mercor®

# FIRE VENTILATION SYSTEMS

## FIRE DAMPERS AND FIRE VALVES

# mcr FID S/S c/P | Low-resistance single-blade cut-off fire dampers for comfort ventilation systems

downloadable models
on the website
under the designer zone tab

1396-CPR-0114
1488-CPR-0203/W

HYGIENIC CERTIFICATE

» **EIS120**
» Fire resistance class: EI120 ($v_e$ $h_o$ i↔o)S.
» Certificate of constancy of performance 1396-CPR-0114.
» Dampers certified for compliance with EN 15650.
» Dampers qualified under EN 13501-3 and tested under EN 1366-2.
» Cut-off dampers with a fire resistance rating independent of the airflow direction and installation side.
» Lower acoustic noise and hydraulic resistance in the system achieved by reducing damper blade thickness.
» Admissible for operation with a horizontal and vertical rotation axis.
» Certified installation of the damper in close proximity to each other and the ceiling.
» Pressure difference range: 2000 Pa.
» KTB ATEX 2014/34/UE

## 2.1| Application

mcr FID S/S c/P low-resistance cut-off dampers are designed for installation in general ventilation systems at installation passages through vertical and horizontal construction partitions. These dampers are intended, for example, for applications in systems with increased acoustic requirements.
During a fire, they preserve the fire resistance rating of the construction partition that the ventilation and air conditioning ducts are routed through. Furthermore, they prevent the spreading of fire, smoke and fire gasses to the remaining part of the building which is not on fire. During normal system operation, the damper blade is open. In case of fire, the damper blade closes.
The dampers cannot be operated in systems exposed to dust, unless included in a special, individually developed service and technical inspections programme. Admissible flow velocity in the connected duct is 12 m/s.
In the version designed for explosion hazard zones (EX version), the dampers can be operated in gas explosion hazard zone 1 inside and outside ventilation ducts and in dust explosion hazard zone 21 outside these ducts. The dampers have been certified in compliance with the ATEX directive 94/9/EC and meet the requirements of group II category 2G and 2D:
» II 2G Ex h IIC T6...T5 Gb
» II 2D Ex h IIIC T72...95°C Db
Ambient temperature: Ta: -20°... +50°C

## 2.2| Design

# mcr FID S/S c/P | Low-resistance single-blade cut-off fire dampers for comfort ventilation systems

mcr FID S/S c/P cut-off fire dampers consist of a casing with a rectangular cross-section, a moving damper blade and a trigger control mechanism, which is activated remotely or automatically when the thermal or thermoelectric trigger is tripped. Standard damper casing is made of galvanized steel sheets (Zn 275 g/m² coating). A special casing is used for chemically aggressive environments, which features steel elements made of 1.4404 acid-proof steel sheet, while other elements are impregnated.
The casing total length is at least 296 mm. In the middle part, where the damper blade is placed, the casing is perforated with a perforation width of 30 mm. An intumescent gasket is placed on the inner side of the casing, around the closed damper blade. The damper blade is made of a fire-proof panel with a total thickness of 30 mm.
The damper blade is embedded in a metal sheet reinforcement profile. The inner surface is equipped with a „P"-type ventilation gasket, which ensures the tightness of dampers at ambient temperature. Both ends of the fire damper casing are terminated with flange connections.

## 2.3 | Versions

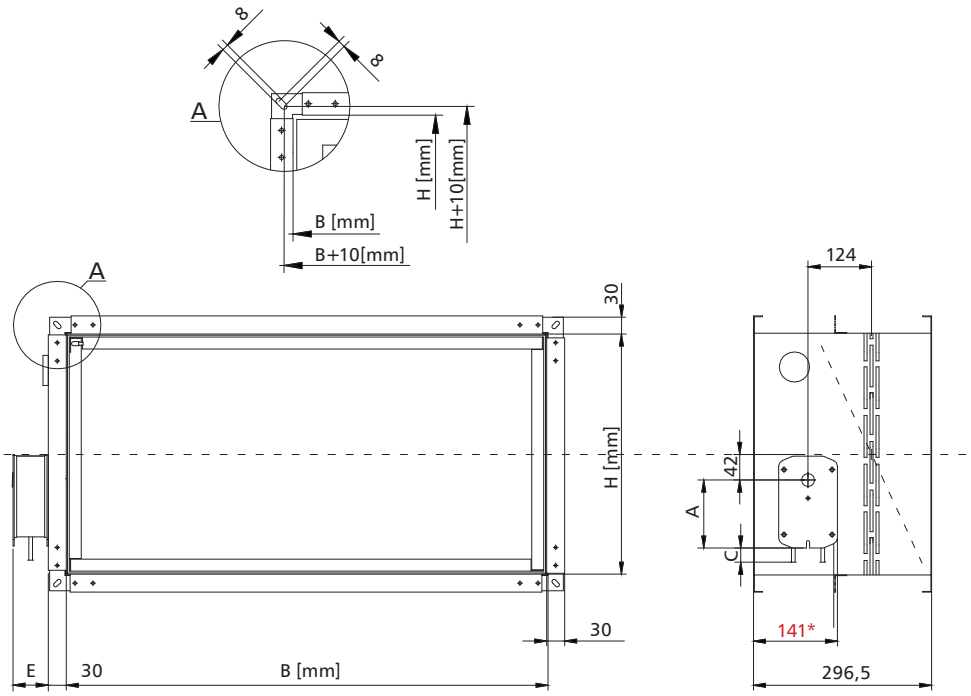
### 2.3.1 | Damper closing and opening with an actuator

**During normal operation, the fire damper blade remains open. In case of fire, the blade closes automatically or remotely when the power supply is cut off.**

mcr FID S/S c/P dampers are equipped with a trigger control mechanism in the form of a BFL, BFN, BF-TL, MF, MLF, EXBF and QT.ex series axial actuator with a return spring, supplied with 24 V AC/DC or 230 V AC, with a 72°C thermoelectric trigger (optionally it is possible to use triggers with a nominal tripping temperature of 95°C). The actuators are equipped with limit switches used to monitor the blade position. Furthermore, a mechanical position indicator is placed on the actuator.

Thermoelectric triggers are equipped with a test switch.

Dampers with actuators close as a result of the thermoelectric trigger tripping or power supply cut-off as a result of the actuator return spring action. The dampers open when power supply voltage is applied to the actuator terminals. Dampers with those actuators may be opened manually using a key.




dimensions in [mm]

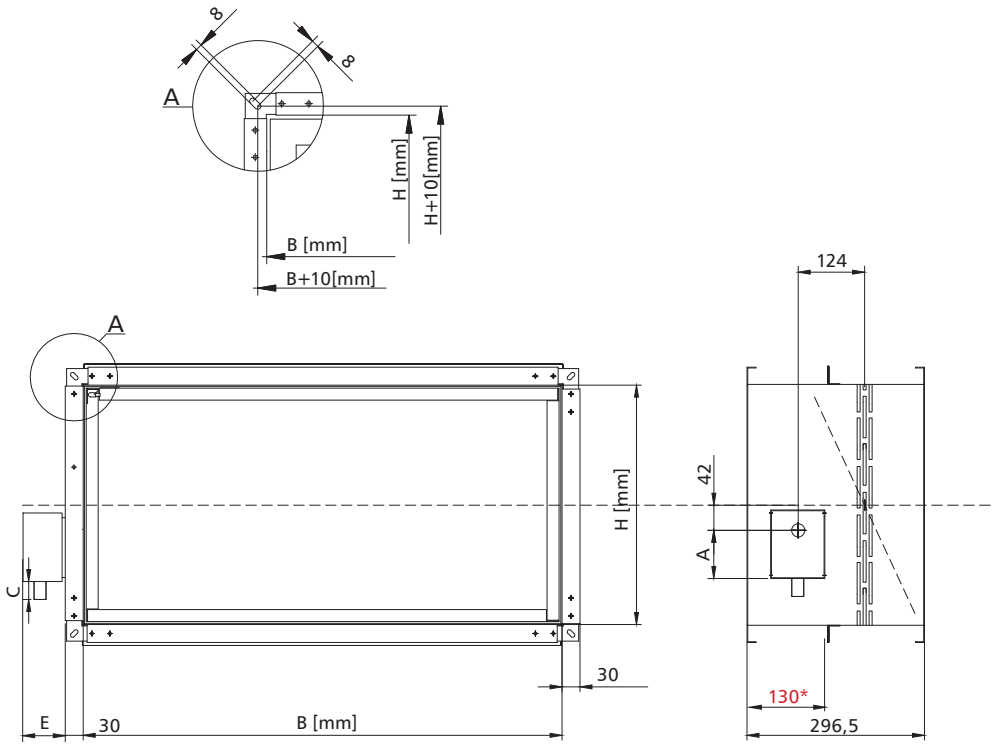
| mechanism | A | C | E |
|---|---|---|---|
| BFN | 157 | 30 | 57 |
| BFL | 138 | 30 | 53 |
| BF24TL-ST | 198 | 10 | 65 |
| EXBF | 225 | 55 | 175 |
| QT.Ex | 260 | 30 | 105 |
| MF | 198 | 30 | 70 |
| MLF | 114 | 30 | 62 |

*embedding border

## 2.3.2 | Cut-off fire damper for ventilation ducts with a spring drive and thermal trigger.

**During normal operation, the fire damper blade remains open. In case of fire, the blade closes automatically.**

mcr FID S/S c/P dampers are equipped with a **RST** trigger control mechanism with a drive spring (without an integrated thermal trigger). In this case, a 74°C thermal trigger (optionally 95°C) is installed outside the damper mechanism, on the damper blade itself. Once the nominal temperature is exceeded, the thermal trigger is tripped and the blade closes. A mechanical blade position indicator is placed on the RST mechanism. It is possible to equip the damper with WK1 or WK2 limit switches used to signal the blade position.




dimensions in [mm]

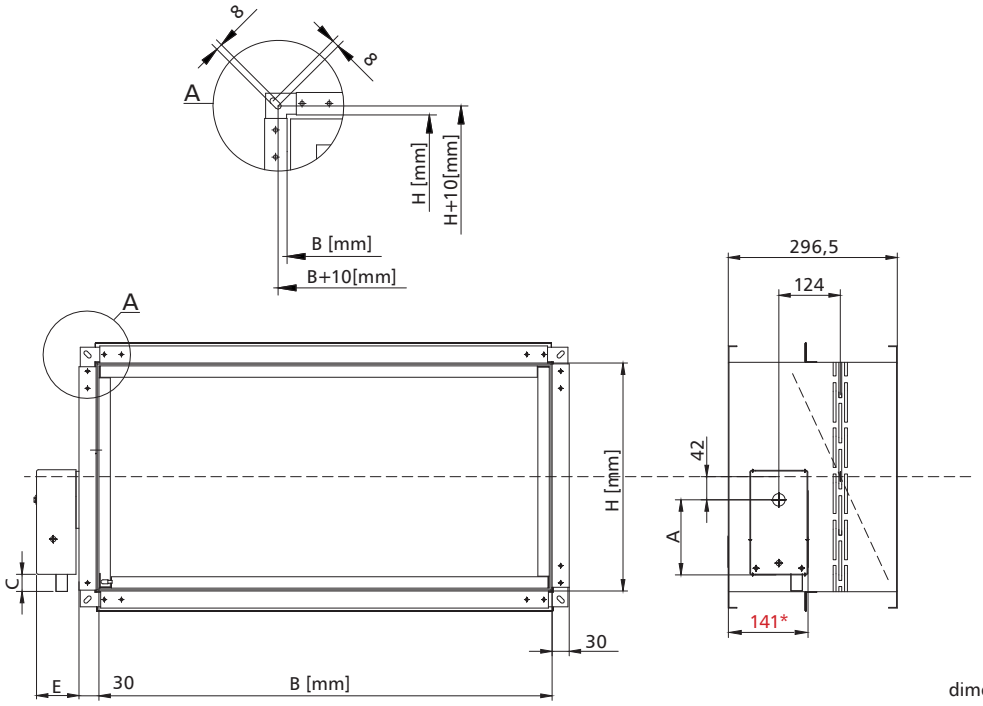
| mechanism | A | C | E |
|---|---|---|---|
| **RST** | 50 | 30 | 70 |

*embedding border

## 2.3.3 | Cut-off fire damper for ventilation ducts with a spring drive and an integrated thermal trigger, optionally equipped with an electromagnetic trigger and limit switches.

**During normal operation, the fire damper blade remains open. In case of fire, the blade closes automatically or through the fire automation system in case of a damper with an electromagnetic trigger.**

mcr FID S/S c/P dampers are equipped with a **KW1** trigger control mechanism with a drive spring and a cam-lever system. A 74°C thermal trigger (optionally 95°C) is integrated into the damper mechanism. Once the nominal temperature is exceeded, the thermal trigger is tripped and the blade closes. A mechanical blade position indicator is placed on the KW1 mechanism. It is possible to equip a trigger control mechanism with an electromagnetic trigger activated by the application („pulse") or removal („break") of the power supply voltage and with limit switches used to signal the blade position. The mechanism features a test and blade button-release functions. Blade re-opening is activated manually.




dimensions in [mm]

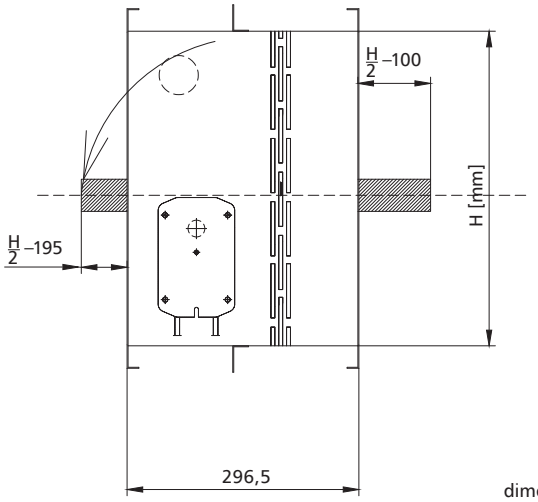
| mechanism | A | C | E |
|---|---|---|---|
| KW1 | 130 | 30 | 80 |

*embedding border

## 2.4 | Dimensions

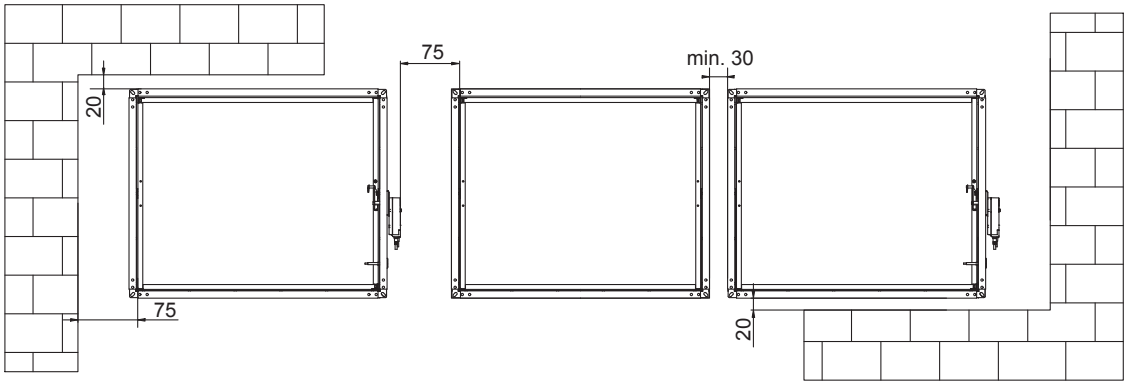
**rectangular dampers:**
» nominal width B: from 100 mm to 1000 mm
» nominal height H: from 100 mm to 800 mm
» maximum single damper cross-section surface up to 0.8 m²

Apart from the standard dimensions, fire dampers may be manufactured with intermediate dimensions (at 1 mm increments within the given ranges).




dimensions in [mm]

» Minimum distance between systems and partitions




dimensions in [mm]

If the installation documentation does not provide otherwise, the minimum spacing between the casings of two fire dampers is ≥200 mm and ≥75 mm between the wall or floor slab, as per the EN-1366-2 standard.

## 2.5 | Installation

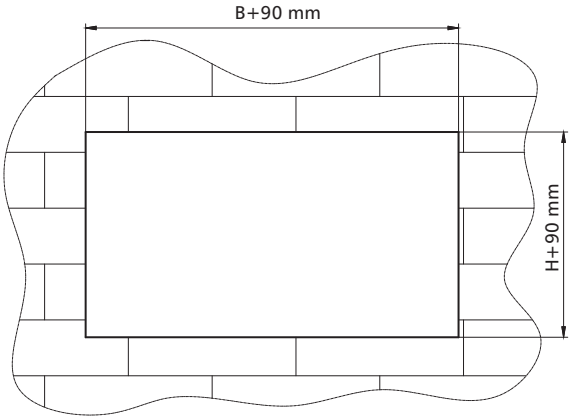
The mcr FID S/S c/P rectangular dampers have been classified in class EI120($v_e$ $h_o$ i↔o)S in a size range of up to 800 x 400 and EI120($v_e$ i↔o)S in a size range of up to 1000 x 800. The dampers can be installed in concrete partitions for rigid walls/shafts with a minimum thickness of 120 mm using mortar and 125 mm using mineral wool, partitions made of full bricks or aerated concrete blocks with a min. thickness of 120 mm using mortar and 125 mm using mineral wool, light walls of gypsum boards on a steel framework with a thickness of at least 125 mm and EI120 or higher fire rating, and concrete floor slabs with a min. thickness of 150 mm. The dampers may be installed on grout or in dry installation in mineral wool with a horizontal and vertical rotation axis.

### Damper installation with a vertical axis of rotation

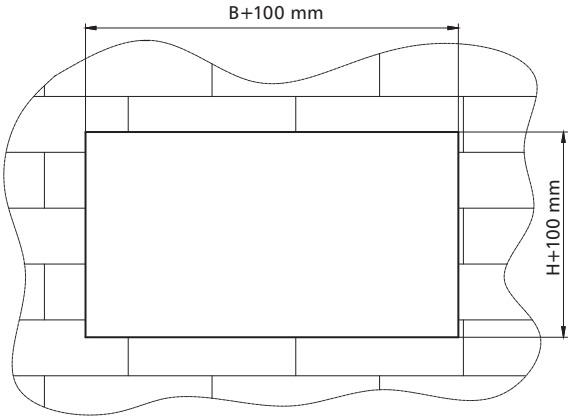
Such installation must be clearly stated in the draft documentation and reported to the damper's manufacturer in the order. BxH damper dimensions should be provided in a manner similar to the damper with a horizontal rotation axis.

## 2.5.1 | Preparation of installation openings

» **installation openings preparation - wet installation – preferred opening**

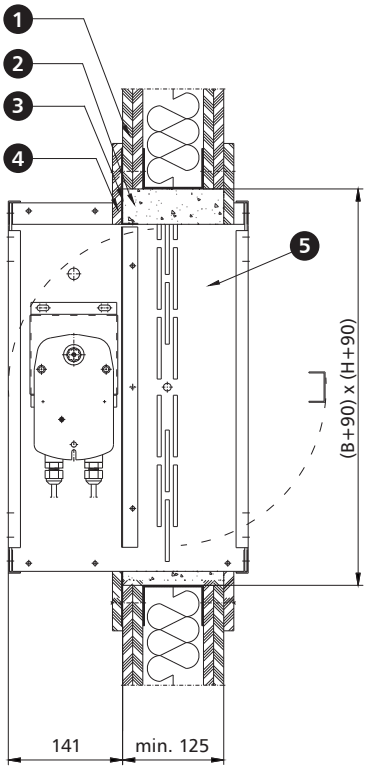



» **installation openings preparation – dry installation – preferred opening**

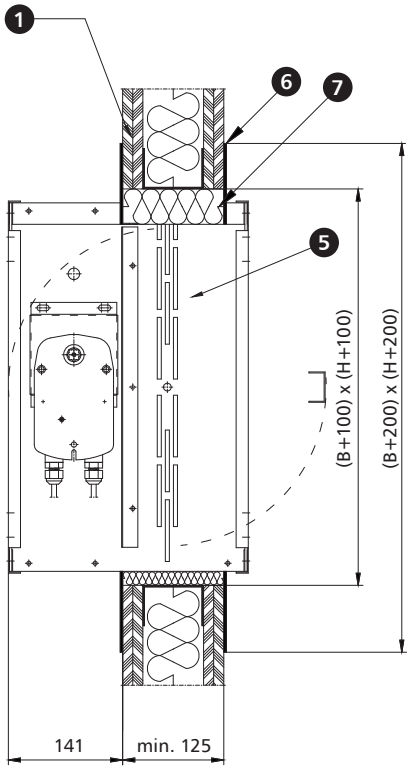


## 2.5.2 | Sample installation in gypsum board light walls

» WET installation




» DRY installation




dimensions in [mm]

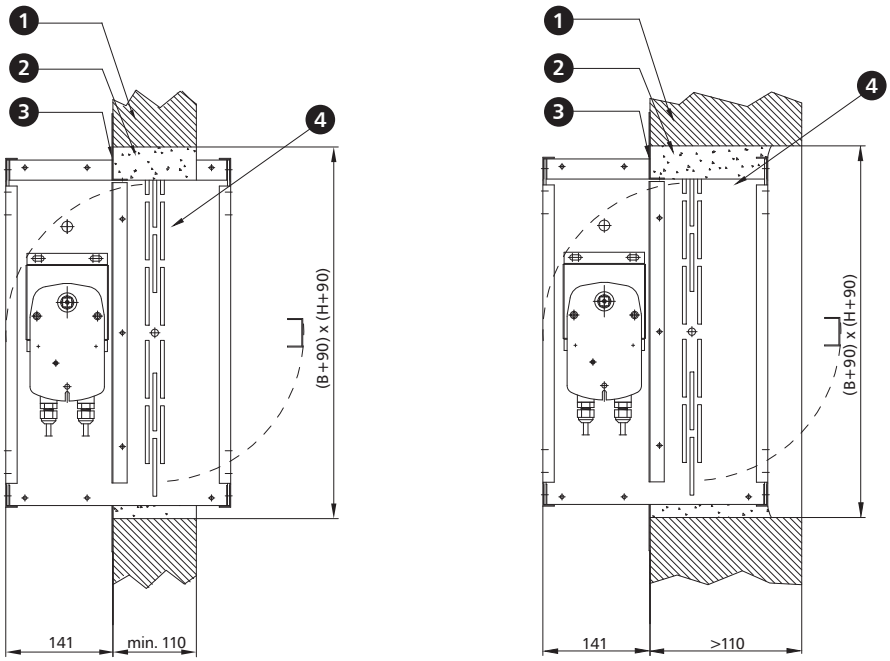
1. light wall
2. assembly mortar*
3. mounting flange - embedding border
4. damper circumference gypsum board trim 100 x 12.5
5. mcr FID S/S c/P fire damper
6. elastic fire protection grout/mass*
7. mineral wool*

* Recommended damper installation in a dry system is based on wool with a min. density of 100 kg/m3 and a fire resistance class A1, as well as on securing the contact portion between the damper and the wall and the wall itself with the elastic fire protection mass mcr Polylac Elastic with a thickness of 1 mm, as per the drawing above. Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

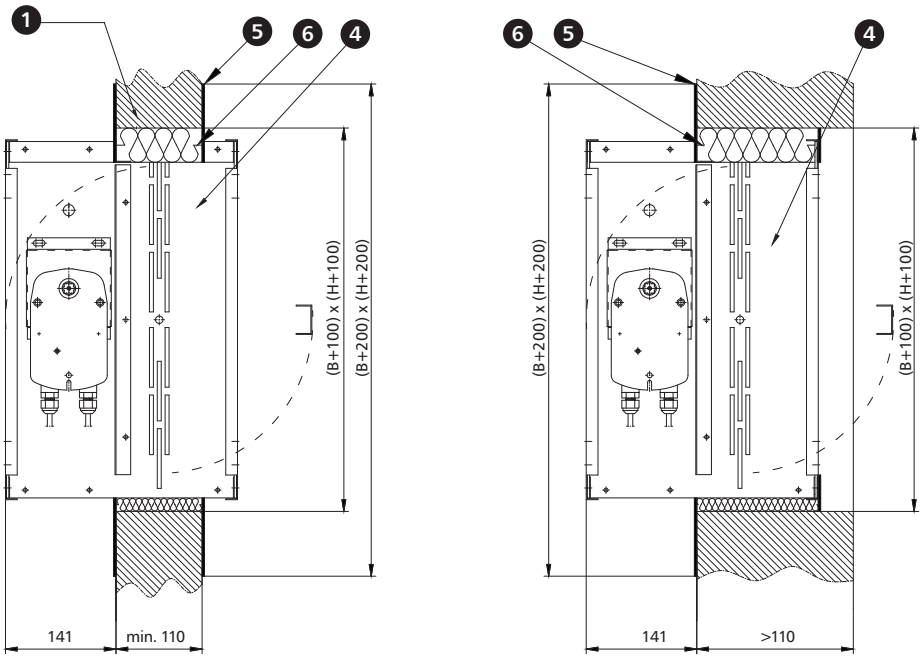
**NOTE:** If the damper is installed in a wall with a thickness of less than 125 mm, the wall thickness should be increased along the damper circumference by installing a belt of panels or other construction elements to the required thickness.

## 2.5.3 | Sample installation in concrete walls

» **WET installation**




» **DRY installation**




dimensions in [mm]

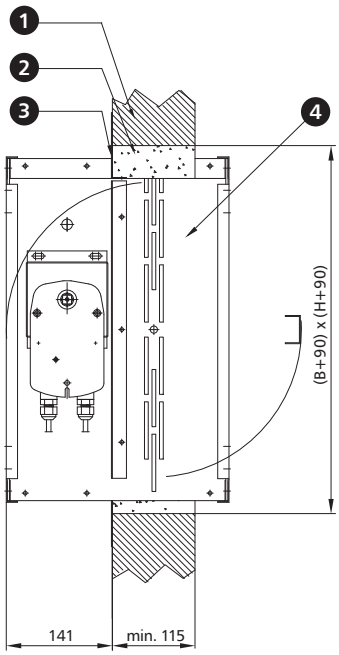
1. masonry wall
2. assembly mortar*
3. mounting flange - embedding border
4. mcr FID S/S c/P fire damper
5. elastic fire protection grout/mass*
6. mineral wool*

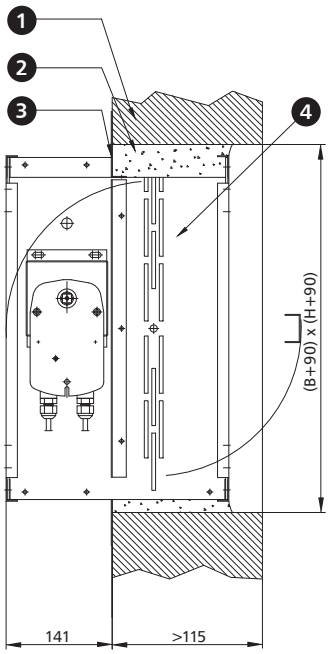
* Recommended damper installation in a dry system is based on wool with a min. density of 100 kg/m$^3$ and a fire resistance class A1, as well as on securing the contact portion between the damper and the wall and the wall itself with the elastic fire protection mass mcr Polylac Elastic with a thickness of 1 mm, as per the drawing above. Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

**NOTE:** If the damper is installed in a wall with a thickness of less than 110 mm, the wall thickness should be increased along the damper circumference by installing a belt of panels or other construction elements to the required thickness.

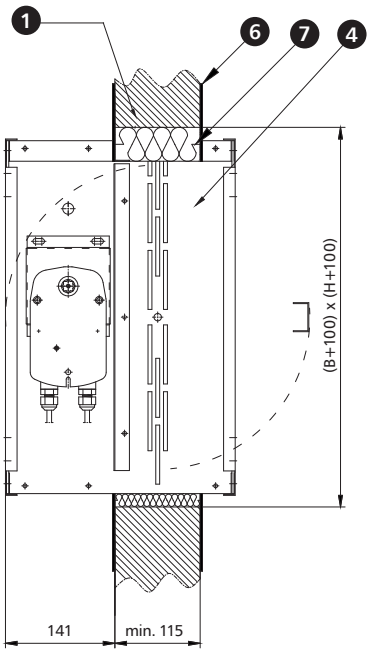
## 2.5.4 | Sample installation in masonry walls

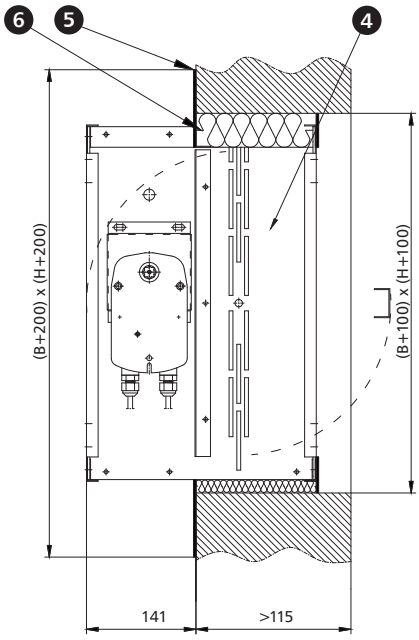
### » WET installation




### » DRY installation



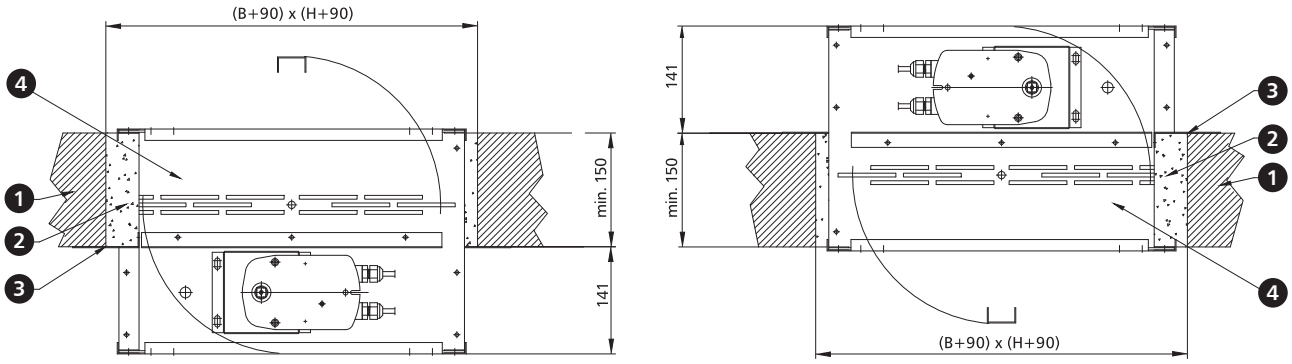

dimensions in [mm]

1. light wall
2. assembly mortar*
3. mounting flange - embedding border
4. damper circumference gypsum board trim 100 x 12.5
5. mcr FID S/S c/P fire damper
6. elastic fire protection grout/mass*
7. mineral wool*

* Recommended damper installation in a dry system is based on wool with a min. density of 100 kg/m3 and a fire resistance class A1, as well as on securing the contact portion between the damper and the wall and the wall itself with the elastic fire protection mass mcr Polylac Elastic with a thickness of 1 mm, as per the drawing above. Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

**NOTE:** If the damper is installed in a wall with a thickness of less than 115 mm, the wall thickness should be increased along the damper circumference by installing a belt of panels or other construction elements to the required thickness.

## 2.5.5 | Sample installation in floor slabs

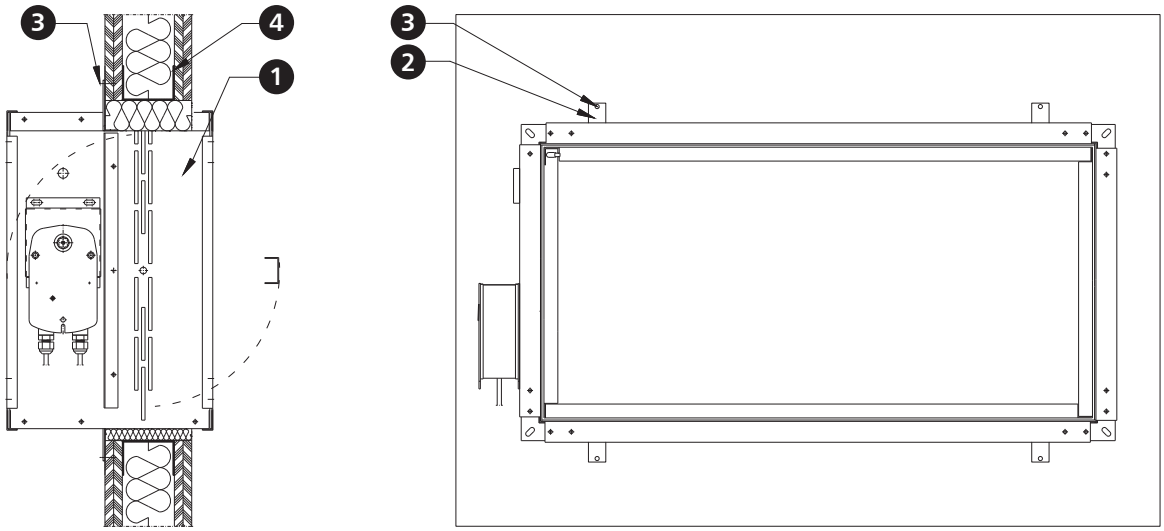



dimensions in [mm]

1. floor slab
2. assembly mortar*
3. mounting flange - embedding border
4. mcr FID S/S c/P fire damper

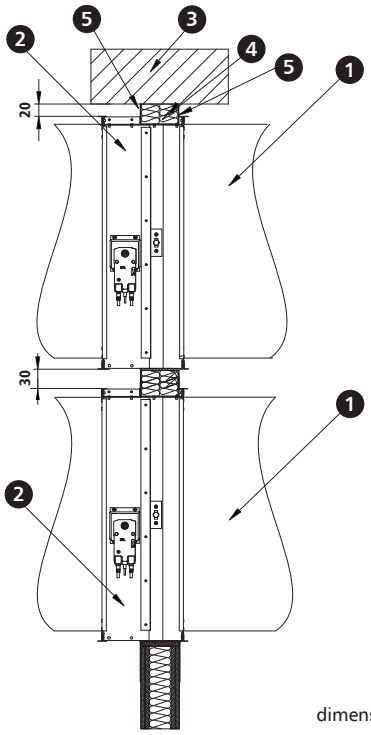
* Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

## 2.5.6 | Sample installation with a bracket




1. mcr FID S/S c/P fire damper
2. WM installation bracket
3. plasterboard screw 3.5 x 20
4. e.g. plasterboard wall

## 2.5.7 | Sample installation below the floor slab



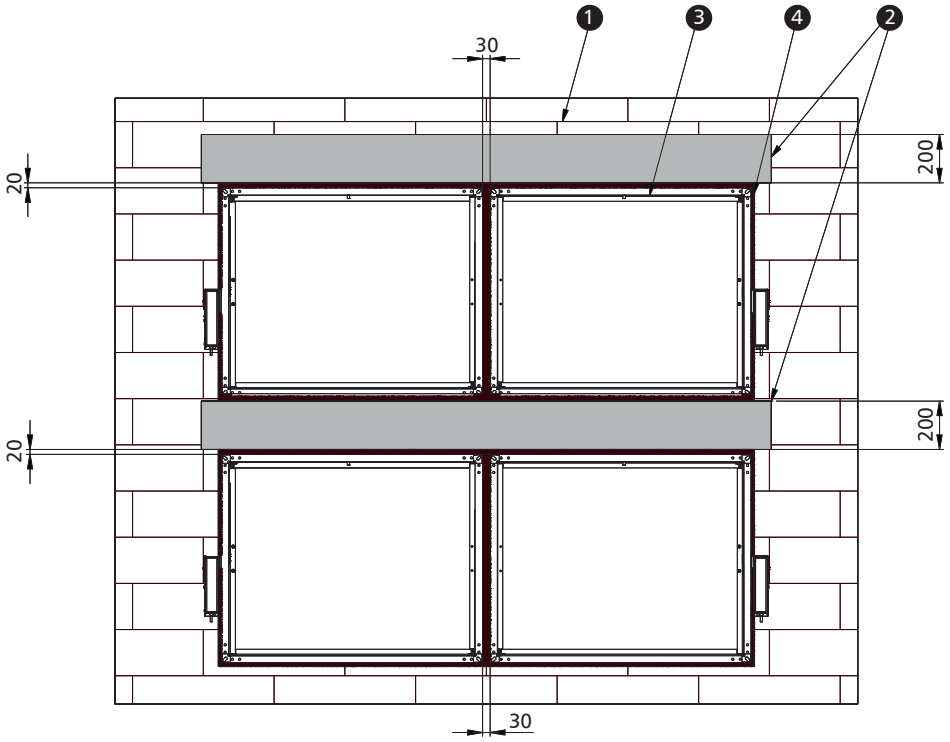

dimensions in [mm]

1. duct
2. mcr FID S/S c/P fire damper
3. floor slab
4. mineral wool*
5. elastic fire protection grout/mass*

Minimum installation distances of the damper from the ceiling according to the adjacent drawing. The damper can be installed in close proximity to another damper (damper next to damper, damper above damper, dampers diagonally positioned) provided that the minimum installation distances, as shown in the drawing, are maintained. Surrounding collars made of non-combustible material (e.g., gypsum board) with a minimum thickness of 10 mm for flexible walls and 15 mm for rigid walls are required.

* Recommended damper installation in a dry system is based on wool with a min. density of 100 kg/m3 and a fire resistance class A1, as well as on securing the contact portion between the damper and the wall and the wall itself with the elastic fire protection mass mcr Polylac Elastic with a thickness of 1 mm, as per the drawing above. Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

## 2.5.8 | Example of modular installation




dimensions in [mm]

1. wall
2. wall element, e.g. lintel
3. mcr FID S/S c/P damper
4. assembly mortar*

Other configurations for the installation of mcr FID S/S c/P damper modules, consisting of two or more dampers, are possible, while maintaining the minimum distances between dampers as shown above.

* Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the installation method applied.

## 2.6 | mcr FID S/S c/P rectangular dampers technical parameters

**B** – nominal width [mm]
**H** – nominal height [mm]
**v** – velocity [m/s]
$S_k$ – duct cross-section [$m^2$]
$S_e$ – damper active cross-section [$m^2$]
Q – flow [$m^3/h$]
$d_p$ – pressure drop [Pa]
$L_{WA}$ – damper noise level [dB]

| width B [mm] | height H [mm] | v [m/s] | 100 | | | | | 200 | | | | | 250 | | | | | 300 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $S_k$ [$m^2$] | $S_e$ [$m^2$] | Q [$m^3/h$] | $d_p$ [PA] | $L_{WA}$ [dB] | $S_k$ [$m^2$] | $S_e$ [$m^2$] | Q [$m^3/h$] | $d_p$ [PA] | $L_{WA}$ [dB] | $S_k$ [$m^2$] | $S_e$ [$m^2$] | Q [$m^3/h$] | $d_p$ [PA] | $L_{WA}$ [dB] | $S_k$ [$m^2$] | $S_e$ [$m^2$] | Q [$m^3/h$] | $d_p$ [PA] | $L_{WA}$ [dB] |
| | 100 | 4 | 0,01 | 0,006 | 91 | 10 | 26 | 0,02 | 0,016 | 235 | 6 | 26 | 0,025 | 0,021 | 307 | 6 | 26 | 0,03 | 0,026 | 379 | 5 | 26 |
| | | 6 | | | 136 | 23 | 36 | | | 352 | 14 | 36 | | | 460 | 12 | 37 | | | 568 | 12 | 37 |
| | | 8 | | | 181 | 40 | 44 | | | 469 | 24 | 44 | | | 613 | 22 | 45 | | | 757 | 21 | 44 |
| | | 10 | | | 227 | 63 | 50 | | | 587 | 38 | 50 | | | 767 | 34 | 50 | | | 947 | 33 | 50 |
| | 200 | 4 | 0,02 | 0,013 | 181 | 10 | 26 | 0,04 | 0,033 | 468 | 6 | 26 | 0,05 | 0,043 | 612 | 6 | 26 | 0,06 | 0,053 | 756 | 5 | 26 |
| | | 6 | | | 272 | 23 | 36 | | | 702 | 14 | 36 | | | 918 | 13 | 37 | | | 1 134 | 12 | 37 |
| | | 8 | | | 363 | 40 | 44 | | | 936 | 24 | 44 | | | 1 224 | 24 | 45 | | | 1 512 | 22 | 44 |
| | | 10 | | | 454 | 63 | 50 | | | 1 170 | 38 | 50 | | | 1 530 | 37 | 50 | | | 1 890 | 34 | 50 |
| | 250 | 4 | 0,025 | 0,016 | 227 | 10 | 27 | 0,05 | 0,041 | 585 | 6 | 27 | 0,0625 | 0,053 | 765 | 6 | 27 | 0,075 | 0,066 | 945 | 5 | 26 |
| | | 6 | | | 340 | 23 | 37 | | | 878 | 14 | 37 | | | 1 148 | 13 | 38 | | | 1 418 | 11 | 37 |
| | | 8 | | | 454 | 40 | 45 | | | 1 170 | 24 | 45 | | | 1 530 | 23 | 45 | | | 1 890 | 20 | 44 |
| | | 10 | | | 567 | 63 | 51 | | | 1 463 | 38 | 51 | | | 1 913 | 36 | 51 | | | 2 363 | 31 | 50 |
| | 300 | 4 | 0,03 | 0,019 | 272 | 10 | 27 | 0,06 | 0,049 | 702 | 6 | 27 | 0,075 | 0,064 | 918 | 6 | 28 | 0,09 | 0,079 | 1 134 | 4 | 26 |
| | | 6 | | | 408 | 23 | 38 | | | 1 053 | 13 | 38 | | | 1 377 | 13 | 38 | | | 1 701 | 10 | 36 |
| | | 8 | | | 544 | 40 | 45 | | | 1 404 | 24 | 45 | | | 1 836 | 22 | 46 | | | 2 268 | 18 | 44 |
| | | 10 | | | 680 | 63 | 51 | | | 1 755 | 37 | 51 | | | 2 295 | 35 | 51 | | | 2 835 | 28 | 49 |
| | 350 | 4 | 0,035 | 0,022 | 318 | 10 | 27 | 0,07 | 0,057 | 819 | 6 | 27 | 0,0875 | 0,074 | 1 071 | 5 | 27 | 0,105 | 0,092 | 1 323 | 4 | 25 |
| | | 6 | | | 476 | 23 | 38 | | | 1 229 | 13 | 38 | | | 1 607 | 11 | 37 | | | 1 985 | 9 | 35 |
| | | 8 | | | 635 | 40 | 45 | | | 1 638 | 22 | 45 | | | 2 142 | 20 | 45 | | | 2 646 | 16 | 43 |
| | | 10 | | | 794 | 63 | 51 | | | 2 048 | 35 | 51 | | | 2 678 | 31 | 50 | | | 3 308 | 25 | 49 |
| | 400 | 4 | 0,04 | 0,025 | 363 | 10 | 27 | 0,08 | 0,065 | 936 | 5 | 27 | 0,1 | 0,085 | 1 224 | 4 | 25 | 0,12 | 0,105 | 1 512 | 4 | 24 |
| | | 6 | | | 544 | 23 | 38 | | | 1 404 | 12 | 38 | | | 1 836 | 9 | 35 | | | 2 268 | 8 | 34 |
| | | 8 | | | 726 | 40 | 45 | | | 1 872 | 22 | 45 | | | 2 448 | 17 | 43 | | | 3 024 | 14 | 42 |
| | | 10 | | | 907 | 63 | 51 | | | 2 340 | 34 | 51 | | | 3 060 | 26 | 49 | | | 3 780 | 22 | 48 |
| | 450 | 4 | 0,045 | 0,028 | 408 | 10 | 27 | 0,09 | 0,073 | 1 053 | 5 | 27 | 0,1125 | 0,096 | 1 377 | 3 | 22 | 0,135 | 0,118 | 1 701 | 3 | 23 |
| | | 6 | | | 612 | 23 | 37 | | | 1 580 | 11 | 37 | | | 2 066 | 7 | 33 | | | 2 552 | 7 | 33 |
| | | 8 | | | 816 | 40 | 45 | | | 2 106 | 20 | 45 | | | 2 754 | 13 | 40 | | | 3 402 | 13 | 41 |
| | | 10 | | | 1021 | 63 | 50 | | | 2 633 | 31 | 50 | | | 3 443 | 20 | 46 | | | 4 253 | 20 | 47 |
| | 500 | 4 | 0,05 | 0,032 | 454 | 10 | 26 | 0,1 | 0,081 | 1 170 | 4 | 26 | 0,125 | 0,106 | 1 530 | 3 | 23 | 0,15 | 0,131 | 1 890 | 3 | 23 |
| | | 6 | | | 680 | 23 | 36 | | | 1 755 | 10 | 36 | | | 2 295 | 8 | 34 | | | 2 835 | 7 | 34 |
| | | 8 | | | 907 | 40 | 44 | | | 2 340 | 18 | 44 | | | 3 060 | 13 | 41 | | | 3 780 | 13 | 41 |
| | | 10 | | | 1134 | 63 | 50 | | | 2 925 | 28 | 50 | | | 3 825 | 21 | 47 | | | 4 725 | 20 | 47 |
| | 550 | 4 | 0,055 | 0,035 | 499 | 10 | 25 | 0,11 | 0,089 | 1 287 | 4 | 25 | 0,1375 | 0,117 | 1 683 | 3 | 23 | 0,165 | 0,144 | 2 079 | 3 | 22 |
| | | 6 | | | 748 | 23 | 36 | | | 1 931 | 9 | 36 | | | 2 525 | 7 | 33 | | | 3 119 | 6 | 33 |
| | | 8 | | | 998 | 40 | 43 | | | 2 574 | 17 | 43 | | | 3 366 | 13 | 41 | | | 4 158 | 12 | 40 |
| | | 10 | | | 1247 | 63 | 49 | | | 3 218 | 26 | 49 | | | 4 208 | 20 | 47 | | | 5 198 | 18 | 46 |
| | 600 | 4 | 0,06 | 0,038 | 544 | 10 | 21 | 0,12 | 0,098 | 1 404 | 3 | 21 | 0,15 | 0,128 | 1 836 | 3 | 20 | 0,18 | 0,158 | 2 268 | 2 | 20 |
| | | 6 | | | 816 | 23 | 32 | | | 2 106 | 7 | 32 | | | 2 754 | 6 | 31 | | | 3 402 | 5 | 31 |
| | | 8 | | | 1089 | 40 | 39 | | | 2 808 | 12 | 39 | | | 3 672 | 10 | 38 | | | 4 536 | 10 | 38 |
| | | 10 | | | 1361 | 63 | 45 | | | 3 510 | 19 | 45 | | | 4 590 | 16 | 44 | | | 5 670 | 15 | 44 |
| | 650 | 4 | 0,065 | 0,041 | 590 | 10 | 22 | 0,13 | 0,106 | 1 521 | 3 | 22 | 0,1625 | 0,138 | 1 989 | 3 | 21 | 0,195 | 0,171 | 2 457 | 2 | 20 |
| | | 6 | | | 885 | 23 | 32 | | | 2 282 | 7 | 32 | | | 2 984 | 6 | 31 | | | 3 686 | 5 | 30 |
| | | 8 | | | 1179 | 40 | 40 | | | 3 042 | 12 | 40 | | | 3 978 | 10 | 39 | | | 4 914 | 9 | 38 |
| | | 10 | | | 1474 | 63 | 46 | | | 3 803 | 19 | 46 | | | 4 973 | 16 | 45 | | | 6 143 | 14 | 44 |
| | 700 | 4 | 0,07 | 0,044 | 635 | 10 | 21 | 0,14 | 0,114 | 1 638 | 3 | 21 | 0,175 | 0,149 | 2 142 | 2 | 20 | 0,21 | 0,184 | 2 646 | 2 | 19 |
| | | 6 | | | 953 | 23 | 32 | | | 2 457 | 6 | 32 | | | 3 213 | 5 | 31 | | | 3 969 | 5 | 30 |
| | | 8 | | | 1270 | 40 | 39 | | | 3 276 | 12 | 39 | | | 4 284 | 10 | 38 | | | 5 292 | 8 | 37 |
| | | 10 | | | 1588 | 63 | 45 | | | 4 095 | 18 | 45 | | | 5 355 | 15 | 44 | | | 6 615 | 13 | 43 |
| | 750 | 4 | 0,075 | 0,047 | 680 | 10 | 21 | 0,15 | 0,122 | 1 755 | 3 | 21 | 0,1875 | 0,159 | 2 295 | 2 | 20 | 0,225 | 0,197 | 2 835 | 2 | 20 |
| | | 6 | | | 1021 | 23 | 31 | | | 2 633 | 6 | 31 | | | 3 443 | 5 | 31 | | | 4 253 | 5 | 30 |
| | | 8 | | | 1361 | 40 | 39 | | | 3 510 | 11 | 39 | | | 4 590 | 10 | 39 | | | 5 670 | 8 | 38 |
| | | 10 | | | 1701 | 63 | 45 | | | 4 388 | 17 | 45 | | | 5 738 | 15 | 44 | | | 7 088 | 13 | 43 |
| | 800 | 4 | 0,08 | 0,050 | 726 | 10 | 20 | 0,16 | 0,13 | 1 872 | 2 | 20 | 0,2 | 0,17 | 2 448 | 2 | 20 | 0,24 | 0,21 | 3 024 | 2 | 19 |
| | | 6 | | | 1089 | 23 | 30 | | | 2 808 | 5 | 30 | | | 3 672 | 5 | 30 | | | 4 536 | 4 | 29 |
| | | 8 | | | 1452 | 40 | 38 | | | 3 744 | 10 | 38 | | | 4 896 | 9 | 38 | | | 6 048 | 8 | 37 |
| | | 10 | | | 1814 | 63 | 43 | | | 4 680 | 15 | 43 | | | 6 120 | 14 | 44 | | | 7 560 | 12 | 43 |
| | 900 | 4 | 0,09 | 0,057 | 816 | 10 | 17 | 0,18 | 0,146 | 2 106 | 2 | 17 | 0,225 | 0,191 | 2 754 | 2 | 17 | 0,27 | 0,236 | 3 402 | 2 | 17 |
| | | 6 | | | 1225 | 23 | 28 | | | 3 159 | 4 | 28 | | | 4 131 | 4 | 28 | | | 5 103 | 4 | 27 |
| | | 8 | | | 1633 | 40 | 35 | | | 4 212 | 8 | 35 | | | 5 508 | 7 | 35 | | | 6 804 | 6 | 35 |
| | | 10 | | | 2041 | 63 | 41 | | | 5 265 | 12 | 41 | | | 6 885 | 11 | 41 | | | 8 505 | 10 | 41 |
| | 1000 | 4 | 0,1 | 0,063 | 907 | 10 | 15 | 0,2 | 0,163 | 2 340 | 2 | 15 | 0,25 | 0,213 | 3 060 | 1 | 14 | 0,3 | 0,263 | 3 780 | 1 | 14 |
| | | 6 | | | 1361 | 23 | 25 | | | 3 510 | 3 | 25 | | | 4 590 | 3 | 25 | | | 5 670 | 3 | 25 |
| | | 8 | | | 1814 | 40 | 33 | | | 4 680 | 6 | 33 | | | 6 120 | 6 | 32 | | | 7 560 | 5 | 32 |
| | | 10 | | | 2268 | 63 | 39 | | | 5 850 | 10 | 39 | | | 7 650 | 9 | 38 | | | 9 450 | 8 | 38 |

# mcr FID S/S c/P | Low-resistance single-blade cut-off fire dampers for comfort ventilation systems

**B** – nominal width [mm]
**H** – nominal height [mm]

**v** – velocity [m/s]
$S_k$ – duct cross-section [m²]
$S_e$ – damper active cross-section [m²]

Q – flow [m³/h]
$d_p$ – pressure drop [Pa]
$L_{WA}$ – damper noise level [dB]

| width B [mm] | height H [mm] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 350 | | | | | | 400 | | | | | 500 | | | | |
| | v [m/s] | $S_k$ [m²] | $S_e$ [m²] | Q [m³/h] | $d_p$ [PA] | $L_{WA}$ [dB] | $S_k$ [m²] | $S_e$ [m²] | Q [m³/h] | $d_p$ [PA] | $L_{WA}$ [dB] | $S_k$ [m²] | $S_e$ [m²] | Q [m³/h] | $d_p$ [PA] | $L_{WA}$ [dB] |
| 100 | 4 | 0,035 | 0,031 | 451 | 5 | 26 | 0,04 | 0,036 | 523 | 5 | 26 | 0,05 | 0,046 | 667 | 5 | 26 |
| | 6 | | | 676 | 11 | 37 | | | 784 | 11 | 37 | | | 1000 | 10 | 37 |
| | 8 | | | 901 | 20 | 44 | | | 1045 | 19 | 44 | | | 1333 | 19 | 44 |
| | 10 | | | 1127 | 31 | 50 | | | 1307 | 30 | 50 | | | 1667 | 29 | 50 |
| 200 | 4 | 0,07 | 0,063 | 900 | 5 | 26 | 0,08 | 0,073 | 1 044 | 5 | 26 | 0,1 | 0,093 | 1 332 | 4 | 26 |
| | 6 | | | 1 350 | 12 | 37 | | | 1 566 | 11 | 37 | | | 1 998 | 10 | 37 |
| | 8 | | | 1 800 | 21 | 44 | | | 2 088 | 19 | 44 | | | 2 664 | 18 | 44 |
| | 10 | | | 2 250 | 32 | 50 | | | 2 610 | 30 | 50 | | | 3 330 | 27 | 50 |
| 250 | 4 | 0,0875 | 0,078 | 1 125 | 4 | 25 | 0,1 | 0,091 | 1 305 | 4 | 25 | 0,125 | 0,116 | 1 665 | 4 | 26 |
| | 6 | | | 1 688 | 10 | 36 | | | 1 958 | 9 | 35 | | | 2 498 | 9 | 36 |
| | 8 | | | 2 250 | 17 | 43 | | | 2 610 | 16 | 43 | | | 3 330 | 16 | 44 |
| | 10 | | | 2 813 | 27 | 49 | | | 3 263 | 25 | 49 | | | 4 163 | 25 | 50 |
| 300 | 4 | 0,105 | 0,094 | 1 350 | 4 | 26 | 0,12 | 0,109 | 1 566 | 4 | 24 | 0,15 | 0,139 | 1 998 | 4 | 26 |
| | 6 | | | 2 025 | 10 | 36 | | | 2 349 | 8 | 35 | | | 2 997 | 8 | 36 |
| | 8 | | | 2 700 | 17 | 44 | | | 3 132 | 15 | 42 | | | 3 996 | 15 | 44 |
| | 10 | | | 3 375 | 27 | 50 | | | 3 915 | 23 | 48 | | | 4 995 | 23 | 50 |
| 350 | 4 | 0,1225 | 0,109 | 1 575 | 4 | 25 | 0,14 | 0,127 | 1 827 | 4 | 25 | 0,175 | 0,162 | 2 331 | 3 | 25 |
| | 6 | | | 2 363 | 9 | 36 | | | 2 741 | 8 | 36 | | | 3 497 | 8 | 36 |
| | 8 | | | 3 150 | 15 | 43 | | | 3 654 | 15 | 43 | | | 4 662 | 14 | 43 |
| | 10 | | | 3 938 | 24 | 49 | | | 4 568 | 23 | 49 | | | 5 828 | 22 | 49 |
| 400 | 4 | 0,14 | 0,125 | 1 800 | 3 | 24 | 0,16 | 0,145 | 2 088 | 3 | 23 | 0,2 | 0,185 | 2 664 | 3 | 25 |
| | 6 | | | 2 700 | 8 | 34 | | | 3 132 | 7 | 34 | | | 3 996 | 7 | 35 |
| | 8 | | | 3 600 | 13 | 42 | | | 4 176 | 12 | 41 | | | 5 328 | 13 | 43 |
| | 10 | | | 4 500 | 21 | 48 | | | 5 220 | 19 | 47 | | | 6 660 | 20 | 49 |
| 450 | 4 | 0,1575 | 0,141 | 2 025 | 3 | 24 | 0,18 | 0,163 | 2 349 | 3 | 21 | 0,225 | 0,208 | 2 997 | 3 | 24 |
| | 6 | | | 3 038 | 7 | 34 | | | 3 524 | 6 | 32 | | | 4 496 | 7 | 35 |
| | 8 | | | 4 050 | 13 | 42 | | | 4 698 | 10 | 39 | | | 5 994 | 12 | 42 |
| | 10 | | | 5 063 | 20 | 48 | | | 5 873 | 16 | 45 | | | 7 493 | 18 | 48 |
| 500 | 4 | 0,175 | 0,156 | 2 250 | 2 | 20 | 0,2 | 0,181 | 2 610 | 2 | 20 | 0,25 | 0,231 | 3 330 | 3 | 23 |
| | 6 | | | 3 375 | 5 | 31 | | | 3 915 | 5 | 31 | | | 4 995 | 6 | 34 |
| | 8 | | | 4 500 | 10 | 38 | | | 5 220 | 9 | 38 | | | 6 660 | 11 | 42 |
| | 10 | | | 5 625 | 15 | 44 | | | 6 525 | 14 | 44 | | | 8 325 | 17 | 47 |
| 550 | 4 | 0,1925 | 0,172 | 2 475 | 2 | 19 | 0,22 | 0,199 | 2 871 | 2 | 20 | 0,275 | 0,254 | 3 663 | 2 | 23 |
| | 6 | | | 3 713 | 5 | 29 | | | 4 307 | 5 | 30 | | | 5 495 | 6 | 33 |
| | 8 | | | 4 950 | 8 | 37 | | | 5 742 | 8 | 38 | | | 7 326 | 10 | 41 |
| | 10 | | | 6 188 | 13 | 43 | | | 7 178 | 13 | 43 | | | 9 158 | 15 | 47 |
| 600 | 4 | 0,21 | 0,188 | 2 700 | 2 | 18 | 0,24 | 0,218 | 3 132 | 2 | 22 | 0,3 | 0,278 | 3 996 | 2 | 22 |
| | 6 | | | 4 050 | 4 | 29 | | | 4 698 | 6 | 33 | | | 5 994 | 5 | 32 |
| | 8 | | | 5 400 | 8 | 36 | | | 6 264 | 10 | 40 | | | 7 992 | 9 | 40 |
| | 10 | | | 6 750 | 12 | 42 | | | 7 830 | 16 | 46 | | | 9 990 | 14 | 46 |
| 650 | 4 | 0,2275 | 0,203 | 2 925 | 2 | 19 | 0,26 | 0,236 | 3 393 | 2 | 18 | 0,325 | 0,301 | 4 329 | 2 | 21 |
| | 6 | | | 4 388 | 4 | 29 | | | 5 090 | 4 | 29 | | | 6 494 | 5 | 32 |
| | 8 | | | 5 850 | 8 | 37 | | | 6 786 | 7 | 36 | | | 8 658 | 8 | 39 |
| | 10 | | | 7 313 | 12 | 42 | | | 8 483 | 11 | 42 | | | 10 823 | 13 | 45 |
| 700 | 4 | 0,245 | 0,219 | 3 150 | 2 | 18 | 0,28 | 0,254 | 3 654 | 2 | 18 | 0,35 | 0,324 | 4 662 | 2 | 20 |
| | 6 | | | 4 725 | 4 | 28 | | | 5 481 | 4 | 29 | | | 6 993 | 4 | 31 |
| | 8 | | | 6 300 | 7 | 36 | | | 7 308 | 7 | 36 | | | 9 324 | 7 | 38 |
| | 10 | | | 7 875 | 11 | 42 | | | 9 135 | 11 | 42 | | | 11 655 | 12 | 44 |
| 750 | 4 | 0,2625 | 0,234 | 3 375 | 2 | 18 | 0,3 | 0,272 | 3 915 | 2 | 17 | 0,375 | 0,347 | 4 995 | 2 | 19 |
| | 6 | | | 5 063 | 4 | 29 | | | 5 873 | 4 | 28 | | | 7 493 | 4 | 30 |
| | 8 | | | 6 750 | 7 | 36 | | | 7 830 | 6 | 36 | | | 9 990 | 7 | 37 |
| | 10 | | | 8 438 | 11 | 42 | | | 9 788 | 10 | 41 | | | 12 488 | 10 | 43 |
| 800 | 4 | 0,28 | 0,25 | 3 600 | 2 | 18 | 0,32 | 0,29 | 4 176 | 2 | 18 | 0,4 | 0,37 | 5 328 | 2 | 18 |
| | 6 | | | 5 400 | 4 | 29 | | | 6 264 | 4 | 28 | | | 7 992 | 3 | 29 |
| | 8 | | | 7 200 | 7 | 36 | | | 8 352 | 6 | 36 | | | 10 656 | 6 | 36 |
| | 10 | | | 9 000 | 11 | 42 | | | 10 440 | 10 | 42 | | | 13 320 | 9 | 42 |
| 900 | 4 | 0,315 | 0,281 | 4 050 | 1 | 16 | 0,36 | 0,326 | 4 698 | 1 | 16 | 0,45 | 0,416 | 5 994 | 1 | 16 |
| | 6 | | | 6 075 | 3 | 27 | | | 7 047 | 3 | 27 | | | 8 991 | 3 | 26 |
| | 8 | | | 8 100 | 6 | 34 | | | 9 396 | 5 | 34 | | | 11 988 | 5 | 34 |
| | 10 | | | 10 125 | 9 | 40 | | | 11 745 | 8 | 40 | | | 14 985 | 8 | 40 |
| 1000 | 4 | 0,35 | 0,313 | 4 500 | 1 | 14 | 0,4 | 0,363 | 5 220 | 1 | 13 | 0,5 | 0,463 | 6 660 | 1 | 13 |
| | 6 | | | 6 750 | 3 | 24 | | | 7 830 | 2 | 24 | | | 9 990 | 2 | 24 |
| | 8 | | | 9 000 | 5 | 32 | | | 10 440 | 4 | 32 | | | 13 320 | 4 | 31 |
| | 10 | | | 11 250 | 7 | 38 | | | 13 050 | 7 | 37 | | | 16 650 | 6 | 37 |

# mcr FID S/S c/P | Low-resistance single-blade cut-off fire dampers for comfort ventilation systems

**B** – nominal width [mm]
**H** – nominal height [mm]

**v** – velocity [m/s]
$S_k$ – duct cross-section [m²]
$S_e$ – damper active cross-section [m²]

Q – flow [m³/h]
$d_p$ – pressure drop [Pa]
$L_{WA}$ – damper noise level [dB]

| width B [mm] | height H [mm] | v [m/s] | 600 $S_k$ [m²] | 600 $S_e$ [m²] | 600 Q [m³/h] | 600 $d_p$ [PA] | 600 $L_{WA}$ [dB] | 700 $S_k$ [m²] | 700 $S_e$ [m²] | 700 Q [m³/h] | 700 $d_p$ [PA] | 700 $L_{WA}$ [dB] | 800 $S_k$ [m²] | 800 $S_e$ [m²] | 800 Q [m³/h] | 800 $d_p$ [PA] | 800 $L_{WA}$ [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 100 | 4 | 0,06 | 0,056 | 811 | 5 | 26 | 0,07 | 0,066 | 955 | 4 | 26 | 0,08 | 0,076 | 1099 | 4 | 26 |
| | | 6 | | | 1216 | 10 | 36 | | | 1432 | 10 | 36 | | | 1648 | 10 | 36 |
| | | 8 | | | 1621 | 18 | 44 | | | 1909 | 18 | 44 | | | 2197 | 18 | 44 |
| | | 10 | | | 2027 | 28 | 50 | | | 2387 | 28 | 50 | | | 2747 | 27 | 49 |
| | 200 | 4 | 0,12 | 0,113 | 1 620 | 4 | 26 | 0,14 | 0,133 | 1 908 | 4 | 26 | 0,16 | 0,153 | 2 196 | 4 | 26 |
| | | 6 | | | 2 430 | 9 | 36 | | | 2 862 | 9 | 36 | | | 3 294 | 8 | 36 |
| | | 8 | | | 3 240 | 16 | 44 | | | 3 816 | 15 | 44 | | | 4 392 | 14 | 44 |
| | | 10 | | | 4 050 | 25 | 50 | | | 4 770 | 24 | 50 | | | 5 490 | 22 | 49 |
| | 250 | 4 | 0,15 | 0,141 | 2 025 | 4 | 26 | 0,175 | 0,166 | 2 385 | 4 | 26 | 0,2 | 0,191 | 2 745 | 3 | 25 |
| | | 6 | | | 3 038 | 8 | 36 | | | 3 578 | 8 | 36 | | | 4 118 | 7 | 36 |
| | | 8 | | | 4 050 | 15 | 44 | | | 4 770 | 14 | 44 | | | 5 490 | 13 | 43 |
| | | 10 | | | 5 063 | 23 | 50 | | | 5 963 | 22 | 49 | | | 6 863 | 21 | 49 |
| | 300 | 4 | 0,18 | 0,169 | 2 430 | 3 | 25 | 0,21 | 0,199 | 2 862 | 3 | 25 | 0,24 | 0,229 | 3 294 | 3 | 25 |
| | | 6 | | | 3 645 | 8 | 36 | | | 4 293 | 7 | 36 | | | 4 941 | 7 | 36 |
| | | 8 | | | 4 860 | 14 | 44 | | | 5 724 | 13 | 43 | | | 6 588 | 12 | 43 |
| | | 10 | | | 6 075 | 22 | 49 | | | 7 155 | 20 | 49 | | | 8 235 | 19 | 49 |
| | 350 | 4 | 0,21 | 0,197 | 2 835 | 3 | 25 | 0,245 | 0,232 | 3 339 | 3 | 25 | 0,28 | 0,267 | 3 843 | 3 | 25 |
| | | 6 | | | 4 253 | 7 | 36 | | | 5 009 | 7 | 35 | | | 5 765 | 6 | 35 |
| | | 8 | | | 5 670 | 13 | 43 | | | 6 678 | 12 | 43 | | | 7 686 | 11 | 43 |
| | | 10 | | | 7 088 | 20 | 49 | | | 8 348 | 19 | 49 | | | 9 608 | 18 | 49 |
| | 400 | 4 | 0,24 | 0,225 | 3 240 | 3 | 25 | 0,28 | 0,265 | 3 816 | 3 | 24 | 0,32 | 0,305 | 4 392 | 3 | 24 |
| | | 6 | | | 4 860 | 7 | 35 | | | 5 724 | 6 | 35 | | | 6 588 | 6 | 35 |
| | | 8 | | | 6 480 | 12 | 43 | | | 7 632 | 11 | 42 | | | 8 784 | 10 | 42 |
| | | 10 | | | 8 100 | 18 | 48 | | | 9 540 | 17 | 48 | | | 10 980 | 16 | 48 |
| | 450 | 4 | 0,27 | 0,253 | 3 645 | 3 | 24 | 0,315 | 0,298 | 4 293 | 3 | 24 | 0,36 | 0,343 | 4 941 | 2 | 24 |
| | | 6 | | | 5 468 | 6 | 34 | | | 6 440 | 6 | 34 | | | 7 412 | 5 | 34 |
| | | 8 | | | 7 290 | 11 | 42 | | | 8 586 | 10 | 42 | | | 9 882 | 9 | 42 |
| | | 10 | | | 9 113 | 17 | 48 | | | 10 733 | 16 | 48 | | | 12 353 | 15 | 47 |
| | 500 | 4 | 0,3 | 0,281 | 4 050 | 2 | 23 | 0,35 | 0,331 | 4 770 | 2 | 23 | 0,4 | 0,381 | 5 490 | 2 | 23 |
| | | 6 | | | 6 075 | 6 | 34 | | | 7 155 | 5 | 34 | | | 8 235 | 5 | 33 |
| | | 8 | | | 8 100 | 10 | 41 | | | 9 540 | 9 | 41 | | | 10 980 | 9 | 41 |
| | | 10 | | | 10 125 | 15 | 47 | | | 11 925 | 14 | 47 | | | 13 725 | 13 | 47 |
| | 550 | 4 | 0,33 | 0,309 | 4 455 | 2 | 22 | 0,385 | 0,364 | 5 247 | 2 | 22 | 0,44 | 0,419 | 6 039 | 2 | 22 |
| | | 6 | | | 6 683 | 5 | 33 | | | 7 871 | 5 | 33 | | | 9 059 | 4 | 33 |
| | | 8 | | | 8 910 | 9 | 41 | | | 10 494 | 8 | 40 | | | 12 078 | 8 | 40 |
| | | 10 | | | 11 138 | 14 | 46 | | | 13 118 | 13 | 46 | | | 15 098 | 12 | 46 |
| | 600 | 4 | 0,36 | 0,338 | 4 860 | 2 | 22 | 0,42 | 0,398 | 5 724 | 2 | 21 | 0,48 | 0,458 | 6 588 | 2 | 21 |
| | | 6 | | | 7 290 | 5 | 32 | | | 8 586 | 4 | 32 | | | 9 882 | 4 | 32 |
| | | 8 | | | 9 720 | 8 | 40 | | | 11 448 | 8 | 39 | | | 13 176 | 7 | 39 |
| | | 10 | | | 12 150 | 13 | 45 | | | 14 310 | 12 | 45 | | | 16 470 | 11 | 45 |
| | 650 | 4 | 0,39 | 0,366 | 5 265 | 2 | 21 | 0,455 | 0,431 | 6 201 | 2 | 20 | 0,52 | 0,496 | 7 137 | 2 | 20 |
| | | 6 | | | 7 898 | 4 | 31 | | | 9 302 | 4 | 31 | | | 10 706 | 4 | 31 |
| | | 8 | | | 10 530 | 7 | 39 | | | 12 402 | 7 | 39 | | | 14 274 | 6 | 38 |
| | | 10 | | | 13 163 | 12 | 45 | | | 15 503 | 11 | 44 | | | 17 843 | 10 | 44 |
| | 700 | 4 | 0,42 | 0,394 | 5 670 | 2 | 20 | 0,49 | 0,464 | 6 678 | 2 | 19 | 0,56 | 0,534 | 7 686 | 1 | 19 |
| | | 6 | | | 8 505 | 4 | 30 | | | 10 017 | 4 | 30 | | | 11 529 | 3 | 30 |
| | | 8 | | | 11 340 | 7 | 38 | | | 13 356 | 6 | 38 | | | 15 372 | 6 | 37 |
| | | 10 | | | 14 175 | 11 | 44 | | | 16 695 | 10 | 43 | | | 19 215 | 9 | 43 |
| | 750 | 4 | 0,45 | 0,422 | 6 075 | 2 | 19 | 0,525 | 0,497 | 7 155 | 1 | 18 | 0,6 | 0,572 | 8 235 | 1 | 18 |
| | | 6 | | | 9 113 | 3 | 29 | | | 10 733 | 3 | 29 | | | 12 353 | 3 | 29 |
| | | 8 | | | 12 150 | 6 | 37 | | | 14 310 | 6 | 37 | | | 16 470 | 5 | 36 |
| | | 10 | | | 15 188 | 10 | 43 | | | 17 888 | 9 | 42 | | | 20 588 | 8 | 42 |
| | 800 | 4 | 0,48 | 0,45 | 6 480 | 1 | 18 | 0,56 | 0,53 | 7 632 | 1 | 17 | 0,64 | 0,61 | 8 784 | 1 | 17 |
| | | 6 | | | 9 720 | 3 | 28 | | | 11 448 | 3 | 28 | | | 13 176 | 3 | 28 |
| | | 8 | | | 12 960 | 5 | 36 | | | 15 264 | 5 | 35 | | | 17 568 | 5 | 35 |
| | | 10 | | | 16 200 | 9 | 42 | | | 19 080 | 8 | 41 | | | 21 960 | 7 | 41 |
| | 900 | 4 | 0,54 | 0,506 | 7 290 | 1 | 15 | 0,63 | 0,596 | 8 586 | 1 | 15 | 0,72 | 0,686 | 9 882 | 1 | 15 |
| | | 6 | | | 10 935 | 2 | 26 | | | 12 879 | 2 | 25 | | | 14 823 | 2 | 25 |
| | | 8 | | | 14 580 | 4 | 33 | | | 17 172 | 4 | 33 | | | 19 764 | 4 | 33 |
| | | 10 | | | 18 225 | 7 | 39 | | | 21 465 | 6 | 39 | | | 24 705 | 6 | 39 |
| | 1000 | 4 | 0,6 | 0,563 | 8 100 | 1 | 13 | 0,7 | 0,663 | 9 540 | 1 | 12 | 0,8 | 0,763 | 10 980 | 1 | 12 |
| | | 6 | | | 12 150 | 2 | 23 | | | 14 310 | 2 | 23 | | | 16 470 | 2 | 22 |
| | | 8 | | | 16 200 | 3 | 31 | | | 19 080 | 3 | 30 | | | 21 960 | 3 | 30 |
| | | 10 | | | 20 250 | 5 | 36 | | | 23 850 | 5 | 36 | | | 27 450 | 5 | 36 |

The mcr FID S/S c/P fire damper selection program is available at **www.mercor.com.pl**, in the Designer Zone.

## 2.7 | Estimated weights of mcr FID S/S c/P dampers for rectangular ventilation ducts [kg]

| height H [mm] \ width B [mm] | 100 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 5,5 | 6,0 | 6,5 | 7,0 | 8,0 | 9,0 | 10,0 | 13,0 | 15,0 | 17,0 | 19,0 | 21,0 |
| 150 | 6,0 | 6,5 | 7,0 | 7,5 | 8,5 | 9,5 | 10,5 | 13,5 | 15,5 | 17,5 | 19,5 | 21,5 |
| 200 | 6,5 | 7,0 | 7,5 | 8,0 | 9,0 | 10,0 | 11,0 | 14,0 | 16,0 | 18,0 | 20,0 | 22,0 |
| 250 | 7,0 | 7,5 | 8,0 | 9,5 | 10,0 | 11,0 | 14,0 | 15,0 | 17,0 | 19,0 | 21,0 | 23,0 |
| 300 | 8,0 | 8,5 | 9,0 | 10,5 | 11,0 | 12,0 | 15,0 | 16,0 | 18,0 | 20,0 | 22,0 | 24,0 |
| 350 | 9,0 | 9,5 | 10,0 | 11,5 | 12,0 | 13,0 | 16,0 | 17,0 | 19,0 | 21,0 | 23,0 | 25,0 |
| 400 | 10,0 | 10,5 | 11,0 | 12,5 | 13,5 | 14,0 | 17,0 | 18,0 | 21,0 | 22,0 | 24,0 | 26,0 |
| 500 | 12,0 | 12,5 | 13,0 | 14,5 | 15,5 | 16,0 | 18,0 | 19,0 | 22,0 | 24,0 | 26,0 | 28,0 |
| 600 | 14,0 | 14,5 | 15,0 | 16,5 | 17,5 | 18,5 | 20,0 | 22,0 | 24,0 | 26,0 | 28,0 | 30,0 |
| 700 | 16,0 | 16,5 | 17,0 | 18,5 | 19,5 | 20,0 | 22,0 | 24,0 | 26,0 | 28,0 | 30,0 | 32,0 |
| 800 | 18,0 | 18,5 | 19,0 | 20,5 | 21,5 | 22,0 | 24,0 | 26,0 | 28,0 | 30,0 | 32,0 | 34,0 |

For dampers with no actuator, subtract ~1 kg from the weight given.

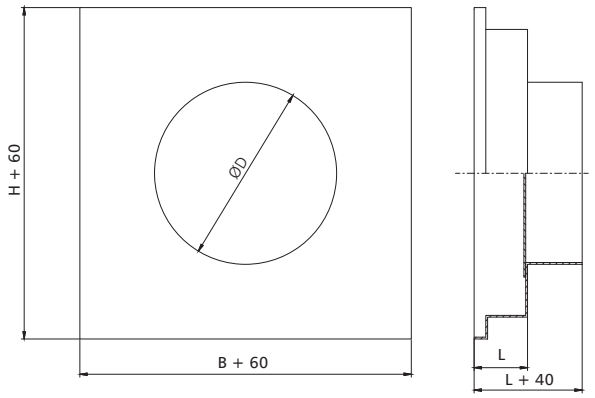
## 2.8 | Accessories

### 2.8.1 | mcr KRP connection stub

mcr KRP connection stubs are used to connect a circular ventilation duct to a rectangular damper. The connection is a „bare end" pipe. The diameter of the stub pipe is 2 mm smaller than the diameter of the ventilation duct.

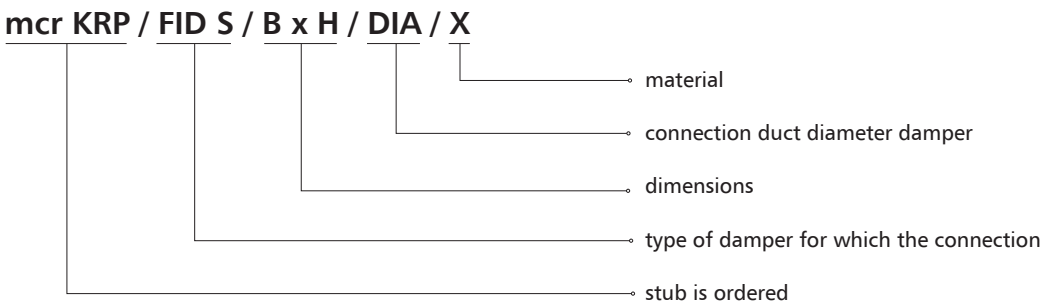
**NOTE:** due to the asymmetrical position of the fire blade in the damper casing, the connection stubs are of different lengths L, depending on the side of the damper on which they are to be used. Stubs are supplied for both sides of the damper.

**Dimensions:**
- BxH - damper dimensions [mm]
- ØD - diameter of the connection duct [mm]
- L - length [mm] calculated from the formula: H/2-50 for one connection side and H/2-150 for the other connection side




dimensions in [mm]

**Marking:**

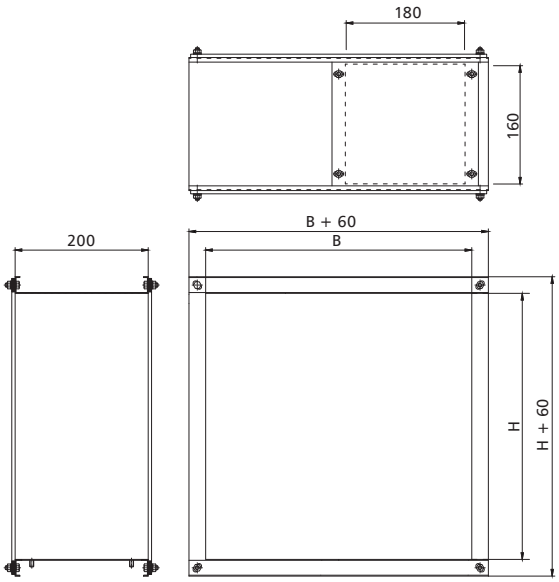



**X** – material
**[no symbol]** – galvanized steel, Zn 275 g/m² coating
**KN** – stainless steel
**KK** – 1.4404 acid-proof steel

## 2.8.2 | Casing module with KRW-type inspection access

The casing modules with a KRW-type inspection access are made of sheet metal and equipped with connection flanges. The casing features an inspection access opening with a cover. The module enables to access the damper blade or a drive train quickly without having to dismantle the damper or the duct on which it is installed.

### » KRW P module for rectangular damper




dimensions in [mm]

**Marking:**

**mcr KRW P / FID S / B x H / X**

- material
- dimensions
- type of damper for which the module is ordered
- rectangular module

**X** – material
**[no symbol]** – galvanized steel, Zn 275 g/m² coating
**KN** – stainless steel
**KK** – 1.4404 acid-proof steel

## 2.9 | Marking

**mcr FID S/S c/P B x H 1 / 2 / 3**

- additional parameters
- material
- control
- width x height (nominal)
- damper type

### 1 - control:

» **RST trigger control mechanism**
**RST** – thermal trigger
**RST/WK1** – thermal trigger + "pulse" electromagnetic trigger, U = 24 V DC + limit switch (open/closed blade signal)
**RST/WK2** – thermal trigger + "break" electromagnetic trigger, U = 24 V DC + limit switch (open/closed blade)

» **KW1 trigger control mechanism**
**KW1/S** – thermal trigger
**KW1/S/WK2** – thermal trigger + limit switch (open/closed blade signal)
**KW1/24I/WK2** – thermal trigger + "pulse" electromagnetic trigger, U = 24 V DC + limit switch (open/closed blade signal)
**KW1/24P/WK2** – thermal trigger + "break" electromagnetic trigger, U = 24 V DC + limit switch (open/closed blade) signal)
**KW1/24I/WK2** (+MP230/24) – thermal trigger + "pulse" electromagnetic trigger, U = 230 V AC + limit switch (open/closed blade signal)
**KW1/24P/WK2** (+MP230/24) – thermal trigger + "break" electromagnetic trigger, U = 230 V AC + limit switch (open/closed blade signal)

» **trigger and control mechanism, axial actuator**
**BF24TL-TN-ST** (with the BKN230-24MP option) – actuator with a return spring, U = 24 V, MP Bus digital control
**EXBF24-T** – explosion proof actuator with a return spring in the Ex version, U = 24 V AC/DC
**EXBF230-T** – explosion proof actuator with a return spring in the Ex version, U = 230 V AC
**BFL24-T / BFL24-SR-T** – actuator with a return spring, U = 24 V AC/DC
**BFL230-T** – actuator with a return spring, U = 230 V AC
**BFL24-T-ST** (with the BKN230-24 option) – actuator with a return spring, for the SBS Control system
**BFN 24-T / BFN 24-SR-T** – actuator with a return spring, U = 24 V AC/DC
**BFN230-T** – actuator with a return spring, U = 230 V AC
**BFN24-T-ST** (with the BKN230-24 option) – actuator with a return spring, for the SBS Control system
**MLF24T1** – actuator with a return spring, U = 24 V AC/DC
**MLF230T1** – actuator with a return spring, U = 230 V AC
**MF24T1** – actuator with a return spring, U = 24 V AC
**MF230T1** – actuator with a return spring, U = 230 V AC
**QT.Ex 24-FT.Ex** – explosion proof actuator with a return spring in the Ex version, U = 24 V AC/DC
**QT.Ex 230-FT.Ex** – explosion proof actuator with a return spring in the Ex version, U = 230 V AC/DC

## 2 - material:

» **[no symbol]** – galvanized steel, Zn 275 g/m$^2$ coating
**KN** – stainless steel
**KK** – 1.4404 acid-proof steel
**KKM** – special damper design - damper and its components made of stainless steel, damper partition sleeves additionally secured
**KOM** – sspecial damper design - damper and its components made of galvanized steel, damper partition sleeves additionally secured

## 3 - additional parameters :

» **Thermoelectric and thermal triggers**
**[no symbol]** – 72°C trigger
**ZBAT95** – thermoelectric trigger for 95°C
**T2-95 (MLF)** – thermoelectric trigger for 95°C
**T93-95** – thermal trigger for 95°C
**FT.Ex-72** – thermoelectric trigger for 72°C
**FT.Ex-95** – thermoelectric trigger for 95°C

» **Control mechanism position**
**[no symbol]** – perpendicular to the damper rotation axis
**WOK** – along the damper rotation axis

» **Damper axis of rotation**
**[no symbol]** – horizontal axis of rotation
**PP_D** – vertical axis of rotation – mechanism at the bottom of the damper
**PP_G** – vertical axis of rotation - mechanism at the top of the damper

» **Design standard**
**[no symbol]** – right damper
**KL** – left damper
**KO** – inverted damper

» **Damper casing**
**[no symbol]** – standard casing length
**400** – casing with a length of 400 mm
**BU** – earth pin

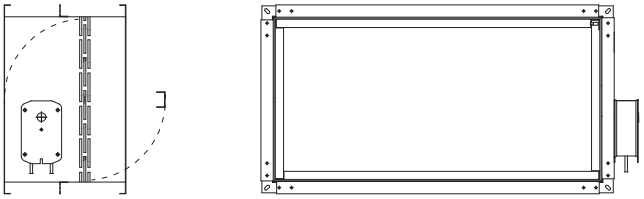
» **Installation bracket**
**[no symbol]** – no bracket
**WM** – installation bracket

NOTE: **separate additional parameters entered with the "/" sign**

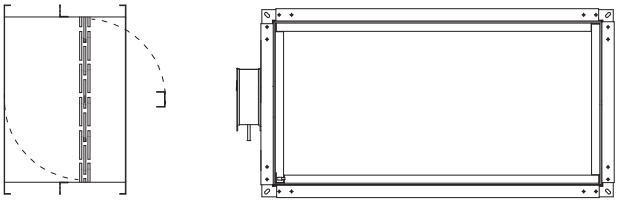
**example marking:**
**mcr FID S/S c/P 400 x 400 BFL24-T**
Low-resistance EIS120 cut-off damper with a 24 V actuator with limit switches.

## 2.9.1 | Design standard

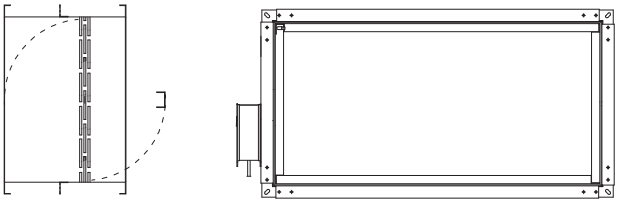
» **right damper - standard**



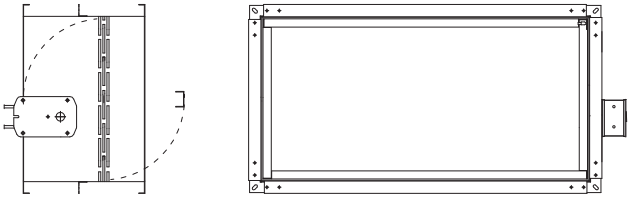
» **inverted damper - (ducts facing downwards)**



» **left damper**



» **along the damper axis**



**Chapter 18 in Technical Catalogue** - power supply and control (p. 350) contains the following information:
- technical specifications and connection diagrams **for the trigger control mechanisms supporting the damper.**

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