mercor®

FIRE VENTILATION SYSTEMS

FIRE DAMPERS AND FIRE VALVES

mcr FID PRO | Low-resistance circular single-blade cut-off fire dampers for comfort ventilation systems

downloadable models
on the website
under the designer zone tab

2434-CPR-0009

HYGIENIC CERTIFICATE

CTO S.A.

» **EIS120**
» Fire resistance class: EI60 (v_e h_o i↔o)S, EI90 (v_e i↔o)S, EI120 (v_e o→i)S, EI120 (v_e h_o i↔o)S, EI180 (h_o i↔o)S.
» Certificate of constancy of performance 2434-CPR-0009.
» 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 through a reduction of damper blade thickness.
» Certified installation of dampers in close proximity.
» Certified installation of dampers at a distance from construction partitions.
» Certified damper dry installation in mineral wool.
» Pressure difference range: 2000 Pa.
» Permitted operation with both vertical and horizontal axis of rotation.
» KTB ATEX 2014/34/UE

5.1| Application

mcr FID PRO low-resistance cut-off dampers are designed for installation in comfort ventilation systems at installation passages through vertical and horizontal construction partitions. They are installed for example in systems with higher acoustic parameters 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. Admissible flow velocity in the connected duct is 12 m/s for dampers with actuators and 10 m/s for fusible link dampers.
The dampers cannot be operated in systems exposed to dust, unless included in a special, individually developed service and technical inspections programme.
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

5.2| Design

mcr FID PRO cut-off fire dampers consist of a casing with a circular 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 metal sheets. 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. In the middle part, where the damper blade is placed, the casing is perforated along a width that depends on the blade diameter and thickness. On the damper circumference, around the closed damper blade, there is an intumescent gasket.
The blade is covered on both sides with metal sheets to ensure mechanical reinforcement and reduction of friction resistance. A ventilation gasket is installed on the perimeter of the blade, ensuring tightness of the dampers at ambient temperature. Both ends of the casing are terminated with a nipple (standard) or muff connection. Nipple dampers are made without external rubber perimeter gaskets as a standard. Upon the customer's request, dampers may be supplied with a perimeter lip gasket.

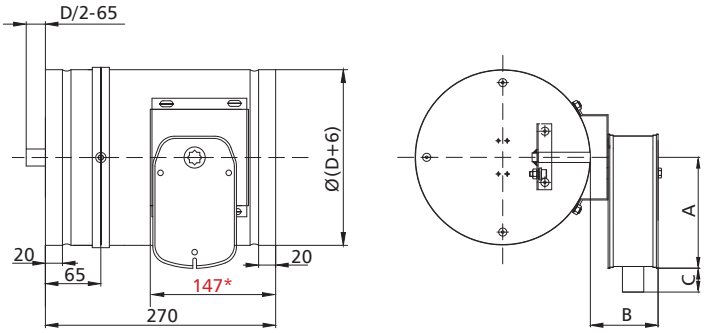
5.3 | Versions

5.3.1 | Damper closing and opening with an actuator

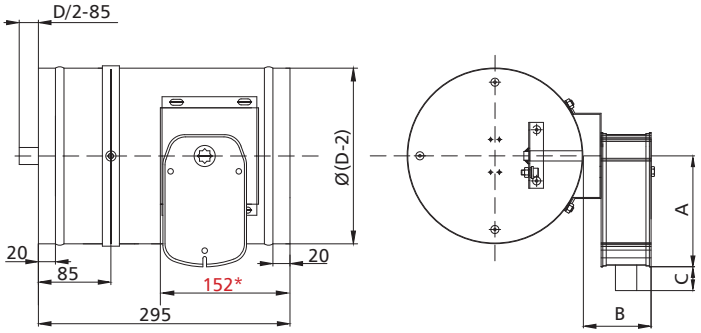
During normal operation, the fire damper blade remains open. In case of fire, the blade closes automatically or remotely when the power supply is cut off.

mcr FID PRO dampers are equipped with a trigger control mechanism in the form of BFL, MLF, EXBF, QT.Ex or BF-TL 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 the 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 analog 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.

» muff version



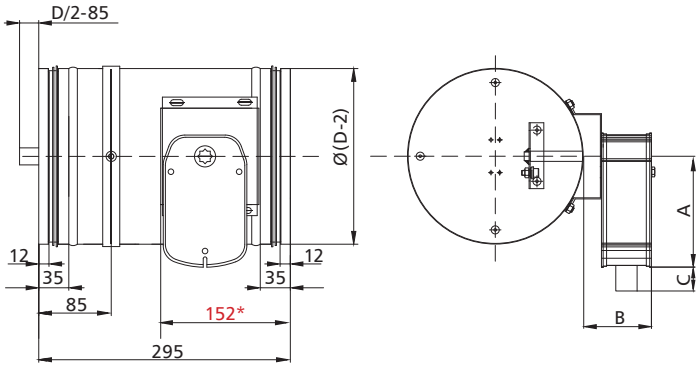
» nipple version



dimensions in [mm]

*embedding border

» version with UKW perimeter gasket

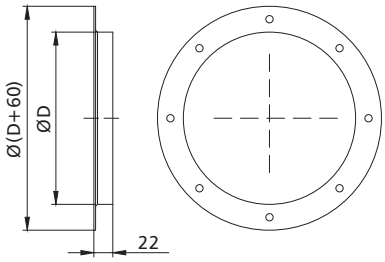


dimensions in [mm]

mechanism	A	B	C
BFL, MLF	138	74	30
BF24TL-ST	198	85	10
EXBF	225	190	55
QT.Ex	260	105	30

*embedding border

» connection flange



dimensions in [mm]

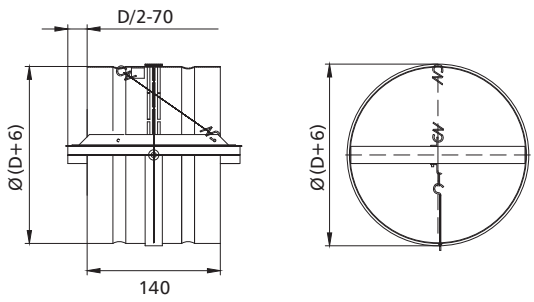
Spacing and number of openings according to EN 12220 (dimensions of circular flanges for general ventilation).

5.3.2 | mcr FID PRO – 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 PRO 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. It is possible to equip the damper with WK1 or WK2 limit switches used to signal the blade position.

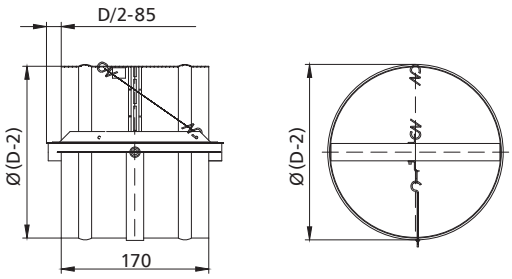
» muff version



dimensions in [mm]

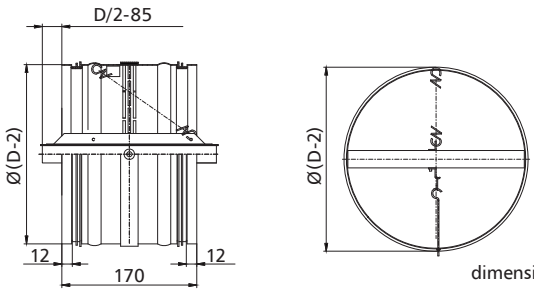
insert symmetrically against the wall axis

» nipple version



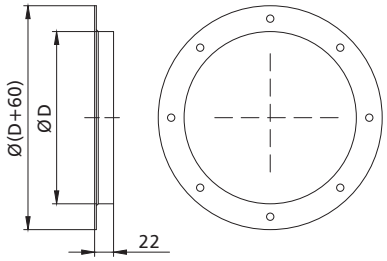
insert symmetrically against the wall axis

» version with an UKW perimeter gasket



dimensions in [mm]

» connection flange



dimensions in [mm]

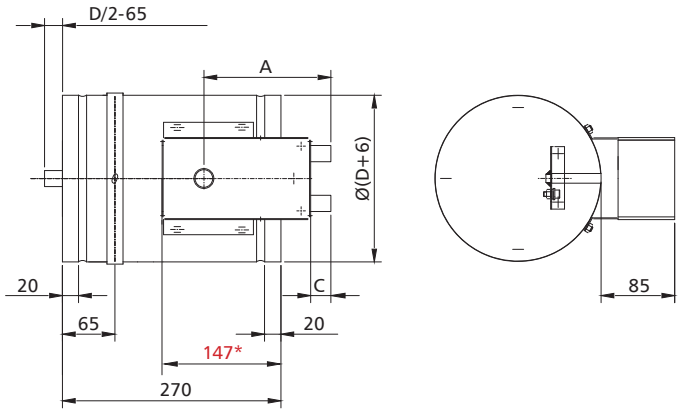
Spacing and number of openings according to EN 12220 (dimensions of circular flanges for general ventilation).

5.3.3 | mcr FID PRO – 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 PRO 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 using a key. It is not required to dismantle the system to replace the thermal trigger. The KW1 mechanism may be replaced with an electric actuator.

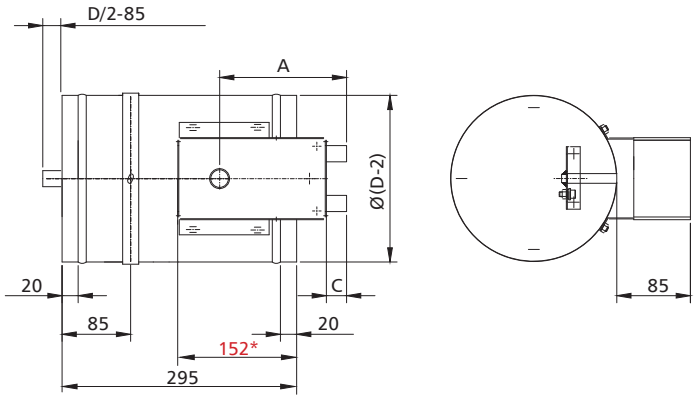
» muff version



dimensions in [mm]

*embedding border

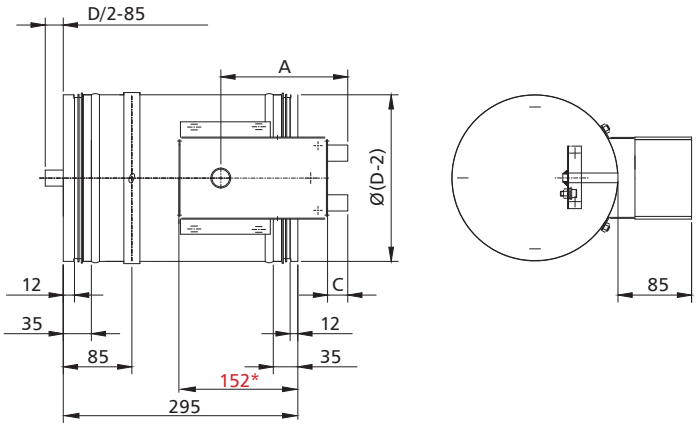
» nipple version



dimensions in [mm]

*embedding border

» version with UKW perimeter gasket

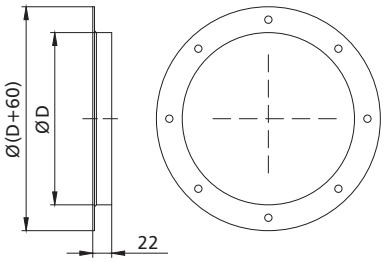


dimensions in [mm]

*embedding border

mechanism	A	C
KW1	130	30

» connection flange



dimensions in [mm]

Spacing and number of openings according to EN 12220 (dimensions of circular flanges for general ventilation).

5.4 | Dimensions

Circular dampers:

» nominal diameter D from 100 mm to 315 mm

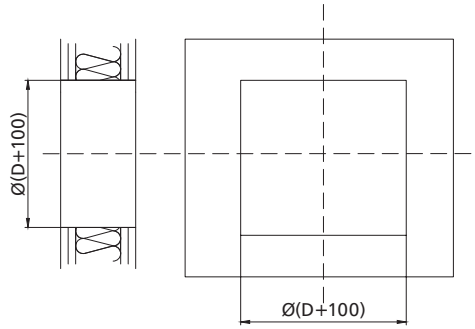
Apart from the standard dimensions, fire dampers may be manufactured with intermediate dimensions (at 1 mm increments within the given ranges).

5.5 | Installation

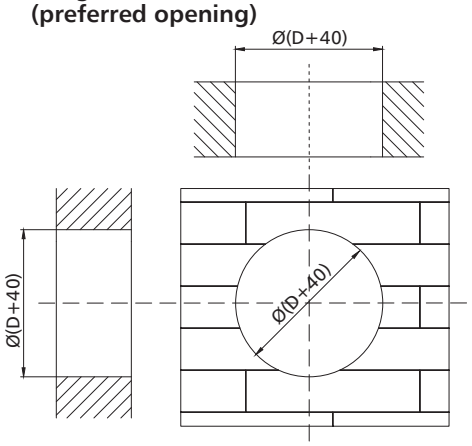
mcr FID PRO round dampers are rated EI120(v_e h_o i↔o)S and EI90S(v_e h_o i↔o)S if installed in concrete partitions, partitions made of full bricks or aerated concrete blocks with a thickness of at least or 125 mm, with mortar or mineral wool, or 120 mm with mortar for EIS120 class, in light walls/shafts made of gypsum boards with a min. thickness of 125 mm and concrete floors with a min. thickness of 150 mm. Additionally, mcr FID PRO dampers with diameters from 201 to 315 mm installed in concrete floor slabs are EI180(h_o i↔o) S rated. Dampers may also be installed away from walls/shafts, provided that the ventilation duct section between the damper and the wall meets the criteria of EIS120 fire resistance rating. The dampers can also be installed in flexible walls of the RIGIPS 3.50.11 system and have been classified as EI90 S with permitted dry installation for dampers D100 to D200, and EI120 S with permitted wet and dry installation for D100 dampers.

5.5.1 | Preparation of installation openings

» **in light gypsum board walls – dry installation (preferred opening)**



» **in rigid walls and floor slabs - wet installation (preferred opening)**

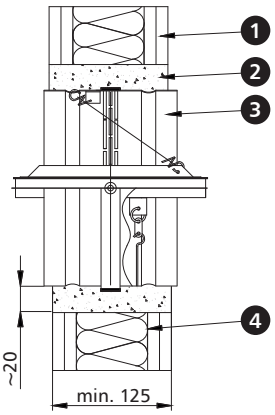


dimensions in [mm]

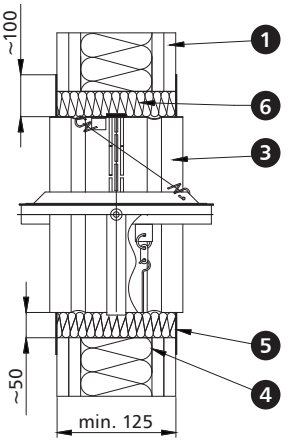
5.5.2 | Sample installation in gypsum board light walls

» **mcr FID PRO damper with an RST mechanism**

» **WET installation**



» **DRY installation**



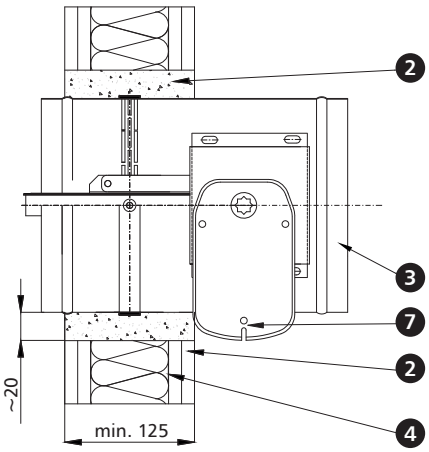
1. light wall
2. assembly mortar*
3. mcr FID PRO fire damper
4. structural profile
5. elastic fire protection grout/mass*
6. mineral wool

* Recommended damper installation in a dry system is based on wool with a min. density of 150 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.

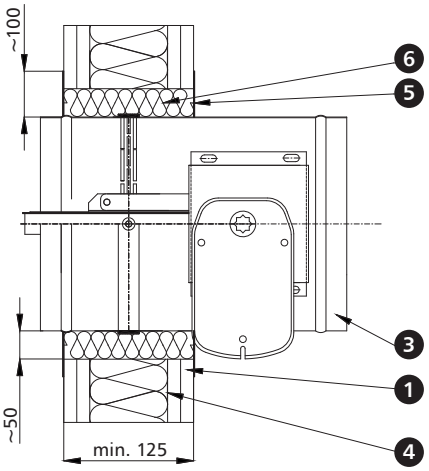
NOTE: If the damper is installed in a wall with a thickness of less than 125 mm, the wall thickness should be increased along the damper circumference by installing a belt of panels or other construction elements to the required thickness.

» mcr FID PRO damper with a BFL, MLF, KW1 mechanism

» WET installation



» DRY installation



dimensions in [mm]

1. light wall
2. assembly mortar*
3. mcr FID PRO fire damper
4. structural profile
5. elastic fire protection grout/mass*
6. mineral wool*
7. trigger control mechanism

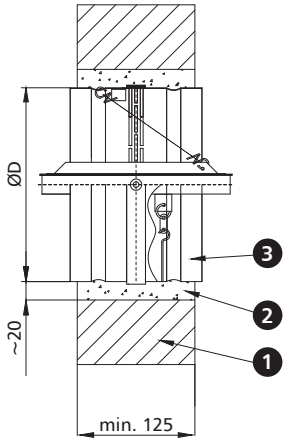
* Recommended damper installation in a dry system is based on wool with a min. density of 150 kg/m3 and a fire resistance class A1, as well as on securing the contact portion between the damper and the wall and the wall itself with the elastic fire protection mass mcr Polylac Elastic with a thickness 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.

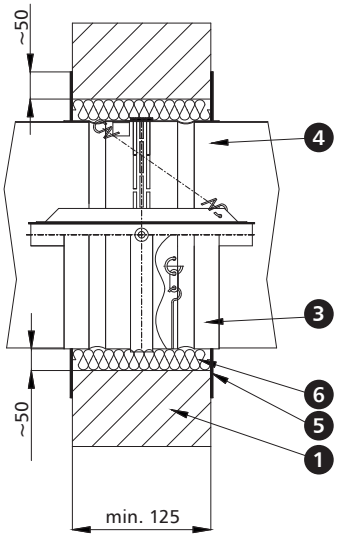
5.5.3 | Sample installation in concrete and brick walls

» mcr FID PRO damper with an RST mechanism

» WET installation



» DRY installation



dimensions in [mm]

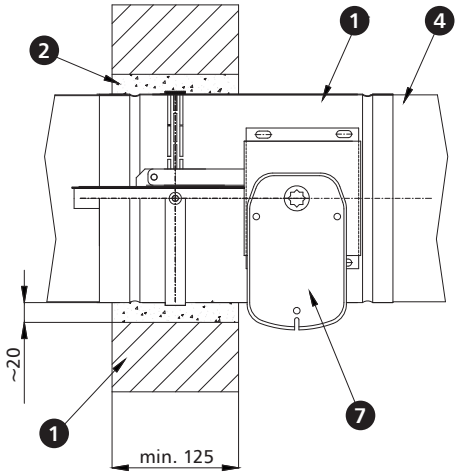
1. rigid wall
2. assembly mortar*
3. mcr FID PRO fire damper
4. ventilation duct
5. elastic fire protection grout/mass*
6. mineral wool*

* Recommended damper installation in a dry system is based on wool with a min. density of 150 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.

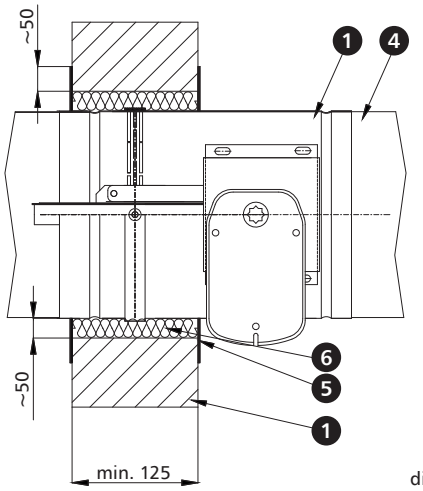
NOTE: If the damper is installed in a wall with a thickness of less than 125 mm, the wall thickness should be increased along the damper circumference by installing a belt of panels or other construction elements to the required thickness.

» mcr FID PRO damper with a BFL, MLF, KW1 mechanism

» WET installation



» DRY installation



dimensions in [mm]

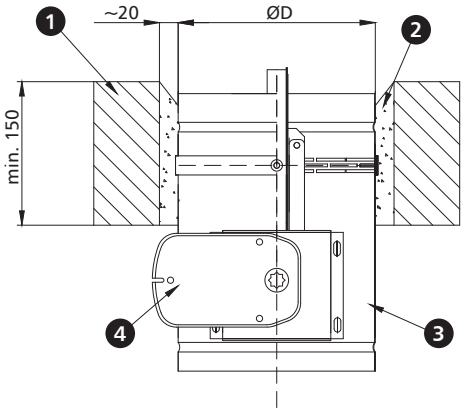
1. rigid wall
2. assembly mortar*
3. mcr FID PRO fire damper
4. ventilation duct
5. elastic fire protection grout/mass*
6. mineral wool*
7. trigger control mechanism

* Recommended damper installation in a dry system is based on wool with a min. density of 150 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.

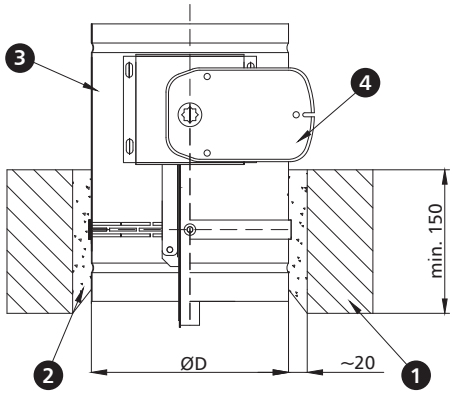
NOTE: If the damper is installed in a wall with a thickness of less than 125 mm, the wall thickness should be increased along the damper circumference by installing a belt of panels or other construction elements to the required thickness.

5.5.4 | Sample installation in floor slabs

» mcr FID PRO damper
» with a BFL, MLF, KW1 mechanism



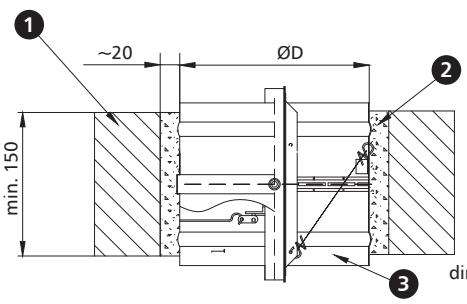
» mcr FID PRO damper
» with a BFL, MLF, KW1 mechanism



1. floor slab
2. assembly mortar*
3. mcr FID PRO fire damper
4. trigger control mechanism

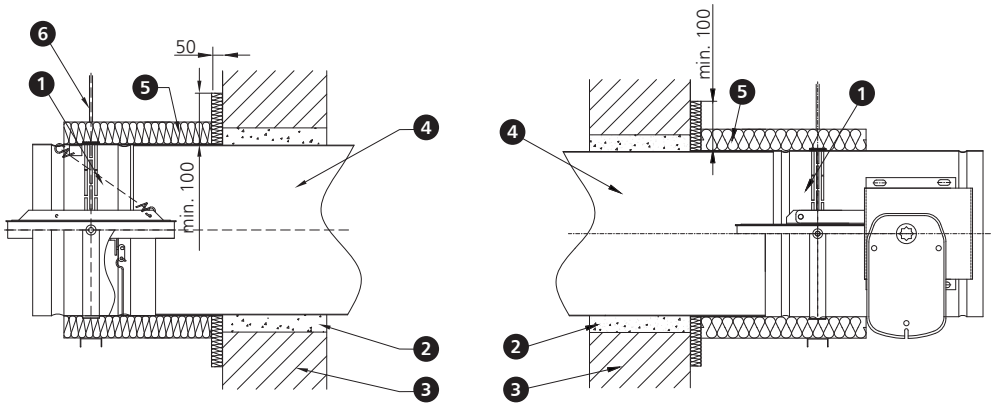
* Recommended damper installation in a wet system is based on assembly mortar on the basis of gypsum or cement. The manufacturer allows for using other materials with parameters that confirm and ensure the appropriate fire resistance rating for the method applied

» mcr FID PRO damper with an RST mechanism



dimensions in [mm]

5.5.5 | Sample installation outside of a fire partition

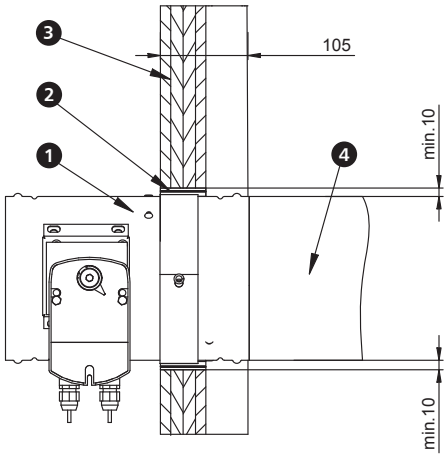


1. mcr FID PRO fire damper
2. assembly mortar*
3. wall
4. ventilation duct
5. fire protection material ensuring the required fire resistance rating
6. duct suspension

dimensions in [mm]

* 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 method applied. The maximum distance of the damper from the building partition is 1000 mm.

5.5.6 | Sample installation in RIGIPS 3.50.11 walls*

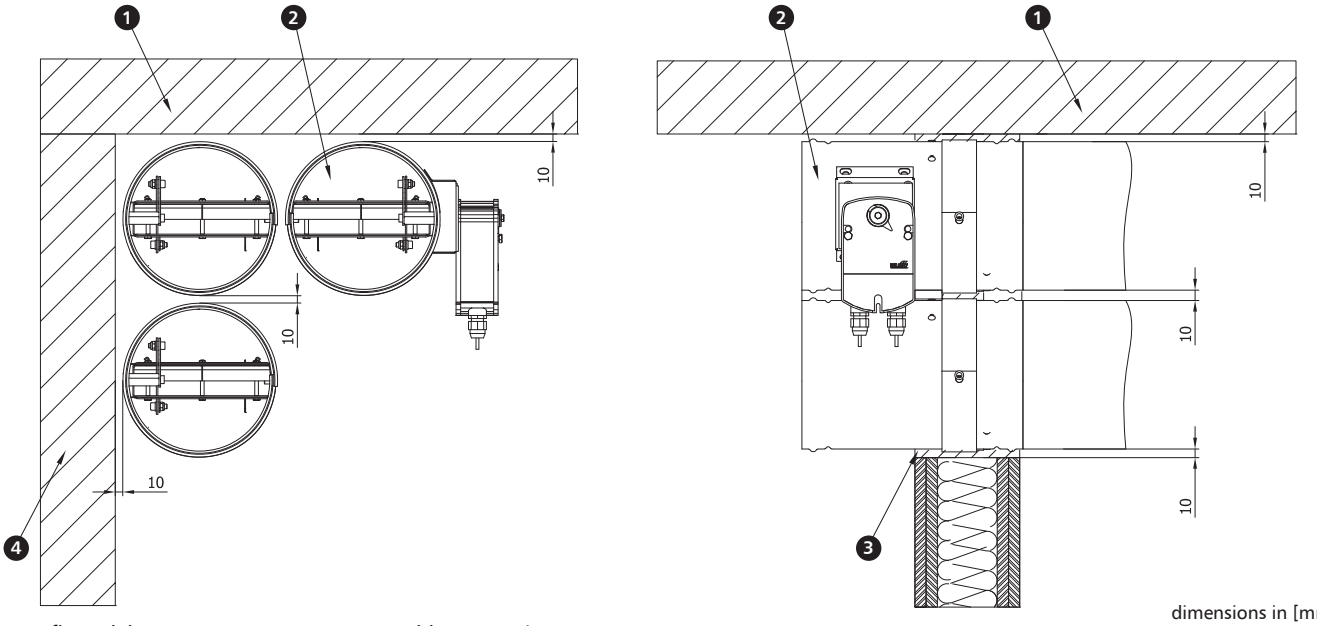


1. mcr FID PRO fire damper
2. wool
3. Rigips wall
4. ventilation duct

* the D100 to D200 damper has an EI90 (v_e i↔o)S - dry installation allowed
* the D100 damper has an EI120 (v_e o→i)S - wet and dry installation allowed

dimensions in [mm]

Minimum distance between systems and partitions



1. floor slab
2. mcr FID PRO damper
3. assembly mortar *
4. wall

dimensions in [mm]

* 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 method applied.

5.6 | mcr FID PRO rectangular dampers technical parameters

D – nominal diameter [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]

» mcr FID PRO EIS 60

» mcr FID PRO 100

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
100	2	0.0079	0.0064	46	3	16
	4			91	11	25
	6			137	20	33
	8			183	32	40

» mcr FID PRO 125

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
125	2	0.0123	0.0104	75	2	14
	4			150	8	23
	6			224	15	32
	8			299	25	39

» mcr FID PRO 160

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
160	2	0.0201	0.0177	127	1	11
	4			255	3	14
	6			382	7	24
	8			510	12	32

» mcr FID PRO 200

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
200	2	0.0314	0.0284	204	1	12
	4			409	3	17
	6			613	8	29
	8			818	15	37

» mcr FID PRO 250

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
250	2	0.0491	0.0453	326	1	3
	4			653	2	8
	6			979	2	15
	8			1305	4	20

» mcr FID PRO 315

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
315	2	0.0779	0.0732	527	1	4
	4			1054	2	10
	6			1580	3	18
	8			2107	5	26

mcr FID PRO | Low-resistance circular single-blade cut-off fire dampers for comfort ventilation systems

D – nominal diameter [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]

» mcr FID PRO EIS 120

» mcr FID PRO 100

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
100	2	0.0079	0.0059	42	4.5	21
	4			84	14	29
	6			126	26	37
	8			168	42	43

» mcr FID PRO 125

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
125	2	0.0123	0.0098	70	3	19
	4			141	10	27
	6			211	20	36
	8			281	33	42

» mcr FID PRO 160

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
160	2	0.0201	0.0169	122	1	16
	4			243	4	17
	6			365	9	28
	8			487	16	35

» mcr FID PRO 200

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
200	2	0.0314	0.0274	197	1	16
	4			395	5	21
	6			592	11	33
	8			789	20	40

» mcr FID PRO 250

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
250	2	0.0491	0.0391	281	2	17
	4			563	4	21
	6			844	7	27
	8			1125	10	33

» mcr FID PRO 315

D [m/s]	v [m/s]	S_k [m²]	S_e [m²]	Q [m³/h]	d_p [PA]	L_{WA} [dB]
315	2	0.0779	0.0653	470	2	18
	4			940	4	23
	6			1410	7	31
	8			1880	13	39

The mcr FID PRO fire damper selection program is available at www.mercor.com.pl, in the Designer Zone.

5.6.1 | Flow characteristics for mcr FID PRO circular dampers

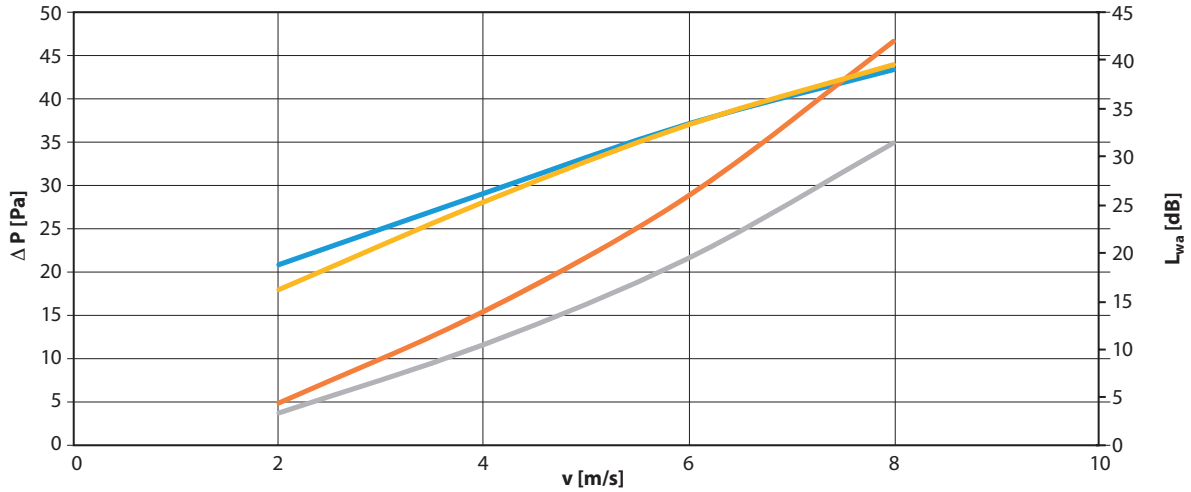
EIS120 — damper noise emission level

EIS120 — pressure drop on a damper

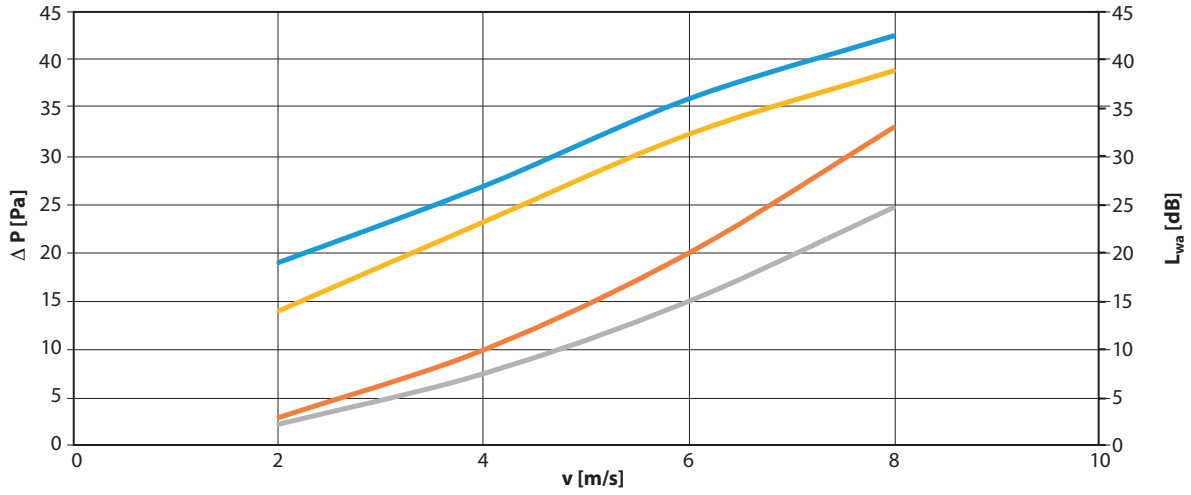
EIS60 — pressure drop on a damper

EIS60 — damper noise emission level

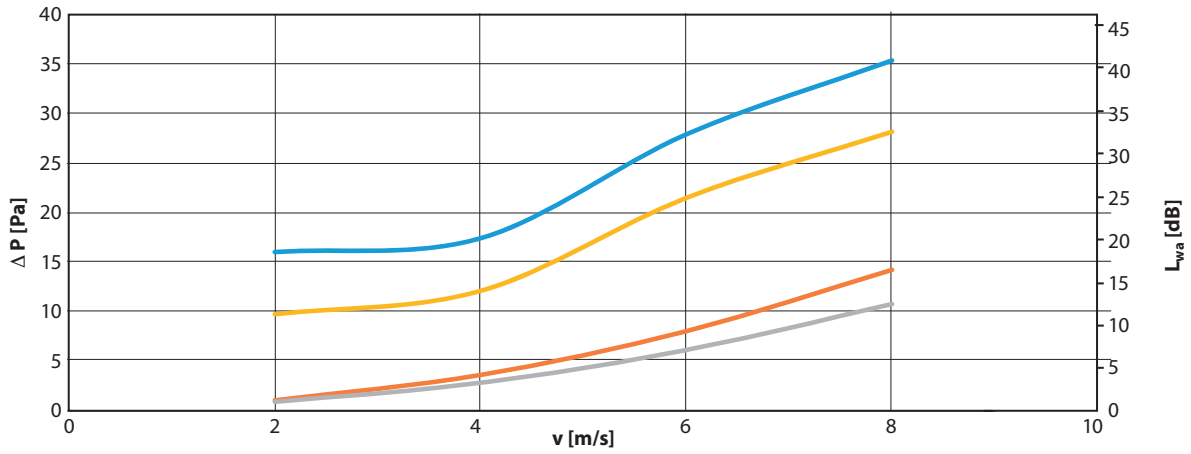
» mcr FID PRO 100



» mcr FID PRO 125



» mcr FID PRO 160



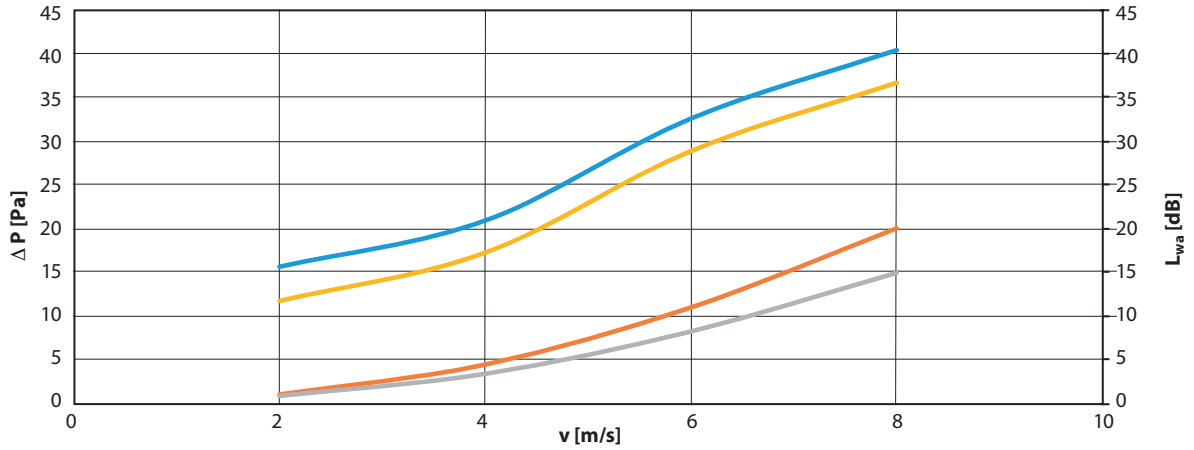
EIS120 — damper noise emission level

EIS120 — pressure drop on a damper

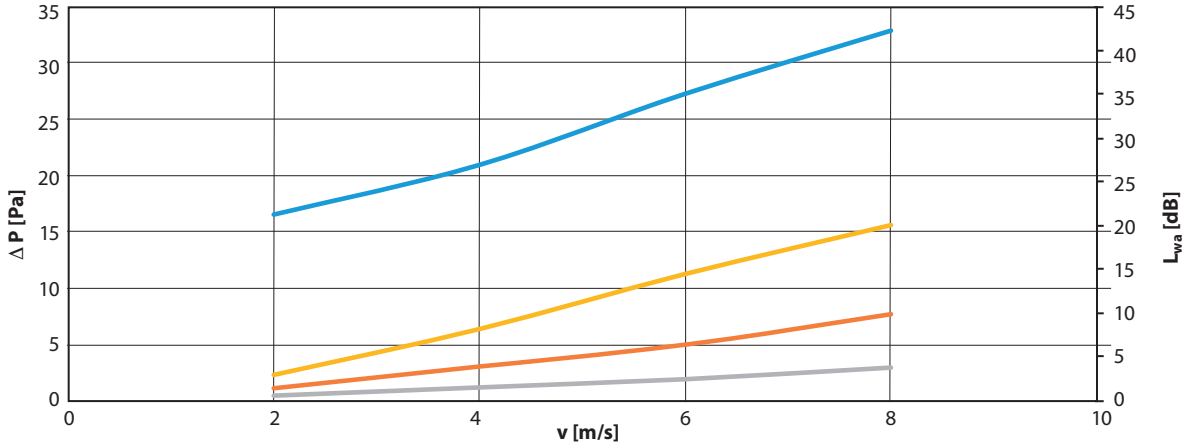
EIS60 — pressure drop on a damper

EIS60 — damper noise emission level

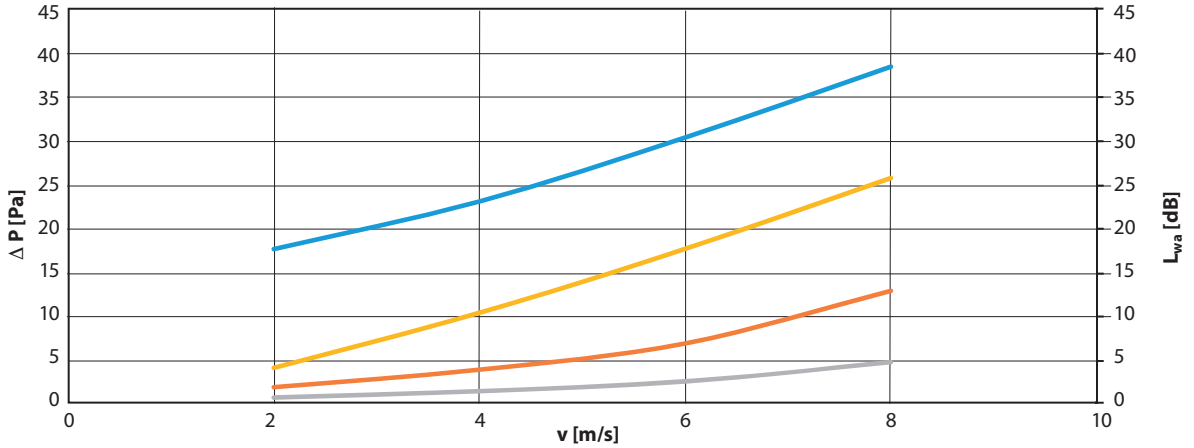
» mcr FID PRO 200



» mcr FID PRO 250



» mcr FID PRO 315



5.7 | Estimated weights of mcr FID PRO dampers for circular ventilation ducts [kg]

diameter D [mm]	RST	actuator/KW1
100	0.7	3
125	0.9	3.2
160	1.2	3.6
200	1.7	4.2
250	2.1	4.6
315	2.6	5.1

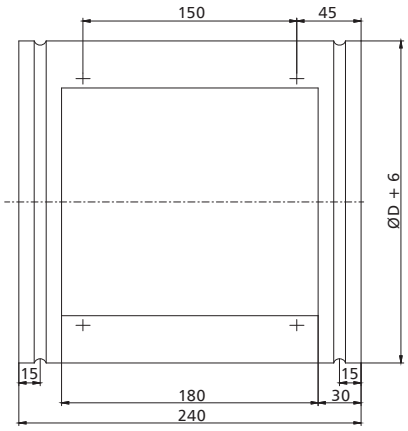
5.8 | Accessories

5.8.1 | Casing module with KRW-type inspection access

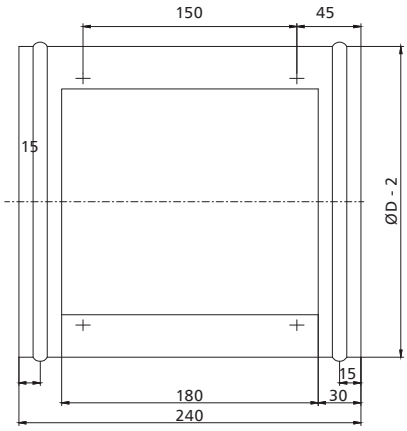
The casing modules with a KRW-type inspection access are made of sheet metal and equipped with connection flanges. The casing features an inspection access opening with a cover. The module enables to access the damper blade or a drive train quickly without having to dismantle the damper or the duct on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

Versions:

- **KRW OM module**
- **round muff module for nipple damper**



- **KRW ON module**
- **round nipple module for muff damper**



dimensions in [mm]

Marking

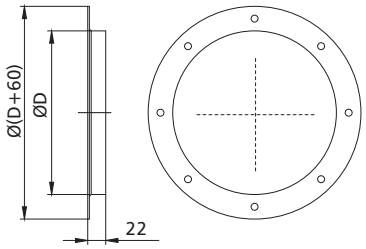
mcr KRW ON / FID PRO / B x H / X

- material
- dimensions
- type of damper for which the module is ordered
- round nipple module - mcr KRW ON
  round muff module - mcr KRW OM

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

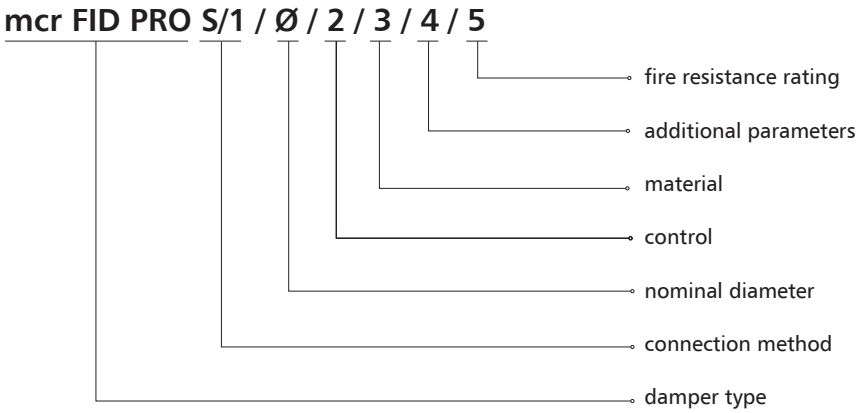
5.8.2 | Connection flange

The connection flange is used to connect a round fire damper to a duct with a connection made in accordance with PN-EN 12220.



dimensions in [mm]

5.9 | Marking



1 - connection method

N or **[no symbol]** – nipple
M – muff
K – flange

2 - 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)
» **RST trigger control mechanism-KW1**
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-SR-T – actuator with a return spring, U = 24 V AC/DC
BFL230-T – actuator with a return spring, U = 230 V AC
BFL24-TN-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
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

3 - material

[no symbol] – galvanized steel, Zn 275 g/m² 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 – special damper design - damper and its components made of galvanized steel, damper partition sleeves additionally secured

4 - additional parameters

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

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

» **Extended damper casing**
[no symbol] – design without gaskets
UKW – version with external gaskets

5 - fire resistance rating

[no symbol] – fire resistance rating EI120
EI60 – fire resistance rating EI60

* – for dampers with the KW1 mechanism, the trigger control mechanism is installed along the axis of rotation as standard – exception

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

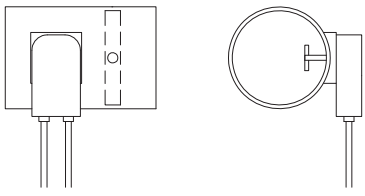
example marking:

mcr FID PRO Ø125 BFL24-T
EI120 low-resistance cut-off damper with a 24 V actuator with a thermoelectric trigger and limit switches.

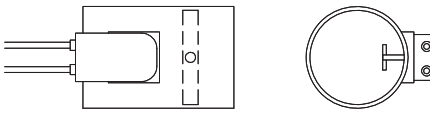
mcr FID PRO Ø125 RST/WK1
EI120 low-resistance cut-off damper with a 74°C thermal trigger and damper blade opening limit switch.

5.9.1 | Design standard

» right damper - standard



» actuator along the damper axis



standard for **BFL24-TN-ST**

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.**

Mercor Light&Vent Sp. z o.o.
ul. Grzegorza z Sanoka 2
80-408 Gdańsk
(+48) 58 341 42 45
hw.export@mercor.com.pl

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