

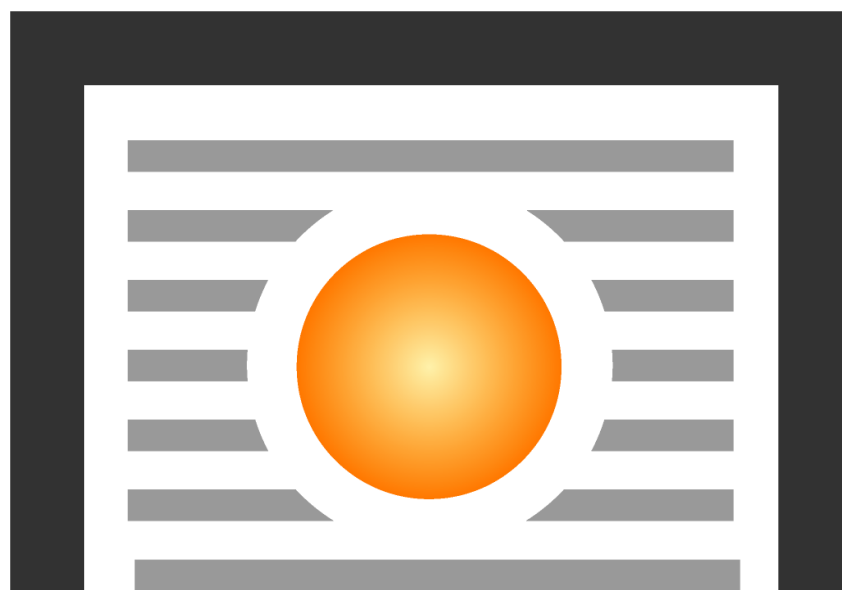
Fire damper:



Single blade low resistance circular cut-off fire dampers for comfort ventilation systems

Model FID PRO

Technical Catalogue



SAFE ● VENT[®]



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CE
1488-CPR-0467/W

CE
1396-CPR-0098



ATEST HIGIENICZNY



CERTYFIKACJA PRODUKTU



- EIS120, E180S
- Certificate of constancy of performance 1488-CPR-0467/W and 1396-CPR-0098.
- Dampers certified for compliance with EN 15650.
- Dampers qualified under EN 13501-3 and tested under EN 1366-2.
- Cut-off dampers with the fire resistance independent of airflow direction and installation side.
- Lower acoustic noise and hydraulic resistance in the system with reduced partition thickness.

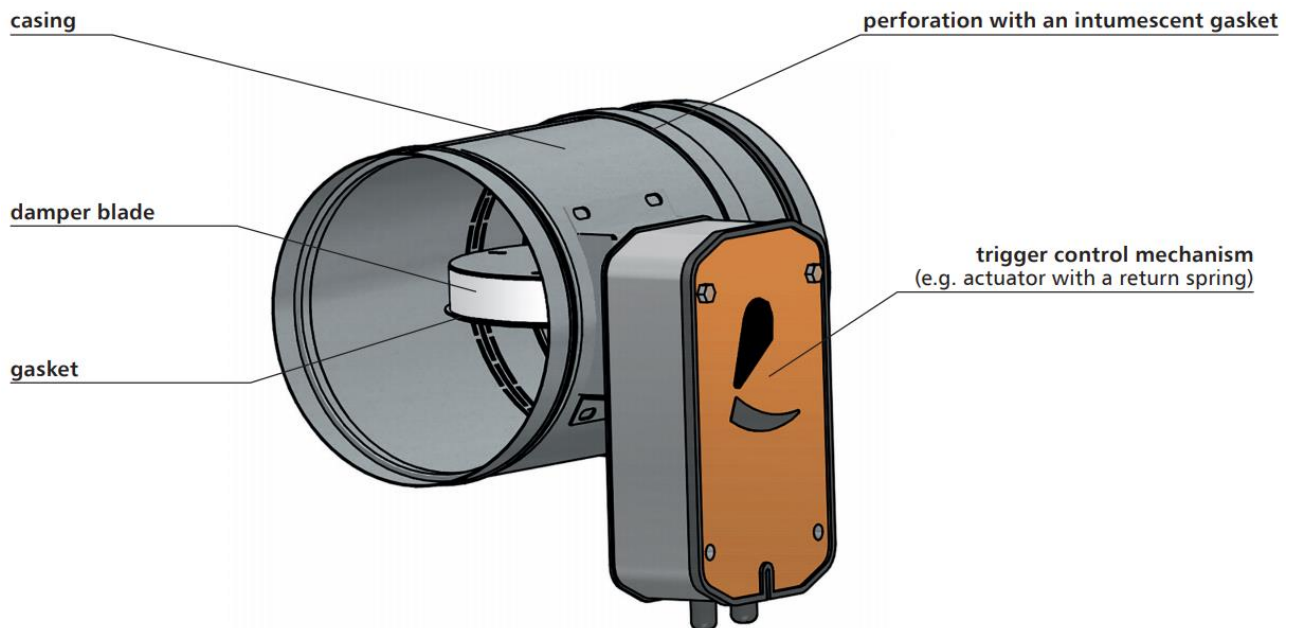
1. Application

The FID PRO low-resistance cut-off dampers are designed for use in residential ventilation systems, where those systems pass through vertical and horizontal construction partitions. They are installed e.g. in systems with increased acoustic requirements.

During a fire, the dampers preserve the fire resistance of the construction partition where ventilation and air conditioning ducts are routed through. Furthermore, they prevent the spreading of fire, smoke and burning fumes to the remaining part of the building 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, except for when they are included in a special, individually developed programme of service and technical inspections.

2. Design



The 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 galvanised steel sheet. For chemically aggressive environments, special manufacture casing is used, in which steel elements are made of 1.4404 acid-proof steel sheet, while other elements are impregnated.

In the middle part, in which the damper blade is placed, the casing is perforated - perforation width is 20 mm. On the damper circumference, around the closed damper blade, there is an intumescent gasket. The damper blade is made of a fire-proof panel with the total thickness of 20 mm.

The damper blade is coated with steel sheet on both sides for mechanical reinforcement and reduced friction resistance. The damper circumference has a ventilation gasket installed, which ensures the tightness of dampers at the ambient temperature. Both ends of the casing are finished nipple (standard) or muff connection.

3. Versions

3.1 FID PRO – the cut-off fire damper for ventilation ducts with an actuator with a return spring – damper closing and opening with an actuator

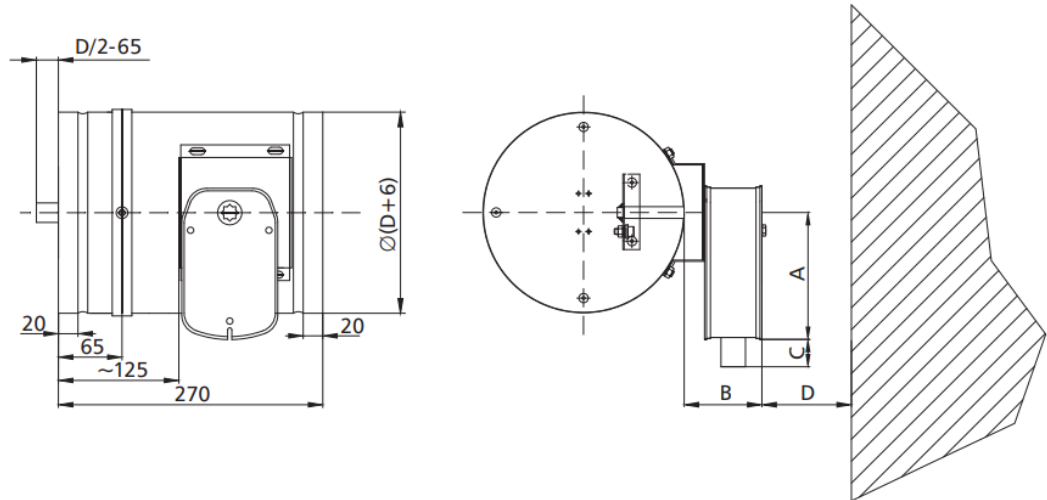
During normal operation, the damper blade of the fire damper remains open. In case of fire, the blade closes automatically or remotely when the power supply is cut off.

The FID PRO dampers are equipped with a Belimo trigger control mechanisms **BFL**, **EXBF** or **BF-TL** axial actuator with a return valve, powered with 24 V AC/DC or 230 V AC, with thermoelectric trigger 72°C (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, the mechanical position indicator is placed on the actuator.

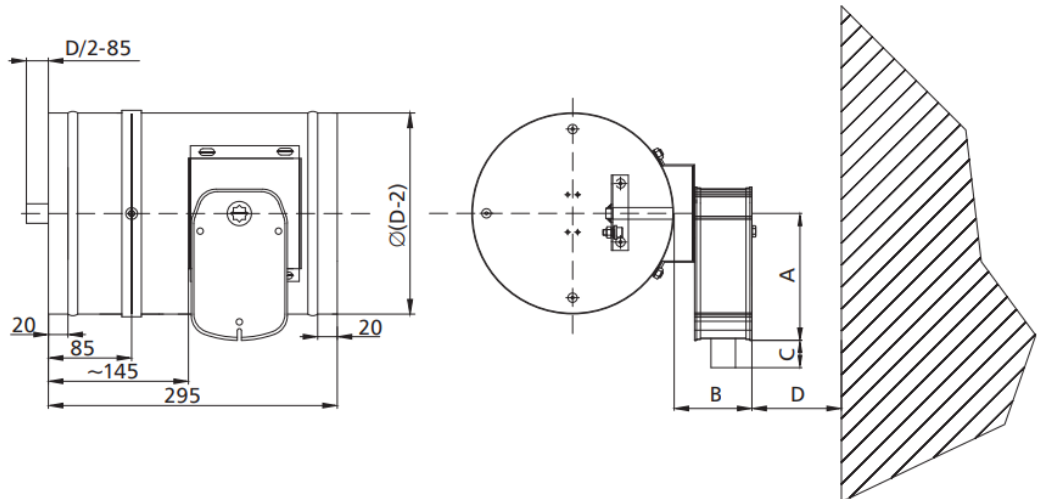
The thermoelectric trigger is equipped with a test switch and a power supply indicator (LED).

Dampers with Belimo actuators: analogue BFL, digital BF-TL, EXBF explosion proof actuators close as a result of thermoelectric trigger tripping or power supply cut-off as a result of the actuator return spring action. The dampers open when the power supply voltage is applied to the actuator terminals. Furthermore, dampers with those actuators may be opened manually using a key.

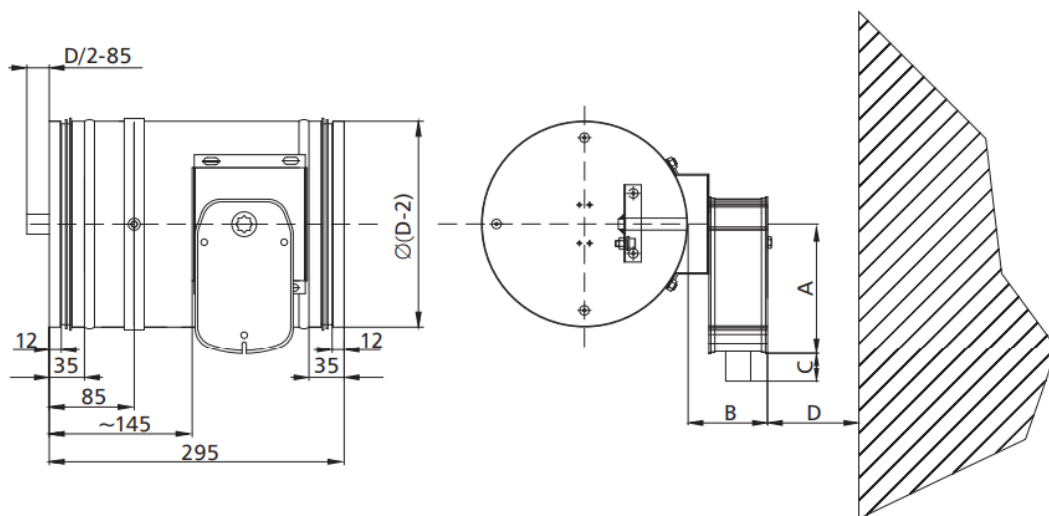
female connection type (muff)



male connection type (nipple)

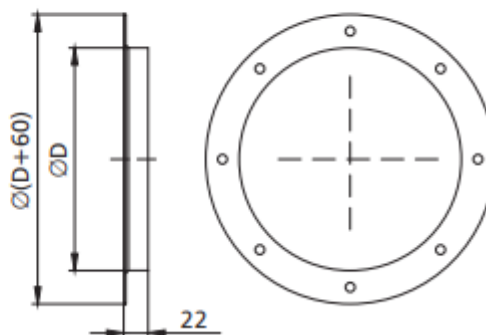


version with circumferential seal type F



Mechanism	A	C	D	E
BFL	138	74	30	75
BF24TL-ST	198	85	10	75
EXBF	225	190	55	100

flange connection



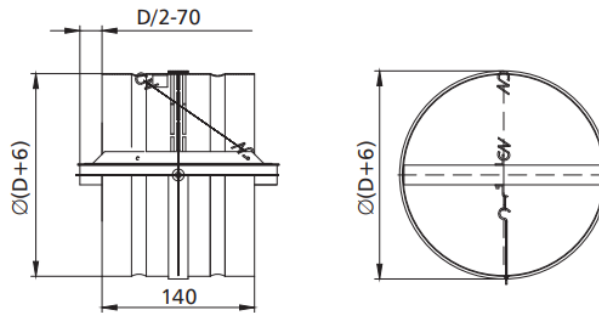
Spacing and quantities of openings according to EN 12220 (dimensions of flanges with circular intersection for comfort ventilation purposes).

3.2 FID PRO – the cut-off fire damper for ventilation ducts with a spring drive and thermal trigger

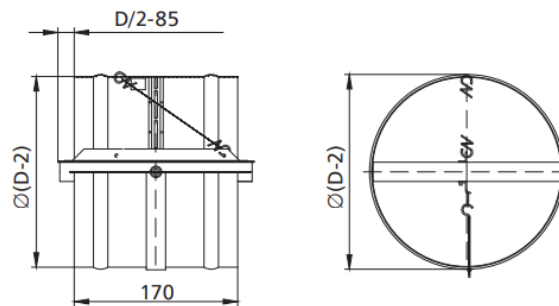
During normal operation, the damper blade of the fire damper remains open. In case of fire, the blade closes automatically.

The FID PRO dampers are equipped with a RST trigger control mechanism with a drive spring (without an integrated thermal trigger). In this case, a thermal trigger 74°C (optionally 95°C) is installed outside the damper mechanism, on the damper blade itself. After the nominal temperature is exceeded, the thermal trigger is tripped and the blade closes. It is possible to equip the damper with a WK1 or WK2 limit switch

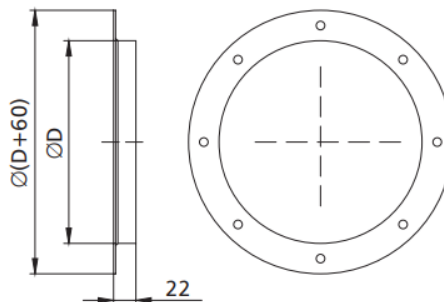
used to signal the blade position state.
female connection type (muff)



male connection type (nipple)



flange connection



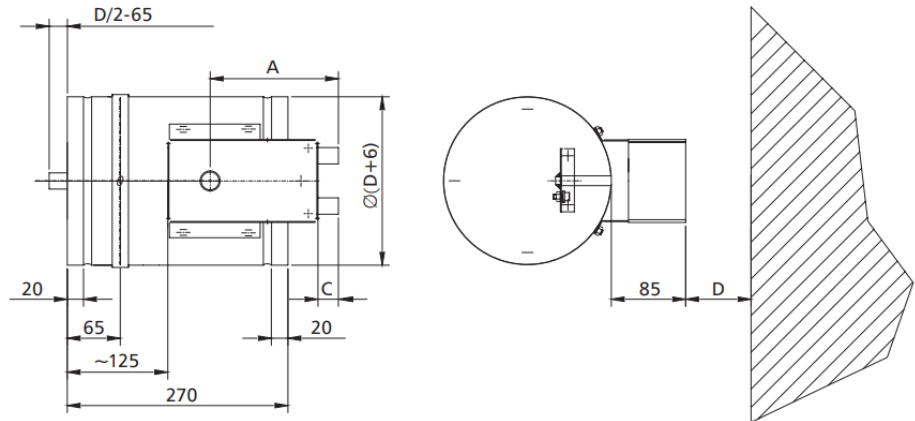
3.3 FID PRO – the cut-off fire damper for ventilation ducts with a spring drive and an integrated thermal trigger, optionally equipped with an electromagnetic trigger and limit switch

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

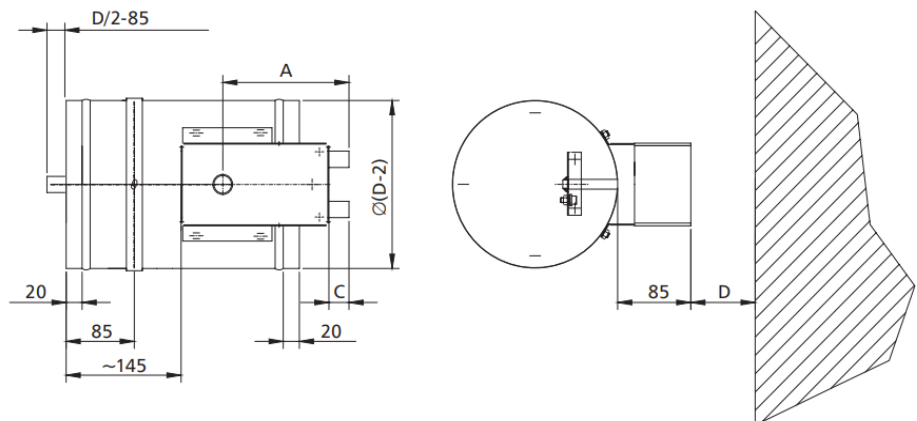
The FID PRO dampers are equipped with a **RST-KW1** trigger control mechanism with a drive spring and a cam-lever system. A thermal trigger 74°C (optionally at 95°C) is integrated with the damper mechanism. After the nominal temperature is exceeded, the thermal trigger is tripped and the blade closes. On the RST-KW1 mechanism, there is a mechanical indicator of blade position. 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 state. The mechanism has function to test and blade button-release. Blade re-opening is activated manually using a key. It is not required to dismantle the system to replace the thermal trigger. The RST-KW1 mechanism may be replaced with an electric actuator.

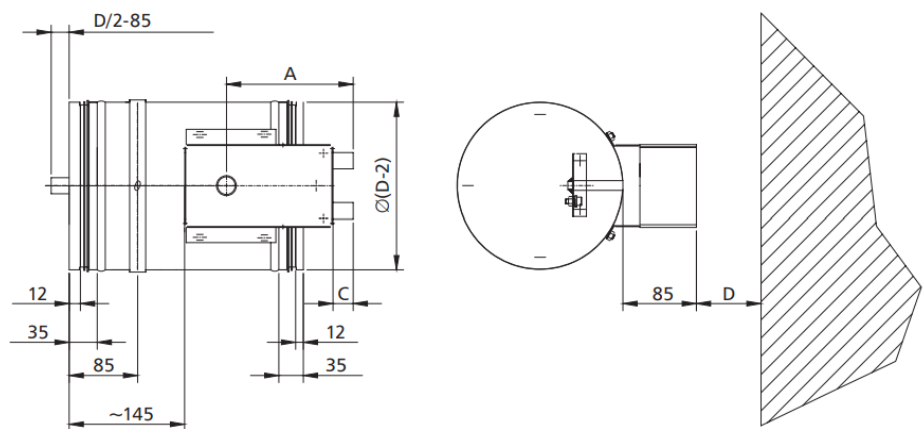
female connection type (muff)



male connection type (nipple)

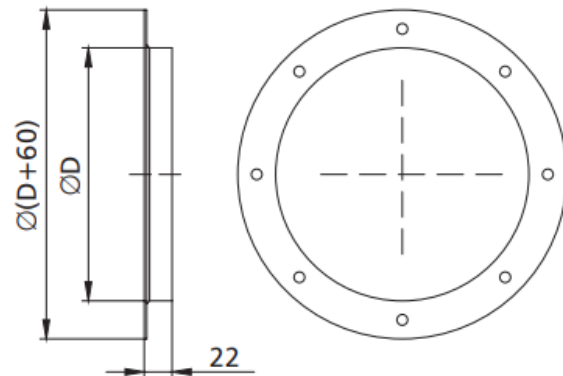


version with circumferential seal type F



Mechanism	A	C	D
RST-KW1	130	30	75

flange connection



Spacing and quantities of openings according to EN 12220 (dimensions of flanges with circular intersection for comfort ventilation purposes).

4. Dimensions

Circular dampers:

- Nominal diameter D from 100 mm to 315 mm

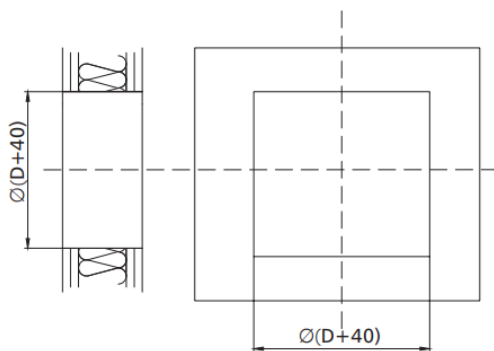
Apart from the standard dimensions there is a possibility to produce dampers with intermediate dimensions (in 1 mm increments, in the given range).

5. Installation

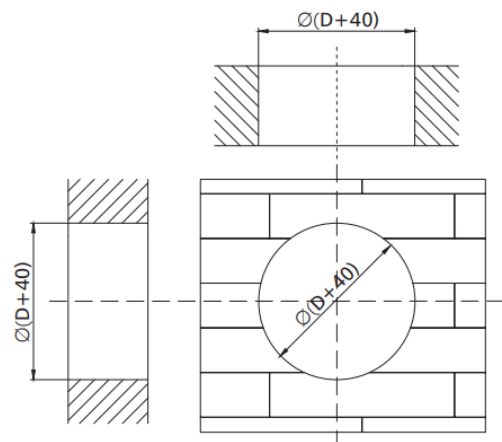
The FID PRO circular dampers are EI120(ve ho i↔o)S-rated when installed in concrete partitions made of full bricks or cellular concrete blocks with the thickness of at least 125 mm, lightweight walls of cardboard-plaster panels on a steel framework with the thickness of at least 125 mm and the resistance class of not less than EI120 and concrete ceilings with the thickness of at least 150 mm. Additionally dampers FID PRO with diameter 201-315 mm installed in concrete ceilings are E180(ho i↔o)S-rated.

5.1 Preparation of installation openings

in light plaster-cardboard walls

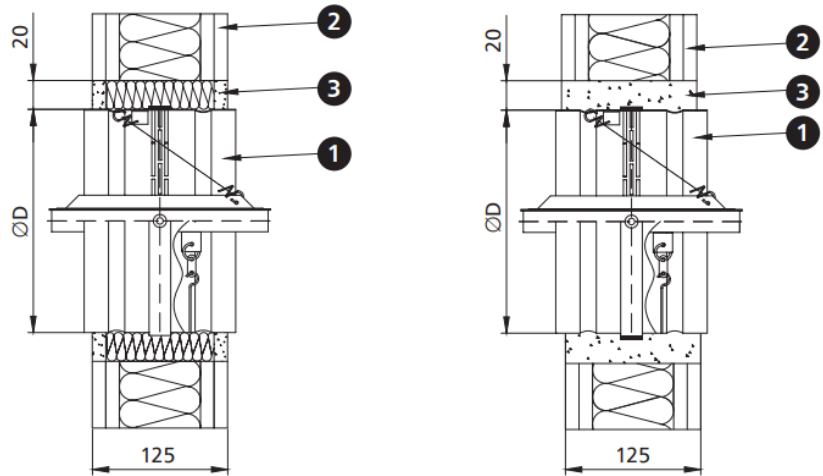


in rigid walls and ceilings

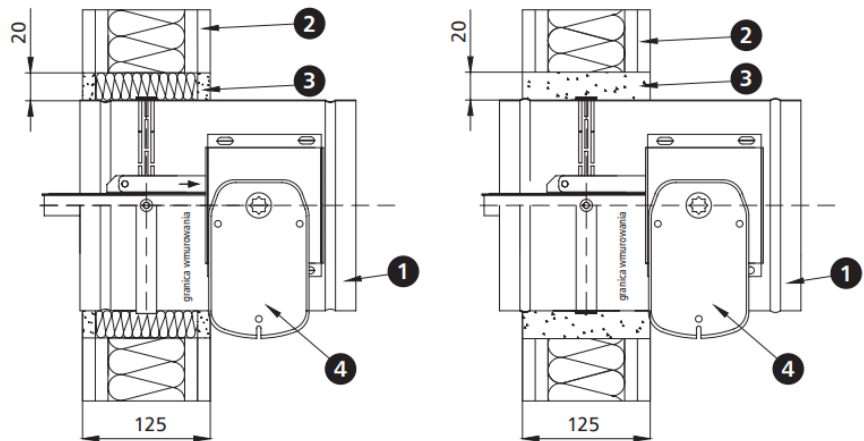


5.2 Sample installation in lightweight walls of plaster-cardboard panels

FID PRO damper with a RST mechanism



FID PRO damper with a BFL or RST-KW1 mechanism

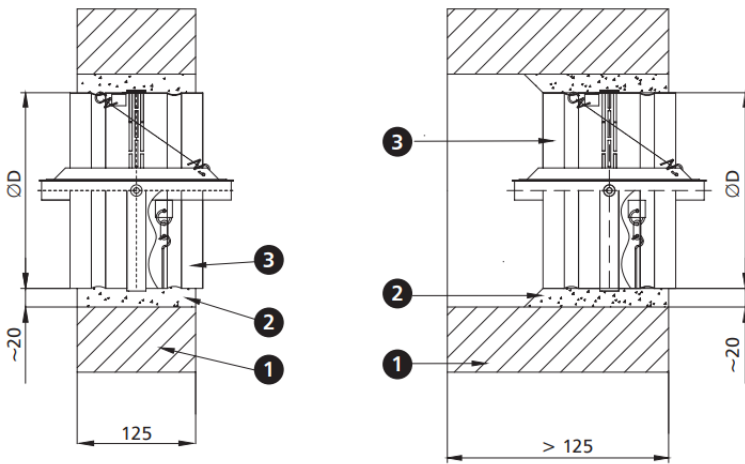


1. fire damper FID PRO
2. lightweight wall
3. sealing – mineral wool with the density of at least 80kg/m³, A1 class and/or plaster mortar*
4. trigger control mechanism

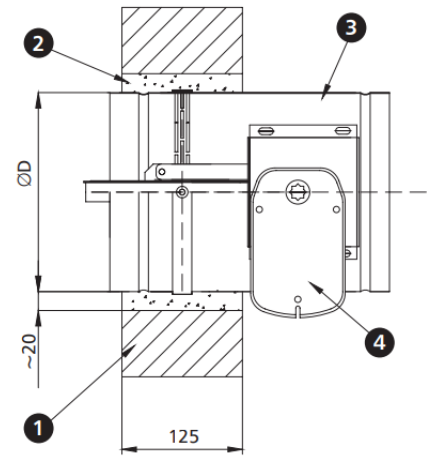
i It is possible to use a different sealing which ensures the required fire resistance

5.3 Sample installation in concrete and masonry walls

FID PRO damper with a RST mechanism



FID PRO damper with a BFL or RST-KW1 mechanism

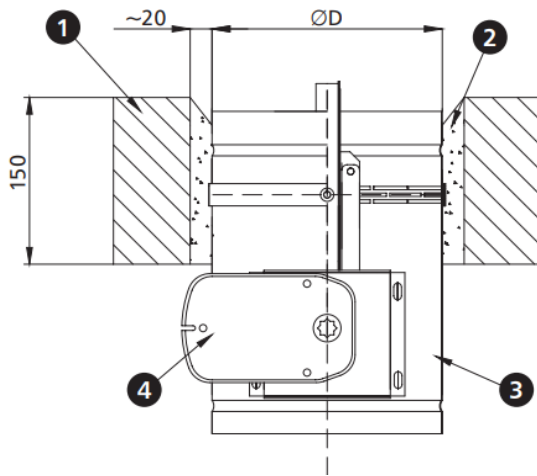


1. Rigid wall – concrete, cellular concrete or bricks
2. Sealing – concrete, cement or cement-lime masonry mortar*
3. Fire damper FID PRO
4. Trigger control mechanism

i It is possible to use a different sealing which ensures the required fire resistance

5.4 Sample installation in ceilings

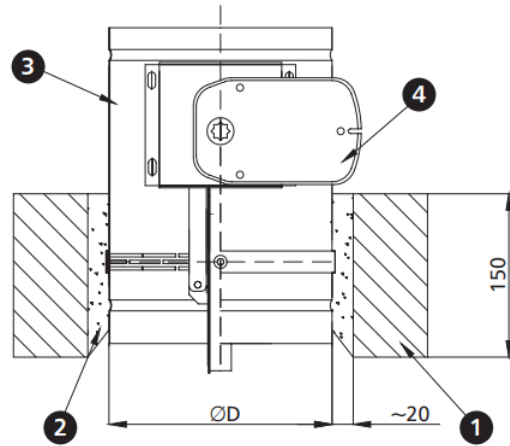
FID PRO damper with a BFL or RST-KW1 mechanism



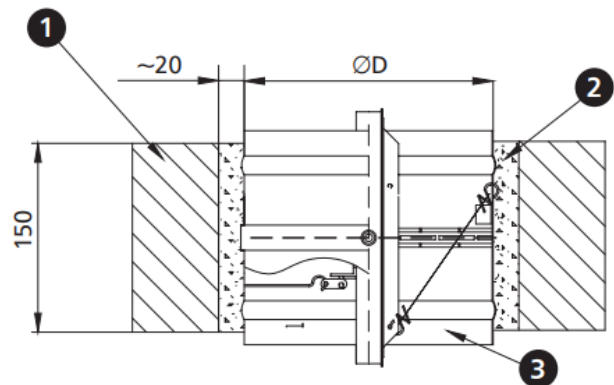
1. Ceiling
2. Sealing – concrete, cement or cement-lime masonry mortar*
3. Fire damper FID PRO
4. Trigger control mechanism

i It is possible to use a different sealing which ensures the required fire resistance

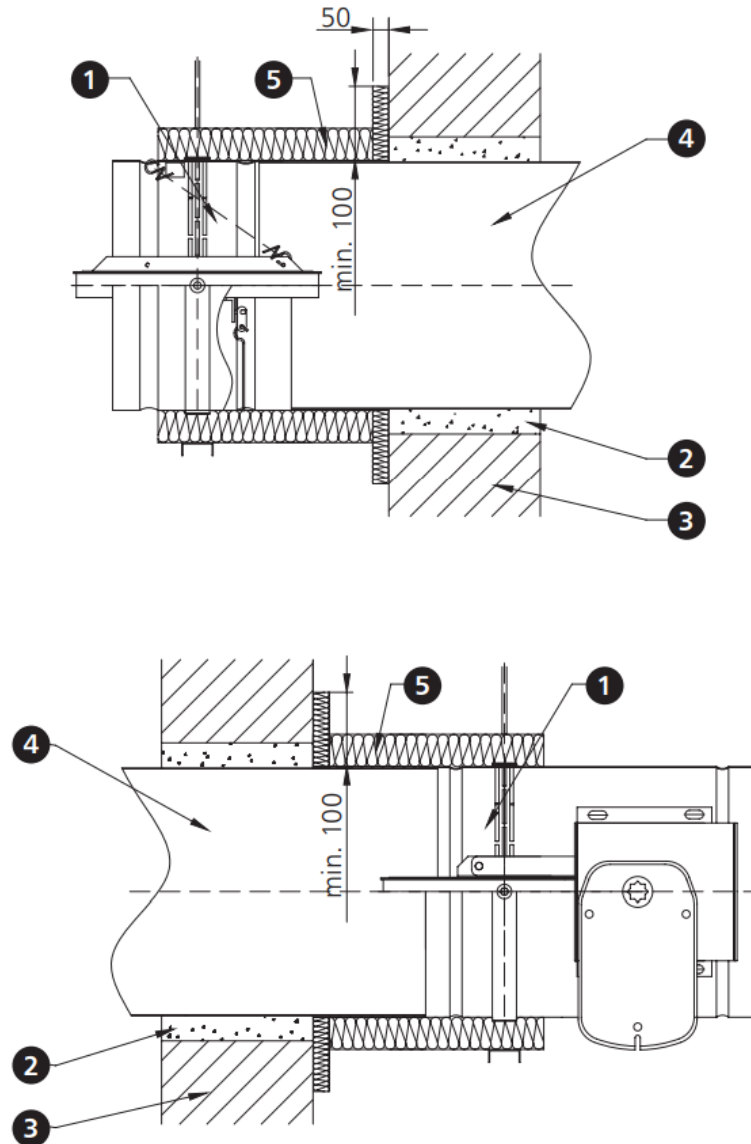
FID PRO damper with a BFL or RST-KW1 mechanism



FID PRO damper with a RST mechanism



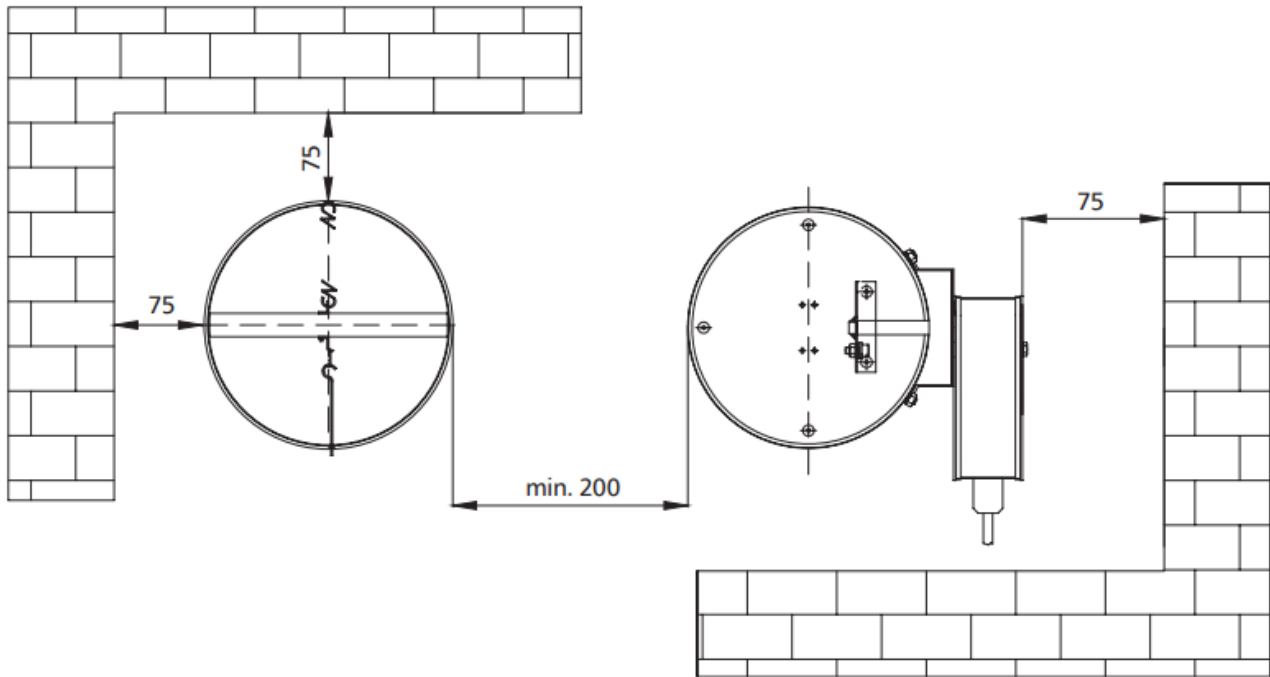
5.5 Sample installation outside the fire partition



1. Fire damper FID PRO
2. E.g. cement mortar*
3. Wall
4. Ventilation duct
5. Mineral wool with the density of at least 80kg/m^3 and thickness 30 mm, A1 class

i It is possible to use a different sealing which ensures the required fire resistance

Distance between systems and partitions



6. Technical parameters of FID PRO circular dampers

D – nominal diameter [mm]

Sk – duct cross section [m²]

w_{eff} – velocity measured on the damper active surface [m/s]

v – velocity [m/s]

Se – damper active cross section [m²]

dp – pressure drop [Pa]

Q – flow [m³/h]

L_{WA} – damper noise level [dB]

FID PRO 100

d [mm]	Sk [m ²]	Se [m ²]	v [m/s]	Q [m ³ /h]	w _{eff} [m/s]	dp [Pa]	L _{WA} [dB]
100	0.0079	0.0057	2.0	41	2.8	4.5	21
			4.0	81	5.5	14	29
			6.0	122	8.3	26	37
			8.0	163	11.1	42	43

FID PRO 125

d [mm]	Sk [m ²]	Se [m ²]	v [m/s]	Q [m ³ /h]	w _{eff} [m/s]	dp [Pa]	L _{WA} [dB]
125	0.0123	0.0095	2.0	69	2.6	3	19
			4.0	137	5.2	10	27
			6.0	206	7.8	20	36
			8.0	274	10.4	33	42

FID PRO 160

d [mm]	Sk [m ²]	Se [m ²]	v [m/s]	Q [m ³ /h]	w _{eff} [m/s]	dp [Pa]	L _{WA} [dB]
160	0.0201	0.0166	2.0	119	2.4	2	17
			4.0	239	4.8	6	23
			6.0	358	7.3	15	34
			8.0	477	9.7	24	41

FID PRO 200

d [mm]	Sk [m ²]	Se [m ²]	v [m/s]	Q [m ³ /h]	w _{eff} [m/s]	dp [Pa]	L _{WA} [dB]
200	0.0314	0.027	2.0	194	2.3	1	16
			4.0	389	4.7	5	21
			6.0	583	7.0	11	33
			8.0	778	9.3	20	40

FID PRO 250

d [mm]	Sk [m ²]	Se [m ²]	v [m/s]	Q [m ³ /h]	w _{eff} [m/s]	dp [Pa]	L _{WA} [dB]
250	0.0491	0.0391	2.0	282	2.5	2	18
			4.0	564	5.0	4	21
			6.0	846	7.5	7	29
			8.0	1127	10.0	10	33

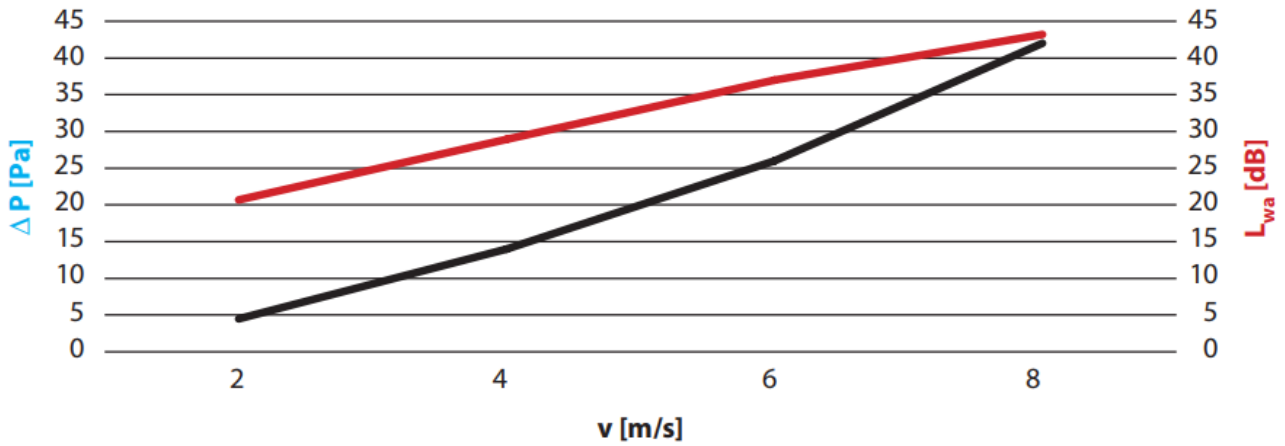
FID PRO 315

d [mm]	Sk [m ²]	Se [m ²]	v [m/s]	Q [m ³ /h]	w _{eff} [m/s]	dp [Pa]	L _{WA} [dB]
315	0.0779	0.0654	2.0	471	2.4	2	18
			4.0	942	4.8	4	23
			6.0	1413	7.1	7	31
			8.0	1884	9.5	13	39

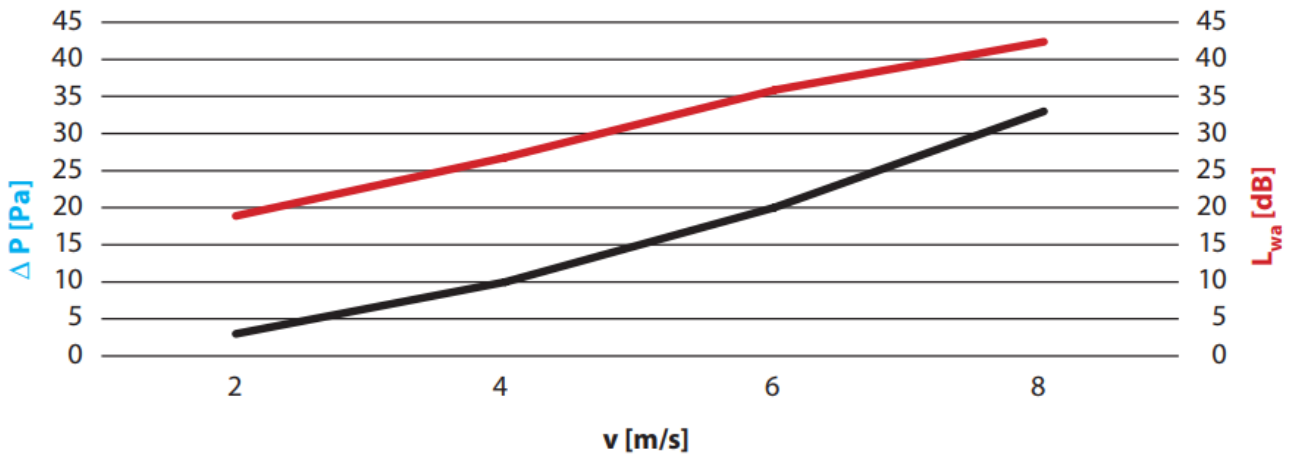
7 Flow characteristics in circular FID PRO dampers

— Pressure drop on a damper
— Damper noise level

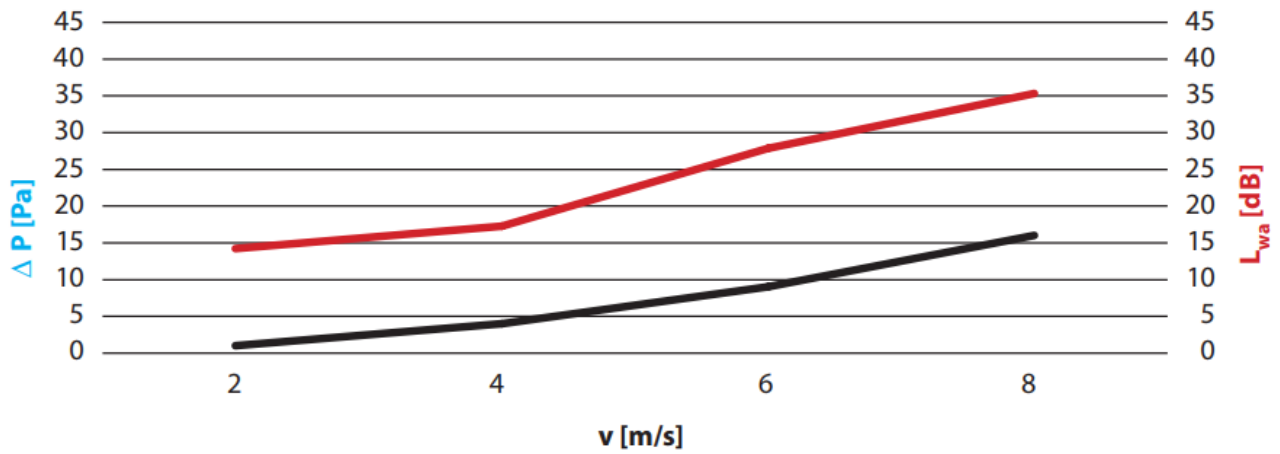
FID PRO 100



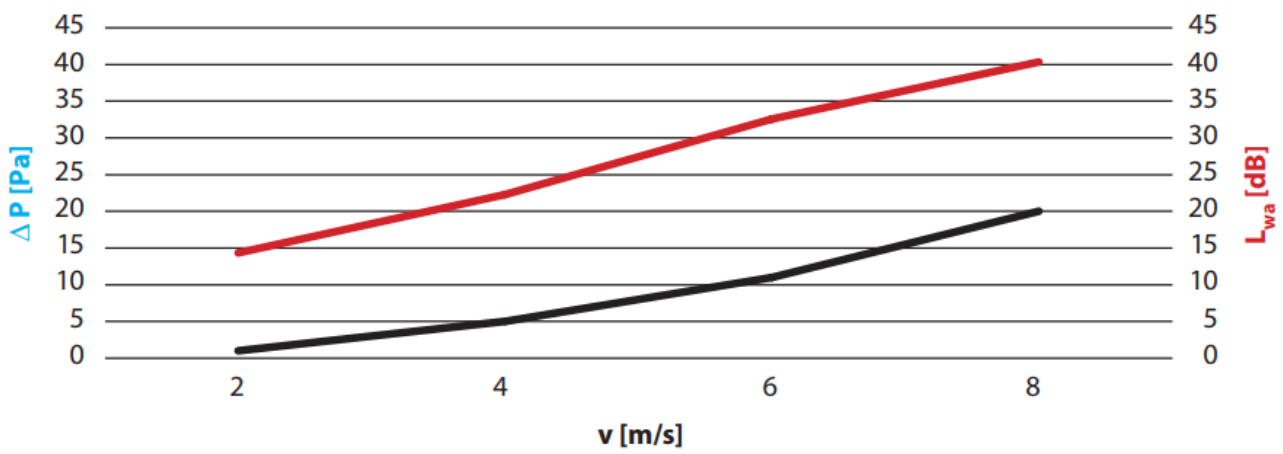
FID PRO 125



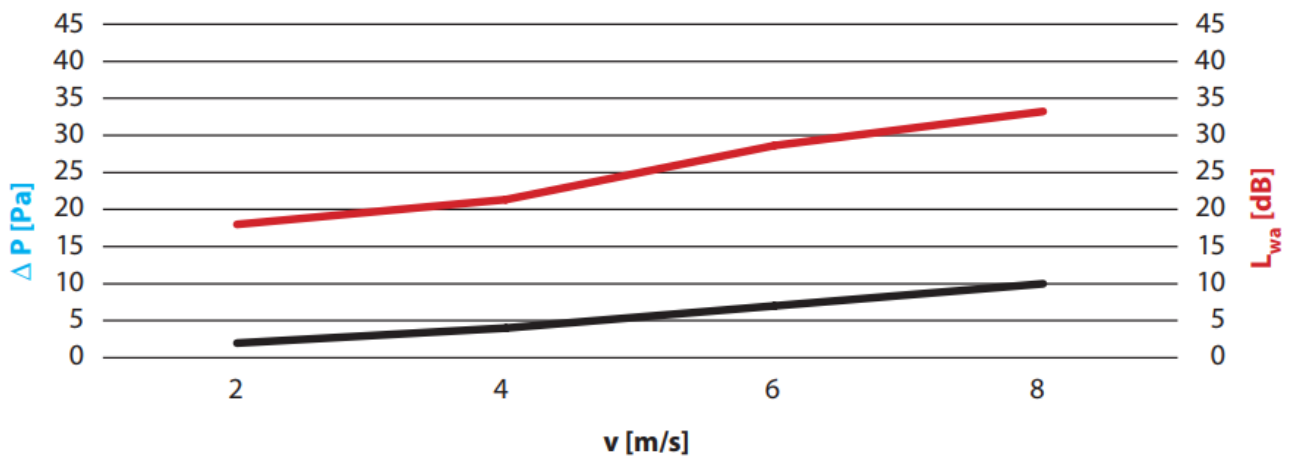
FID PRO 160



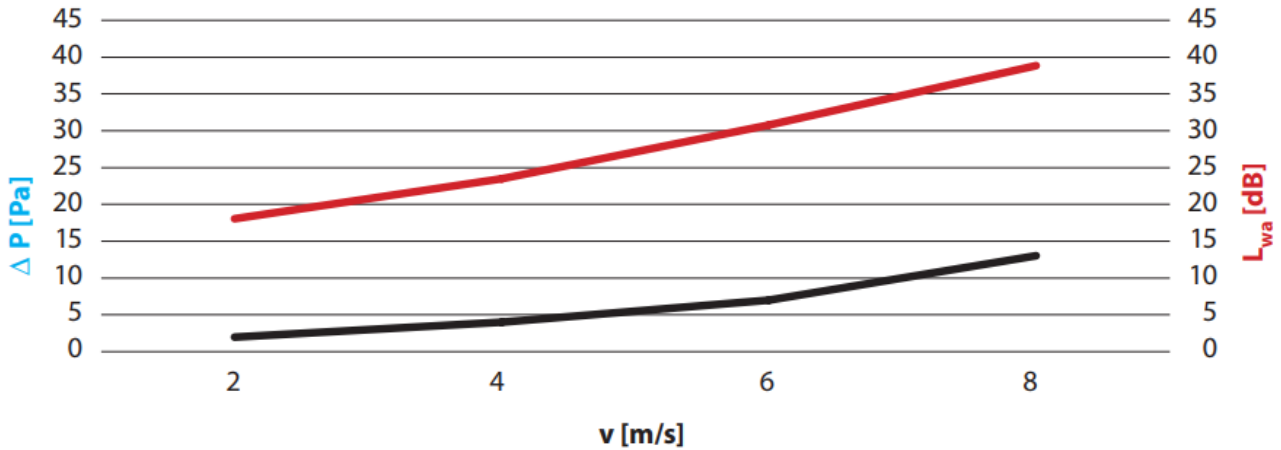
FID PRO 200



FID PRO 250



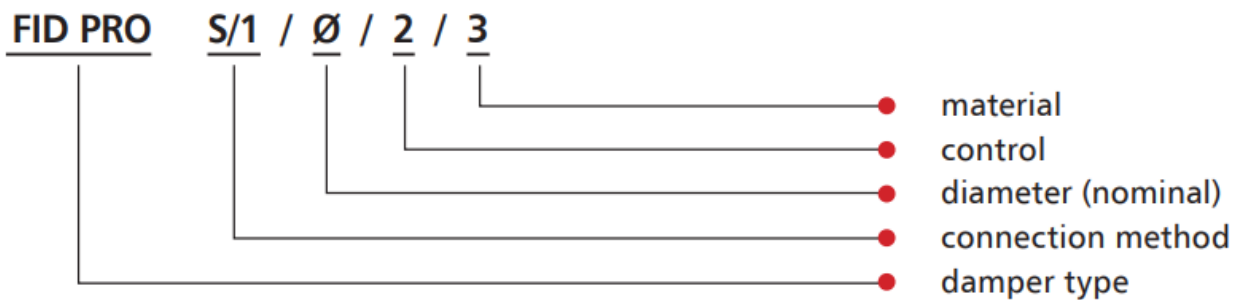
FID PRO 315



8. Estimated Weights of FID PRO dampers for circular ventilation ducts [kg]

diameter D [mm]	RST	actuator/RST-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

9. Marking



1 – Connection method

- **N** or [**no symbol**] – male connection (nipple)
- **M** – female connection (muff)
- **K** - flange

2 – Control:

- RST trigger control mechanism
- RST** – thermal trigger

RST/WK1 – thermal trigger + limit switch (closed blade signal)
RST/WK2 – thermal trigger + limit switch (open/closed blade signal)

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

- Belimo trigger control mechanism
 - BF24TL-T-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** – 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

2 – Material:

[No symbol] – galvanized steel, Zn 275 g/m² coating
KN – 1.4404 acid-proof stainless steel

Example marking:

FID PRO Ø125 BFL24-T

EIS120 low-resistance cut-off damper with a 24 V compact Belimo actuator with a thermoelectric trigger and limit switches.

FID PRO Ø125 RST/WK1

EIS120 low-resistance cut-off fire damper with a trigger rated at 74°C and a partition closing limit switch.

10. Power Supply Control

10.1 Cooperation with smoke exhaust/cut-off dampers – drive quick selection table

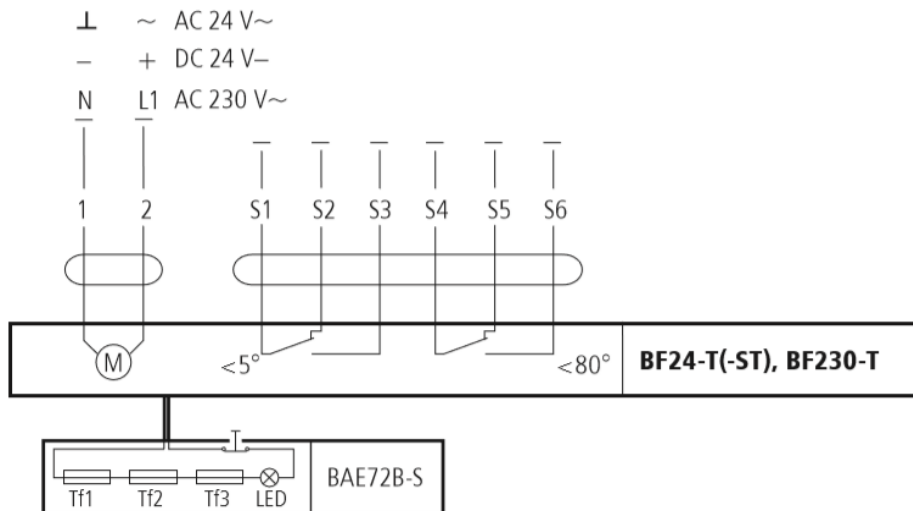
	FID S/S c/P	FID S/S p/P FID S/S p/O	FID S/V p/P FID S/V-M p/P	FID PRO	WIP/ S	WIP/T	WIP/T- G	WIP/V WIP/V-M	WIP PRO/S	WIP PRO/V WIP PRO/V- M
BF24-T (ST)		X			X	X			X	
BF230-T		X			X	X			X	
BFL24-T (-ST)	X	X		X	X	X			X	
BFL230-T	X	X		X	X	X			X	
BFN24-T (-ST)	X	X			X	X			X	
BFN230-T	X	X			X	X			X	
BE24			X			X		X		X
BE230			X			X		X		X
BLE24			X			X		X		X
BLE230			X			X		X		X
EXBF24-T	X	X		X	X	X			X	
EXBF230-T	X	X		X	X	X			X	
BF24TL-T (-ST)	X	X		X	X	X			X	
RST	X	X		X						
RST/WK1	X	X		X						
RST/WK2	X	X		X						
RST-KW1/S	X	X		X						
RST-KW1/S/WK2	X	X		X	X	X	X		X	
RST-KW1/24I	X	X		X						
RST-KW1/24P	X	X		X					X	
RST-KW1/230I	X	X		X						
RST-KW1/230P	X	X		X					X	
BF24 (-ST)							X			
BF230							X			
BFL24 (-ST)							X			
BFL230							X			
BFN24 (-ST)							X			
BFN230							X			

10.2 Actuators

10.2.1 BF electric actuators

SPECIFICATIONS	BF24 (BF24-T)	BF230 (BF230-T)
Power supply	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz
Power demand:		
- For spring tensioning	7 W	8 W
- For holding	2 W	3 W
Sizing (apparent power)	10 VA	11 VA
Protection class	III	II
Ingress protection rating	IP 54	IP 54
Auxiliary circuit breaker:	2 x EPU 3 (0.5) A 250 V	2 x EPU 3 (0.5) A 250 V~
- Activation position	5°, 80°	5°, 80°
Torque		
- Motor	18 Nm	18 Nm
- Return spring	12 Nm	12 Nm
Cable connection:		
- Motor (length: 0.9 m)	2 x 0.75 mm ²	2 x 0.75 mm ²
- Auxiliary circuit breaker	6 x 0.75 mm ²	2 x 0.75 mm ²
Movement time (0-90°)		
- Motor	120 s	120 s
- Return spring	~16 s	~16 s
Operating temperature range	-30...+50°C	-30...+50°C
Sound intensity level:		
- Motor	max 45 dB (A)	max 45 dB (A)
- Return spring	~63 dB (A)	~63 dB (A)

10.2.1.1 Electrical diagram of the BF...-T series actuator:



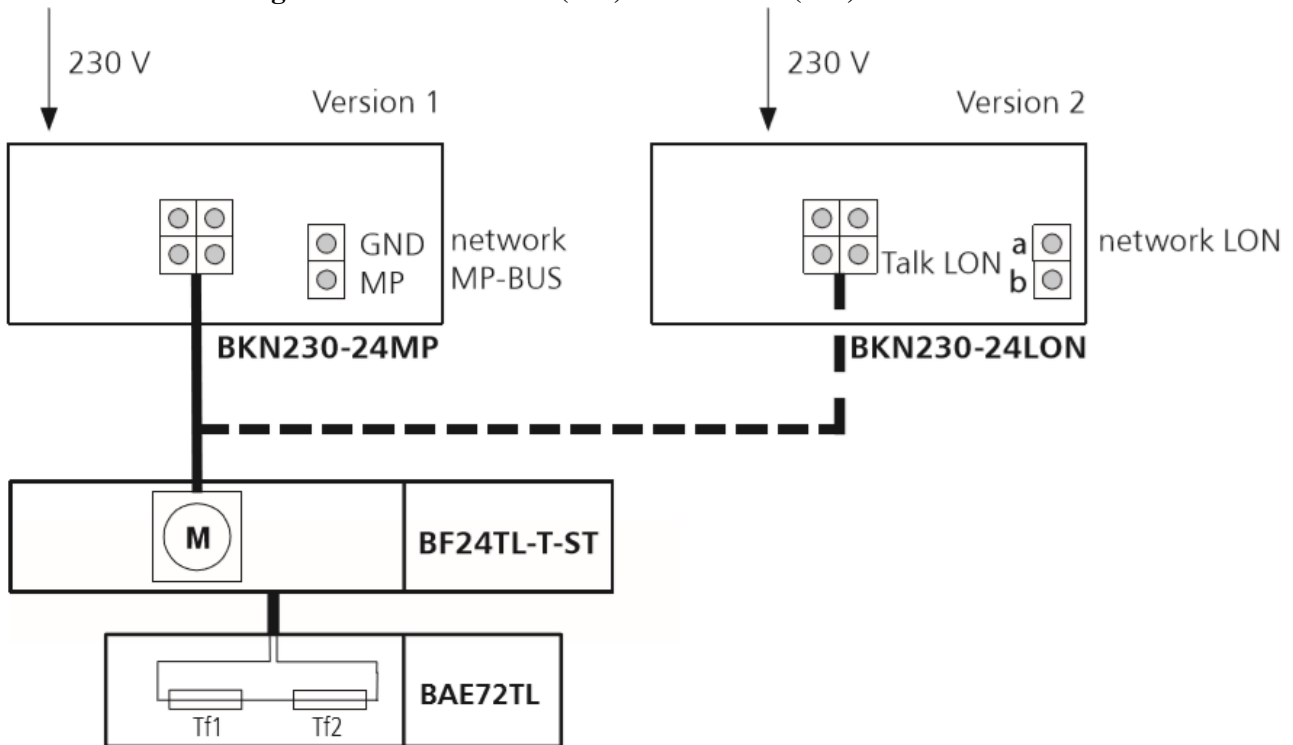
note: 24 V connection through a safety transformer.

To disconnect the 230 V actuator from the mains, the gap of at least 3 mm between the contacts (when off) is required in the switch. It is possible to connect further actuators in parallel. Check the power consumption.

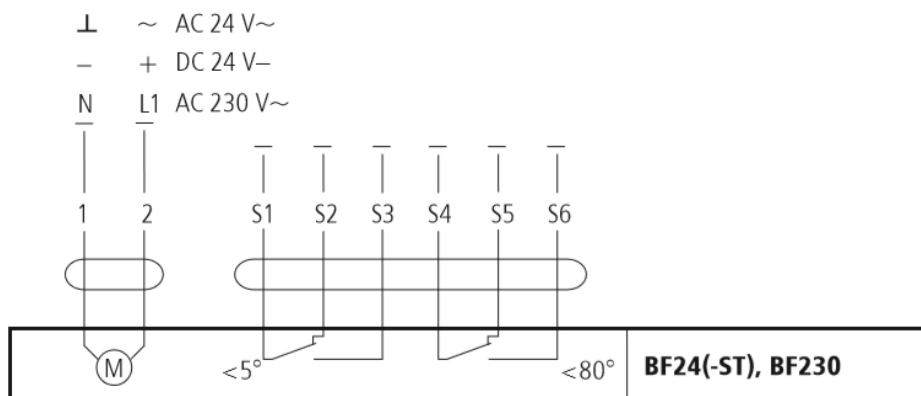
note:

The location of the actuator limit switches is shown for the no voltage position.

10.2.1.2 Electrical diagram of the BF24TL-T(-ST) and BF24TL(-ST) actuator:



10.2.1.3 Electrical Diagram of the BF series actuator:



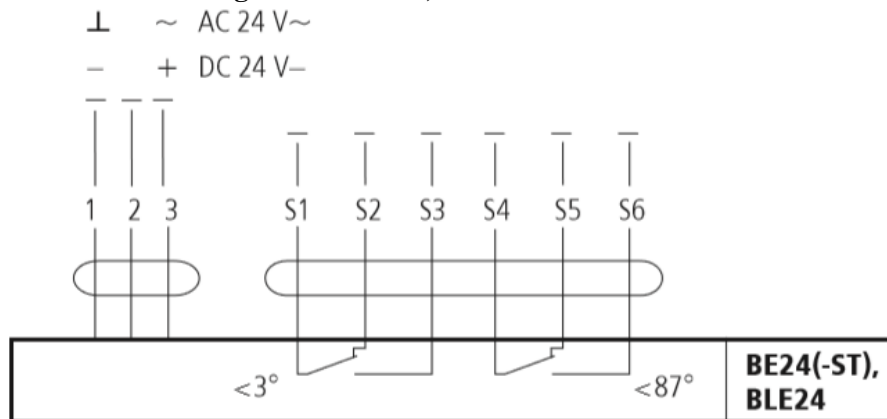
note: 24 V connection through a safety transformer. To disconnect the 230 V actuator from the mains, the gap of at least 3 mm between the contacts (when off) is required in the switch. It is possible to connect further actuators in parallel. Check the power consumption.

note: The location of the actuator limit switches is shown for the no voltage position.

10.2.2 BE, BLE electric actuators

Specifications	BE24, BE24-ST	BE230	BLE24	BLE230
Power Supply	AC 24 V 50/60 Hz	AC 230 V 50/60 Hz	AC 24 V 50/60 Hz DC 24 V	AC 230 V 50/60 Hz
Power demand:				
- In movement	12 W	8 W	7.5 W	5 W
- For holding	0.5 W	0.5 W	0.5 W	0.5
Sizing (apparent power)	18 VA	15 VA	9 VA	12 VA
Protection class	III	II	III	II
Ingress protection rating	IP 54	IP 54	IP 54	IP 54
Auxiliary circuit breaker:	2 x SPDT 6 (1.5) A AC 250 V	2 x SPDT 6 (1.5) A AC 250 V	2 x EPU 3 (1.5) A 250 V	2 x EPU 3 (1.5) A 250 V~
- Activation position	5°, 80°	5°, 80°	5°, 80°	5°, 80°
Torque - motor	40 Nm	40 Nm	15 Nm	15 Nm
Movement time (0-90°) – motor	< 60 s for 90°	< 60 s for 90°	< 30 s for 90°	< 30 s for 90°
Operating temperature	-30...+50°C	-30...+50°C	-30...+50°C	-30...+50°C
Sound intensity level	~62 dB (A)	~62 dB (A)	~62 dB (A)	~62 dB (A)

10.2.2.1 Electric diagram of the BE, BLE series actuator

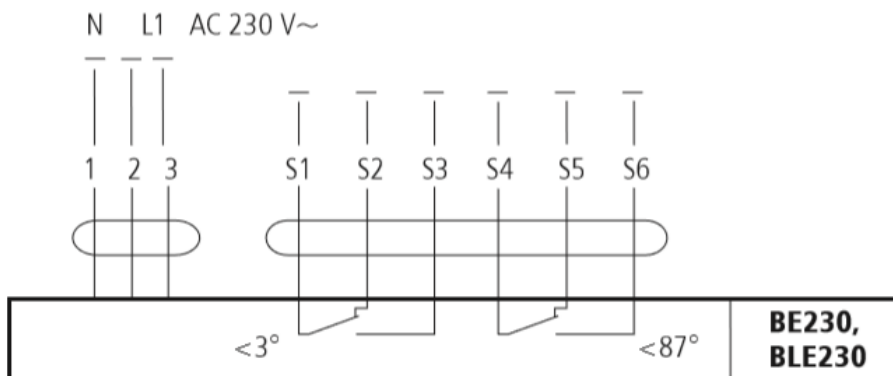


note:

The actuator operation control requires routing three wire system to it. The actuator rotation sense is changed by the application of the power supply voltage to the terminal 2 or 3, depending on the desired direction.

note: 24 V connection through a safety transformer.

To disconnect the 230 V actuator from the mains, the gap of at least 3 mm between the contacts (when off) is required in the switch. It is possible to connect further drives in parallel. Check the power consumption.



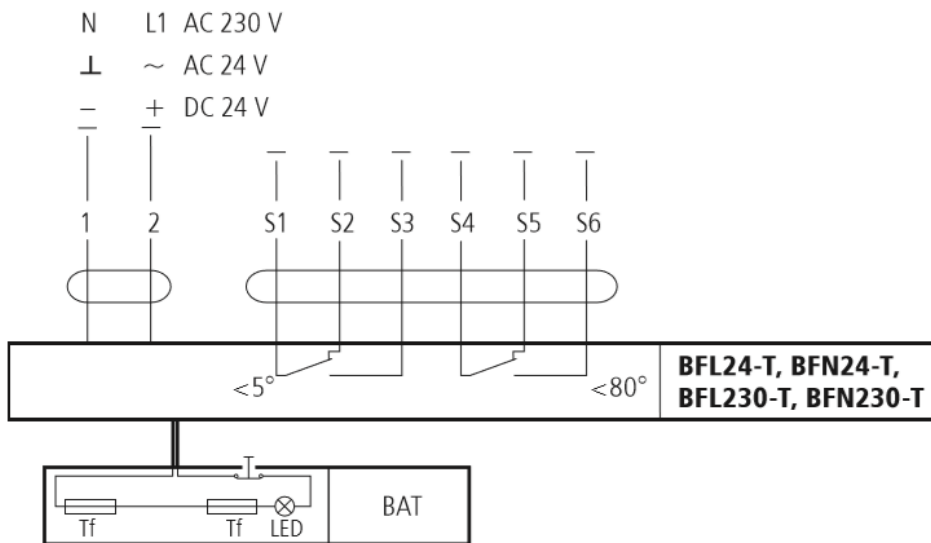
note:

The location of the actuator limit switches is shown for the no voltage position.

10.2.3 BFL, BFN ELECTRIC ACTUATORS

Specifications	BFL24 (BFL24-T)	BFL230 (BFL230-T)	BFN24 (BFN24-T)	BFN230 (BFN230-T)
Power Supply	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz	AC 24 V 50/60 Hz DC 24 V	AC 220-240 V 50/60 Hz
Power demand:				
- Spring tensioning	2.5 W	3.5 W	4 W	5 W
- For holding	0.7 W	1.1 W	1.4 W	2.1
Sizing (apparent power)	4 VA	6.5 VA	6 VA	10 VA
Protection class	III	II	III	II
Ingress protection rating	IP 54	IP 54	IP 54	IP 54
Auxiliary circuit breaker:	2 x SPDT 3 (0.5) A AC 250 V	2 x SPDT 3 (0.5) A AC 250 V	2 x EPU 3 (0.5) A 250 V	2 x EPU 3 (0.5) A 250 V
- Activation position	5°, 80°	5°, 80°	5°, 80°	5°, 80°
Torque				
- motor	4 Nm	4 Nm	9 Nm	9 Nm
- return spring	3 Nm	3 Nm	7 Nm	7 Nm
Movement time (0-90°):				
- motor	< 60 s	< 60 s	< 60 s	< 60 s
- return spring	~20 s	~20 s	~20 s	~20 s
Operating temperature	-30...+55°C	-30...+55°C	-30...+55°C	-30...+55°C
Sound intensity level				
- motor	max 43 dB (A)	max 43 dB (A)	max 55 dB (A)	max 55 dB (A)
- return spring	~62 dB (A)	~62 dB (A)	~67 dB (A)	~67 dB (A)

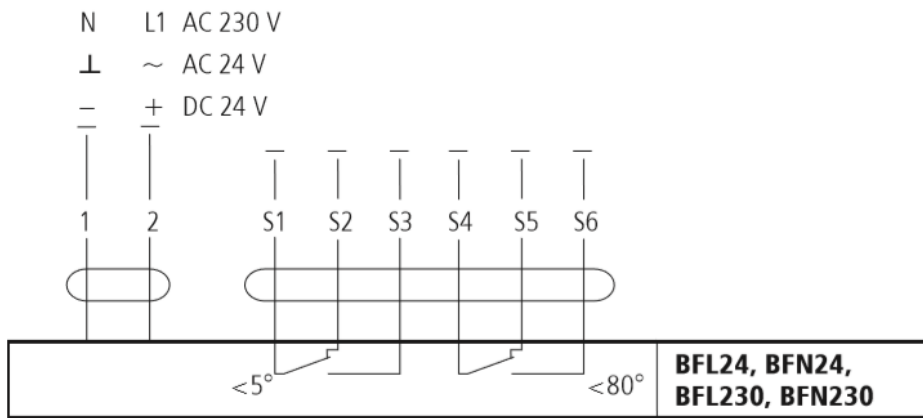
10.2.3.1 Electrical diagram of the BFL...-T, BFN...-T series actuator:



note: 24 V connection through a safety transformer. To disconnect the 230 V actuator from the mains, the gap of at least 3 mm between the contacts (when off) is required in the switch. It is possible to connect further actuators in parallel. Check the power consumption.

note: The location of the actuator limit switches is shown for the no voltage position.

10.2.3.2 Electrical diagram of the BFL, BFN series actuator:



note: 24 V connection through a safety transformer.

To disconnect the 230 V actuator from the mains, the gap of at least 3 mm between the contacts (when off) is required in the switch. It is possible to connect further actuators in parallel. Check the power consumption.

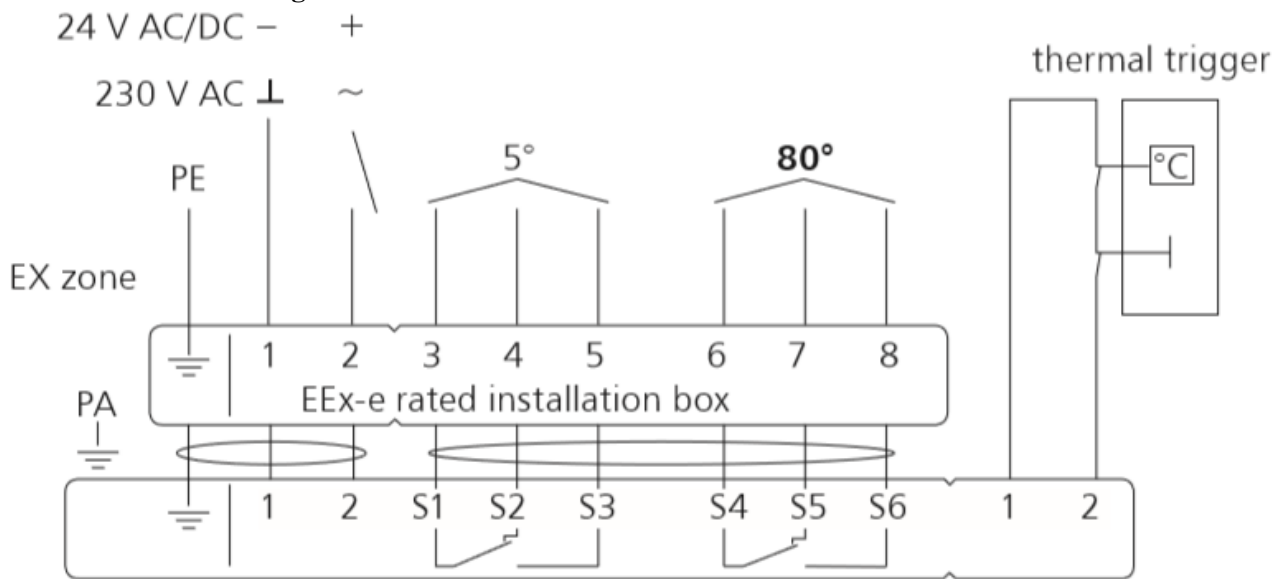
note:

The location of the actuator limit switches is shown for the no voltage position.

10.2.4 EXBF actuators

SPECIFIKATIONS	EXBF B 001 2...0 N 000	EXBF A 001 2 ...0 N 000
Zone	1, 2, 21, 22	
ATEX-rating	II 2 GD EEx d IIC T6	
Power supply	24 V AC $\pm 20\%$ 50/60 Hz / 24 V DC - 10/+20%	230 V AC $\pm 14\%$ 50/60 Hz
Power demand:		
- For spring tensioning	7 W	8 W
- For holding	2 W	3 W
Sizing (apparent power)	10 VA	11 VA
Ingress protection rating	IP 66	IP 66
Auxiliary circuit breaker:	2 x SPDT 6 A (3) max 250 v AC	2 x SPDT 6 A (3) max 250 V AC
- Activation position	5°, 80°	5°, 80°
Torque:		
- Motor	18 Nm	18 Nm
- Return spring	12 Nm	12 Nm
Movement time (0-90°)		
- Motor	150 s	150 s
- Return spring	~20 s	~20 s
Ambient temperature	-30...+50°C	-30...+50°C

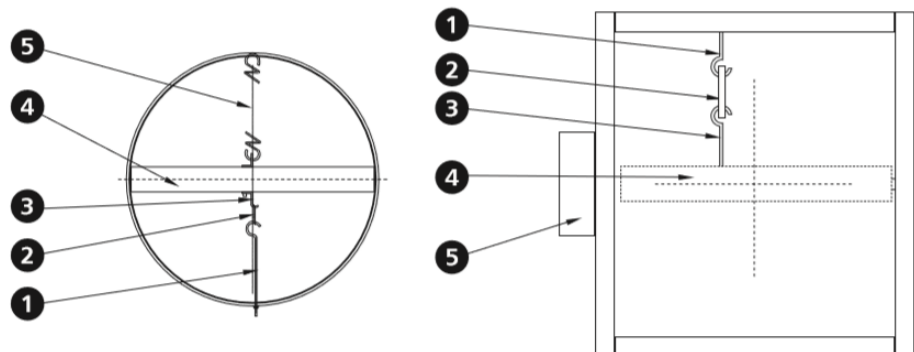
10.2.4.1 Connection diagram for EXBF and EXBF...-T actuators:



10.3 RST trigger control mechanisms

In the RST version the WK1 limit switches are independent units installed inside the fire damper casing. The thermal trigger is on the damper blade. The driving spring is installed on the damper blade or in a guard box on its casing.

1. Moving hook with nut
2. Fusible link
3. Fixed hook on the damper blade
4. Damper blade
5. Drive spring



10.3.1 Independent limit switches – RST version

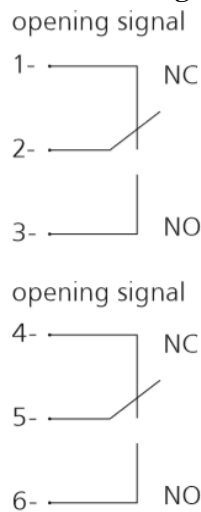
WK1 – limit switch (closed damper blade signal)

WK2 – limit switch (closed/open damper blade signal)

10.3.2 Switch specifications

WK1 and WK2 limit switch	1xNO/1xNC SPDT 5 A, 230 V AC
Limit switch operating temperature	-25 ... +85°C
Casing	plastic

10.3.2.1 Electric connection diagram of WK1 and WK2 limit switches



note:

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

10.4 RST-KW1 mechanisms

	RST-KW1/S	RST-KW1/S/WK2	RST-KW1/24I	RST-KW1/24P	RST-KW1/230I	RST-KW1/230P
Rated voltage	-	-	24 V – 48 V DC	24 V – 48 V DC	230 AC	230 AC
Power consumption	-	-	3.5 W	1.6 W	2 W	2 W
Thermal trigger	74°C (optionally 95°C)					
Connections – trigger	-	-	Wire 0.6m, 2 x 0.5 mm ²			
Connections – limit switches	-	-	Wire 0.6m, 6 x 0.5 mm ²			
Limit switch	-	-	2 x BI/NC 5A. 230 V AC			
Movement time	max. 2 s					
Mechanism operation control (closing)	-	-	Voltage application „pulse”	Voltage removal „break”	Voltage application „pulse”	Voltage removal „break”
Mechanism operation control (opening)	Manual	Manual	Manual	Manual	Manual	Manual
Pulse width	max. 1 s					

10.4.1 Description of electrical connections:

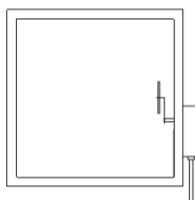
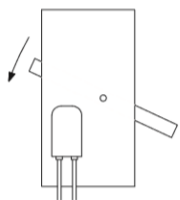
RST-KW1 mechanism power supply	Closing limit switch	Opening limit switch
Wire number: 1-2	Wire number: 3-4 – NO (normally open)	Wire number 6-7 – NO (normally open)
	Wire number 4-5 – NC (normally closed)	Wire number 7-8 – NC (normally closed)

10.5 Manufacture standards

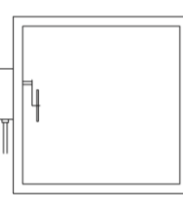
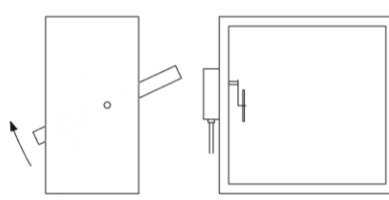
Damper type	Description	Standard	Option
FID S/S c/P	Right damper	X	
	Inverse damper		X
	Left damper		X
	Actuator normal to the axis flow	X	
	Actuator along the axis flow		
FID S/S p/P FID S/V p/P	Right damper	X	
	Inverse damper		X
	Left damper		X
	Actuator normal to the axis flow	X	
	Actuator along the axis flow		X
FID S/S p/O	Right damper	X	
	Inverse damper		
	Left damper		
	Actuator normal to the axis flow	X	
	BF actuator along the v (exception)	X	
	Actuator along the axis flow		X
FID PRO	Right damper	X	
	Inverse damper		
	Left damper		
	Actuator normal to the axis flow	X	
	Actuator along the axis flow		X
WIP	Right damper		
	Inverse damper		X
	Left damper		X
	Actuator normal to the axis flow	X	
	Actuator along the axis flow	X	
WIP PRO	Right damper		X
	Inverse damper		X
	Left damper	X	
	Actuator normal to the axis flow	X	
	Actuator along the axis flow		

10.5.1 FID S/S c/P damper

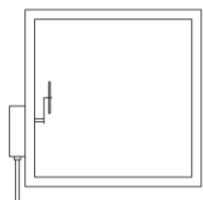
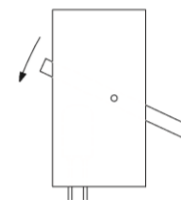
right damper standard



inverse damper
(wires downward)



left damper

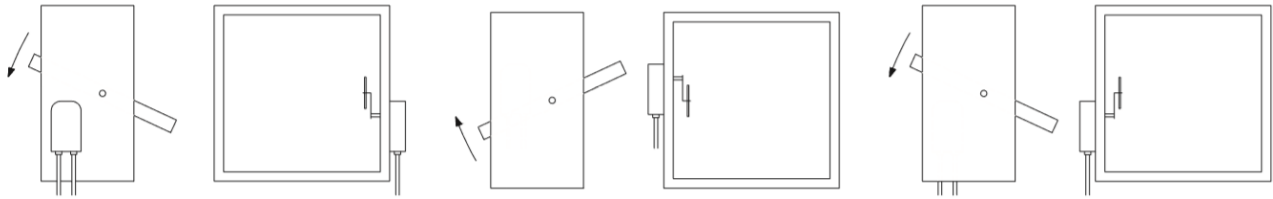


10.5.2 FID S/S p/P, FID S/S p/O, FID S/V p/P damper

right damper standard

inverse damper
(wires downward)

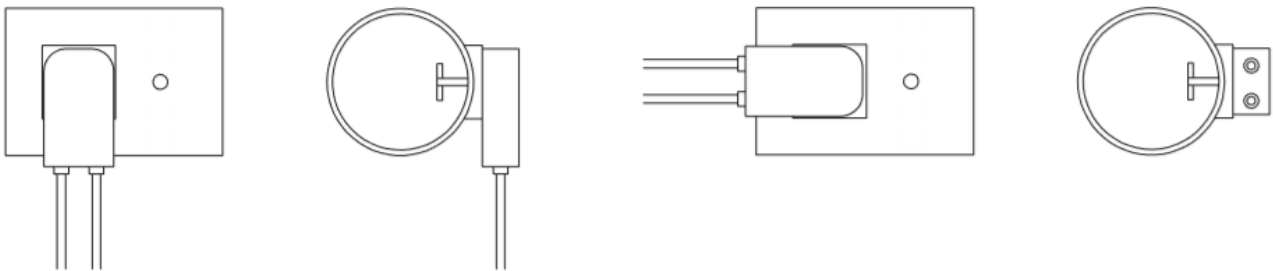
left damper



10.5.3 FID PRO/S damper

right damper
standard

actuator along the axis flow



10.5.4 WIP/S, WIP/V, WIP/V-M, WIP/T, WIP/T-G damper

left damper
standard

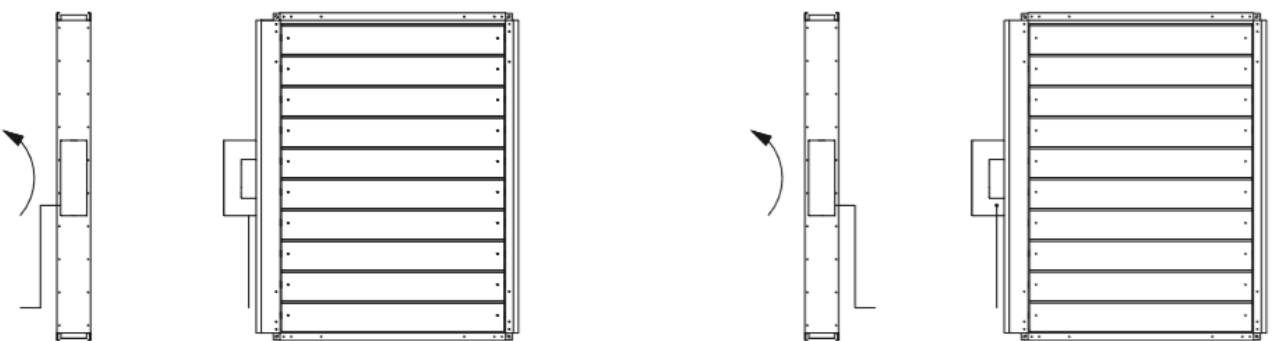
inverse damper
(wires downward)



10.5.5 WIP PRO/S, WIP PRO/V, WIP PRO/V-M damper with an actuator

left damper
standard

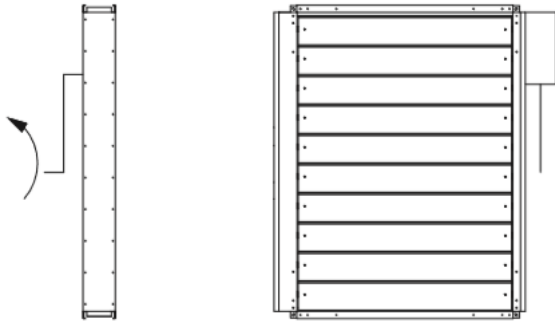
inverse damper
reversed cable outlet



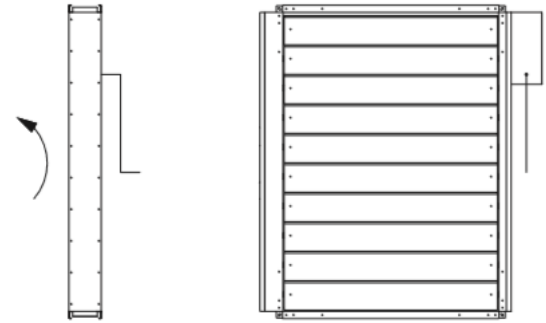
i Installation in reversed horizontal and vertical position available

10.5.6 WIP PRO/S, WIP PRO/V, VIP PRO/V-M damper with RST-KW1 mechanism

left damper
standard



inverse damper
reversed cable outlet



i Installation in reversed horizontal and vertical position available