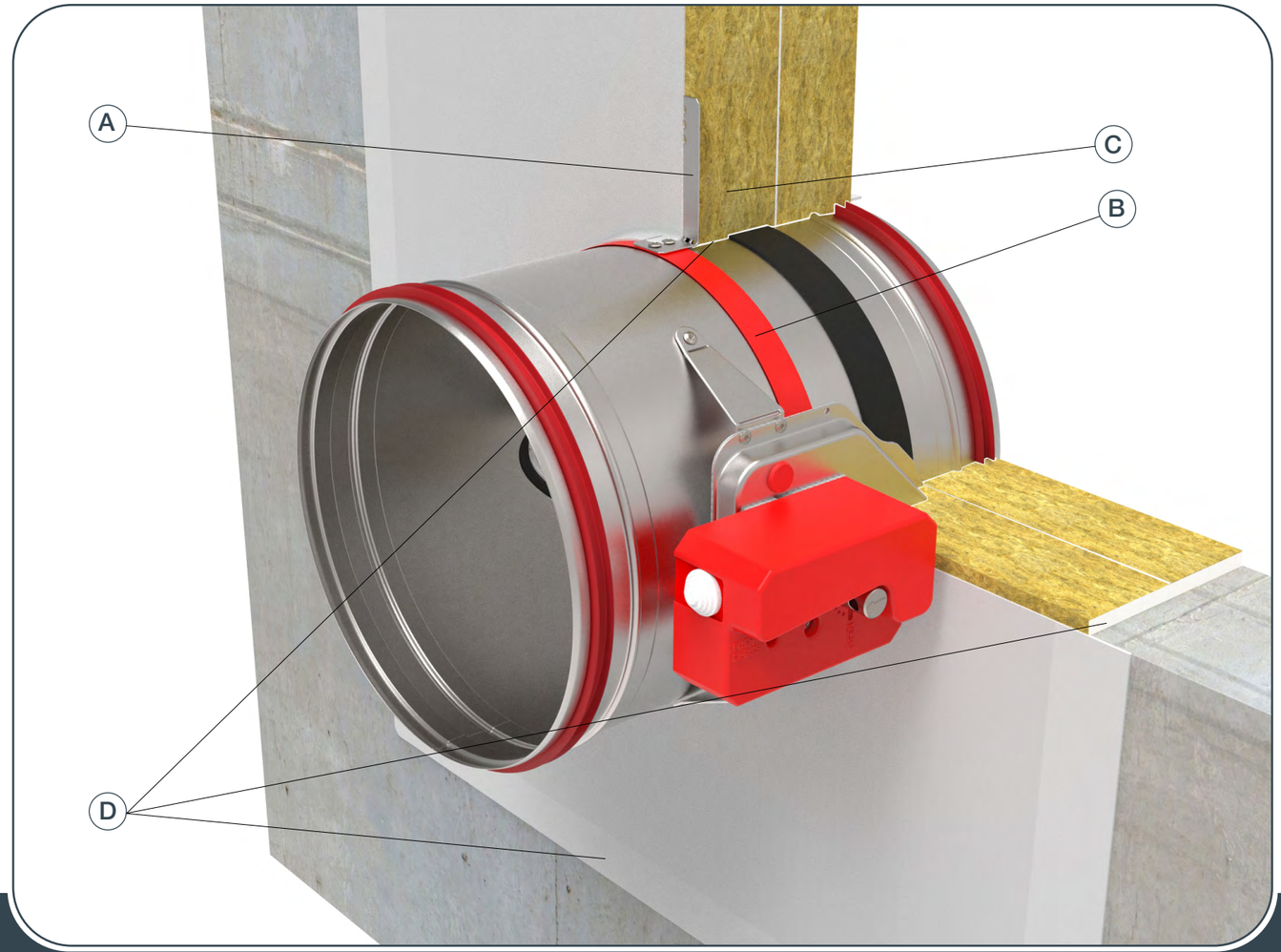
FD-A-CSP-BxH

For more details see pg.45



# Rigid wall installation (Fire Batt/ Weichschott)

The wall is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm. Installation material: Mineral wool **(C)** (minimum density of 140 kg/m$^3$), fire protection coating **(D)**.





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Possible damper orientations

0-360°



1. Create an opening in the wall (Ød + 300 mm) x (Ød + 300 mm). Bend the fixing bracket **(A)** 90°. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

**Damper blade must be closed during the installation!**

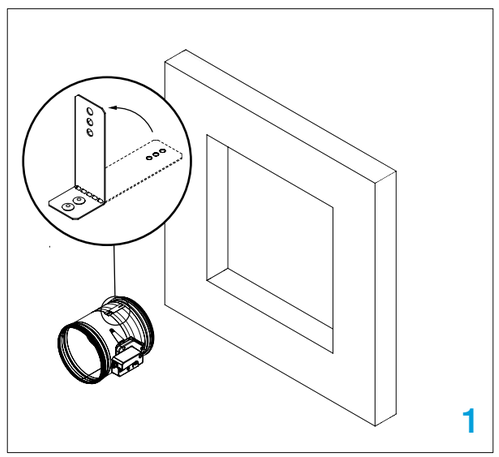
2. Close the space between casing and wall with two layers of mineral wool **(C)** (50 mm thick, coated on one side).

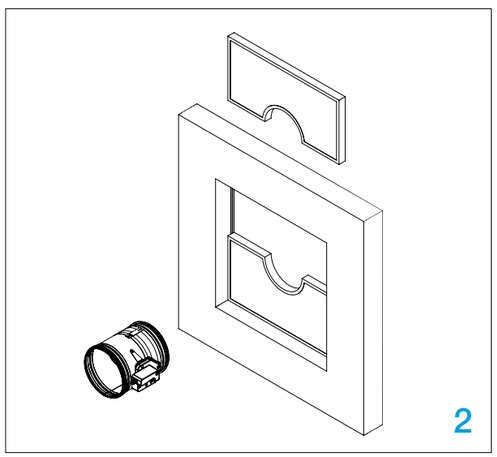
3. Seal the connections of mineral wool with intumescent fire resistant sealant **(D)**. Mineral wool and damper casing must be coated with 2 mm thick fire protection coating. Damper casing should be coated up to profile protrusions.

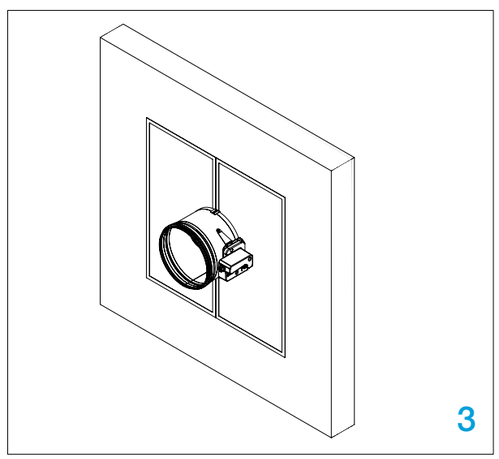
*Multiple fire dampers can be installed next to each other or ceiling/wall with the minimal distance of 30 mm between them, see page 38.

**Test the operation of the damper blade!**

Video instructions

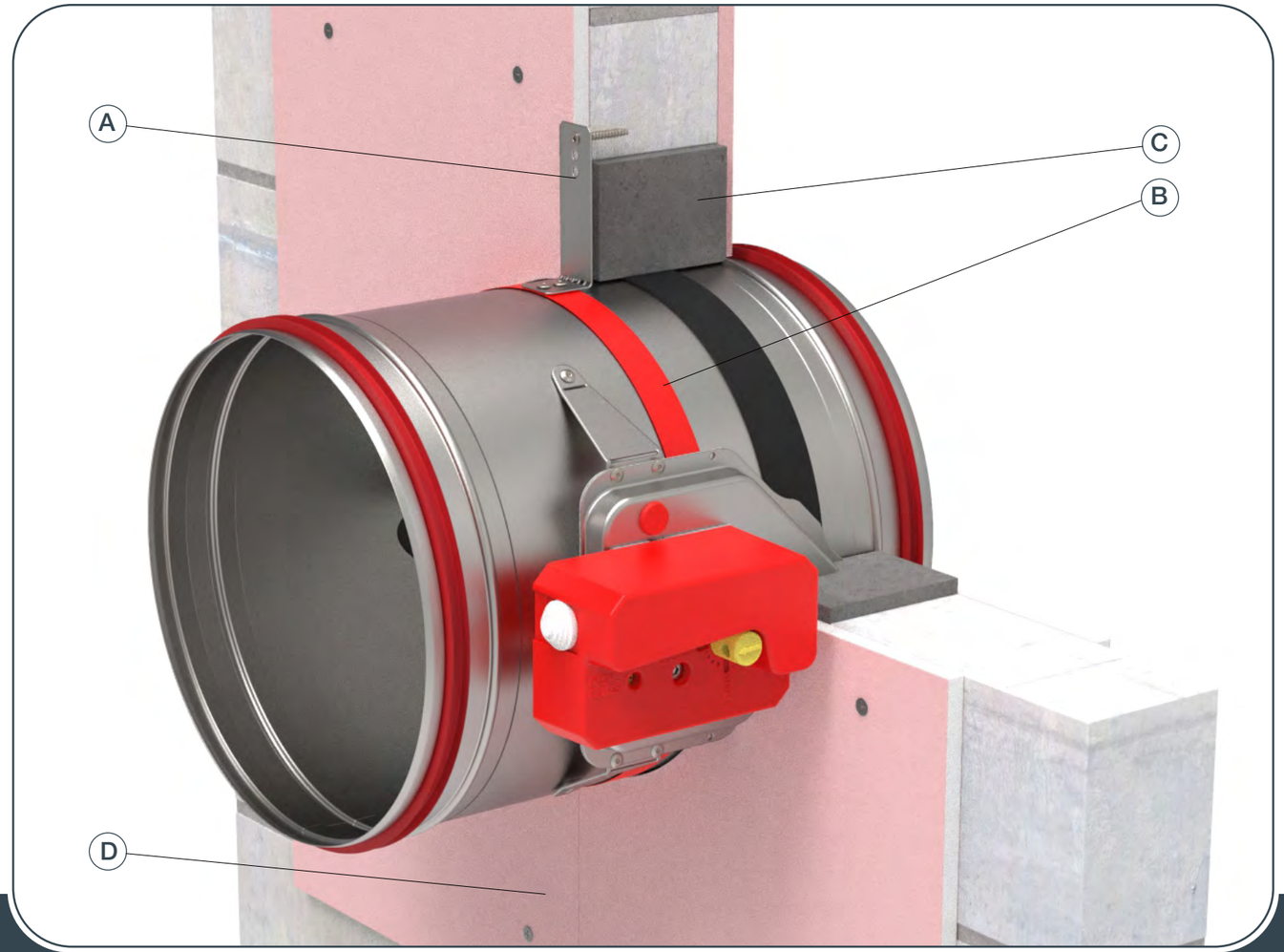


# Gypsum blocks wall installation (mortar sealing)

The wall is composed of gypsum blocks (minimum density of 995 kg/m$^3$), with minimum thickness of 70 mm. Installation material is gypsum plaster or mortar **(C)** covered with plasterboard cover boards **(D)**.





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Possible damper orientations

0-360°



1. Create an opening in the wall (minimal dimensions on pg.14). Bend the fixing bracket **(A)** 90°. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

**Damper blade must be closed during the installation!**

2. Fix the damper to the wall using screws (bracket screw hole is 6 mm in diameter).

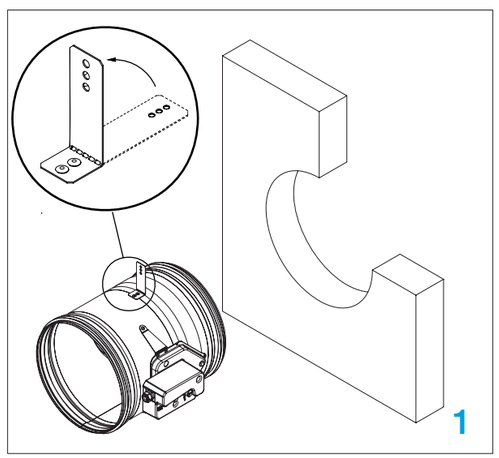
3. Fill the space between the damper and the wall with mortar **(C)**. Cover the mortar with GKF gypsum boards **(D)** (12,5 mm thick), fix them with screws.

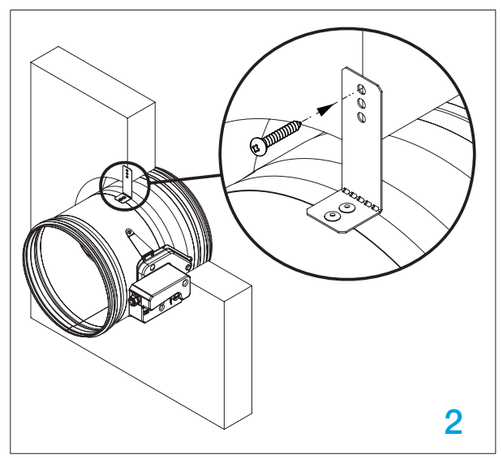
*Multiple fire dampers can be installed next to each other or ceiling/wall with the minimal distance of 30 mm between them, see page 38.

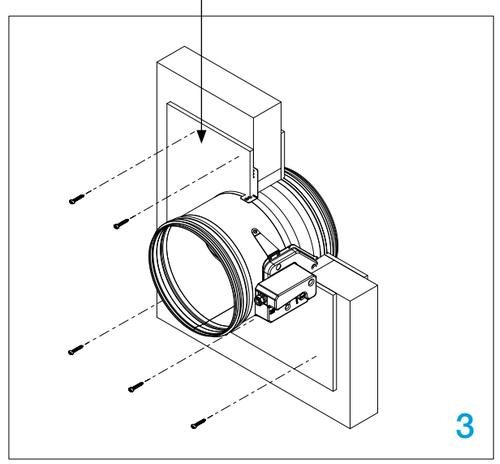
**Test the operation of the damper blade!**

FD-A-CSP-BxH

For more details see pg.45



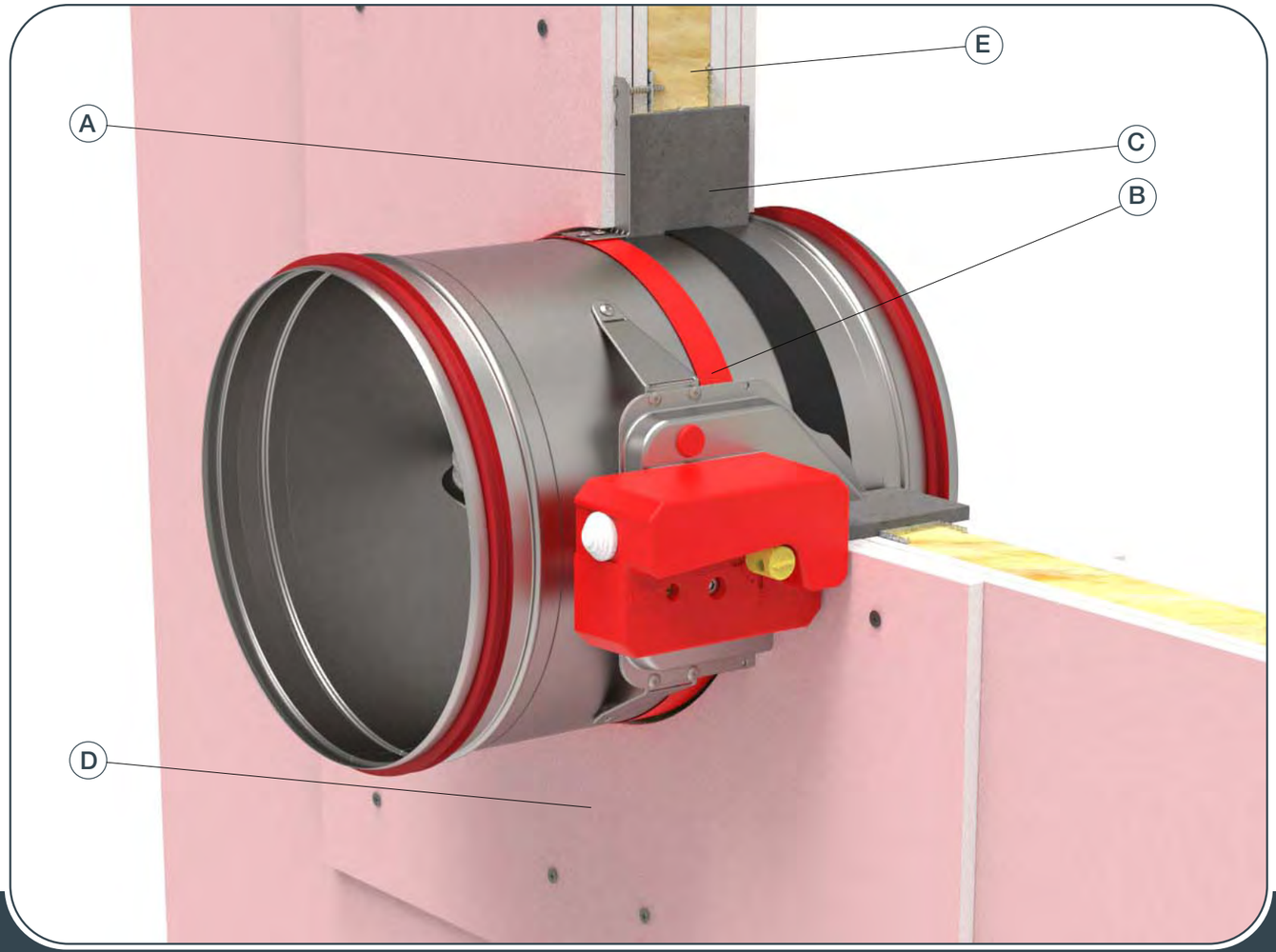



# Flexible wall installation (mortar sealing)

The wall is composed of 2x2 plasterboard boards, 12,5 mm thick, installed on a steel frame construction. Installation material: gypsum plaster or mortar (**C**) covered with type F(**EI 120**) or type A(**EI 60**) cover boards (**D**). The minimum thickness of the wall is 100 mm.

**EI 120 (ve i↔o)S**
The wall is made out of type F (EN520) gypsum plaster boards. To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool **(E)** with density up to 100 kg/m$^3$ can be used).

**EI 60 (ve i↔o)S**
The wall is made out of type A (EN520) gypsum plaster boards. To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool **(E)** with density up to 60 kg/m$^3$ can be used).





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0-90˚-180˚-360˚

## INSTALLATION



1. Create an opening in the wall (Ød + 80 mm) x (Ød + 80 mm) and build the subframe according to the drawing, see page 39. Bend the fixing bracket **(A)** 90°. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

**Damper blade must be closed during the installation!**

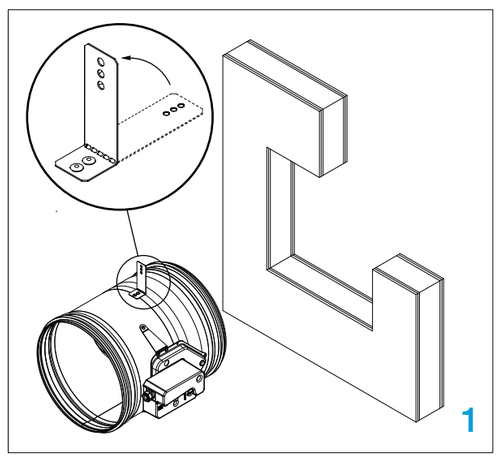
2. Fix the damper to the wall using screws (bracket screw hole is 6 mm in diameter).

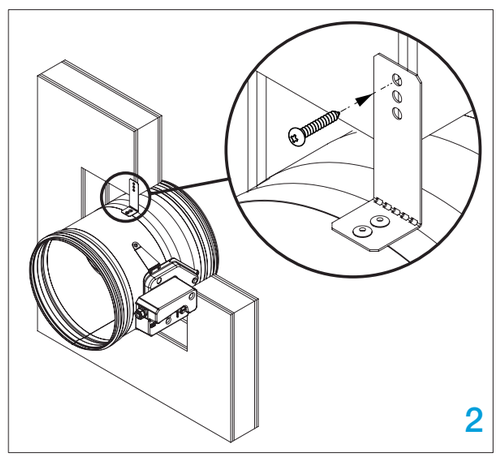
3. Fill the space between the damper and the wall with mortar **(C)**. Cover the mortar with GKF gypsum boards **(D)** (12,5 mm thick), fix them with self-tapping screws Ø3,5x45 mm.

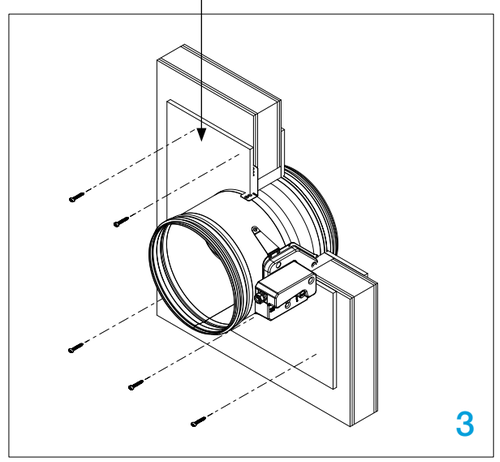
*Multiple fire dampers can be installed next to each other or ceiling/wall with the minimal distance of 30 mm between them, see page 38.

**Test the operation of the damper blade!**

FD-A-CSP-BxH
For more details see pg.45



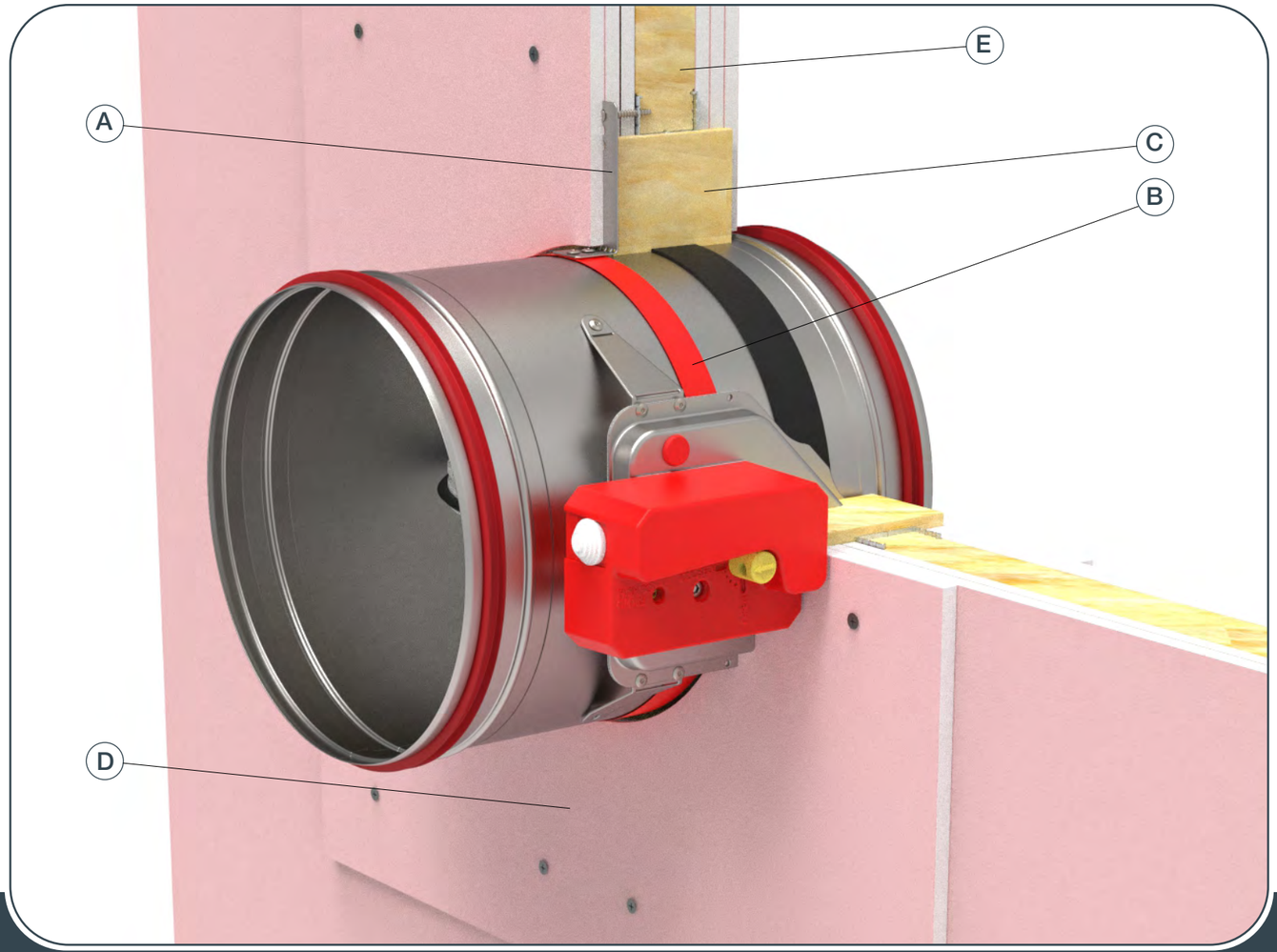



# Flexible wall installation (mineral wool sealing)

The wall is composed of 2x2 plasterboard boards, 12,5 mm thick, installed on a steel frame construction. Installation material: mineral wool (**C**) (minimum density of 100 kg/m$^3$) covered with type F(**EI 120**) or type A (**EI 60**) cover boards (**D**).
The minimum thickness of the wall is 100 mm.

**EI 90 (ve i↔o)S**
The wall is made out of type F (EN520) gypsum plaster boards. To fulfill the classification it is NOT mandatory to use the mineral wool inside the wall (mineral wool (**E**) with density up to 100 kg/m$^3$ can be used).

**EI 60 (ve i↔o)S**
The wall is made out of type A (EN520) gypsum plaster boards. To fulfill the classification it is NOT mandatory to use the mineral wool inside the wall (mineral wool (**E**) with density up to 60 kg/m$^3$ can be used).





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0-90˚-180˚-360˚

## INSTALLATION



1. Create an opening in the wall (Ød + 80 mm) x (Ød + 80 mm) and build the subframe according to the drawing, see page 39. Bend the fixing bracket **(A)** 90°. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

**Damper blade must be closed during the installation!**

2. Fix the damper to the wall using screws (bracket screw hole is 6 mm in diameter).

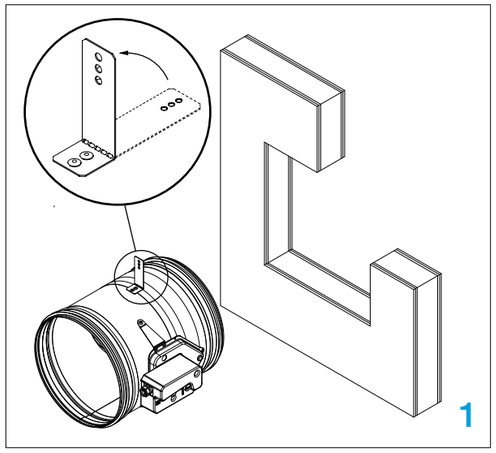
3. Fill the space between the damper and the wall with mineral wool **(C)**. Cover the mineral wool with GKF gypsum boards **(D)** (12,5 mm thick), fix them with self-tapping screws Ø3,5x45 mm.

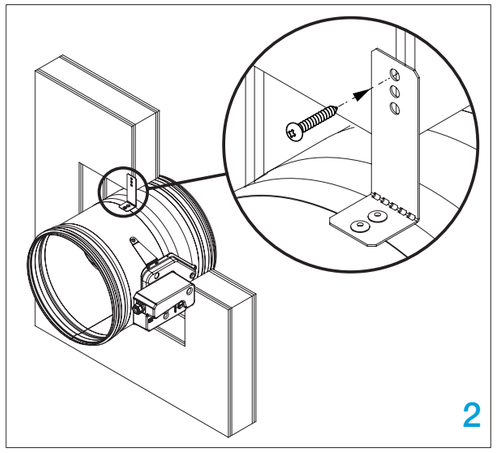
*Multiple fire dampers can be installed next to each other or ceiling/wall with the minimal distance of 30 mm between them, see page 38.

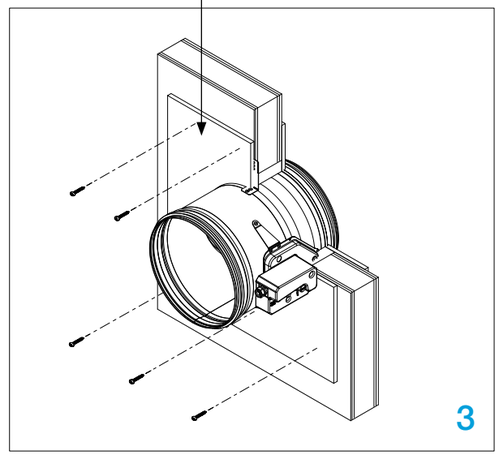
**Test the operation of the damper blade!**

FD-A-CSP-BxH

For more details see pg.45



# Flexible wall installation (Fire Batt/Weichschott)

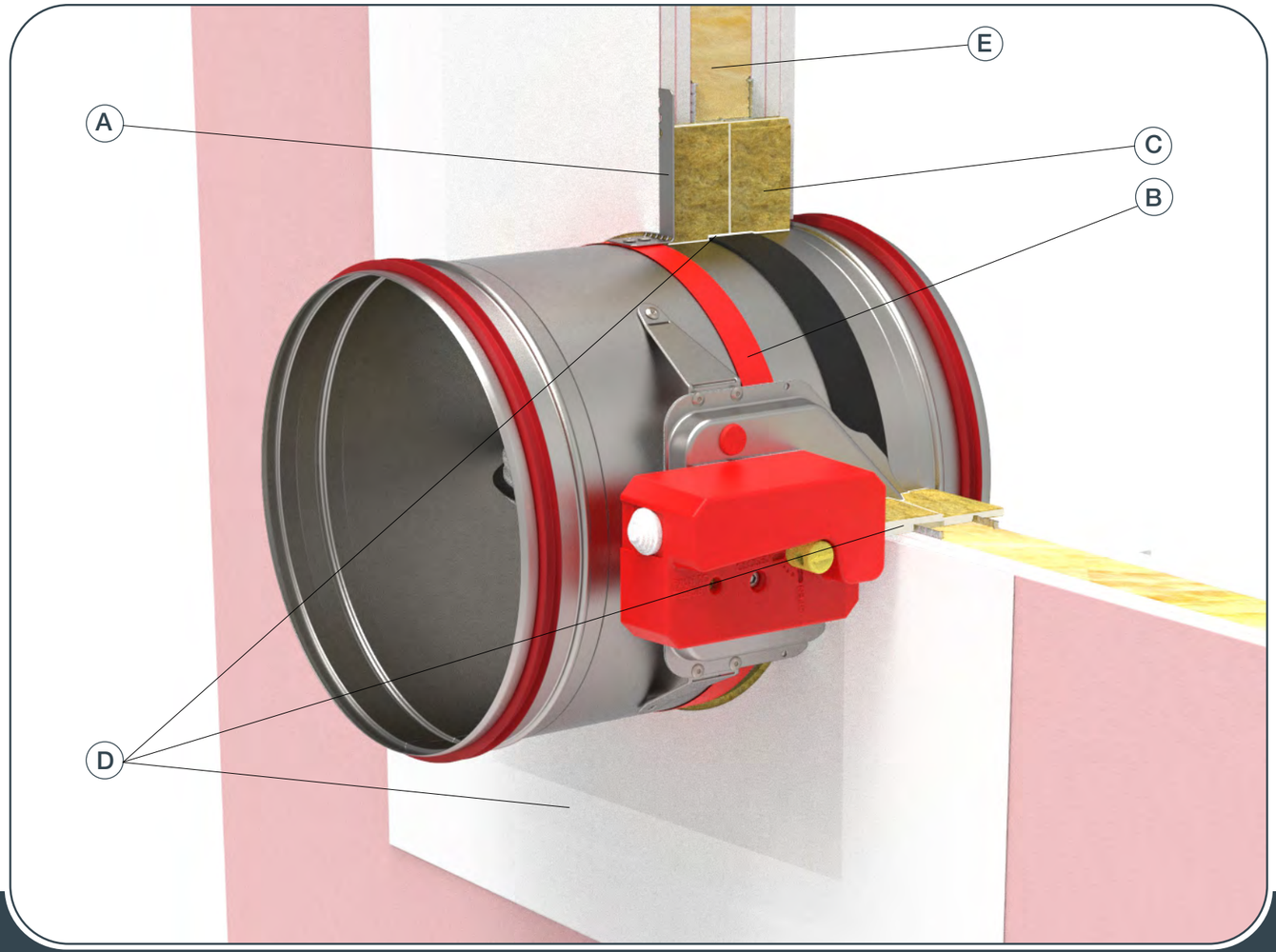
The wall is composed of 2x2 plasterboard boards, 12,5 mm thick, installed on a steel frame construction.

**EI 90 (ve i↔o)S**

The wall is made out of type F (EN520) gypsum plaster boards. To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool **(E)** with density up to 100 kg/m$^3$ can be used). Installation material: mineral wool **(C)** (minimum density of 140 kg/m$^3$) and fire protection coating **(D)**. The minimum thickness of the wall is 100 mm.

**EI 60 (ve i↔o)S**

The wall is made out of type A (EN520) gypsum plaster boards. To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool **(E)** with density up to 60 kg/m$^3$ can be used). Installation material: mineral wool **(C** (minimum density of 140 kg/m$^3$) and fire protection coating **(D)**. The minimum thickness of the wall is 100 mm.





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0-90˚-180˚-360˚

## INSTALLATION

1. Create an opening in the wall (Ød + 300 mm) x (Ød + 300 mm) and build the subframe according to the drawing, see page 39. Bend the fixing bracket **(A)** 90°.

2. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

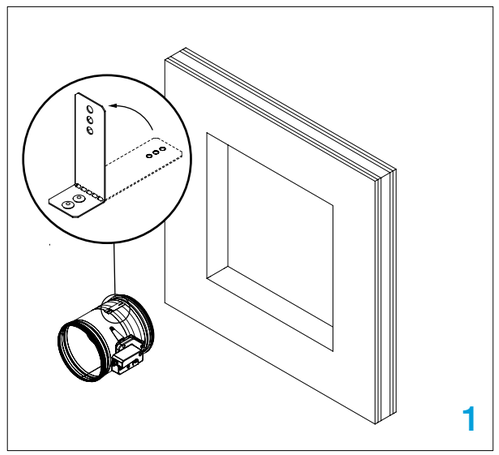
**Damper blade must be closed during installation!**

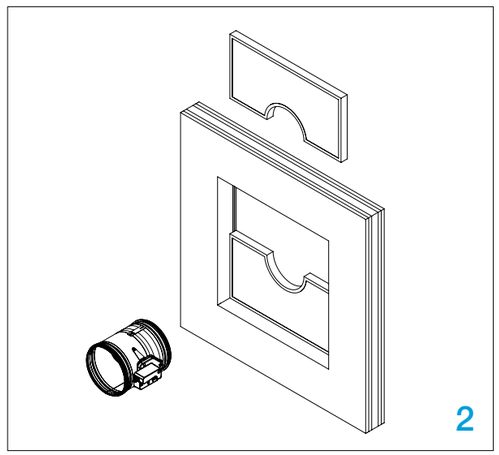
3. Close the space between casing and wall with two layers of mineral wool **(C)** (50 mm thick, coated on one side). Seal the connections of mineral wool with intumescent fire resistant sealant **(D)**. Mineral wool and damper casing must be coated with 2 mm thick fire protection coating. Damper casing should be coated up to profile protrusions.

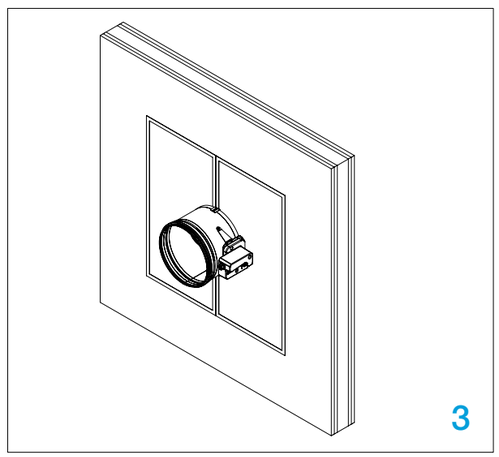
*Multiple fire dampers can be installed next to each other or ceiling/wall with the minimal distance of 30 mm between them, see page 38.

**Test the operation of the damper blade!**

Video instructions

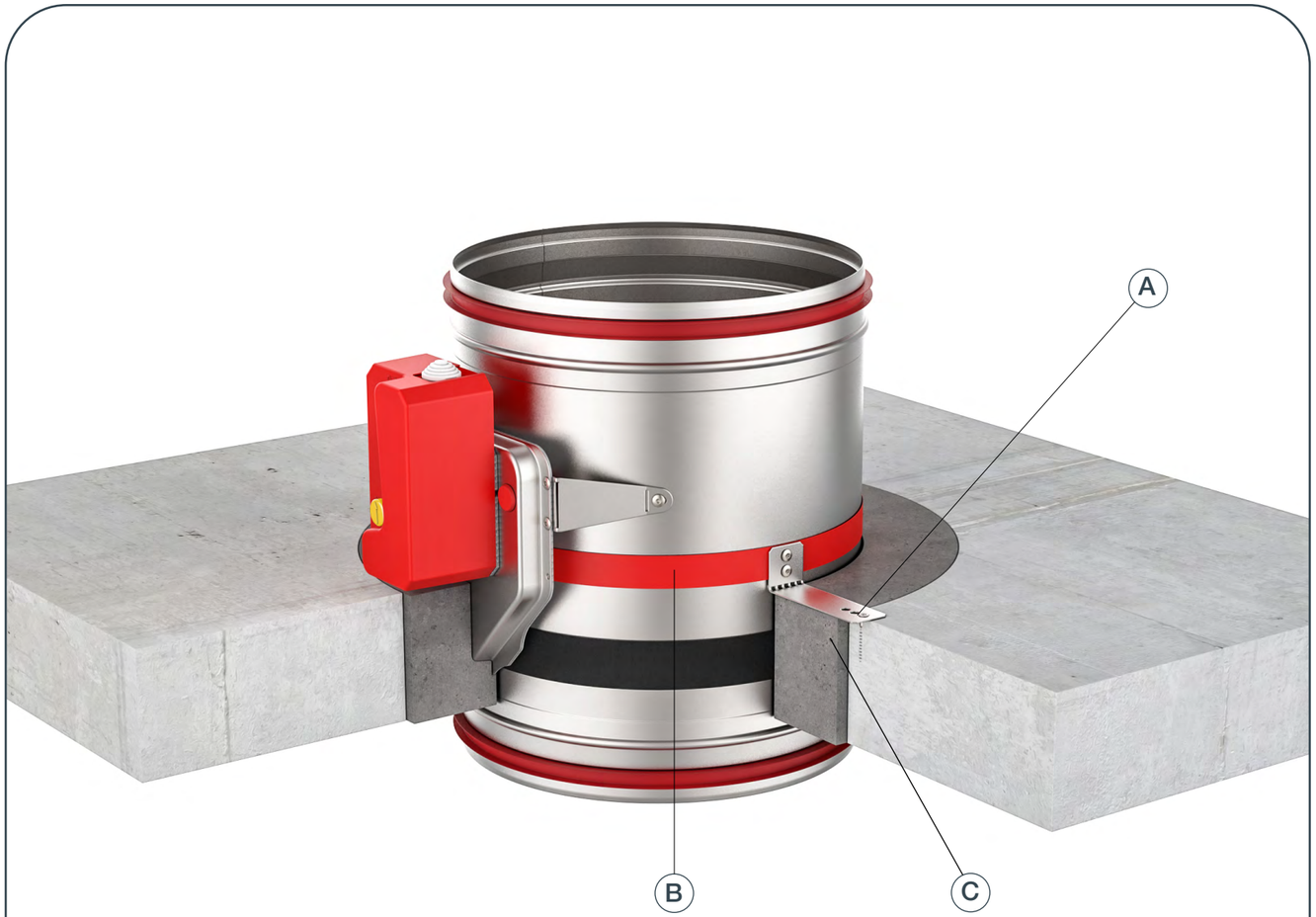


# Rigid floor/ceiling installation (mortar sealing)

The floor/ceiling is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm.
Installation material is gypsum plaster or mortar **(C)**.





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0-360°



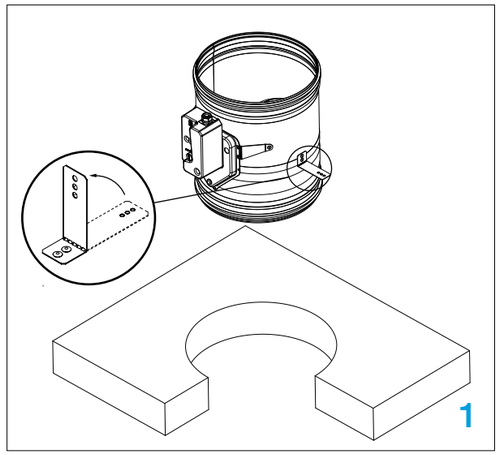
1. Create an opening in the floor/ ceiling (minimal dimensions on pg.14) and bend the fixing bracket **(A)** 90°. Place the damper in the opening up to the wall limit mark **(B)** on the damper.

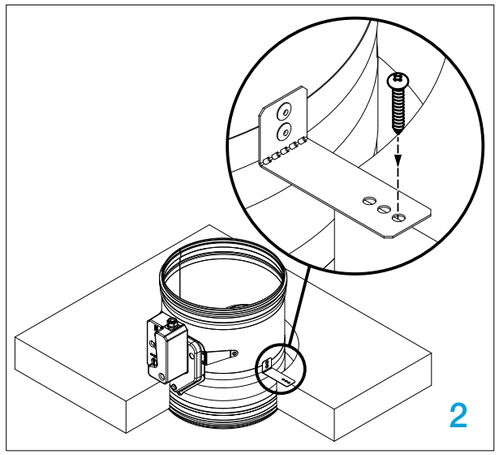
**Damper blade must be closed during installation!**

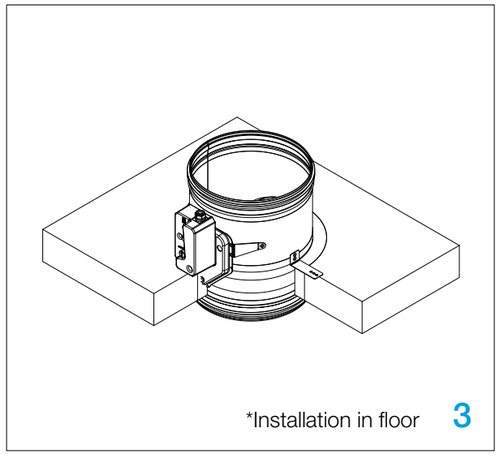
2. Fix the damper to the slab using screws (bracket screw hole is 6 mm in diameter).

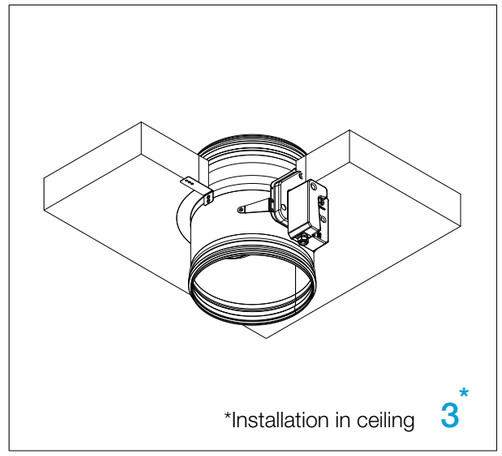
3/3*. Fill the space between the damper and the slab with mortar **(C)** or gypsum plaster.

**Test the operation of the damper blade!**


1

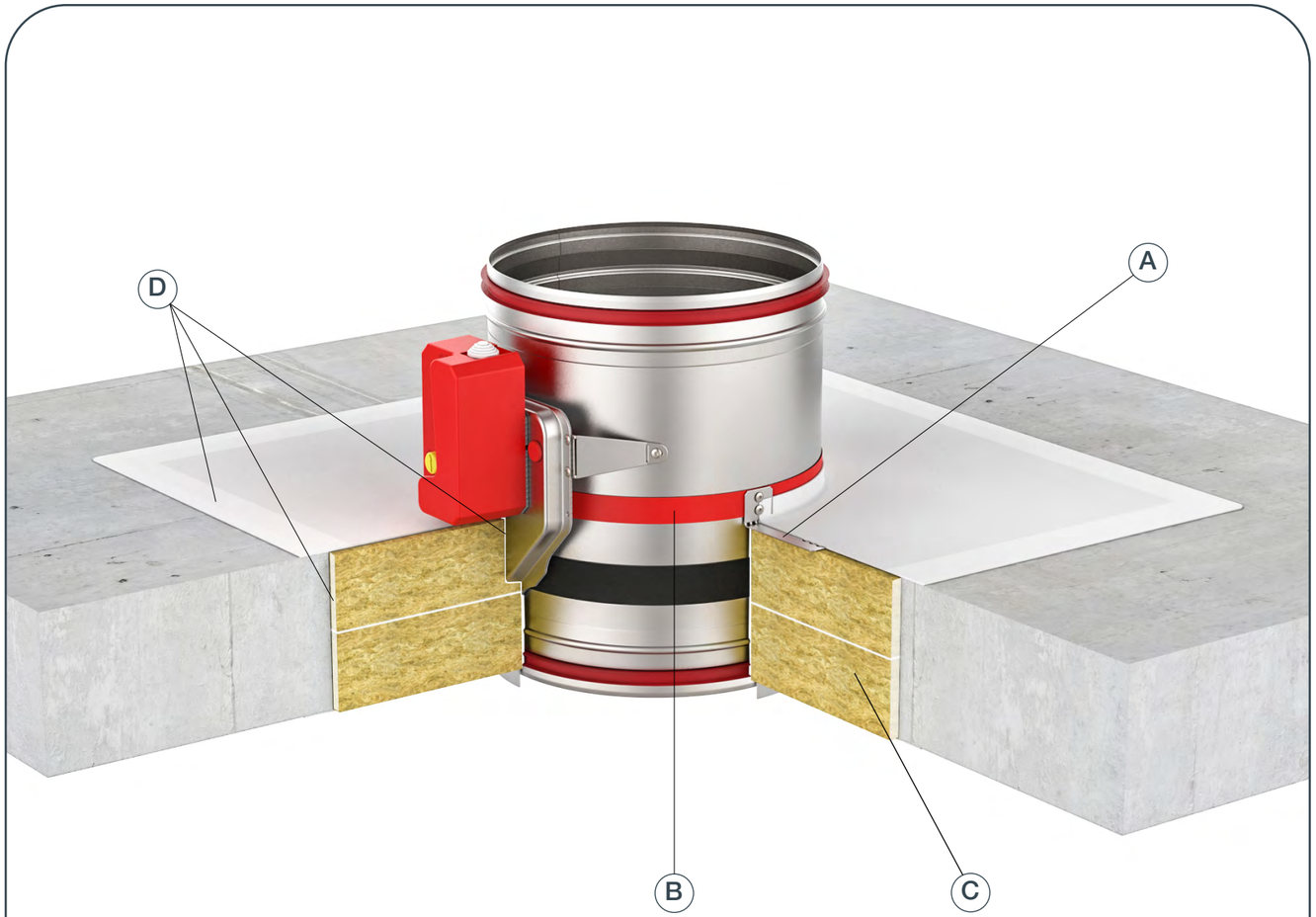

2


*Installation in floor 3


*Installation in ceiling 3*

# Rigid floor/ceiling installation (Fire Batt/ Weichschott)

The floor/ceiling is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm. Installation material: Mineral wool **(C)** (minimum density of 140 kg/m$^3$), fire protection coating **(D)**.





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0-360°

## INSTALLATION

1. Create an opening in the floor/ceiling (Ød + 300 mm) x (Ød + 300 mm). Bend the fixing bracket **(A)** 90°.

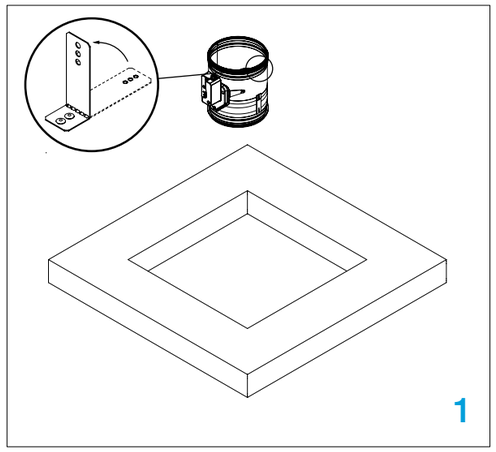
2. Place the damper in the opening up to the wall limit mark **(B)** on the damper. Close the space between casing and floor/ceiling with two layers of mineral wool **(C)** (50 mm thick, coated on one side).

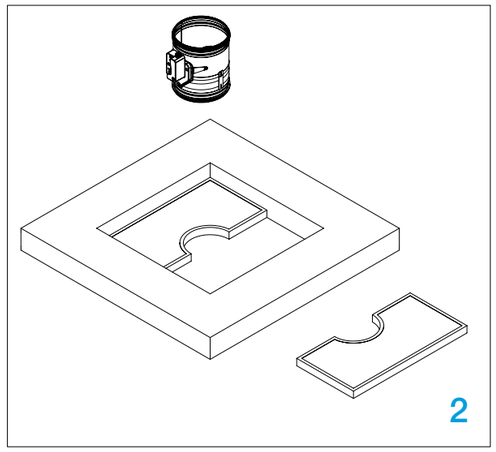
**Damper blade must be closed during installation!**

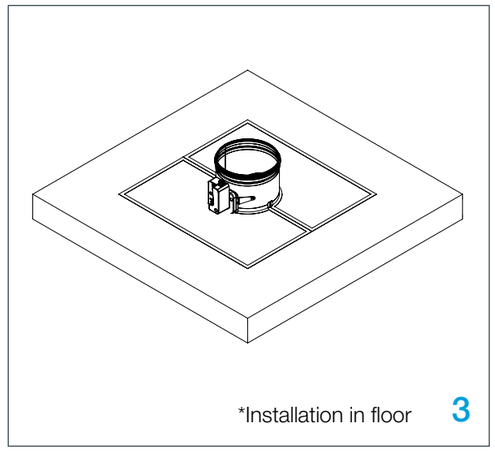
3/3*. Connections of mineral wool should be sealed with intumescent fire resistant sealant **(D)**. Mineral wool and damper casing must be coated with 2 mm thick fire protection coating. Damper casing should be coated up to profile protrusions.

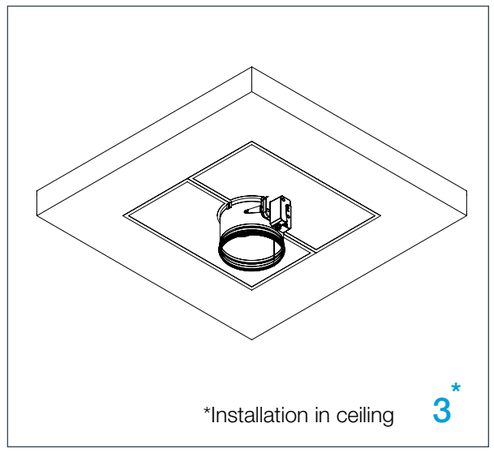
*Fire Batt floor/ceiling installations require a suspension for the fire damper. For more details, see page 27 rigid floor / page 28 ceiling.

**Test the operation of the damper blade!**


1

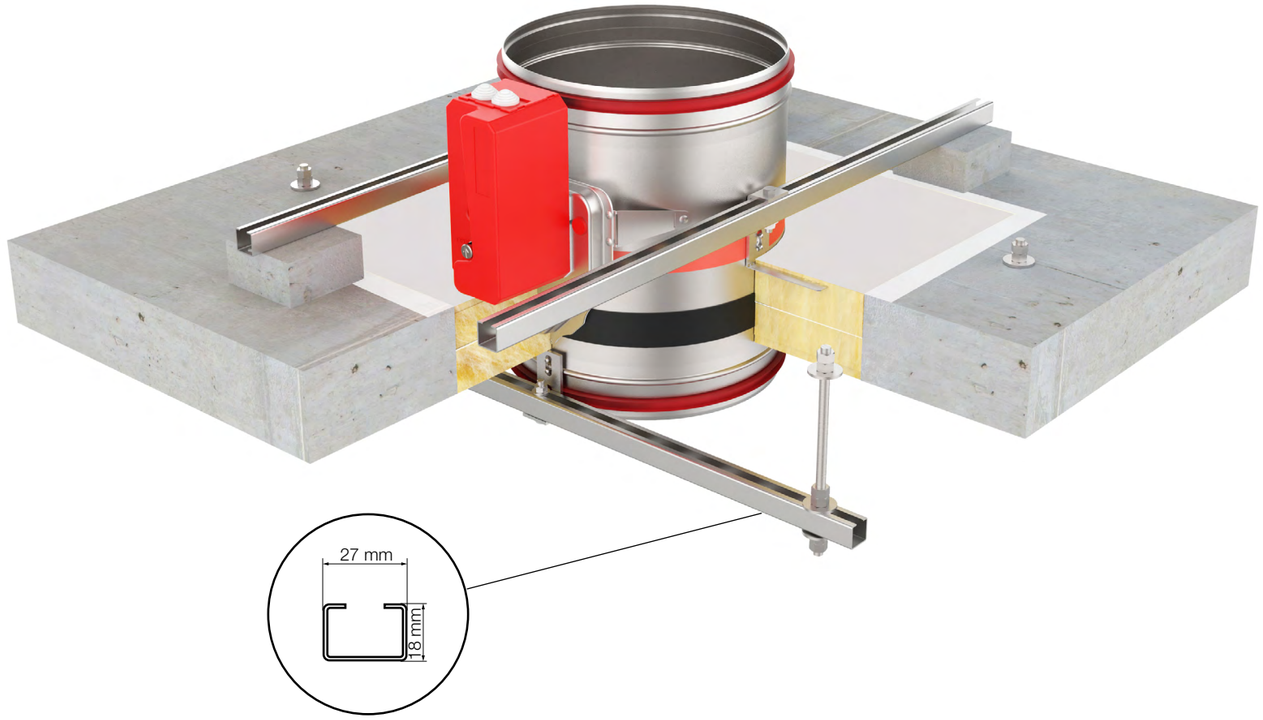

2


*Installation in floor 3


*Installation in ceiling 3*

# Suspension for rigid floor installation

Suspension systems are required for the Fire Batt/ Weichschott installation of the fire damper with mineral wool in floor slabs. Fire dampers can be suspended from solid ceiling slabs using adequately sized threaded rods. Load the suspension system only with the weight of the fire damper. Ducts must be suspended separately.





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## INSTALLATION



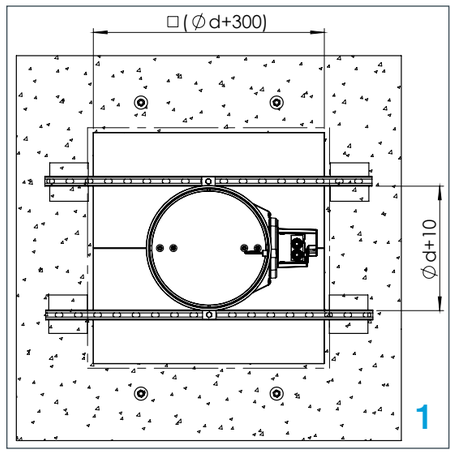
1. Suspension strut should be connected with drop rods (8/10 mm) to the floor slab above. It is used to support the damper and ease the installation.

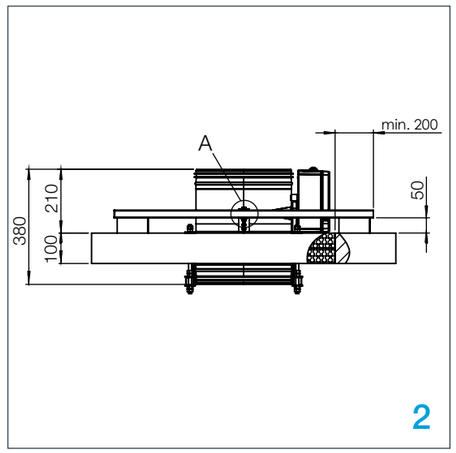
2. When using L profile fixation, support steel C profile with 50 mm high peace of aerated concrete or similar rigid material. Not necessary if connecting rods directly to damper.

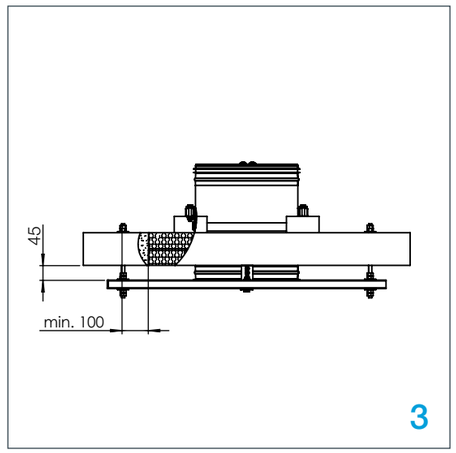
3. Damper casing is fixed to suspended and supported steel C profiles by two self tapping screws 4,8x16 **(make sure that it doesn't interfere with damper blade)** with L profile hanger **(detail A)** fixed to steel C profiles by M8 screw and nut. Position of self-tapping screws is trough the middle of damper casing.

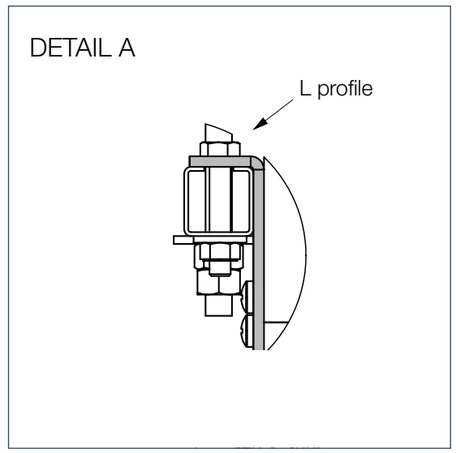
4. To finish the installation please follow the steps (2.-4.) from page 26.

**Damper blade must be closed during installation! Test the operation of the damper blade!**



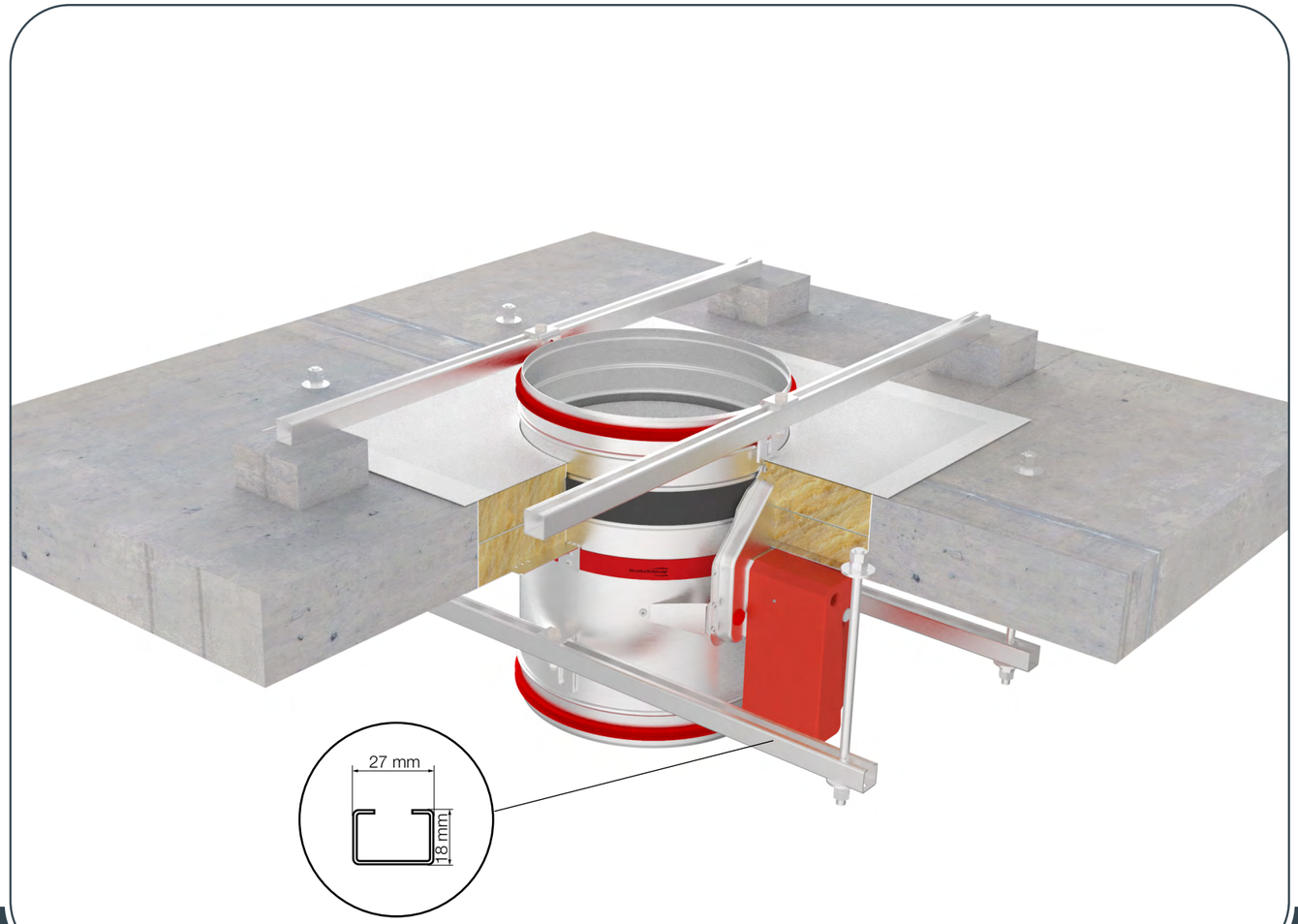



# Suspension for rigid ceiling installation

Suspension systems are required for the Fire Batt/ Weichschott installation of the fire damper with mineral wool in ceiling slabs. Fire dampers can be suspended from solid ceiling slabs using adequately sized threaded rods. Load the suspension system only with the weight of the fire damper. Ducts must be suspended separately.





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0-360°



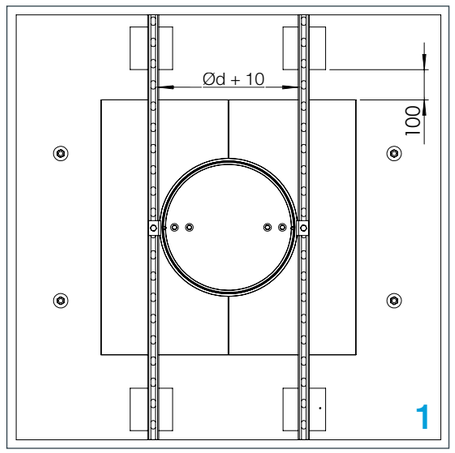
1. Suspension strut should be connected with drop rods (8/10 mm) to the ceiling slab above. It is used to support the damper and ease the installation.

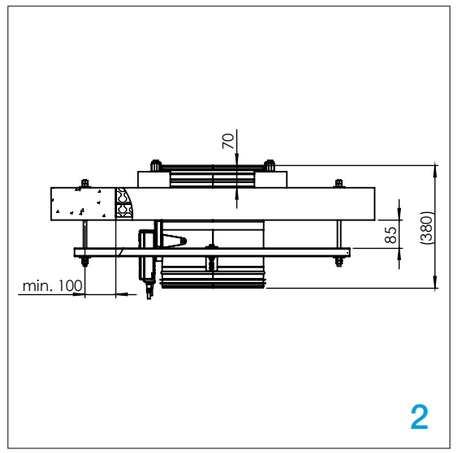
2. If using L profile fixation, support steel C profile with 50 mm high peace of aerated concrete or similar rigid material. Not necessary if connecting rods directly to damper.

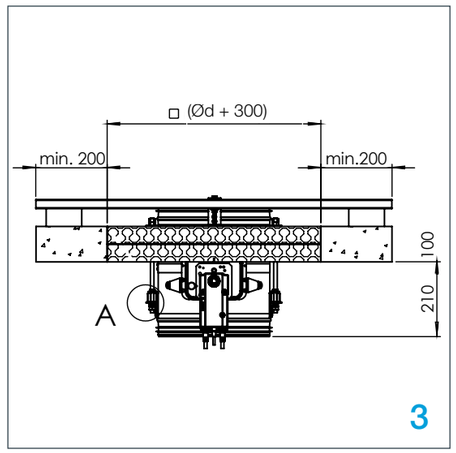
3. Damper casing is fixed to suspended and supported steel C profiles by two self tapping screws 4,8x16 **(make sure that it doesn't interfere with damper blade)** with L profile hanger **(detail A)** fixed to steel C profiles by M8 screw and nut. Position of self-tapping screws is trough the middle of damper casing.

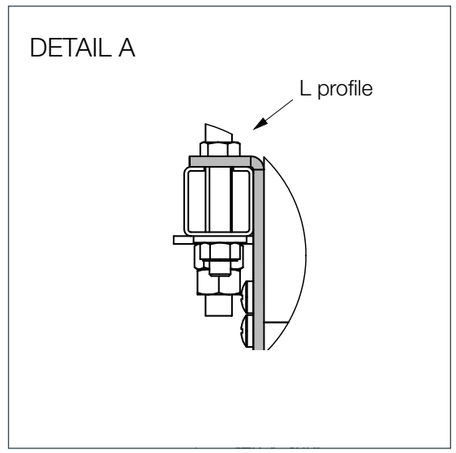
4. To finish the installation please follow the steps (2.-4.) from page 26.

**Damper blade must be closed during installation! Test the operation of the damper blade!**



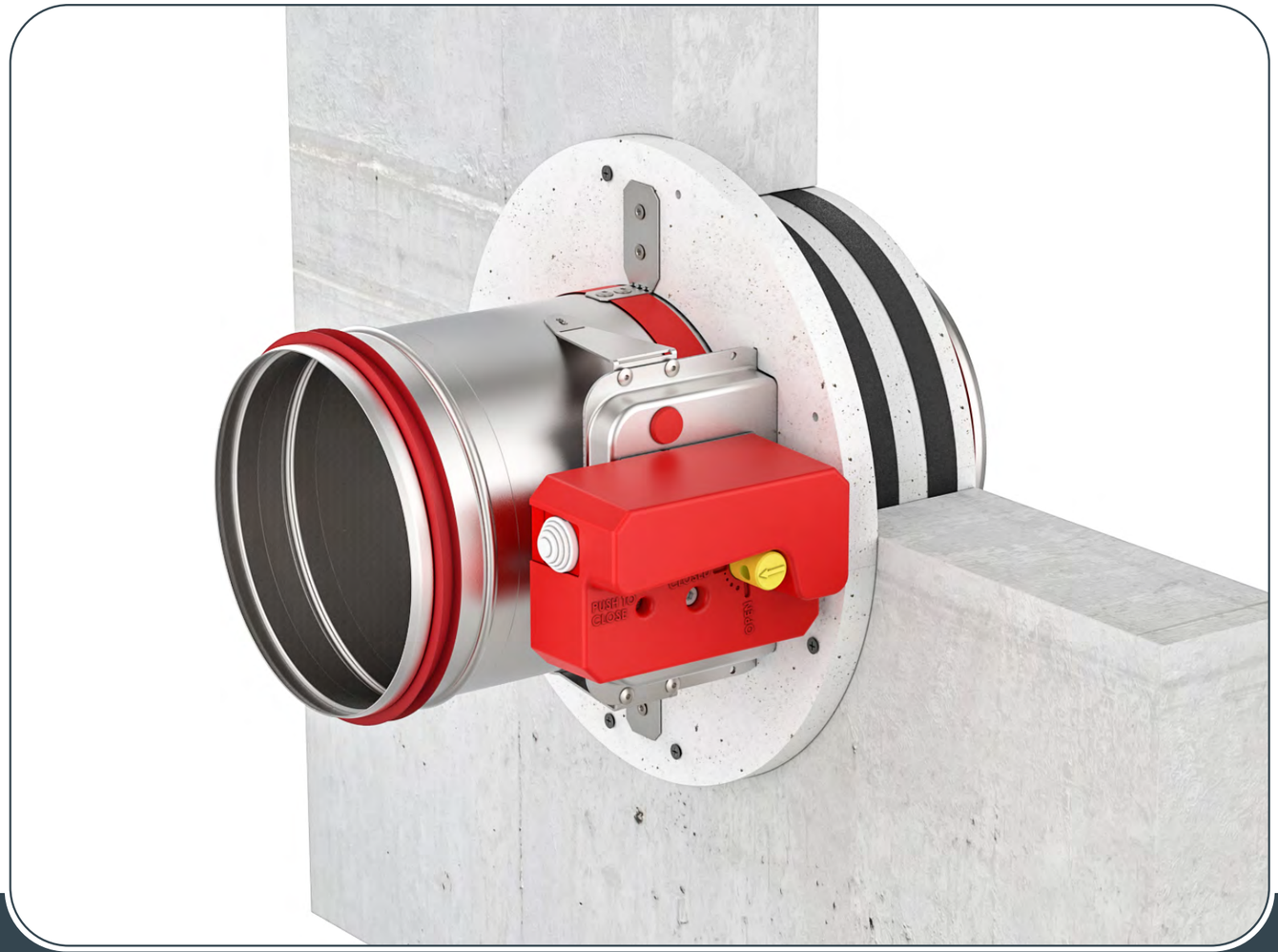



# Rigid wall installation

## Applique installation frame

The wall is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm.





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0-360°



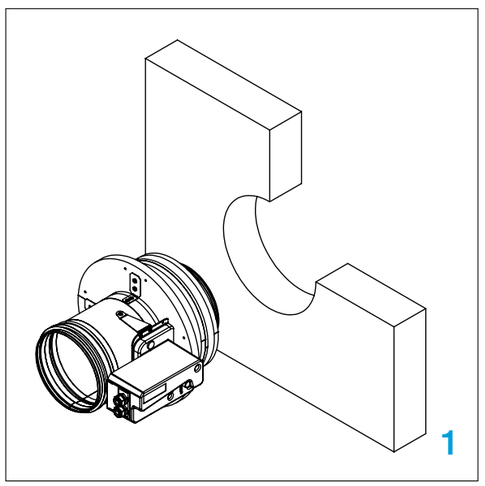
1. Create a wall opening according to the dimensions in the table below.

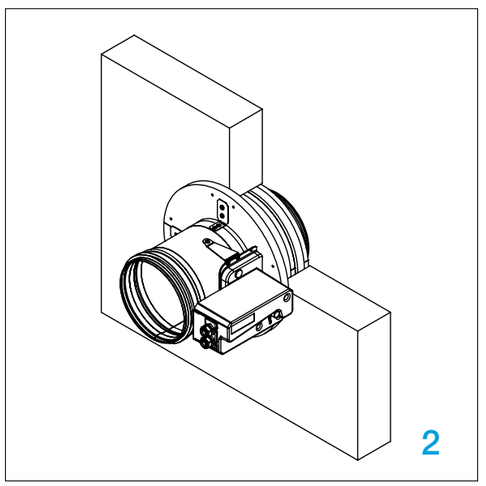
2. Insert fire damper into wall and fasten with screws (8 pcs, 4,8x60 mm).

**Damper blade must be closed during installation!**

**Test the operation of the damper blade!**

| Wall opening dimensions | | |
|---|---|---|
| Damper diameter Ød [mm] | Applique frame diameter Ød[mm] | Wall opening [mm] |
| 100 | Ød + 105 mm | Ød + 115 mm |
| 125-180 | Ød + 95 mm | Ød + 105 mm |
| 200-315 | Ød + 80 mm | Ød + 90 mm |

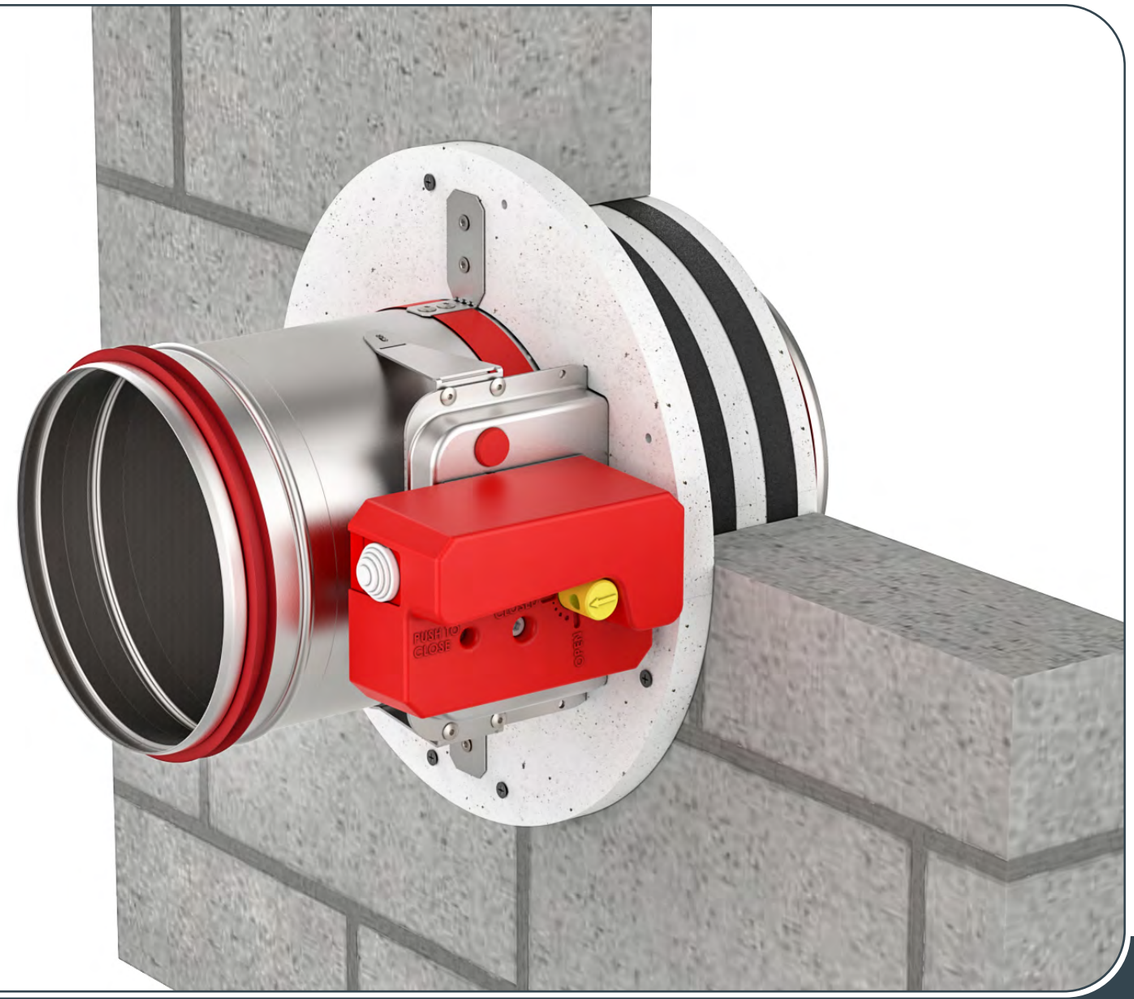


# Gypsum blocks wall installation

# Applique installation frame

The wall is composed of gypsum blocks (minimum density of 995 kg/m$^3$), and with minimum thickness of 70 mm.





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Possible damper orientations

0-360°



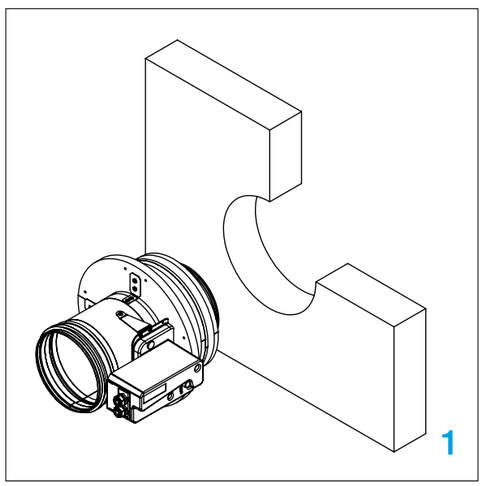
1. Create a wall opening according to the dimensions in the table below.

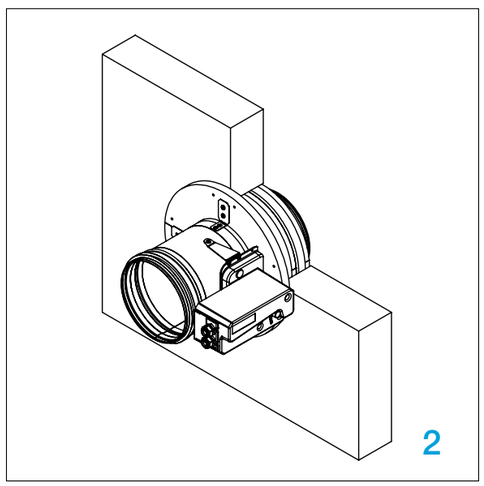
2. Insert fire damper into wall and fasten with screws (8 pcs, 4,8x60 mm).

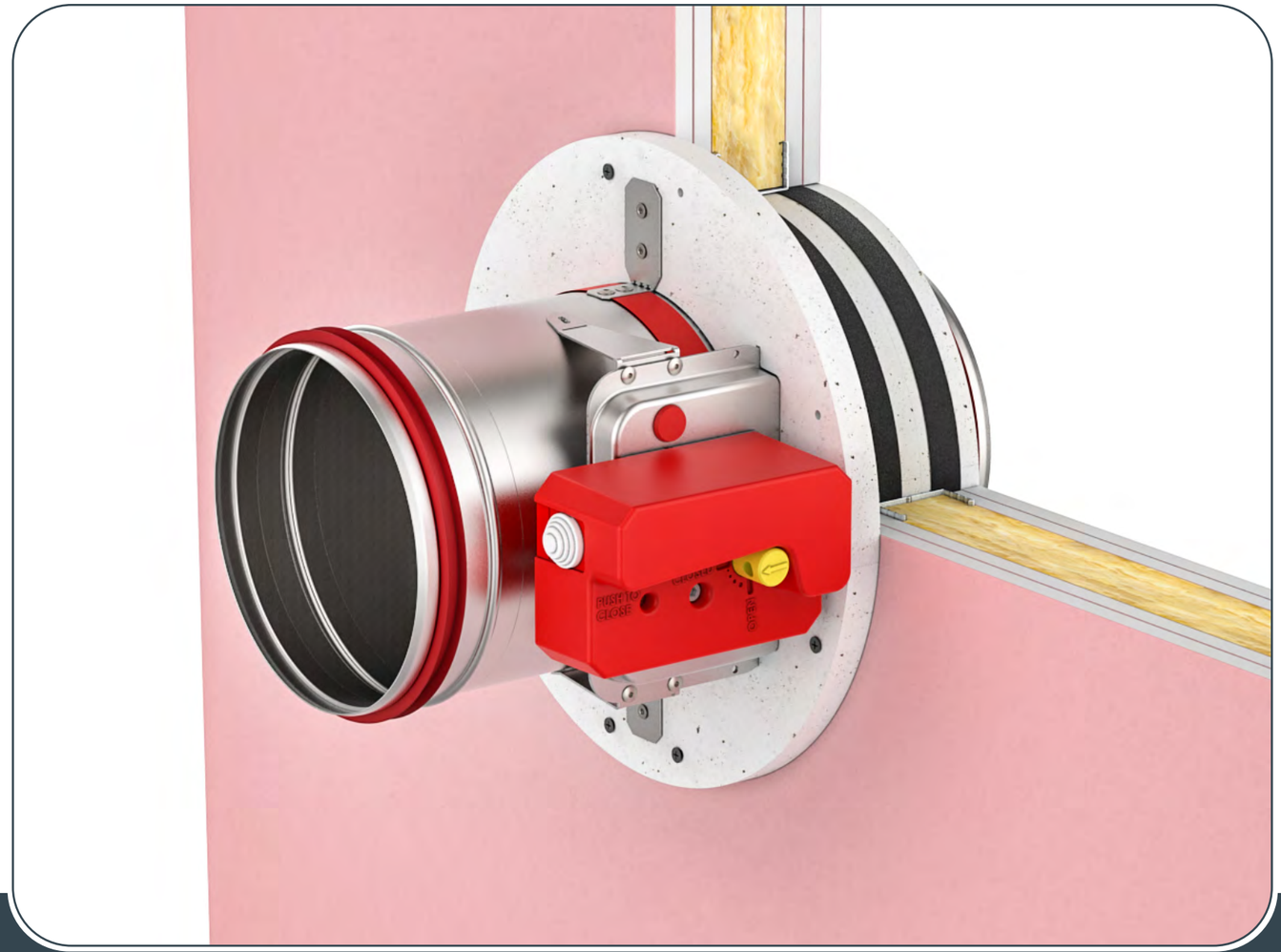
**Damper blade must be closed during installation!**

**Test the operation of the damper blade!**

| Wall opening dimensions | | |
|---|---|---|
| Damper diameter Ød [mm] | Applique frame diameter Ød[mm] | Wall opening [mm] |
| 100 | Ød + 105 mm | Ød + 115 mm |
| 125-180 | Ød + 95 mm | Ød + 105 mm |
| 200-315 | Ød + 80 mm | Ød + 90 mm |






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# Flexible wall installation

## Applique installation frame

The wall is composed of 2x2 plasterboard boards, 12,5 mm thick, installed on a steel frame construction. To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool with density up to 100 kg/m$^3$ can be used).The minimum thickness of the wall is 100 mm.

Possible damper orientations

0-360°



*Create an opening according to the table below and build the subframe according to the drawing, see page 39.

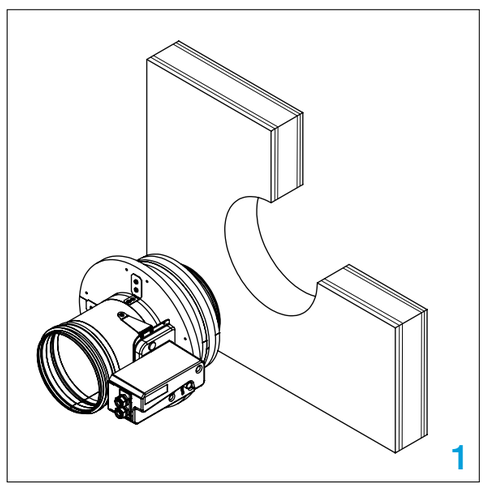
1. Place the fire damper in the opening.

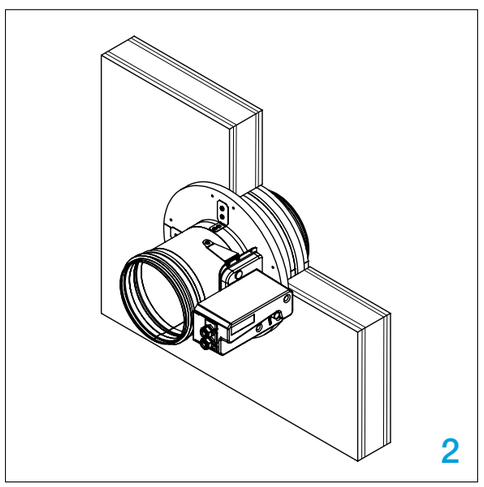
**Damper blade must be closed during installation!**

2. Fasten the fire damper with screws (8 pcs, 4,8x60 mm).

**Test the operation of the damper blade!**

| Wall opening dimensions | | |
|---|---|---|
| Damper diameter Ød [mm] | Applique frame diameter Ød [mm] | Wall opening [mm] |
| 100 | Ød + 105 mm | Ød + 115 mm |
| 125-180 | Ød + 95 mm | Ød + 105 mm |
| 200-315 | Ød + 80 mm | Ød + 90 mm |

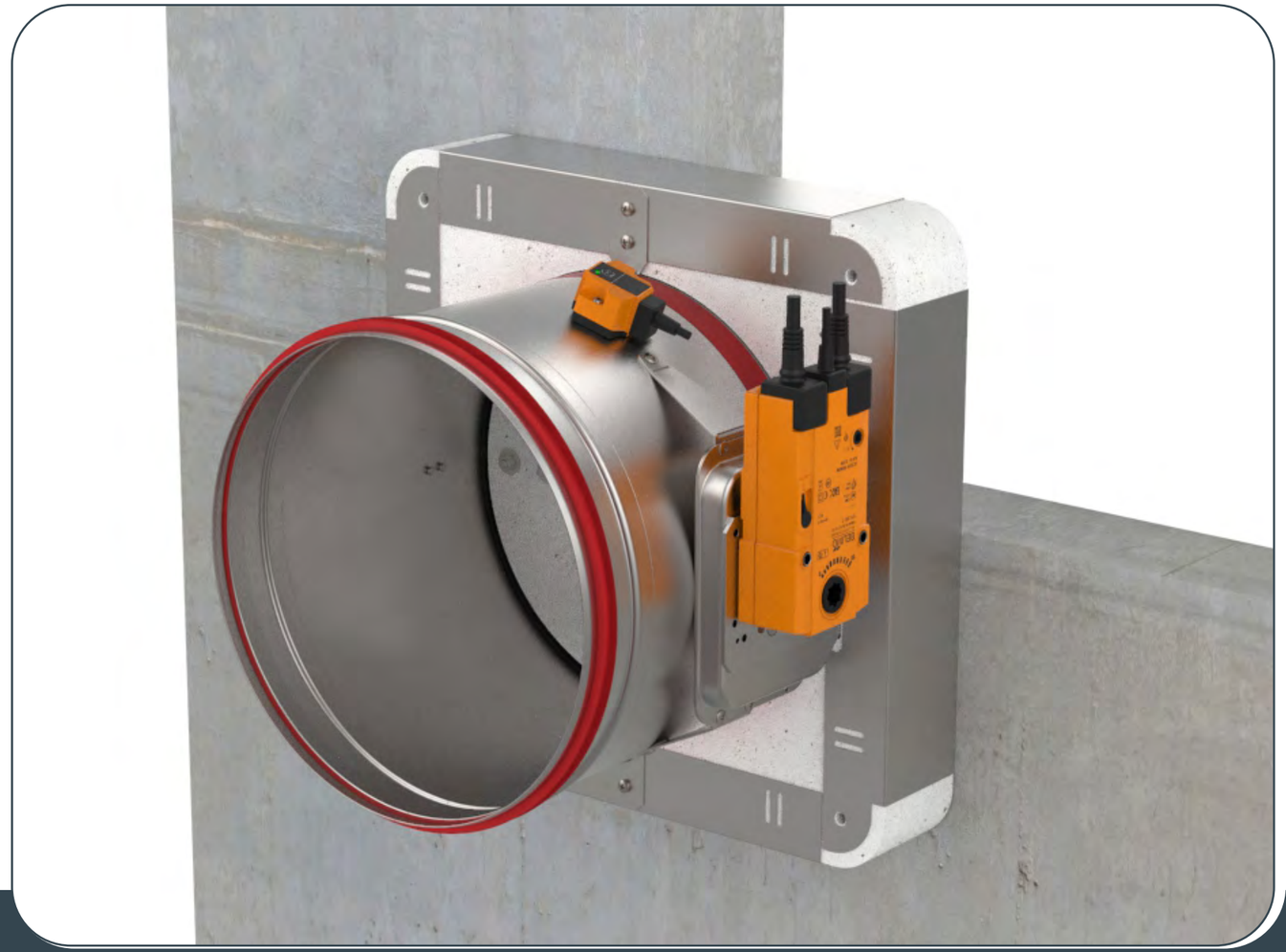


# Rigid wall installation

# MF1/MF2 installation frame

The wall is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm.




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Possible damper orientations

0-360°



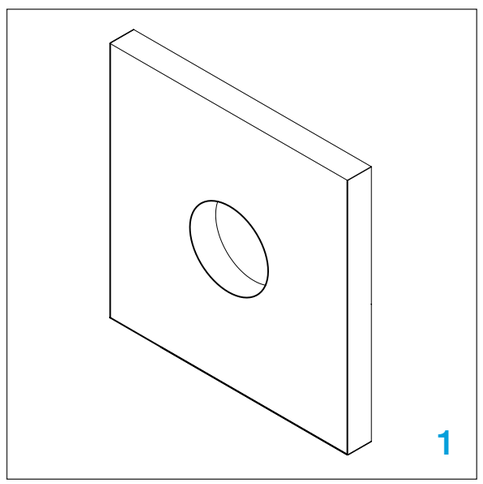
1. Create an opening in the wall
   (FDC25- Ød +10 mm, FDC40-Ød + 25 mm).

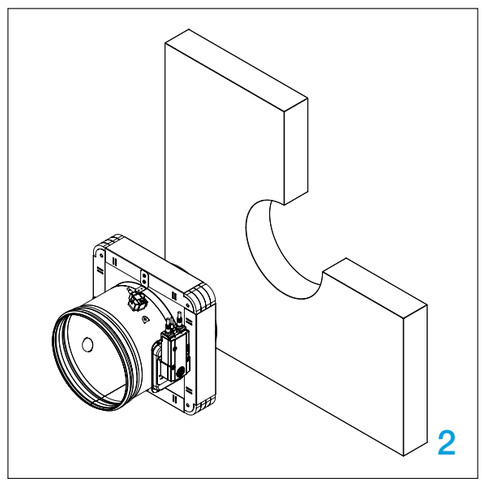
2. Place the damper in the opening.

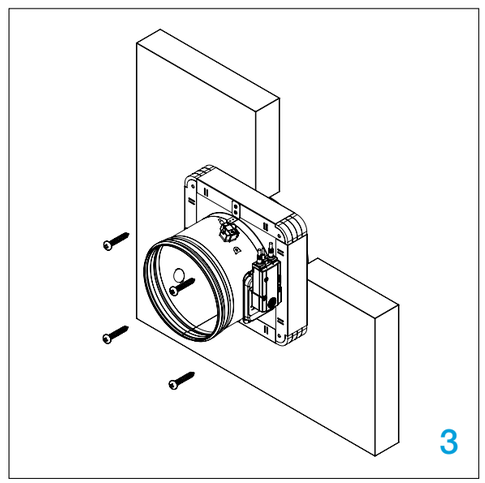
**Damper blade must be closed during installation!**

3. Fasten the fire damper with screws
   FDC25- 4 pcs, 6x140 mm,
   FDC40- 12 pcs, 6x140 mm.

**Test the operation of the damper blade!**



# Gypsum blocks wall MF1/MF2 installation frame

The wall is composed of gypsum blocks (minimum density of 995 kg/m$^3$) and with minimum thickness of 70 mm.




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Possible damper orientations

0-360°



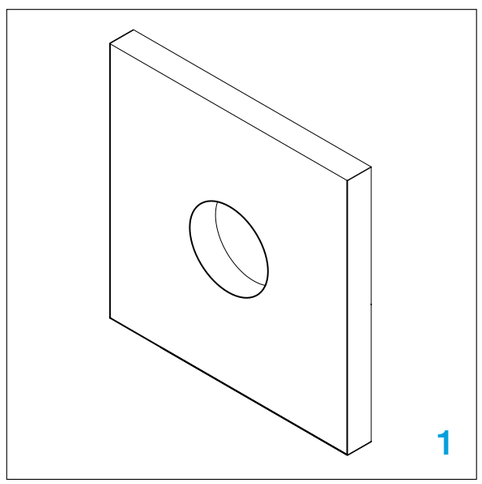
1. Create an opening in the wall
   (FDC25- Ød +10 mm, FDC40-Ød + 25 mm).

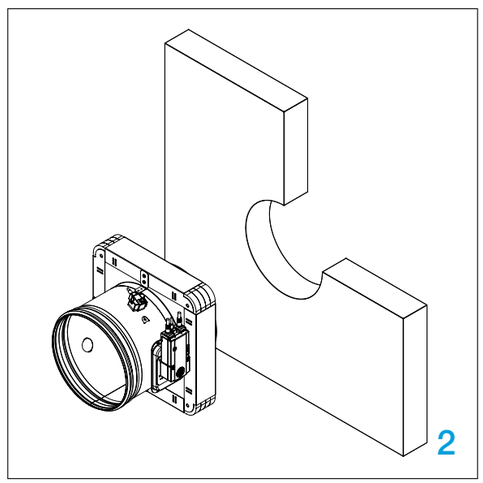
2. Place the damper in the opening.

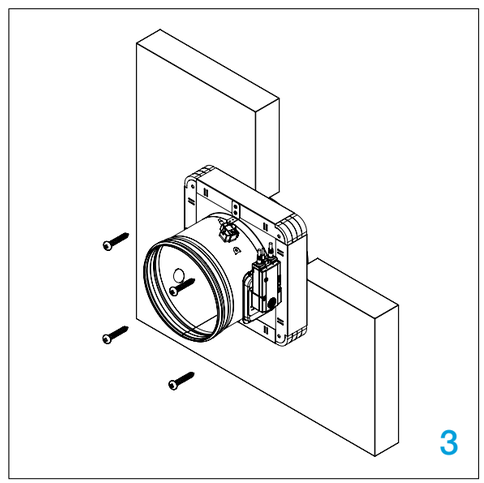
**Damper blade must be closed during installation!**

3. Fasten the fire damper with screws
   FDC25- 4 pcs, 6x140 mm,
   FDC40- 12 pcs, 6x140 mm.

**Test the operation of the damper blade!**



# Flexible wall installation

# MF1/MF2 installation frame

**MF1 (EI 60 (ve i↔o)S)**
The wall is made out of type A (EN520) gypsum plaster boards. To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool with density up to 60 kg/m$^3$ can be used). The minimum thickness of the wall is 100 mm.
**MF2 (EI 90 (ve i↔o)S)**
The wall is made out of type F (EN520) gypsum plaster boards, installed on a steel frame construction.
To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool with density up to 100 kg/m$^3$ can be used).
The minimum thickness of the wall is 100 mm.




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Possible damper orientations

0-360°



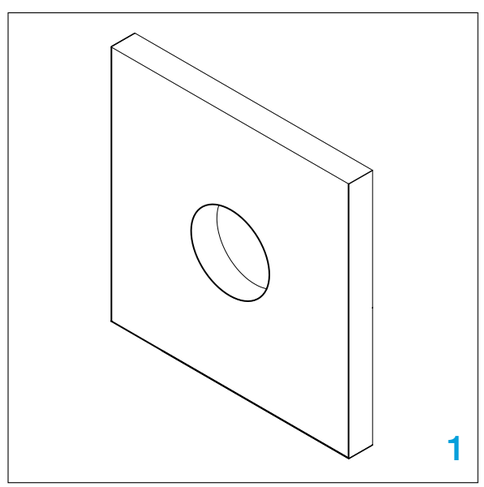
1. Create an opening in the wall (FDC25- Ød +10 mm, FDC40-Ød + 25 mm) and build the subframe according to the drawing, see page 39.

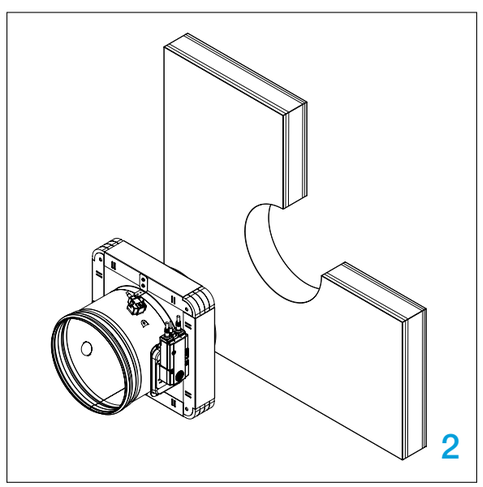
2. Place the fire damper in the opening.

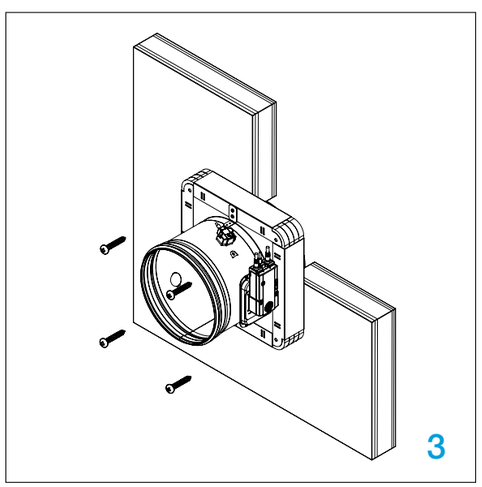
**Damper blade must be closed during installation!**

3. Fasten the fire damper with screws
FDC25- 4 pcs, 6x140 mm,
FDC40- 12 pcs, 6x140 mm.

**Test the operation of the damper blade!**



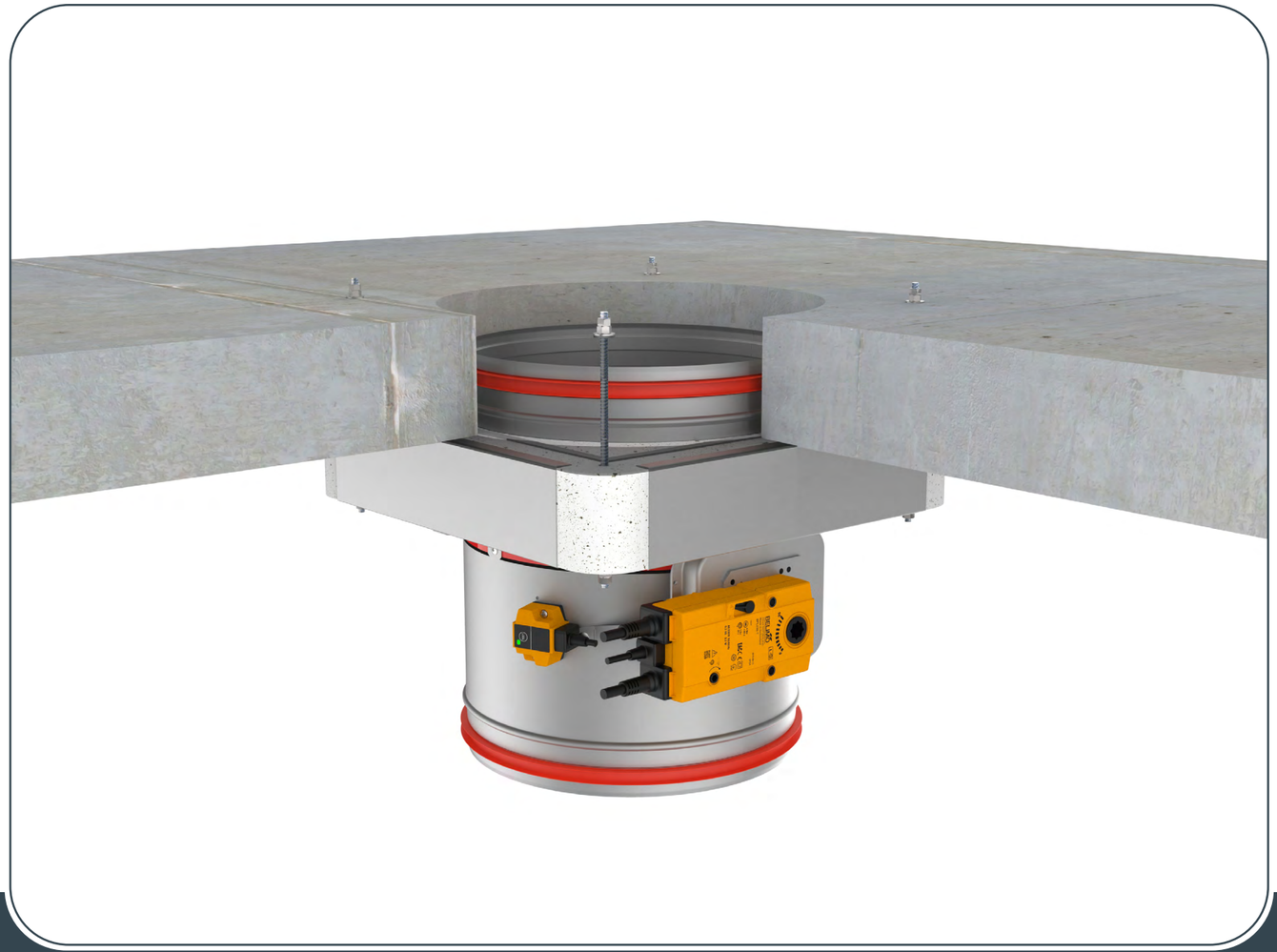



# Rigid floor/ceiling installation

# MF1/MF2 installation frame

The floor/ceiling is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm.




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Possible damper orientations

0-360°



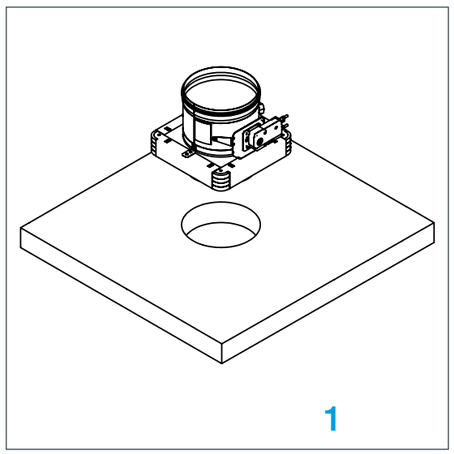
1. Create an opening in the floor/ceiling (FDC25- Ød +10 mm, FDC40-Ød + 25 mm). Insert the fire damper into the opening and mark the places for drilling holes.

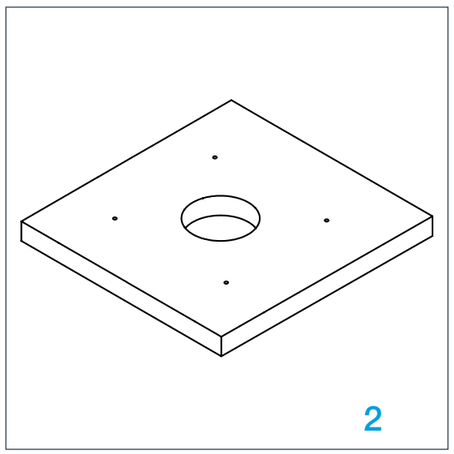
2. Remove the fire damper and drill the marked places (8 mm).

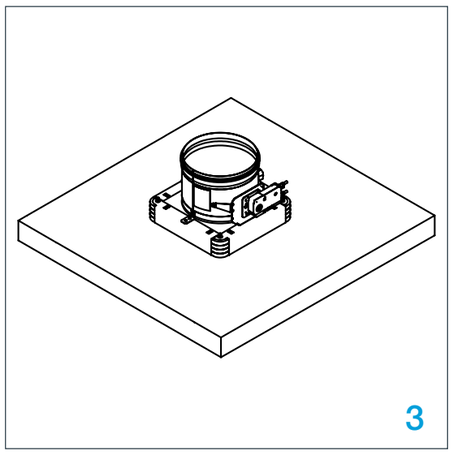
3. Mount 4/12 sets of pre-cut threaded rods, washer, nut and counternut on one side. Place pre-assembled threaded rods in holes in floor/ceiling, and place the damper in the opening. Tighten the tightening sets from oposite side with washer, nut and counternut.

**Damper blade must be closed during installation!**

**Test the operation of the damper blade!**



# Shaft wall installation

## MF2 installation frame

The wall is composed of 1x2 plasterboard boards, 20 mm thick, installed on a steel frame construction.




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Possible damper orientations

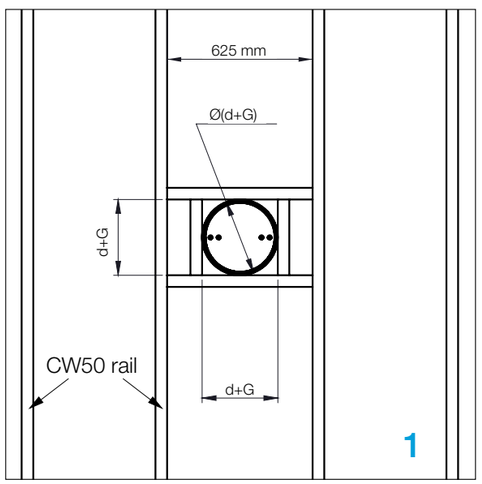


1. For fire dampers **Ød < 625 mm,** make a steel subframe according to drawing **(1)**. For fire dampers **Ød > 625 mm,** make a steel subframe according to drawing **(2)**. For installation in shaft walls without metal studs, make a steel subframe according to drawing **(3)**.
2. Place the fire damper in the opening. **Damper blade must be closed during installation!**
3. Insert fire damper into wall and fasten with screws (12pcs, 6x140 mm).

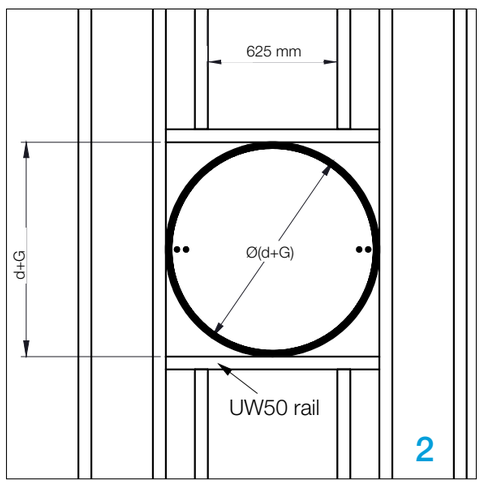
**Test the operation of the damper blade!**

* Dimension G depending of the damper type is:
G=10 mm for FDC25
G=25 mm for FDC40

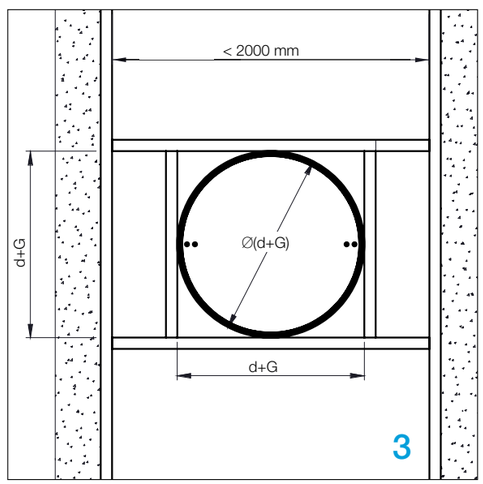
FDC-MF2 Fire damper **(Ød < 625 mm)** installation in 90 mm shaft wall with metal studs



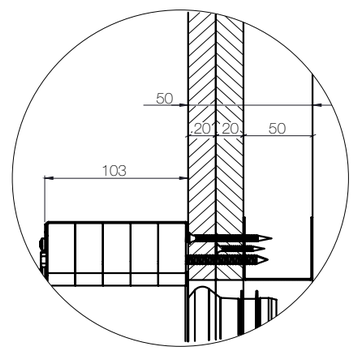

FDC-MF2 Fire damper **(Ød > 625 mm)** installation in 90 mm shaft wall with metal studs




FDC-MF2 Fire damper installation in 90 mm shaft wall without metal studs **(maximum wall width 2000 mm)**




FDC25, FDC40 - side cross section

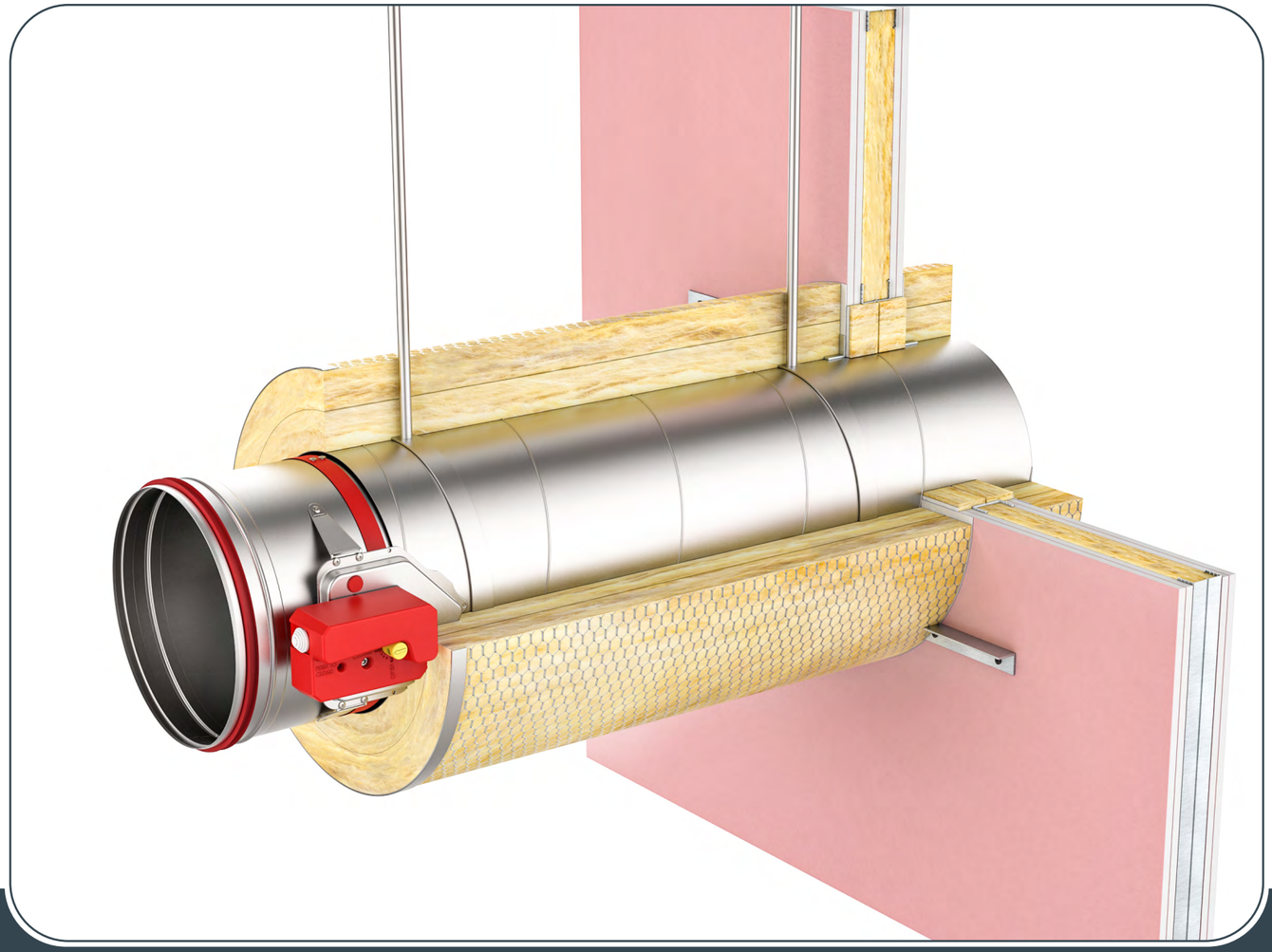


# Installation remote from flexible/rigid wall

**Flexible wall:** The wall is composed of 2x2 plasterboard boards, 12,5 mm thick, installed on a steel frame construction. To fulfill the classification it is **NOT** mandatory to use the mineral wool inside the wall (mineral wool with density up to 60 kg/m$^3$ can be used). The minimum thickness of the wall is 100 mm.

**Rigid wall:** The wall is composed of concrete blocks (minimum density of 550 kg/m$^3$) or reinforced concrete (minimum density of 2200 kg/m$^3$) and with a minimum thickness of 100 mm.

Technical drawing




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Possible damper orientations

0-360°



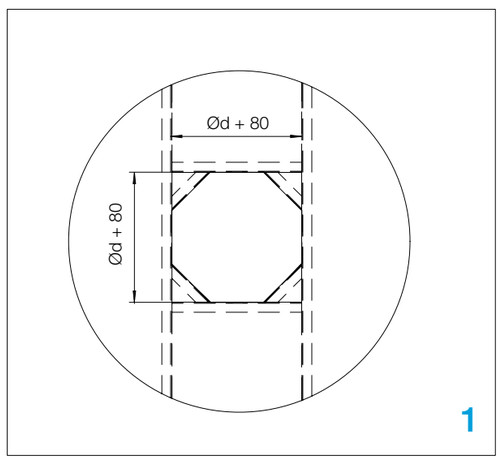
1. Place the damper in an opening according to the picture. Place ventilation duct trough wall (thickness of threaded rod for suspension should be M12 or more

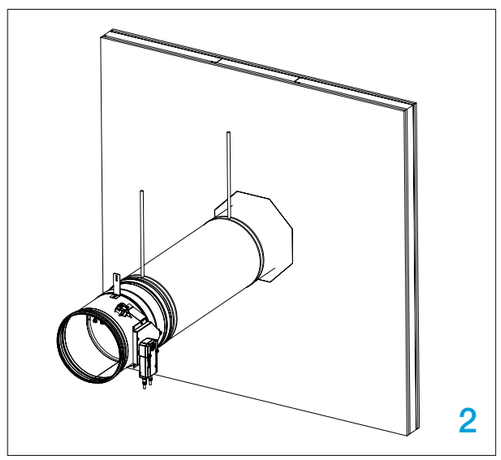
2. Install fire damper and secure it with self-tapping screws 4,3x10 to duct (every 300 mm). Fill space between duct and wall with mineral wool (Isover U protect, min. 80 mm thickness). Additionally paint wool with Isover BSF in thickness of 1 mm

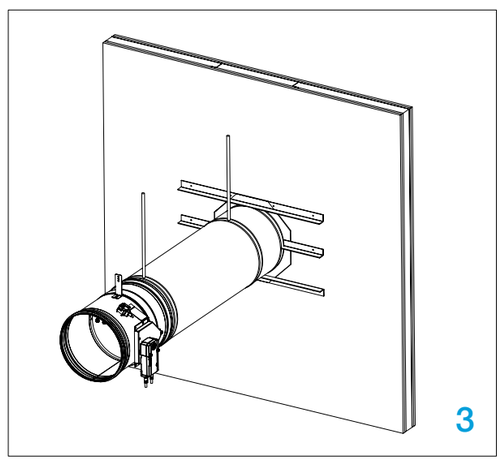
3. Close installation with L profiles 30x30x3 mm. Additionally fix profiles to duct with self-tapping screws, and screw them to wall with 4,5x50 screws with 200 mm distance between them. On connection wool-wall apply glue Isover BSK in thickness of 2 mm. Repeat the same procedure on the other side. Place the wool on ventilation duct in length of 80 mm

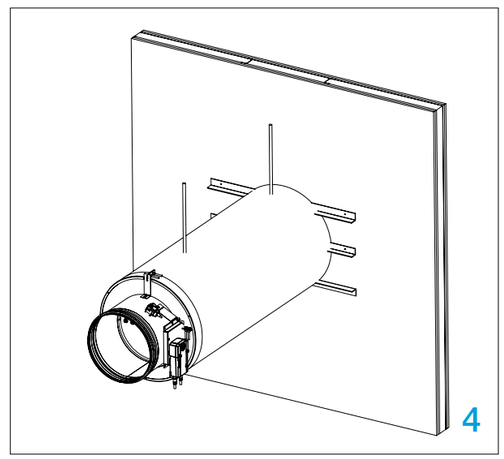
4. Place steel protection on place where insulation on damper ends (80x80 mm, 1 mm thick metal sheet cover)
**Damper blade must be closed during installation!**

**Test the operation of the damper blade!**



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# Minimal installation distances

- Material compliant with the classification from DOP
- Mineral wool 250 mm wide (140 kg/m$^3$)

**Damper blade must be closed during installation!**

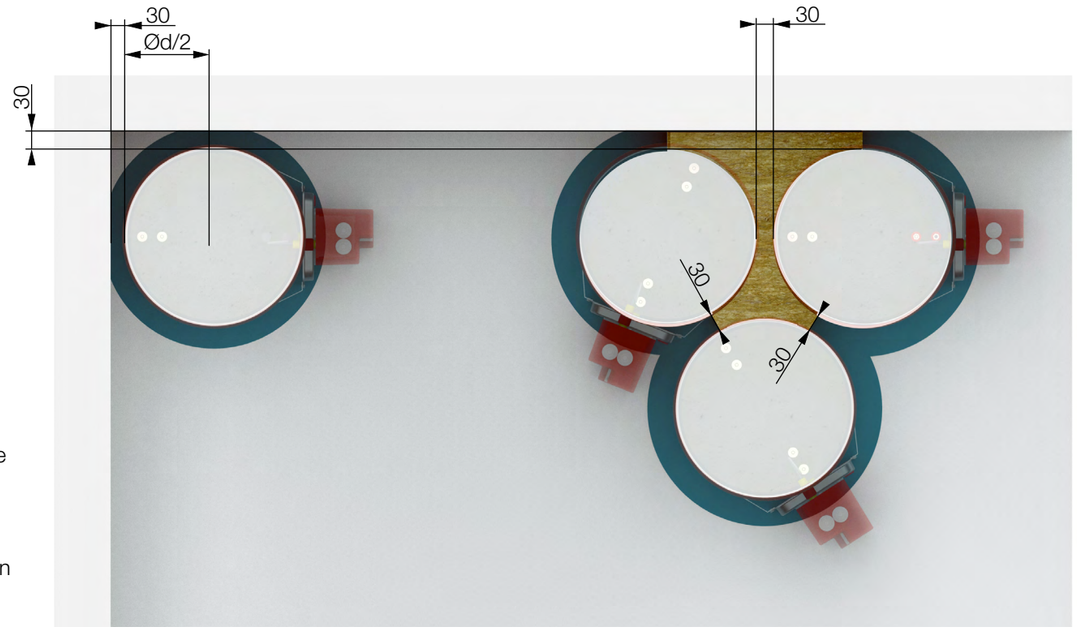
**Weichschott/Firebatt - Mineral wool**
1*. Prepare opening in the wall according to the installation type. (Weichschott/Firebatt installation- build the subframe according to the drawing, see page 39).

**Mortar - Gypsum blocks**
1. Prepare opening in the wall according to the page 14.
Fire damper can be installed with minimal distance of 30 mm between wall/ceiling and 30 mm from other dampers.

2. Insert the fire dampers into the wall and fill the space between the casings with mineral wool up to flanges.
Fill the space between the wall/ceiling with mineral wool up to flanges.

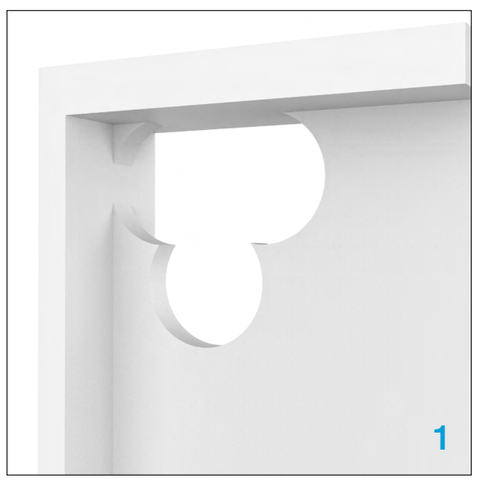
3. Fill the rest of the wall openings according to the type of installation in the DOP.

4. Complete the installation according to the DOP.




*Minimal distances from another damper or wall/ceiling.







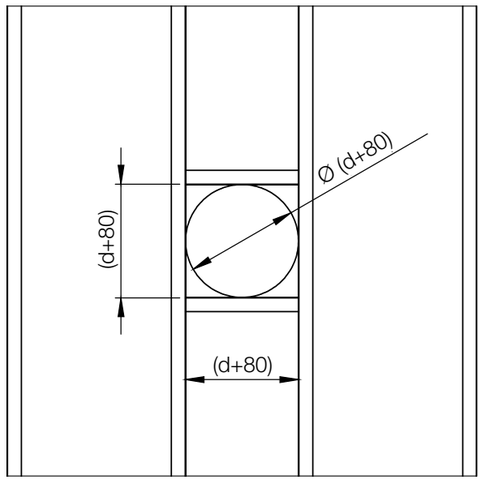




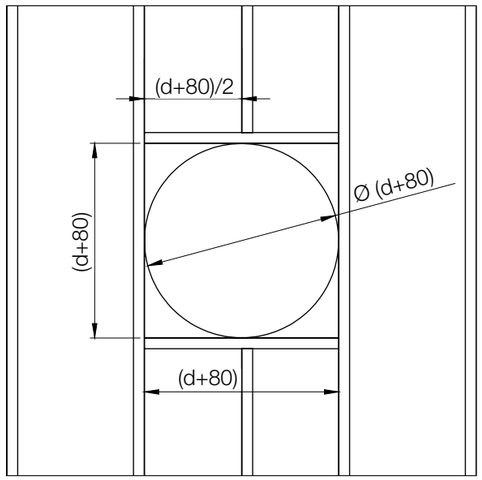

# Flexible wall subframe

When installing the fire dampers in the flexible walls it is necessary to make a metal subframe onto which the damper will be fixed with screws. Subframe should be prepared according to the drawings below.

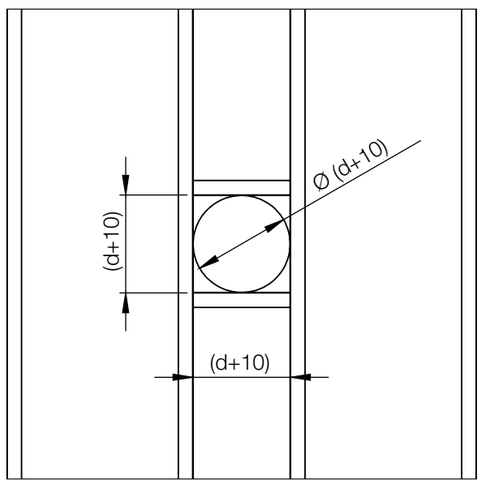
FDC25



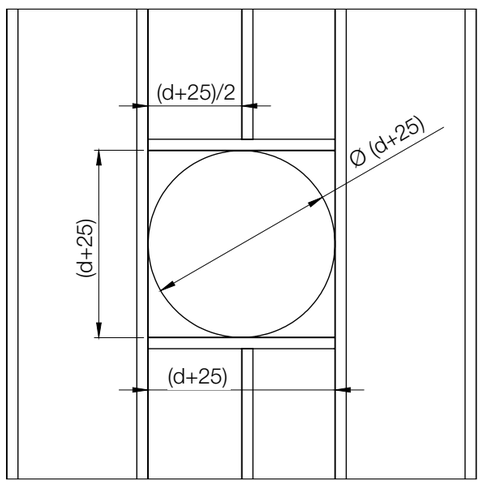

FDC40




FDC25-MF1/MF2




FDC40-MF2



# MANUAL ACTUATORS
R, R-S

Manual operating mechanism, optionally with end switches (R-S). In case of fire, the fire damper closes automatically.
Damper closing can be initiated either by thermal fuse melting, or by manual activation on the operating mechanism. Upon closure, damper blade is locked in closed position and can only be opened manually. Thermal fuse melting point is 72 °C.



**R25**
(up to d315)



**R40**
(d355 up to d800)


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**R25**

R25 manual actuator is installed on FDC25 fire dampers up to size d315. It is available in version with (R-S) and without (R) end switches. End switches and thermal fuse are easily replaceable and available as service parts. To upgrade to EMS , upgrade of R25 to R40 is required.

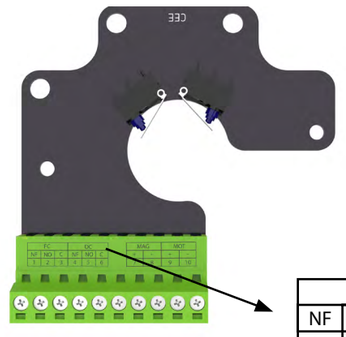
**R40**

R40 manual actuator is installed on FDC40 fire dampers up to size d800. It is available in version with (R-S) and without (R) end switches. IIn case remote activation is needed, R40 actuator is easily upgradeable to electromagnetic EMS-S actuator with installation of the electromagnet. End switches , thermal fuse and electromagnet are easily replaceable and available as service parts.

## Technical specifications

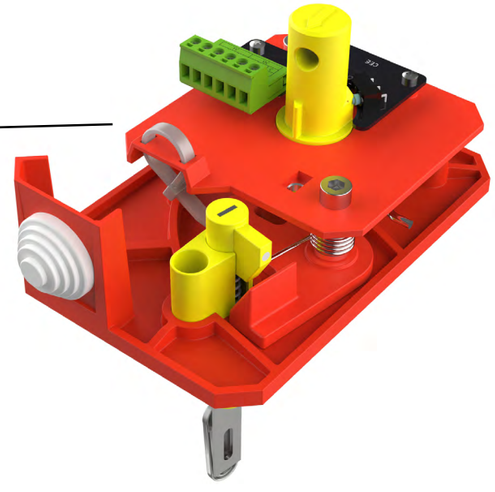
| | |
|---|---|
| Nominal voltage | N/A |
| Power | N/A |
| Switching capacity | 1 mA…500 mA, 5VDC…48 VDC |
| Blade closing time | Spring: 1 second |
| Blade opening time | Manual |
| Manual activation | Release button on the casing |
| Degree of protection | IP 42 |
| Ambient temperature range | min. -30 °C, max. 50 °C |
| Ambient humidity | 95% r.h., non-condensing |
| Service life | Min. 30,000 cycles |
| Maintenance | Maintenance-free |
| Weight R25/R40 | 0,5 kg / 1.7 kg |

## Wiring diagram



| FC | | | DC | | |
|---|---|---|---|---|---|
| NF | NO | C | NF | NO | C |
| 11 | 12 | 13 | 14 | 15 | 16 |

FC = Limit switch - end
DC = Limit switch - start
NO = normally open
NF = normally closed
C = common



# SOLENOID ACTUATOR
## EMS-S

Electromagnetic operating mechanism, comes with end switches as standard. In case of fire, the fire damper closes automatically. Damper closing can be initiated either by thermal fuse melting or remotely by triggering the electromagnet.
Electromagnet is constantly under power and activates closing of the damper blade in case the power cuts out. Upon closure, damper blade is locked in closed position and can only be opened manually. Thermal fuse melting point is 72 °C. EMS-S mechanism is the same for FDC25/FDC40 fire dampers.





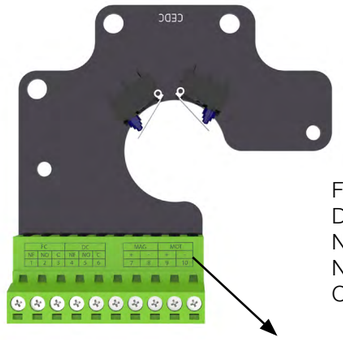
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## Technical specifications

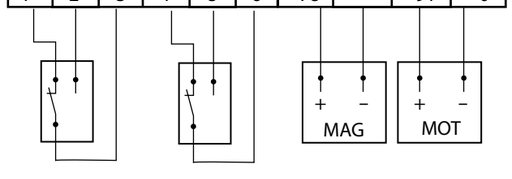
| | |
|---|---|
| Nominal voltage | Solenoid: 24/ 48 VDC |
| Power | Dual voltage SOLENOID: Break of current: Pnom = 1.6 W |
| Switching capacity | 1 mA…500 mA, 5 VDC…48 VDC |
| Blade closing time | Spring: 1 second |
| Blade opening time | Manual |
| Manual activation | Release button on the casing |
| Degree of protection | IP 42 |
| Ambient temperature range | min. -30 °C, max. 50 °C |
| Ambient humidity | 95% r.h., non-condensing |
| Service life | Min. 30,000 cycles |
| Maintenance | Maintenance-free |
| Weight | 2,2 kg |

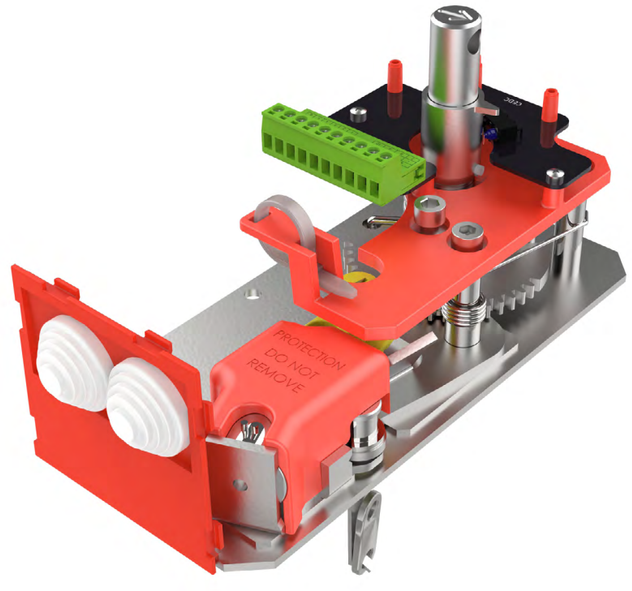
## Wiring diagram



FC = Limit switch - end
DC = Limit switch - start
NO = normally open
NF = normally closed
C = common

| FC | | | DC | | | MAG | | MOT | |
|---|---|---|---|---|---|---|---|---|---|
| NF | NO | C | NF | NO | C | ++ | -- | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 78 | | 91 | 0 |



# ELECTRIC ACTUATOR
## M24-S, M230-S, M24-S-ST

Damper is delivered in closed position. When electric actuator is connected to the power supply, damper blade will open. When the damper reaches the end position (damper open), the electro motor will stop. Closing fire damper takes place automatically when a power failure occurs. Thermal tripping device that comes with fire damper causes power circuit break at a temperature of 72 °C (optional 95 °C). If checking is needed for proper functioning of fire damper, pushing the switch on the thermal tripping device will close damper.





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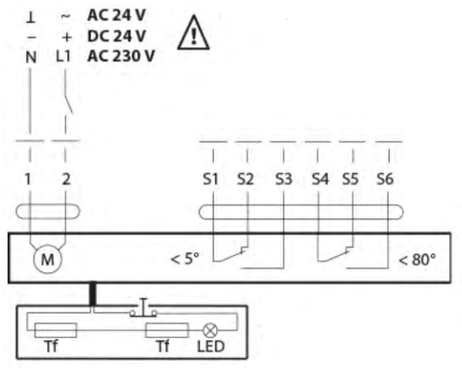

When switch on tripping device is released, the damper will open. Damper can be opened without connecting to a voltage with enclosed handle by turning it in the direction of the arrow on electric actuator (clockwise). Damper can be locked in the desired position by fast turning handle a quarter of a turn (counterclockwise) for Belimo BF, and by puling brake on Belimo BFL and BFN.

To unlock the electro motor, turn handle clockwise for a quarter of a turn for Belimo BF, or release brake for Belimo BFL and BFN. After release, damper will be closed by return spring. When damper is opened manually, electric actuator will not move the damper into closed position in case of power failure.

## Technical specifications

| Type of Belimo actuator | | BFL24-T | BFN24-T | BFL230-T | BFN230-T | BF24-T | BF230-T |
|---|---|---|---|---|---|---|---|
| Nominal voltage / power consumption | voltage | AC/DC 24 V, 50/60 Hz | AC 24 V, 50/60 Hz | AC 230 V, 50/60 Hz | AC 230 V, 50/60 Hz | AC/DC 24 V, 50/60 Hz | AC 230 V, 50/60 Hz |
| | opening | 2,5 W | 4 W | 3,5 W | 5 W | 7 W | 8.5 W |
| | holding | 0,8 W | 1,4 W | 1,1 W | 2,1 W | 2 W | 3 W |
| | for wire sizing | 4 VA | 6 VA | 6,5 VA | 10 VA | 10 VA | 11 VA |
| End switch | | 1 mA...3 A (0,5 A), DC 5 V... AC 250V | 1 mA...3 A (0.5 A), DC 5 V...AC 250 V | 1 mA...3 A (0.5 A), DC 5 V...AC 250 V | 1 mA...3 A (0.5 A), DC 5 V...AC 250 V | 1 mA...6 A (3 A), DC 5 V... AC 250 V | 1 mA...3 A (0.5 A), DC 5 V...AC 250 V |
| Running time | motor | < 60 s | < 60 s | < 60 s | < 60 s | < 120 s | < 120 s |
| | spring return | ~20 s | ~20 s | ~20 s | ~20 s | ~16 s | ~16 s |
| Ambient temperature range | | min. -30 °C, max. 50 °C | | | | | |

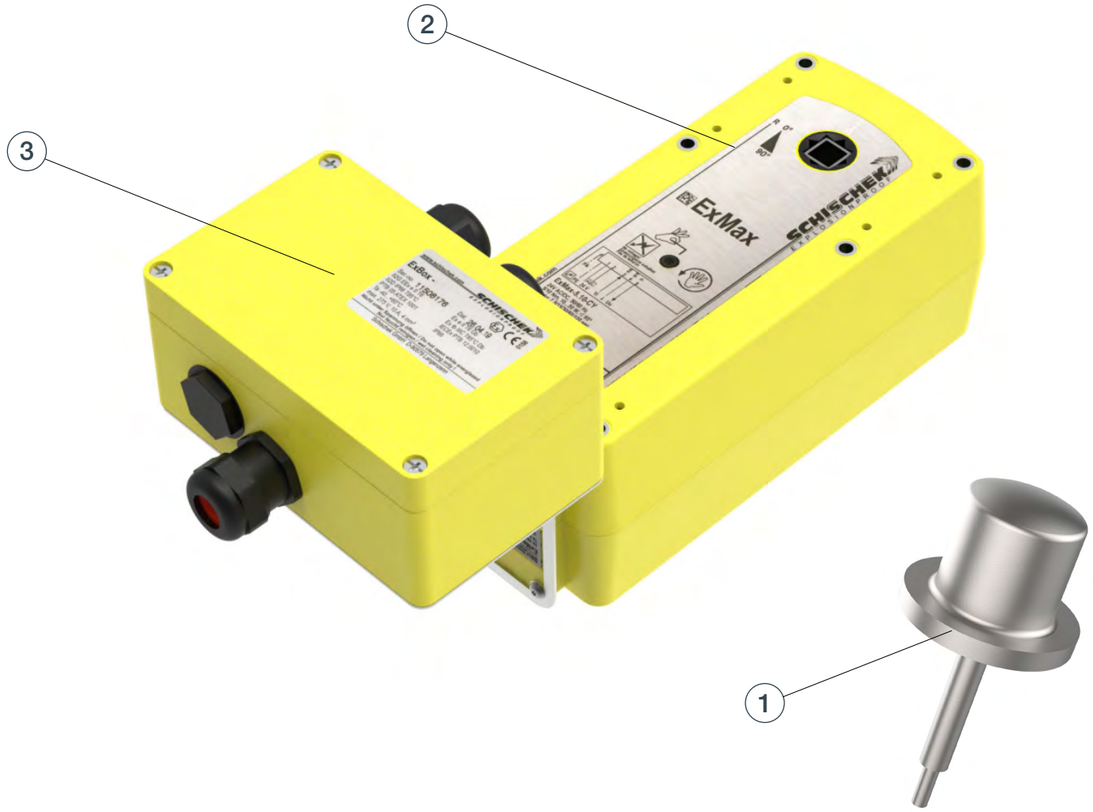
## Wiring diagram




| | |
|---|---|
| 1 | negative (direct-current) or neutral (alternating current) |
| 2 | positive (direct-current) or faze (alternating current) |
| S1 | common micro switch closed damper |
| S2 | normally closed micro switch closed damper |
| S3 | normally open micro switch closed damper |
| S4 | common micro switch open damper |
| S5 | normally closed micro switch open damper |
| S6 | normally open micro switch open damper |
| Tf | temperature sensor on the outer side of the duct (ambient temperature) max. 72 °C |

# ELECTRIC ACTUATOR
## SCHISCHEK ExMax

Damper is delivered in closed position. When electric actuator is connected to the power supply damper will open. When the damper reaches the end position(damper open), in which is it blocked, the electric actuator will stop. Closing fire damper takes place automatically when a power failure occurs. Thermal tripping device that comes with fire damper causes power circuit break at a temperature of 72 °C (inside or outside duct). If checking is needed for proper functioning of fire damper, pushing the switch on the thermal tripping device will close damper. When switch on tripping device is released, the damper will open.





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Damper can be opened without connecting to a voltage with enclosed Allen key, by turning in the direction of the arrow on electric actuator (clockwise). After release of Allen key, damper will go to closed position.

1) Tecnical documentation Safety temperature trigger Schischek ExPro-TT

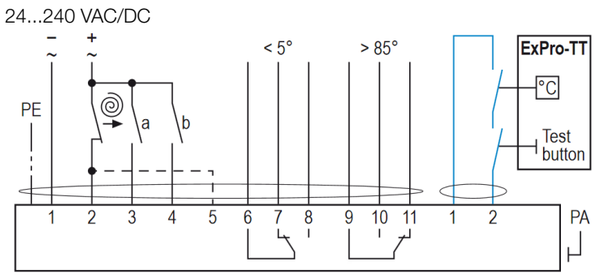
2) Tecnical documentation electric actuator Schischek ExMax-5.10-BF

3) Tecnical documentation Ex-e terminal box ExBox-BF

## Technical specifications

| | |
|---|---|
| Type | ExMax -5.10-BF |
| Torque | 5/10 Nm |
| Power Supply | 24-230 V AC/DC |
| Running time | 3/15/30/60/120 s / 90° |
| Spring return | 3 or 10s / 90° |
| Control mode | On-Off, 3 position |
| Feedback | 2 x aux switches + Ex. tripping device |
| Ambient temperature range | min. -40 °C, max. 40 °C |
| Ambient humidity | 0-90% r.h., non-condensing |
| Service life | Min. 10,000 cycles @ 10 s, min 1000 cycles @ 1s |
| Maintenance | Maintenance-free |
| Weight | 3,5 kg |

## Wiring diagram

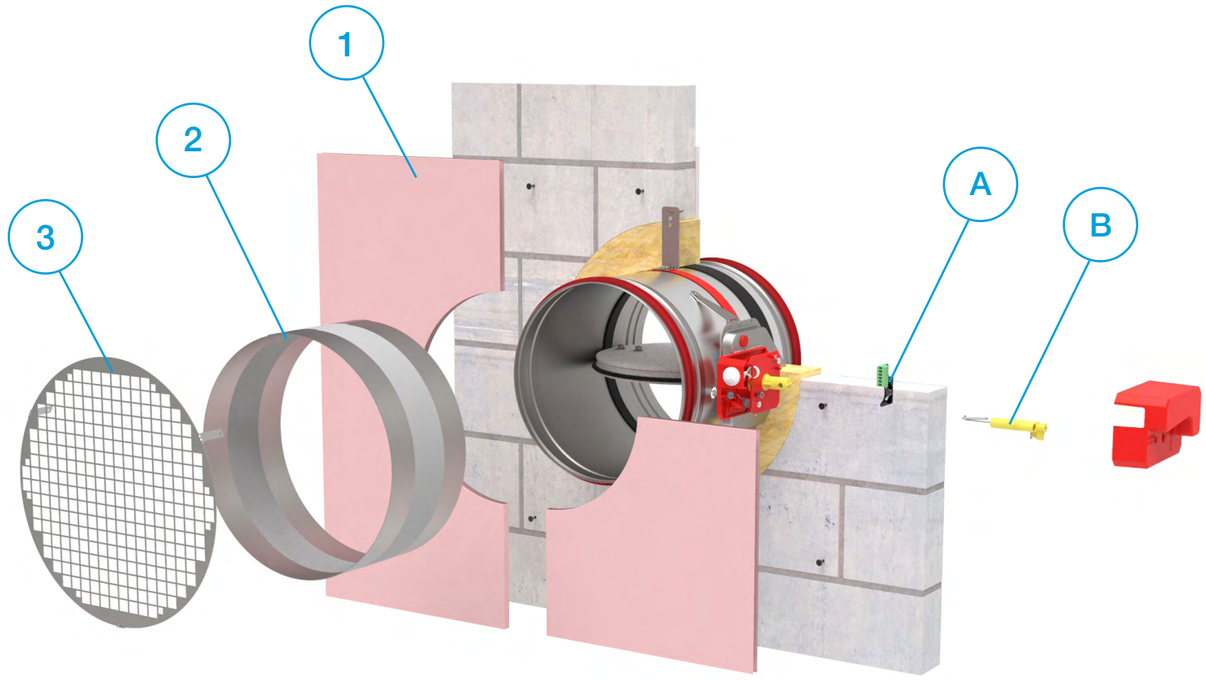


# ACCESSORIES

1 GKF boards GKF boards are used in dry and wet installations as wool or mortar cover. It keeps the installation material in place and provides for better fire penetration characteristics of the whole installation. Kit dimensions- Ø + 300 mm.

2 Flexible duct connections - Flexible duct connectors are used in HVAC systems for isolation from structure-borne noise, expansion compensation and fire damper connections (total length 150mm, flexible 60mm).

3 Safety grilles - Fire damper, safety grille and, if applicable, extension piece are assembled at the factory to form a unit. The free cross sectional area of the cover grille is approx. 70%.




| (1) Type | (2) Accessories | (3) Dimension |
|---|---|---|
| **FD-A** | **- CSP -** | **d100** |

(1) **FD-A** - Accessories for round fire damper

(2) **CSP** - GKF boards kit (for both sides of the installation)
**FLEX** - Flexible duct connections (1pc)
**SG1** - Safety grill on operation side
**SG2** - Safety grill on installation side

(3) d100...d800 nominal diameter of the round fire damper

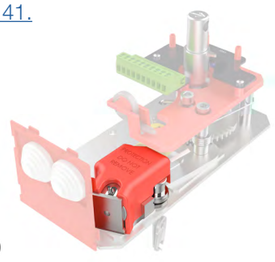

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For safety reasons, parts need to be changed by a trained personnel or the manufacturer.
**WARNING! Install the original parts only!**

- A Double contact S kit (CEE board) FD-A-R25S-KIT
- A*Double contact S kit (CEDC board) FD-A-R40S-KIT see page 41.
- B Fuse kit FD-A-THERM-72
- C Solenoid current emission kit FD-A-EMS-KIT
- D Inspection hatch FDC-A-IH
- E Communication module bracket FD-A-CMB
- F Belimo thermal fuse 72 °C FD-A-BAT72
- G Belimo thermal fuse 95 °C FD-A-BAT95
- H Thermal fuse blanking plate FD-BP-KIT
- I Kit A FDC-A-KIT-A Upgrade to electric actuator (Belimo BFL)
- J Kit B FDC-A-KIT-B Upgrade to electric actuator (Belimo BFN)
- K Kit C FD-A-KIT-C- upgrade to electric actuator (Belimo BF)
- L R40 manual mechanism FD-A-R40 see page 40.
- M Smoke sensor see page 45.

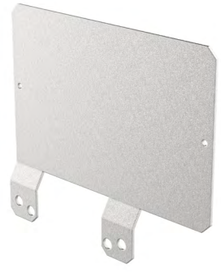
C



D



E



F



G



H



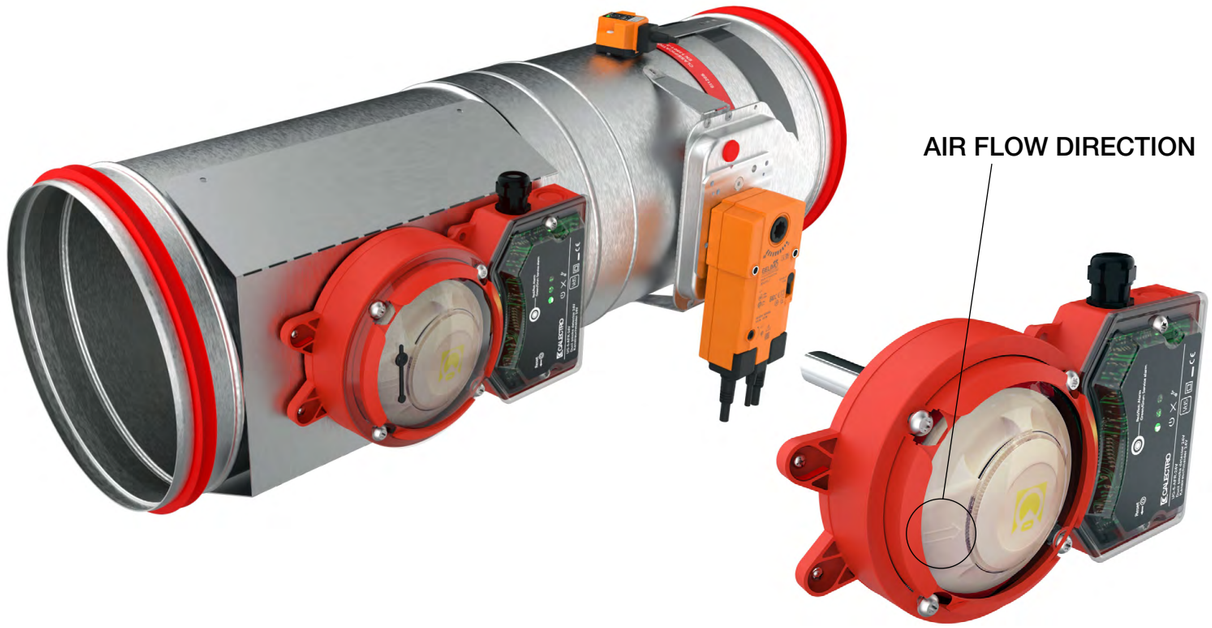
# SMOKE SENSOR ASSEMBLY FDC-SSA

Smoke sensor assembly is developed to detect smoke in ventilation ducts and combines a smoke detector and an adaptor system where both tube and housing are specially designed for optimum airflow through the smoke detector. Smoke sensor provides the signal for the fire damper which is activated when smoke is detected. Smoke sensor assembly consists of casing (length: FDC25=380 mm, FDC40=390 mm), smoke sensor and specially designed venturi pipe inside the duct.

For proper functioning of the smoke sensor (as it is physically connected as in the render above) a straight length of 5 times hydraulic diameter, in the size of the connecting duct, should be in front of the sensor. When the sensor is installed separate from the fire damper there are two conditions to be met:

1) Length of 5 times hydraulic diameter, in the size of the connecting duct, should be in front of the sensor.

2) Length of 3 times hydraulic diameter, in the size of the connecting duct, should be after the sensor.




| (1) Type | (2) Accessories | (3) Dimension | (4) Voltage |
|---|---|---|---|
| **FDC-A** - | **SSA** | - **d100** | - **24** |

(1) **FDC-A** - Accessories for round fire damper

(2) **SSA** - Smoke sensor assembly

(3) d100...d800 nominal diameter of the round fire damper

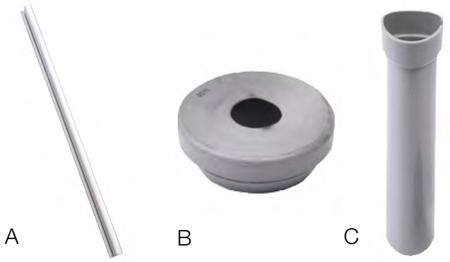
(4) **24** - Smoke sensor 24 V
**230** - Smoke sensor 230 V


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## Spare parts

Smoke sensor FD-A-UG-5-AFR-24V
Smoke sensor FD-A-UG-5-AFR-230V
A Sampling tube FD-A-ST5
B Rubber gasket FD-A-HFU204
C Isolation extension FD-A-HFU500



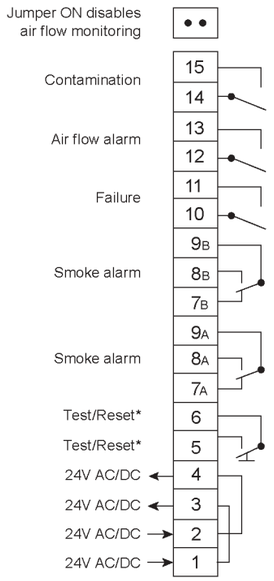

For more information, visit website:
Technical documentation Calectro

## Technical specifications

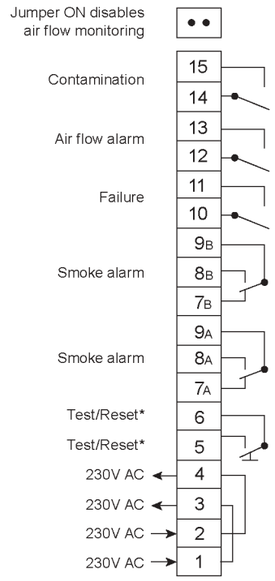
| | FDC-A-UG-5-AFR-24V | FDC-A-UG-5-AFR-230V |
|---|---|---|
| Voltage Supply | 24V AC/DC -15%, +10%<br>Not polarity sensitive | 230V AC -15%, +10%<br>Not polarity sensitive |
| Detector type | Optical UG-5-AFR-24V | Optical UG-5-AFR-230V |
| Max. power consumption | 220 mA | 30 mA |
| Operating temperature | -10°C to +55°C | |
| Maximum humidity | 99% rH | |
| Duct air velocity range | 1 to 20 m/s | |
| Approvals | VdS CE, EN-54-27 | |
| Relay output | Potential free | |
| Smoke alarm relays | Two changing contacts 250V, 8A | |
| Service alarm | One breaking contact 250V, 5A | |
| System error alarm | One breaking contact 250V, 5A | |
| Low Flow alarm: | One breaking contact 250V, 5A | |
| LED on smoke detector: | Green - service alarm (contamination)<br>Red - smoke alarm | |
| LED on PCB: | Green - normal operation<br>Yellow - system error<br>Yellow - Low-Flow | |

## Wiring diagram

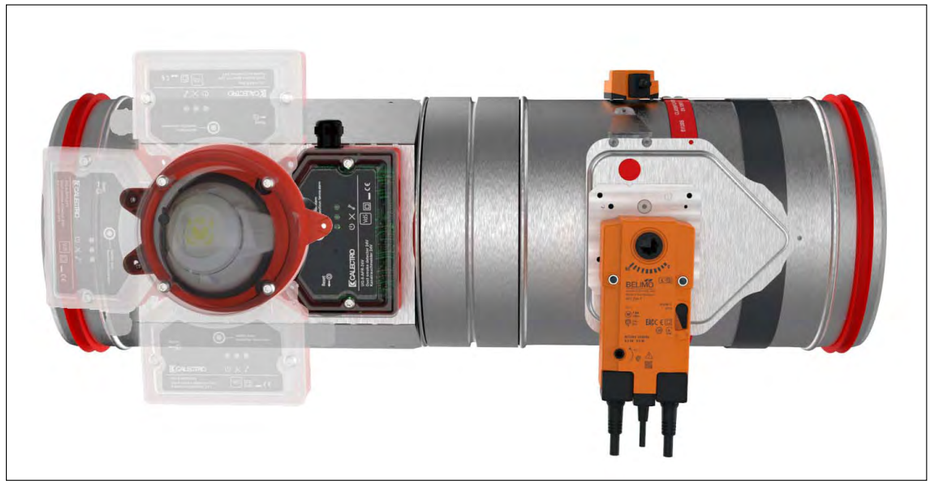
**FDC-A-UG-5-AFR-24V**




**FDC-A-UG-5-AFR-230V**



# SMOKE SENSOR CASING ROTATION



Smoke sensor casing can be rotated (90°-180°-270°) in order to provide better flexibility for wiring.
To rotate smoke sensor casing, follow the below instructions.

1. Follow first step of **smoke sensor rotation**: locate and re move hex screws.
2. Rotate the smoke sensor casing (90° -180° -270°).
3. Fix the screws following the fourth step of **smoke sensor rotation**.

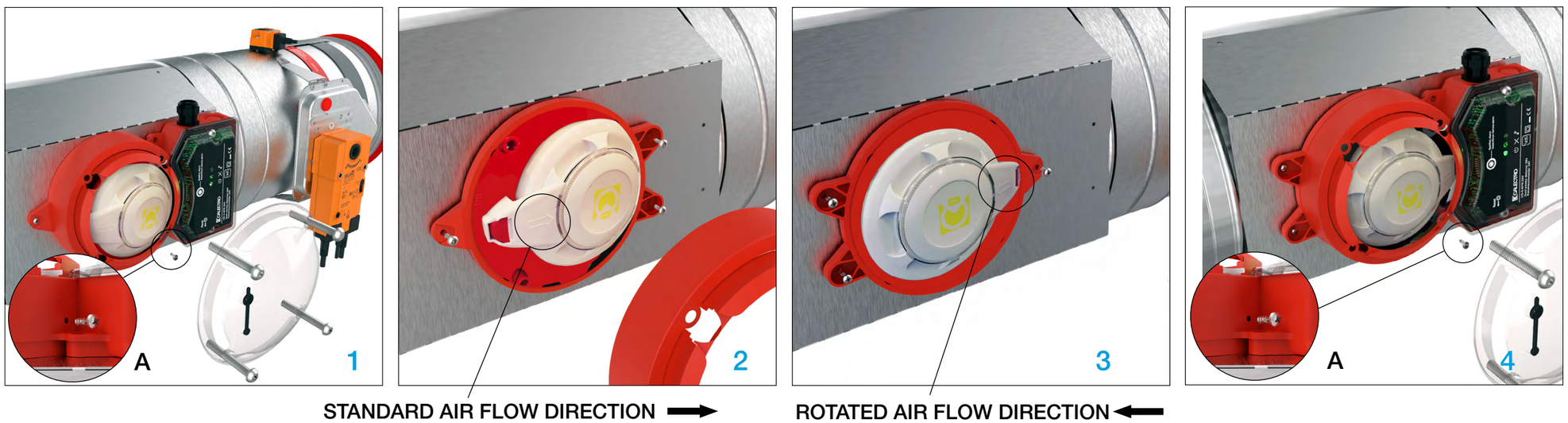

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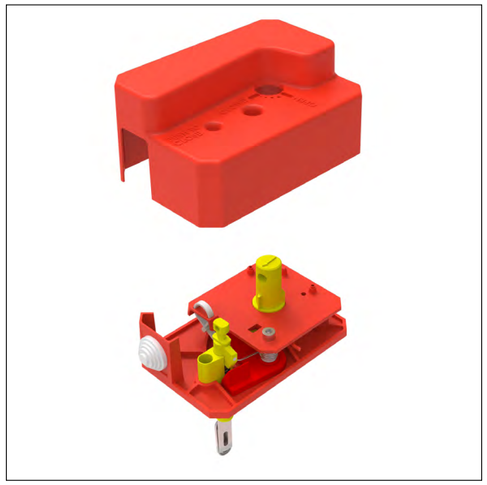

# SMOKE SENSOR ROTATION

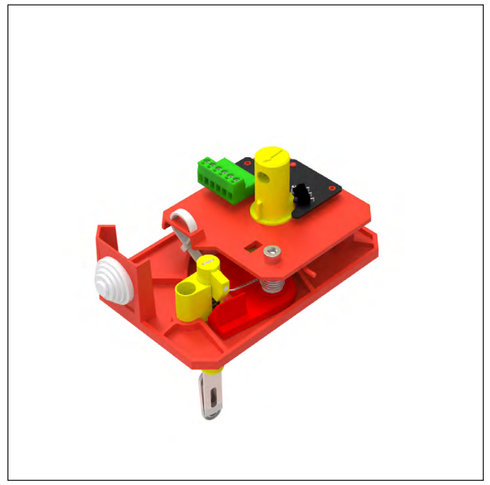
Smoke sensor assembly is supplied with standard airflow direction. *If you rotate the smoke sensor, the distance of 5 times the hydraulic duct diameter should be left before the sensor!

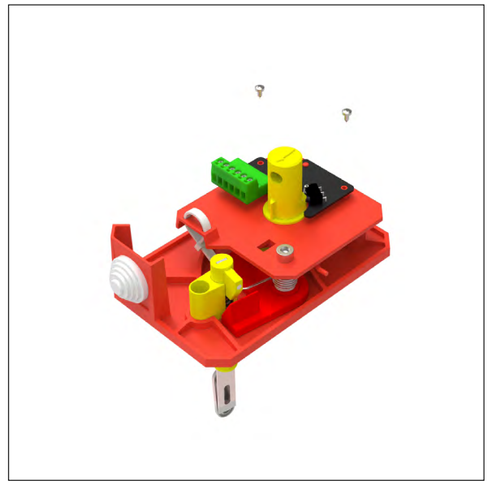
1. Locate hex screws, unscrew them and remove the cover.
**Pay attention to detail A!**
2. Remove the casing, locate the screws and remove them.
3. Rotate smoke senzor (0° -180°) according to air flow direction and fix it with screws.
4. Put the casing back and install the cover. **Pay attention to detail A!**



# UPGRADE TO END CONTACTS (R25 → R25-S)

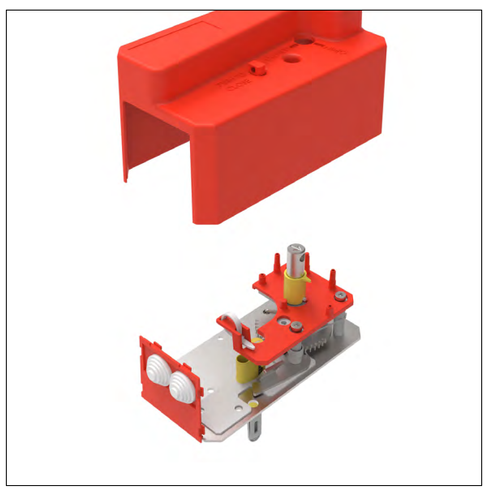


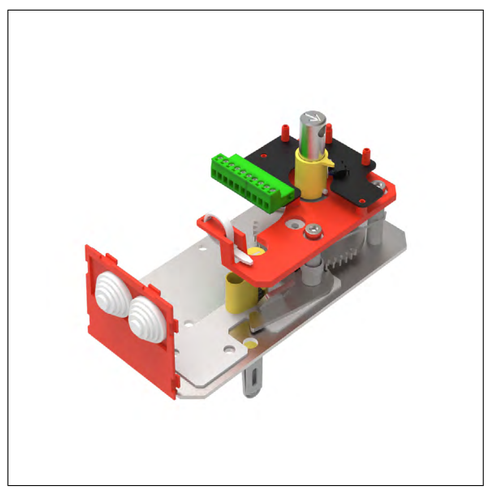


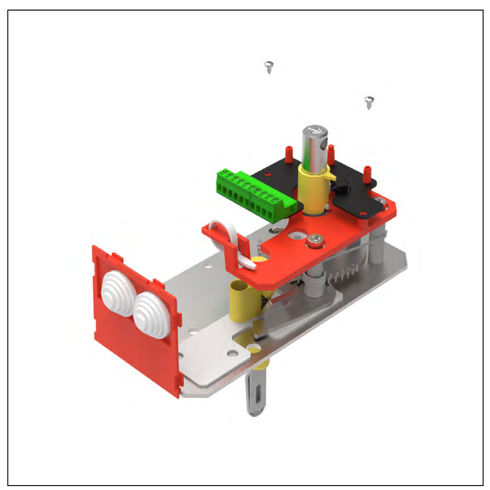




# UPGRADE TO END CONTACTS (R40 → R40-S)







Video instructions

1. Locate hex screw, unscrew it and remove the cover.
2. Insert CEE (R25)/CEDC (R40) board in the appropriate place.
3. Screw the board to the plate. Put the cover back in place!

# UPGRADE FROM MANUAL (R40-S) TO EMS

Before upgrade R40 to EMS, it is necessary to install kit for end contacts (FD-A-R40S-KIT).
Before upgrade R25/RS25-S to EMS, it is necessary to install R40 mechanism (FD-A-R40) and kit for end contacts (FD-A-R40S-KIT).
To upgrade to EMS you need to use the EMS kit!

**Service work may only be performed by authorized persons!**

Video instructions






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1. Locate hex screw. Unscrew it and remove the cover.

2. Insert the EMS on the custom plate.

3. Screw the EMS to the plate and connect the 2-pin connector into the appropriate socket on the CEDC board.

4. Put the cover back in place.

**Test the operation of the damper blade!**


1


2

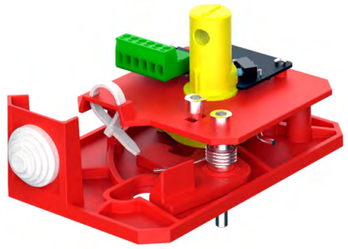

3


4

# REPLACEMENT OF THERMAL FUSE (R25)







Video instructions


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1. Locate the hex screw on the cover, unscrew it and remove the screw and cover.

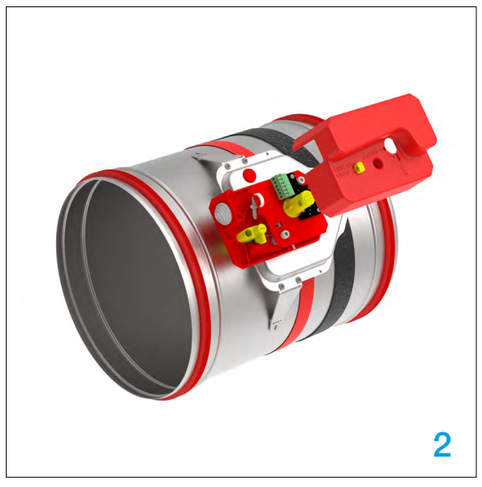
2. Locate the hex screw on the thermal fuse and unscrew it.

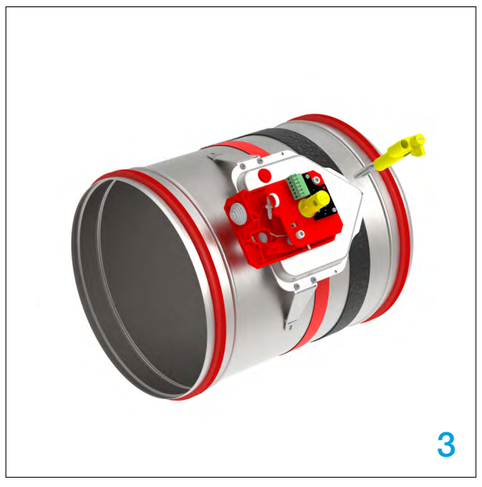
3. Remove the old thermal fuse. Insert the new thermal fuse and secure it.

4. Put the lid back on.

**Test the operation of the damper blade!**

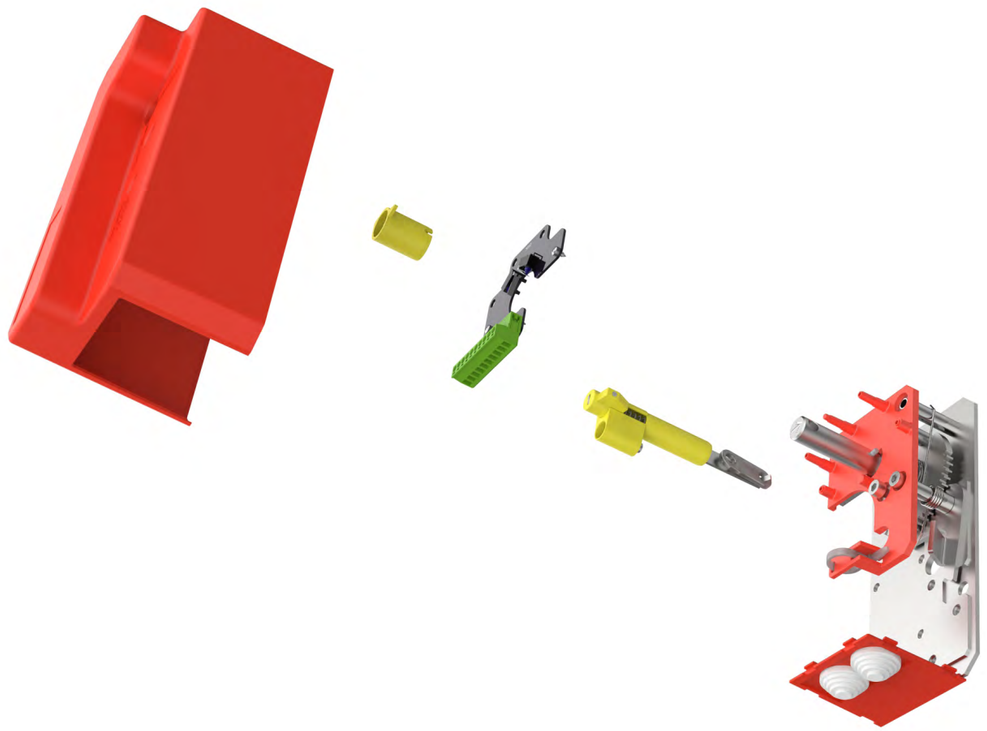





# REPLACEMENT OF THERMAL FUSE (R40)




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Video instructions



1. Find the hex screw located on the cover, unscrew and remove the screw and the cover.

2. Remove the position indicator sleeve.

3. Locate the 3 hex screws. Unscrew them. Remove the CEDC board (if applicable).

4. Locate the screw on the thermal fuse. Unscrew it. Remove the old thermal fuse. Insert a new thermal fuse.
Put the CEDC board and the cover back in place.

**Test the operation of the damper blade!**


1


2


3


4

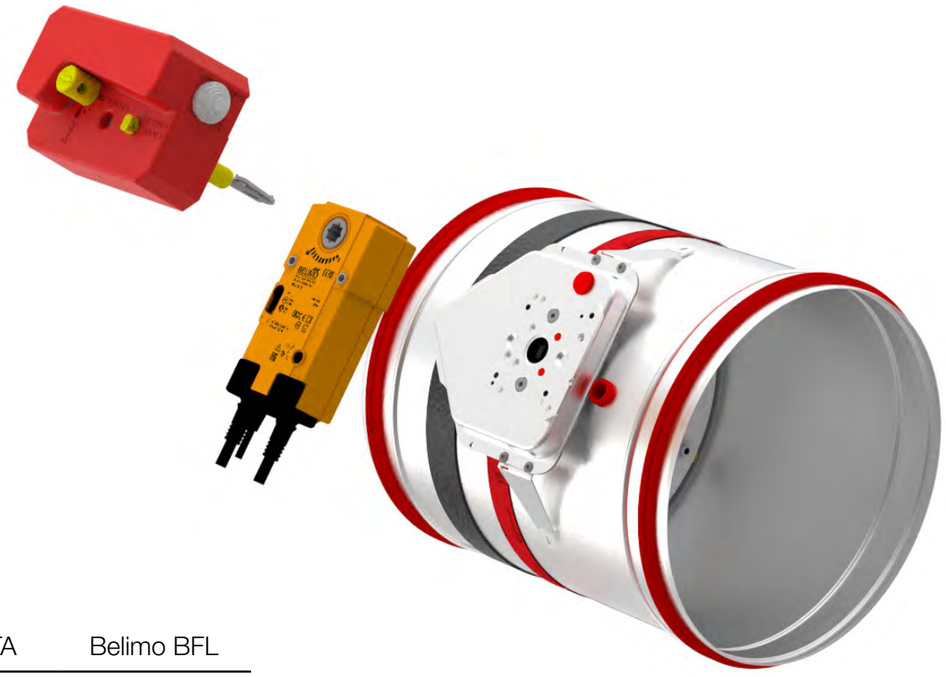
# UPGRADE TO ELECTRIC ACTUATOR

## Manual
## R25 <-> Belimo

**d100-d315**
The blade must be closed before replacement the mechanism.

**Service work may only be performed by authorized persons!**

Video instructions



| | |
|---|---|
| FD-A-KTA | Belimo BFL |
| FD-A-KTB | Belimo BFN |
| FD-A-KTC | Belimo BF |


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**NOTE:** Use kit according to table (upgrade to electric actuator)!

* Find the screw and remove the cover!

1. Find the 2 hex screws located on the board of mechanism, unscrew them and remove manual mechanism.

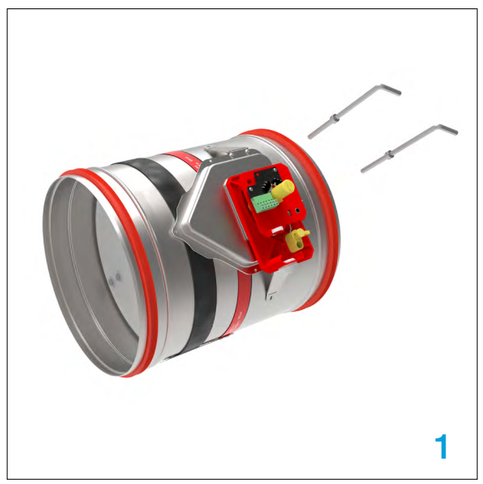
2. Find the 2 hex screws located on the transition board (B), unscrew them and replace FA transition plate (A) with BE transition plate.

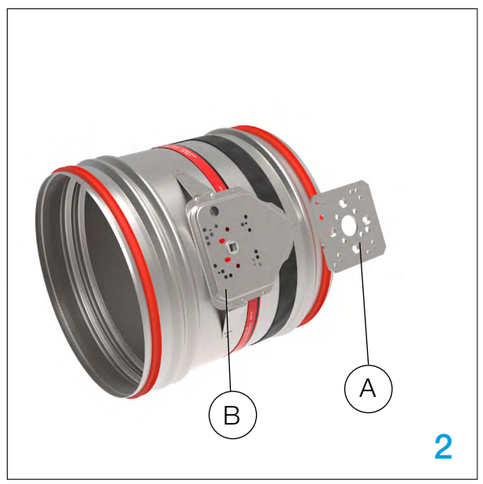
**NOTE:** Pay attention to the position of indication cut on the BE transition plate.

3. Insert the rubber plug into the opening for the thermal fuse. Install the Belimo actuator and fasten it with screws (2 hexagon screws M6x55).

4. Drill hole (ø16 mm) for the fuse of Belimo mechanism and fix it with self-tapping screws. **NOTE**: Install the thermal fuse in a place where it will not interfere with the operation of the damper blade!

**Test the operation of the damper blade!**


1



2


3


4

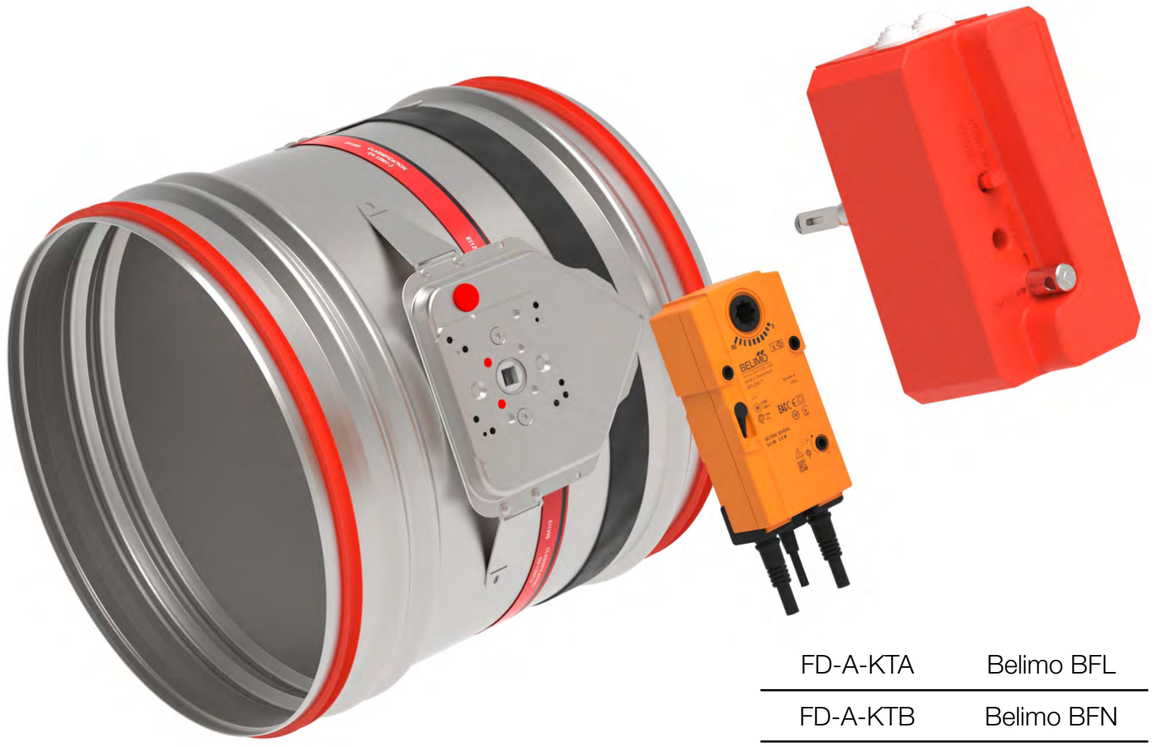
# UPGRADE TO ELECTRIC ACTUATOR

## R40 <-> Belimo

**d355-d800**
The blade must be closed before replacement the mechanism.

**Service work may only be performed by authorized persons!**

Video instructions



| | |
|---|---|
| FD-A-KTA | Belimo BFL |
| FD-A-KTB | Belimo BFN |
| FD-A-KTC | Belimo BF |


- PRODUCT OVERVIEW
- DIMENSIONS
- INSTALLATIONS
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- ACCESSORIES
- REPLACEMENTS
- MAINTENANCE AND OPERATION




**NOTE:** Use kit according to table (upgrade to electric actuator)!
* Find the screw and remove the cover!

1. Find the 3 hex screws located on the board of mechanism, unscrew them and remove manual mechanism.

2. Find the 2 hex screws located on the transition board (B), unscrew them and replace FA transition plate (A) with BE transition plate.
**NOTE**: Pay attention to the position of indication cut on the BE transition plate.

3. Insert the rubber plug into the opening for the thermal fuse. Install the Belimo actuator and fasten it with screws (2 hexagon screws M6x55).

4. Drill hole (ø16 mm) for the fuse of Belimo mechanism and fix it with self-tapping screws.

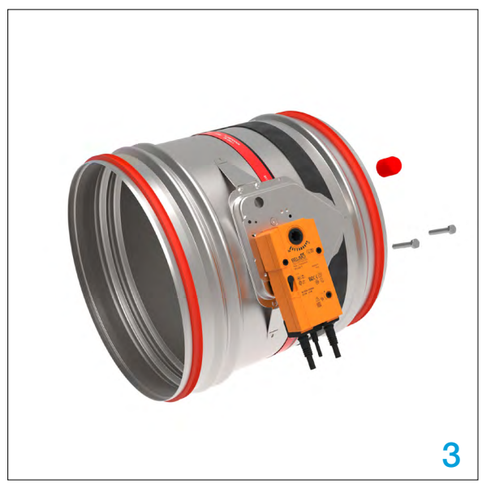
**NOTE**: Install the thermal fuse in a place where it will not interfere with the operation of the damper blade!

**Test the operation of the damper blade!**


1



2


3


4

# HOW TO ROTATE ELECTRIC ACTUATOR

## (Belimo)

**d100-d800**
The blade must be closed before replacement the mechanism.




- PRODUCT OVERVIEW
- DIMENSIONS
- INSTALLATIONS
- ACTUATORS
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1. Locate the 2 hex screws, unscrew and remove them.

2. Remove the Belimo electric actuator.

3. Find the 2 hex screws located on the transition board (B), unscrew them and rotate BE transition plate (A) 90°.
**NOTE**: The direction of rotation of BE transition plate and the electric actuator must be the same!

4. Fix the transition plate to the transition board and install the Belimo actuator.

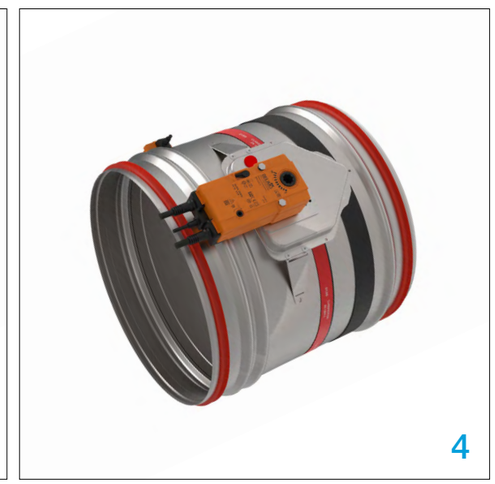
**Test the operation of the damper blade!**












- PRODUCT OVERVIEW
- DIMENSIONS
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# TRANSPORT

After arrival, check the fire damper for transport damage and shortcomings. In case of any damage or shortcomings, immediately contact your supplier.

# STORAGE

If the damper is not installed immediately:

- Remove any wrapping.
- Protect fire damper from dust and contamination.
- Do not expose the fire damper to the effects of weather - store fire damper in dry place.
- Do not store the unit below -20 °C or above 50 °C.

Please properly dispose of packaging material.

# MAINTENANCE AND OPERATION

Fire dampers are designed with fully enclosed drive mechanism outside of the duct and as such do not require cleaning and regular maintenance.
However, activation mechanism should be inspected for proper operation on regular basis.

- Provide at least one annual check of the damper
- After each intervention, provide a systematic cleaning of dust and especially the solenoid and its movable plate
- Check the if the electrical terminals are tightened
- Cleaning instruction: clean with a sponge, with water or a mild detergent
- Disinfection instruction: spray disinfectant (desinfectant may contain alcohol which is flammable, take precaution to avoid ignition)

It is not permitted to alter the dampers in any way nor perform any changes to their structure (except for the service procedures described in this manual) without the manufacturer's consent. Provide at least one annual check of the damper. The functional test must be carried out in compliance with the basic maintenance principles of the European norms EN 13306, EN 15423 and EN15650.

# COMMISSIONING

- Carefully unpack FDC fire damper - be careful of sharp edges and do not use excessive force for unpacking
- Inspect the fire damper - check the fire damper for damage
- Installation of the fire damper - according to the installation instructions (page 14.).
- Before commissioning: check the fire damper functions.

# FUNCTIONS

- Release mechanism:
  Damper blade can be closed and opened manually
- 2) EMS:
  Signal testing - the damper blade must close
- 3) Electric actuator:
  Signal testing - the damper blade must close/open
- 4) Thermal fuse:
  By a button - the damper blade must be closed by pressing the button

# FIRE DAMPER - FDC

Projektiranje, proizvodnja i održavanje opreme za klimatizaciju, ventilaciju i čiste prostore.
Design, production and service of Ventilation, Air-Conditioning and Cleanroom equipment.


Gradna 78A, 10430 Samobor, Croazia
+385 (0)1 33 62 513
info@klimaoprema.com
www.klimaoprema.com