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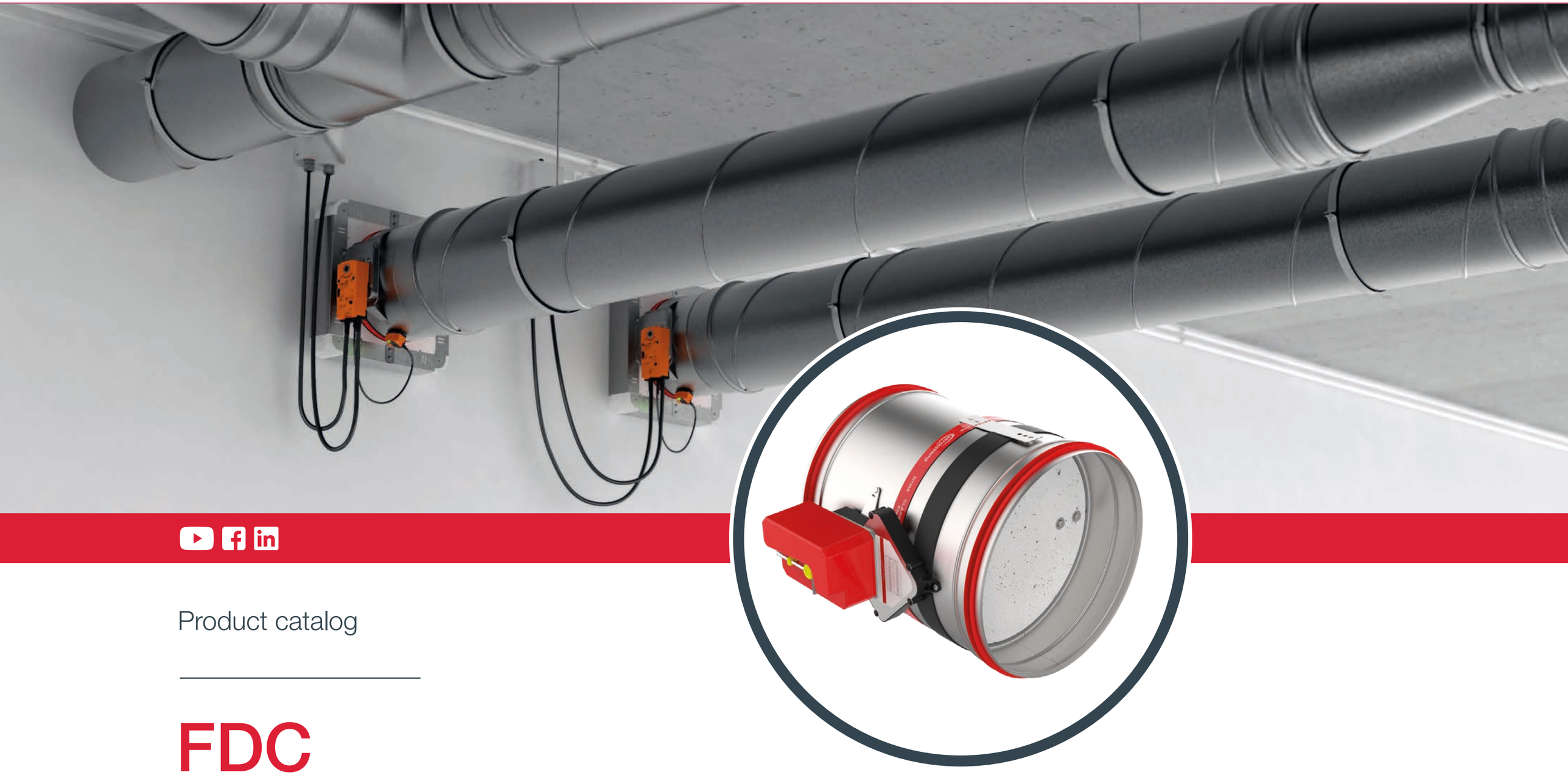


Product catalog

FDC

Fire damper

Fire protection

Version 1.0.0
Issue Date: 03.06.2026.

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

1. Galvanized steel casing
2. Fire resistant damper blade
3. Thermal fuse
4. Actuator
5. Intumescent joint
6. Connection flanges
7. Wall limit mark label
8. Inspection hatch (optional)
9. Fixing bracket

PRODUCT OVERVIEW

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

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

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

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

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

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

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

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

* The images shown are for illustration purposes only and may not be an exact representation of the product.

TESTS AND CERTIFICATES

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

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

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

FIRE RESISTANCE CLASSIFICATION

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

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

Please consult latest Declaration of Performance:

https://hth24.info/Klimaoprema-Brandschutz

For more information about certificates, visit our website.

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

TECHNICAL DATA

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

- Galvanized steel and powder coated
- Stainless steel EN 1.4301/EN 1.4404 (AISI 304/316L)
- Stainless steel EN 1.4301/EN 1.4404 (AISI 304/316L) and powder coated

** **Stainless steel not posible with MF1, MF2, Applique**

Fire damper for areas with potentially explosive atmospheres are also available

Product label

1 - Casing air leakage classification
2 - Serial number
3 - Production date
4 - Type
5 - Dimension of the fire damper
6 - Mechanism type
7 - Nominal voltage
8 - Signalisation (end contacts)
9 - IP protection
10 - Free space
11 - Thermal fuse temperature
12 - Number of the European standard and year of its publication
13 - Declaration of performance
14 - Classification according to EN 13501-3
15 - Barcode
16 - QR code link to user manual
17 - Location-if specified
18 - CE- Classification
19 - Notified body Products Regulation

Product specifications

Nominal sizes FDC	100 - 800 [mm]
Casing length	380 mm
Temperature range	-20 °C ... 50 °C
Release temperature	72 °C (standard) or 95 °C (optional with electric actuator)
Volume flow rate range	Electric drive up to 12m/s EMS / Manual drive up to 10m/s
Differential pressure range	up to 1000 Pa
Casing air leakage	Class C, EN 1751
Closed blade air leakage	Class 3, EN 1751
Upstream velocity	< 12 m/s
EC conformity	EN 13501-3, EN 1366-2, EN 15650, EN 1751, CPR no.305/2011
Declaration of performance	DoP 711 XXX

Pressure drop tables

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

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

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

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

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

Dimensional range

	Diameter [mm]	Cross section [dm²]	Net area [dm²]
FDC25	100	0,74	0,50
	125	1,17	0,87
	160	1,93	1,55
	200	3,05	2,56
	250	4,79	4,18
	315	7,64	6,87
FDC40	355	9,73	8,33
	400	12,37	10,79
	450	15,69	13,91
	500	19,39	17,41
	560	21,71	19.49
	630	30,86	28,36
	710	39,24	36,42
	800	49,86	46,68

MODELS

Casings

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

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

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

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

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

Actuators

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

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

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

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

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

Ordering key

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

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

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

(3) **R** - manual drive
R-S - manual drive with limit switches
M230-S - electric actuator AC/DC 230 V
M24-S - electric actuator AC/DC 24 V
M230-S-ST - electric actuator AC230 V with connection plug
M24-S-ST - electric actuator AC/DC 24 V with connection plug
EMS-S - electromagnetic drive
EX - electric actuator Schischek ExMax -5.10-BF +ExPro-TT+ExBox-BF

(4) **IH** - inspection hatch

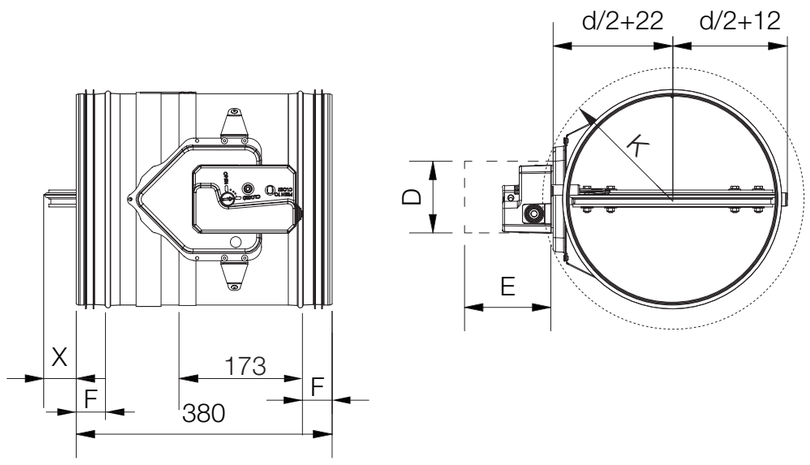
FDC25 / FDC40 - R (manual mechanism)

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

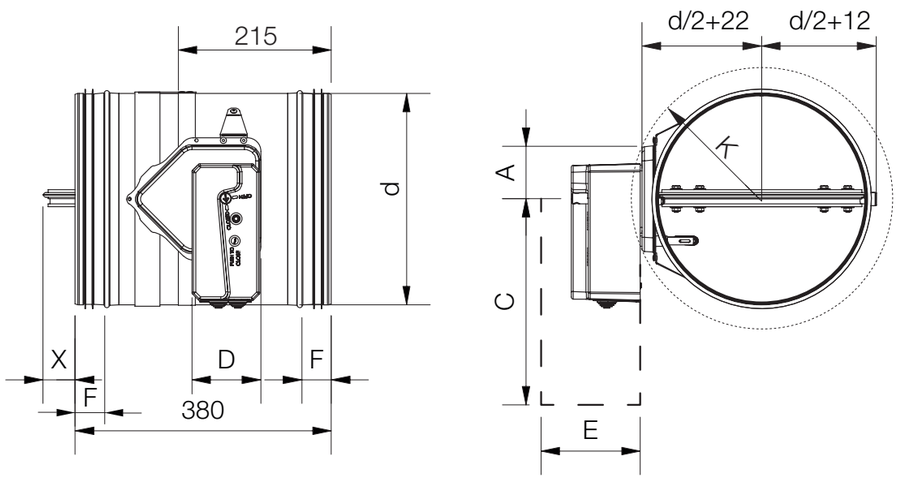
	FDC25-R						FDC40-R							
Ød [mm]	100	125	160	200	250	315	355	400	450	500	560	630	710	800
Weight [kg]	3,8	4,2	4,7	5,4	6,3	7,7	11,9	13,5	15,4	17,5	20,4	23,6	27,7	33,7
K [mm]	120	128	140	155	176	204	221	242	265	289	317	351	389	433

*K - Dimension of the minimum installation opening

FDC25-R25 (up to d315)



FDC40-R40 (d355 up to d800)



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

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

X=(Ød/2)-110 [mm]

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

Y=(Ød/2)-270 [mm]

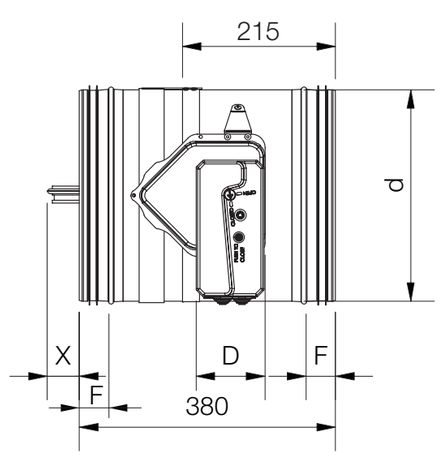
FDC25/FDC40 - EMS (solenoid actuator)

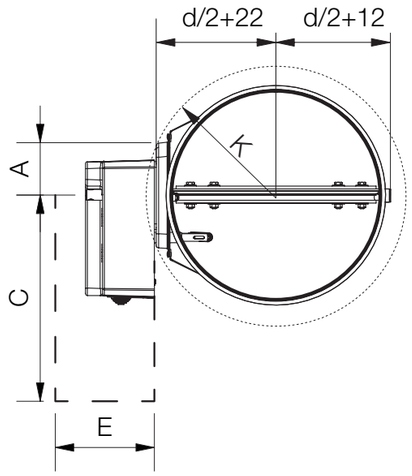
- Electromagnetic actuator with integrated limit switches and thermal fuse release mechanism (72 °C)
- Manual rearming
- Remote closing with electromagnetic actuator
- Manual closing possible
- EMS - solenoid actuator is constantly under power. Actuating mechanism is tripped when the power is interrupted,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

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

*K - Dimension of the minimum installation opening

DIMENSIONS





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

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

X=(Ød/2)-110 [mm]

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

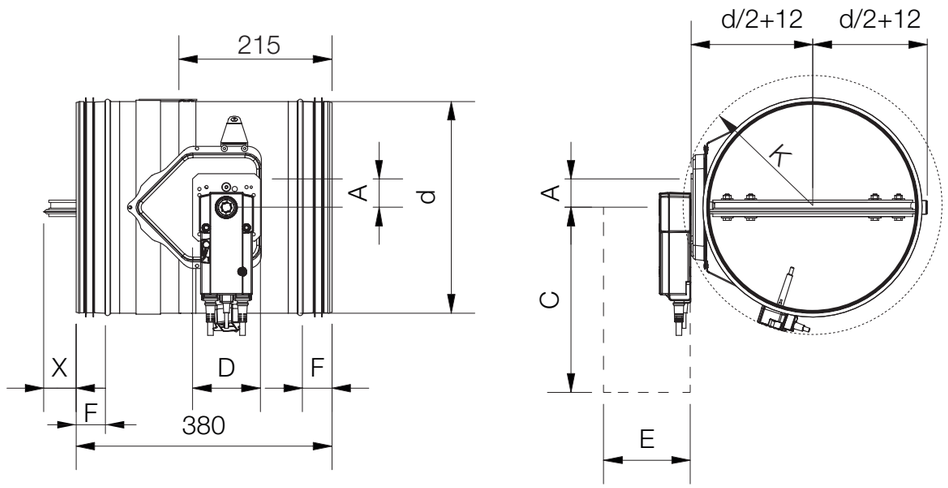
Y=(Ød/2)-270 [mm]

FDC25/FDC40 - M (electric actuator)

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

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

*K - Dimension of the minimum installation opening



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

Product	F [mm]
FDC 25	42
FDC 40	42

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

X=(Ød/2)-110 [mm]

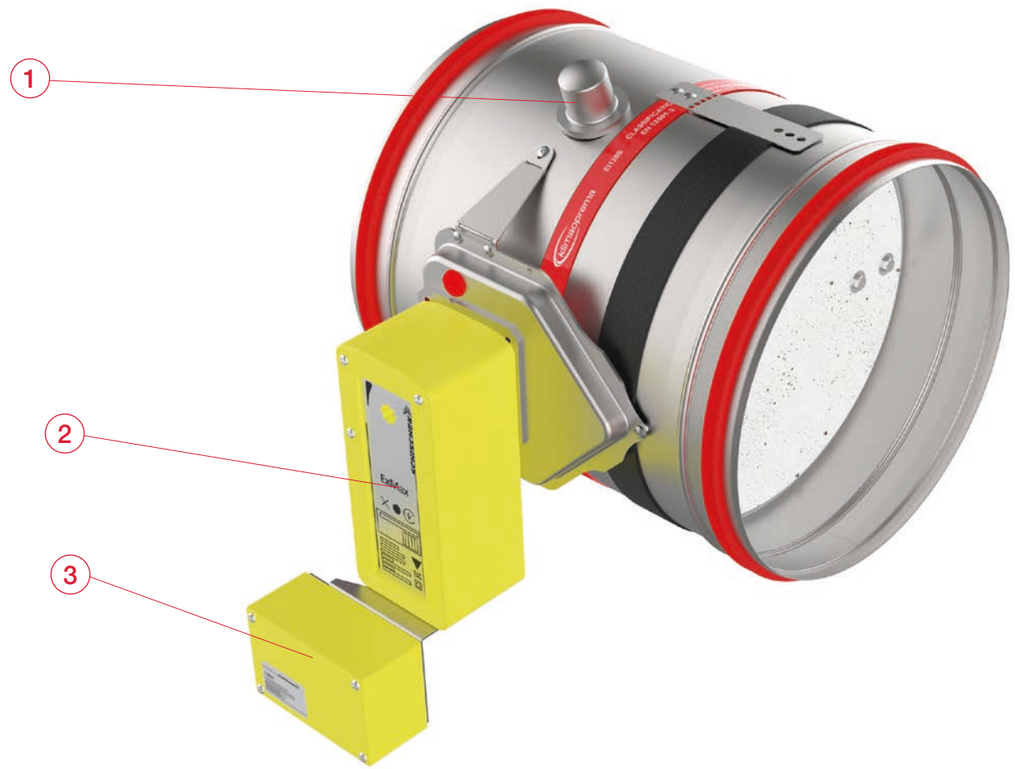
*If the damper is larger than Ø540, use formula (Y dimension on back side):

Y=(Ød/2)-270 [mm]

FDC25/FDC40 - EX (electric actuator)

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

For more information see page 43.



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

*K - Dimension of the minimum installation opening

Ex classification of product:

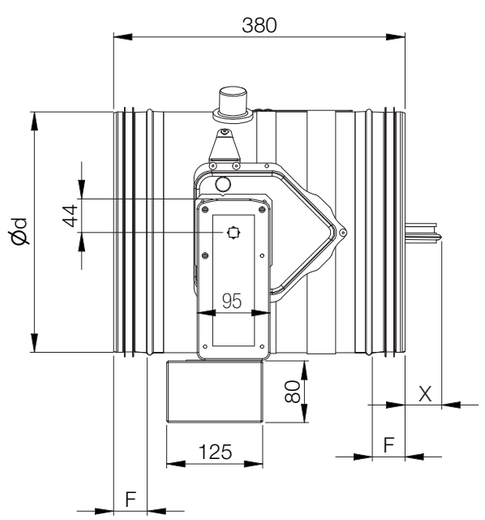
II 2G Ex h IIC T6 Gb

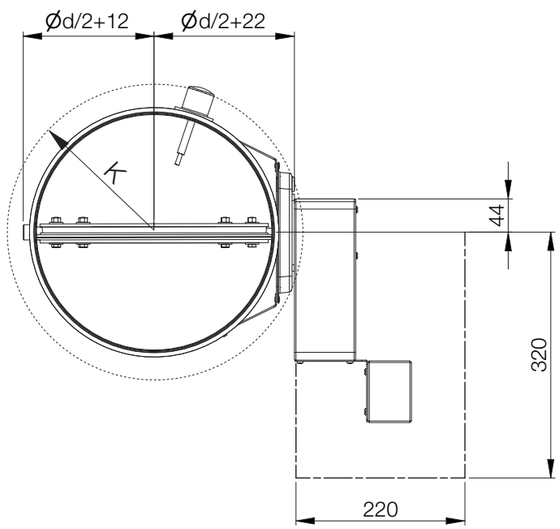
II 2D Ex h IIIC T80°C Db

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

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

Please consult latest Declaration of conformity on our website:
www.klimaoprema.comDoc





Model	F [mm]
FDC 25	42
FDC 40	42

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

X=(Ød/2)-110 [mm]

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

Y=(Ød/2)-270 [mm]

FDC25 - APP

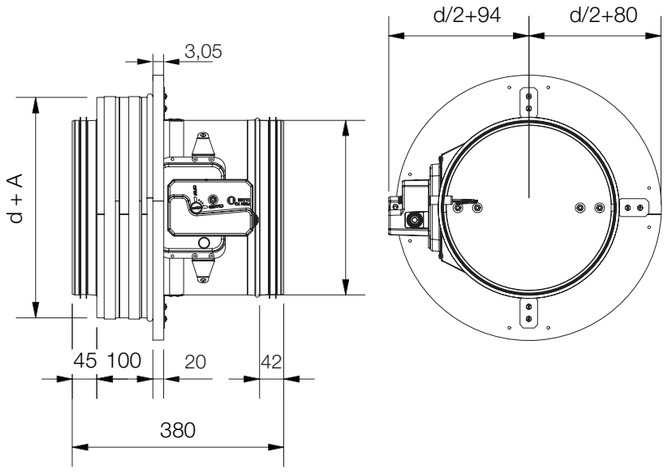
Applique installation frame

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

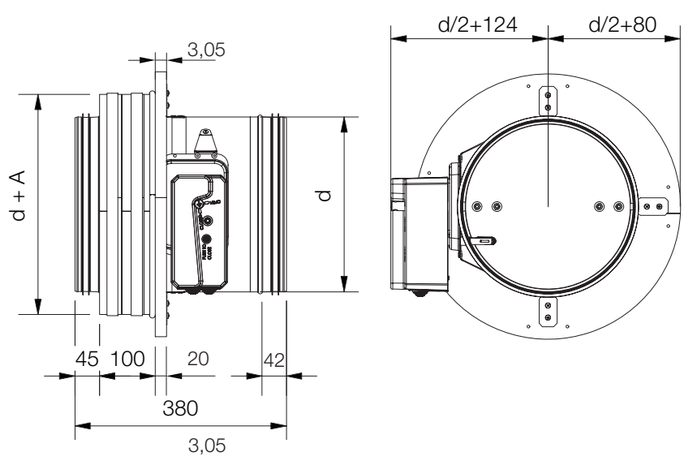
Damper diameter Ød[mm]	Applique frame diameter Ød + A [mm]
100	Ød +105 mm
125 - 160	Ød + 95 mm
200 - 315	Ød + 80 mm

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

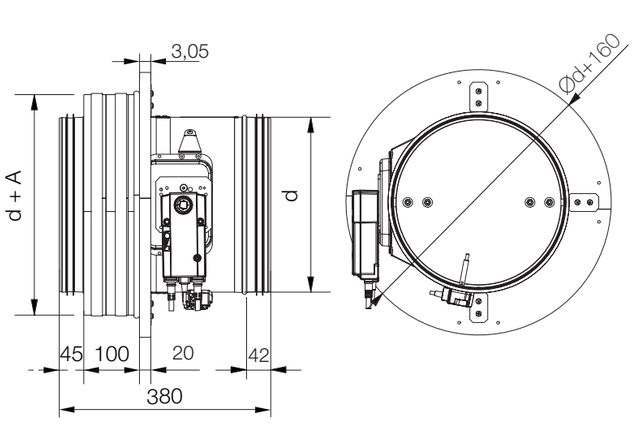
FDC25-APP-R



FDC25-APP-EMS



FDC25-APP-M



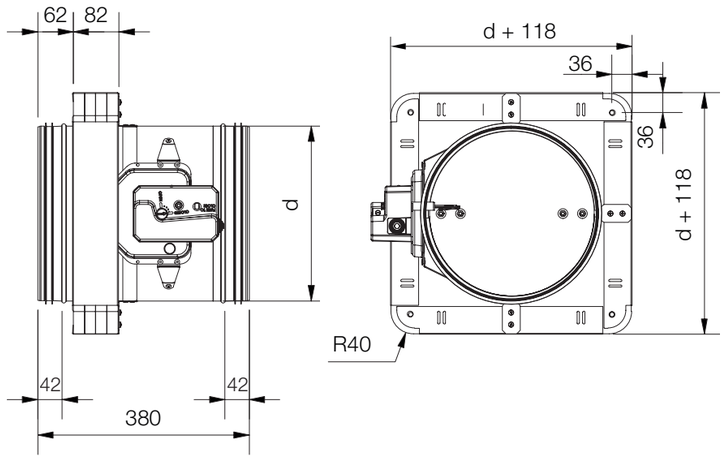
FDC25 - MF1

MF1 installation frame

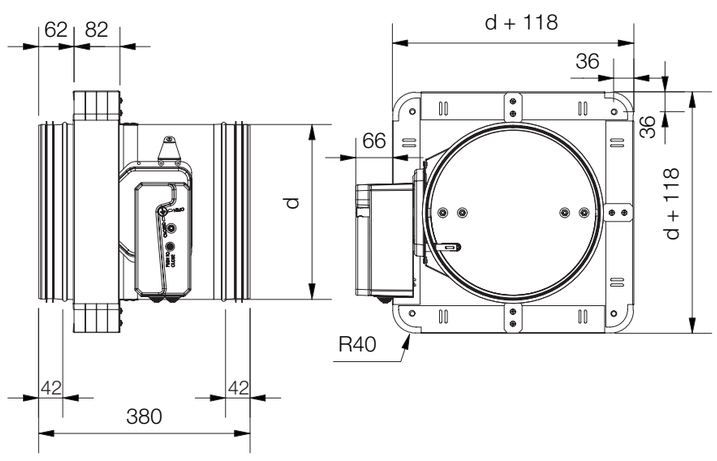
- MF1 is an installation frame for quick and easy installation in rigid and flexible walls
- Made out of calcium silicate boards
- Quick wall mounting with screws
- Factory assembled to the fire damper

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

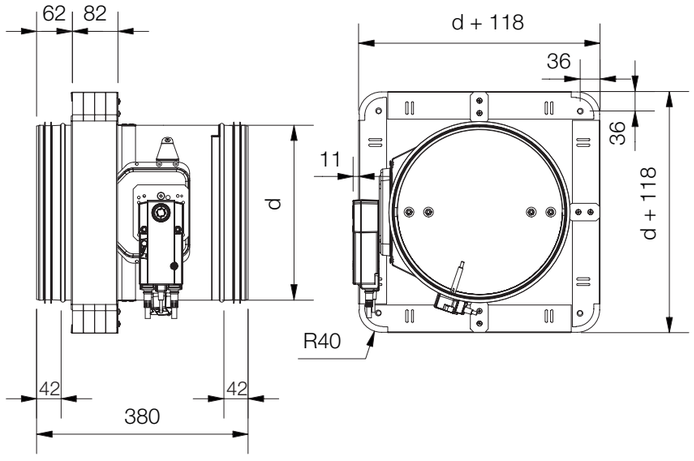
FDC25-MF1-R



FDC25-MF1-EMS



FDC25-MF1-M



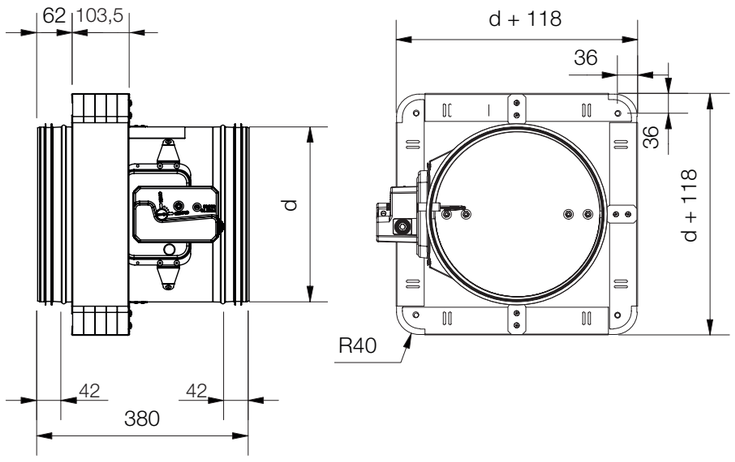
FDC25 - MF2

MF2 installation frame

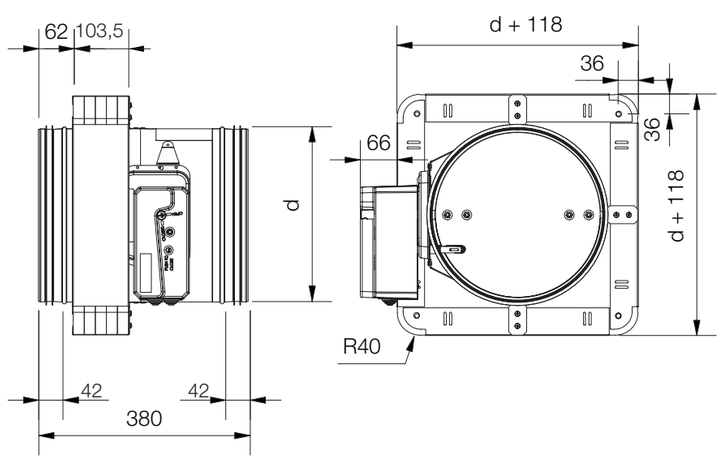
- MF2 is an installation frame for quick and easy installation in rigid and flexible walls
- Made out of calcium silicate boards
- Quick wall mounting with screws
- Factory assembled to the fire damper
- FD25-MF2 possible only for shaft wall installations!

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

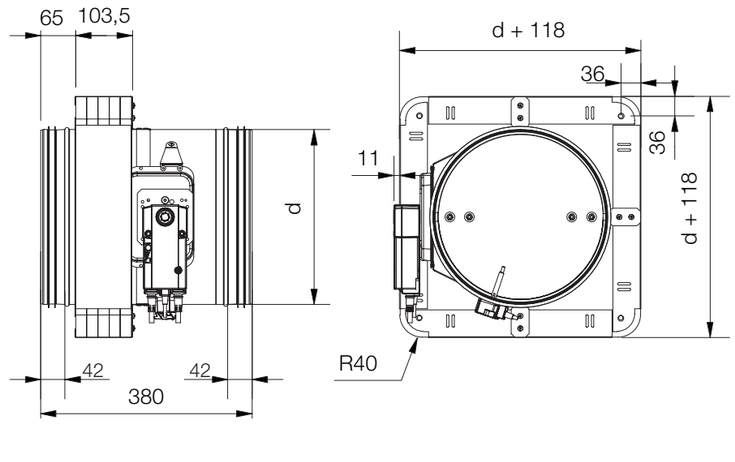
FDC25-MF2-R



FDC25-MF2-EMS



FDC25-MF2-M



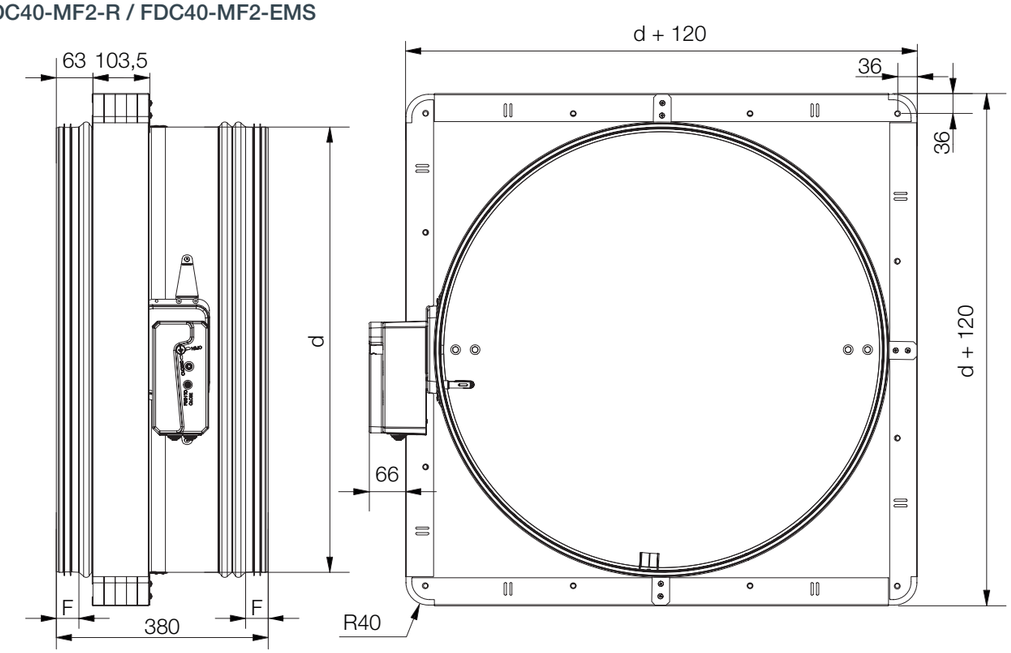
FDC40 - MF2

MF2 installation frame

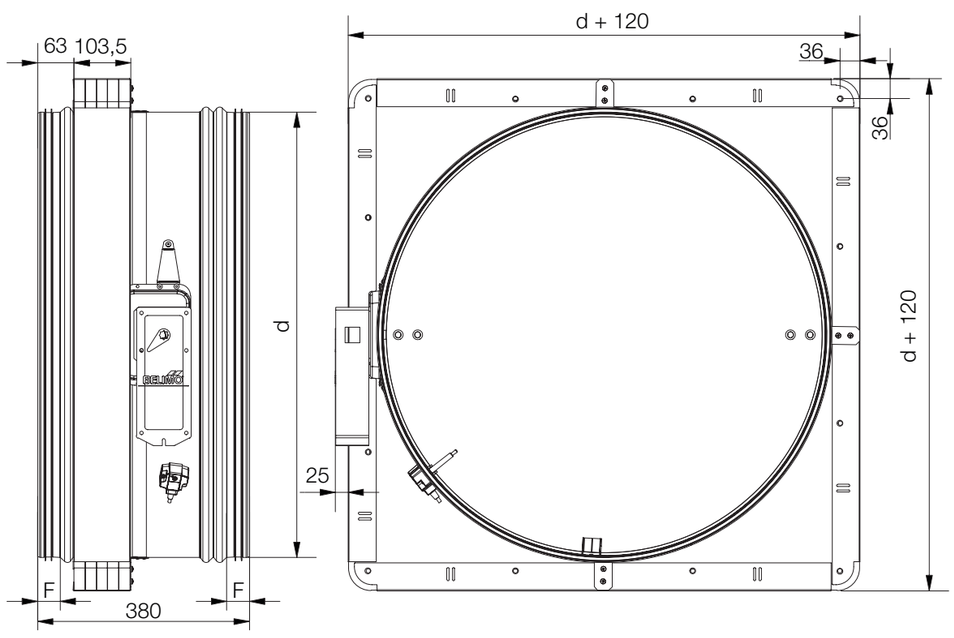
- MF2 is an installation frame for quick and easy installation in rigid and flexible walls
- Made out of calcium silicate boards
- Quick wall mounting with screws
- Factory assembled to the fire damper
- FD25-MF2 possible only for shaft wall installations!

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

FDC40-MF2-R / FDC40-MF2-EMS



FDC40-MF2-M



Product	F [mm]
FDC 25	42
FDC 40	42

INSTALLATION

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

The duct connected to the fire damper must be supported or hung in such a way that the damper does not carry its weight. The damper must not support any part of the surrounding construction or wall which could cause damage and consequent damper failure. It is recommended to connect the damper to a flexible connection on either end of the damper.

The damper driving mechanism can be placed on either side of the wall, however it needs to be placed so that it ensures an easy access during inspection.

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

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

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

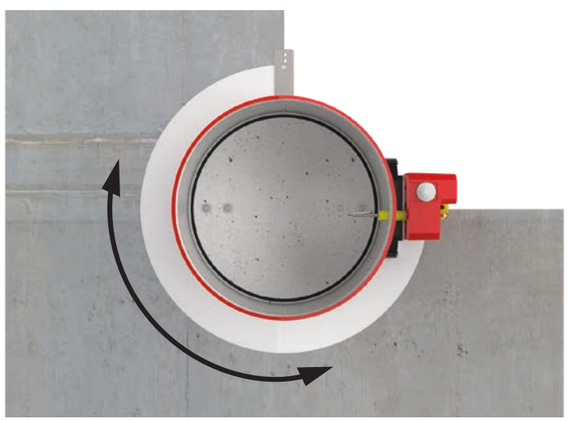
The recommended / maximum installation opening is in the table below. The smallest installation opening is where there is enough space to install the seal!

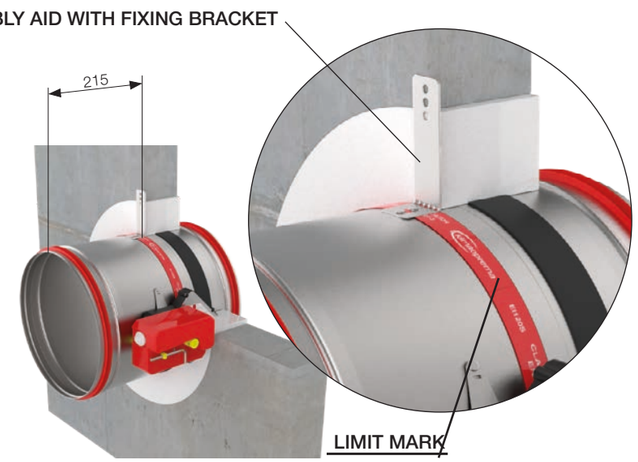
Recommended opening dimensions:

Damper size - Ød [mm]	Gap size - GS (Recommended)	Opening size - (Recommended)
100	55 mm	110 mm
125	52,5 mm	105 mm
160	47,5 mm	95 mm
200	45 mm	90 mm
250	42,5 mm	85 mm
315	40 mm	80 mm
355	40 mm	80 mm
400	37,5 mm	75 mm
450	37,5 mm	75 mm
500	35 mm	70 mm
560	35 mm	70 mm
630	35 mm	70 mm
710	32,5 mm	65 mm
800	32,5 mm	65 mm

Assembly aid / Installation depth

To help you find the suspension plane, a bendable fixing bracket is provided on the damper body **(the use of bendable fixing brackets is not required to meet the classification but they need to be bent up or broken in case they are not used. They must not stay in flat position.)** and the red tape is placed on the casing to mark the location of the wall/ceiling limit **(distance from wall/ceiling limit to the end of fire damper is 215 mm)**. This does not apply for Applique/ MF1/MF2 kit installations. **Check the operation of the fire damper before commencing the installation!**

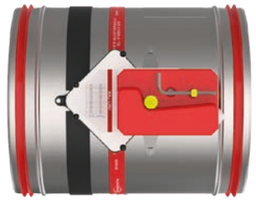




Standard actuator positions

FDC25 ELECTRIC ACTUATOR

FDC-R25 MANUAL ACTUATOR



FDC40 ELECTRIC ACTUATOR

FDC-R40/EMS MANUAL ACTUATOR

FDC EX ACTUATOR

FDC-R40/EMS ACTUATOR
(Ød < 316)

Range	Supporting construction	Type of installation	Classification	Supporting construction details	Wall thickness	Tested underpressure
FDC25 d100-d315 mm / FDC40 d355-d800 mm	Rigid wall	Gypsum plaster / Mortar	EI 120 (ve i↔o)S	Aerated concrete (≥ 450kg/m³) Reinforced concrete (≥ 2200kg/m³)	≥ 100 mm	500Pa
		Mineral wool and cover boards	EI 90 (ve i↔o)S			500Pa
		Fire Batt/ Weichschott				300Pa
		Gypsum plaster / Mortar and cover boards	EI 120 (ve i↔o)S	Gypsum blocks (≥ 995kg/m³)	≥ 70 mm	500Pa
	Flexible wall	Gypsum plaster / Mortar	A: FDC 25 EI 90 (ve i↔o)S A: FDC 40 EI 120 (ve i↔o)S B: EI 60 (ve i↔o)S	A: Plasterboard type F (EN520), mineral wool up to 115 kg/m³ B: Plasterboard type A (EN520), mineral wool up to 60 kg/m³	≥ 100 mm	300Pa
		Gypsum plaster / Mortar and cover boards	A: EI 120 (ve i↔o)S B: EI 60 (ve i↔o)S			500Pa
		Mineral wool and cover boards	A: EI 90 (ve i↔o)S B: EI 60 (ve i↔o)S			500Pa
		Fire Batt/ Weichschott	A: EI 90 (ve i↔o)S B: EI 60 (ve i↔o)S			300Pa
		Fire Batt/ Weichschott	EI 45 (ve i↔o)S	Plasterboard type F (EN520), mineral wool up to 115 kg/m³	≥ 75 mm	300Pa
		Fire Batt/ Weichschott	EI 90 (ve i↔o)S	Cross laminated timber (30+40+30 mm) (480 kg/m³)	≥ 100 mm	300Pa
		Eurobond Firemaster Extra	FDC25:EI 60 (i↔o)S FDC40: EI 60 S/ E 90 S (i↔o)S	Mineral wool (≥ 23 kg/m³)		300Pa
	Rigid wall + Sliding ceiling	Gypsum plaster / Mortar + Mineral wool (70 kg/m³)	EI 120 (ve i↔o)S	Aerated concrete (≥ 450 kg/m³)	≥ 100 mm	300Pa
	Flexible wall + Sliding ceiling	Gypsum plaster / Mortar and cover boards + Mineral wool (115 kg/m³)	EI 120 (ve i↔o)S	Plasterboard type F (EN520)	≥ 100 mm	300Pa
FDC25 d100-d315 mm FDC40 d355-d800 mm	Floor/ceiling	Gypsum plaster / Mortar	EI 120 (ho i↔o)S	Aerated concrete (≥ 450kg/m³) Reinforced concrete (≥ 2200kg/m³)	≥ 100 mm	500Pa
		Fire Batt/ Weichschott	EI 90 (ho i↔o)S			300Pa

INSTALLATION

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

https://hth24.info/Klimaoprema-Brandschutz

Aerated concrete (≥ 450 kg/m³) or reinforced concrete (≥ 2200 kg/m³) wall, more than 100 mm thick

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

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

Shaft wall, steel frame construction

Aerated concrete (≥ 450 kg/m³) or reinforced concrete (≥ 2200 kg/m³) ceiling / floor, more than 100 mm thick

FIRE DAMPER - FDC

Gypsum plaster, mortar sealing or mortar and cover boards. Mortar EN 998-2 Classes M 2.5 to M 20 or equivalent mortars that meet the requirements of the above standards, gypsum mortar or concrete.

Sealing with mineral wool and cover boards

Sealing with mineral wool and fireproof coating - FireBatt / Weichschott

Applique kit installation

MF1/MF2 kit installation

Remote from wall installation

Range	Supporting construction	Type of installation	Classification	Supporting construction details	Wall thickness	Tested underpressure
APP INSTALLATION FRAME FDC25 d100-d315 mm	Rigid wall	APPLIQUE (installation frame)	EI 90 (ve i↔o)S	Aerated concrete (≥ 450kg/m³) Reinforced concrete (≥ 2200kg/m³)	≥ 100 mm	500Pa
		APPLIQUE (installation frame)	EI 90 (ve i↔o)S	Gypsum blocks (≥ 995kg/m³)	≥ 70 mm	500Pa
	Flexible wall	APPLIQUE (installation frame)	EI 90 (ve i↔o)S EI 60 (ve i↔o)S	Plasterboard type F (EN520) A (EN520)	≥ 100 mm	500Pa
MF1/ MF2 INSTALLATION FRAME FDC25 MF1 d100-d315 mm MF2 d355-d800 mm FDC25/FDC40 MF2 d355-d800 mm	Rigid wall	MF1 (installation frame)	FDC25:EI 60 (ve i↔o)S	Aerated concrete (≥ 450kg/m³) Reinforced concrete (≥ 2200kg/m³)	≥ 100 mm	500Pa
		MF2 (installation frame)	EI 90 (ve i↔o)S			FDC25: 300Pa FDC40: 500Pa
		MF1 (installation frame)	FDC25:EI 60 (ve i↔o)S	Gypsum blocks (≥ 995kg/m³)	≥ 70 mm	500Pa
		MF2 (installation frame)	EI 90 (ve i↔o)S			
	Flexible wall	MF1 (installation frame)	A:FDC25:EI 60 (ve i↔o)S B:FDC25:EI 60 (ve i↔o)S	Plasterboard A:type A (EN520) B:type F (EN520)	≥ 100 mm	500Pa
		MF2 (installation frame)	A:EI 60 (ve i↔o)S B:EI 90 (ve i↔o)S			FDC25: 300Pa FDC40: 500Pa
	Floor/ceiling	MF2 (installation frame)	FDC40:EI 90 (ho i↔o)S	Aerated concrete (≥ 450kg/m³) Reinforced concrete (≥ 2200kg/m³)	≥ 100 mm	300Pa
MF2 INSTALLATION FRAME FDC25 MF2 d100-d315 mm FDC40 MF2 d355-d800 mm	Flexible wall	MF2 (installation frame)	EI 60 (ve i↔o)S	Shaft wall (steel frame)	≥ 75 mm	300Pa
			EI 90 (ve i↔o)S		≥ 90 mm	
ISOVER FDC25 d100-d315 mm FDC40 d355-d630 mm	Flexible wall	REMOTE FROM WALL (Isover)	EI 60 (ve i↔o)S	Plasterboard type F (EN520)	≥ 100 mm	300Pa
	Rigid wall			Aerated concrete (≥ 450kg/m³) Reinforced concrete (≥ 2200kg/m³)		

INSTALLATION

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

https://hth24.info/Klimaoprema-Brandschutz

Aerated concrete (≥ 450 kg/m³) or reinforced concrete (≥ 2200 kg/m³) wall, more than 100 mm thick

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

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

Shaft wall, steel frame construction

Aerated concrete (≥ 450 kg/m³) or reinforced concrete (≥ 2200 kg/m³)

FIRE DAMPER - FDC

Gypsum plaster, mortar sealing or mortar and cover boards

Sealing with mineral wool and cover boards

Sealing with mineral wool and fireproof coating - FireBatt / Weichschott

Applique kit installation

MF1/MF2 kit installation

Remote from wall installation

MANUAL ACTUATORS
R, R-S

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

R25
(d100 up to d315)

R40
(d355 up to d800)

R25

R25 manual actuator is installed on FDC25 fire dampers size d100 up to size d315. It is available in version with (R-S) and without (R) end switches. End switches and thermal fuse are easily replaceable and available as service parts. To upgrade to EMS , upgrade of R25 to R40 is required.

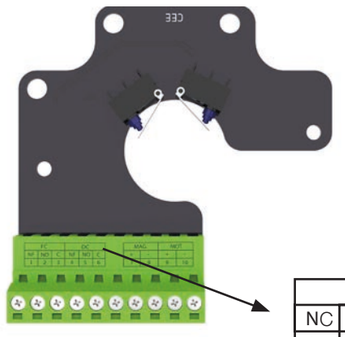
R40

R40 manual actuator is installed on FDC40 fire dampers size d355 up to size d800. It is available in version with (R-S) and without (R) end switches. IIn case remote activation is needed, R40 actuator is easily upgradeable to electromagnetic EMS-S actuator with installation of the electromagnet. End switches , thermal fuse and electromagnet are easily replaceable and available as service parts.

Technical specifications

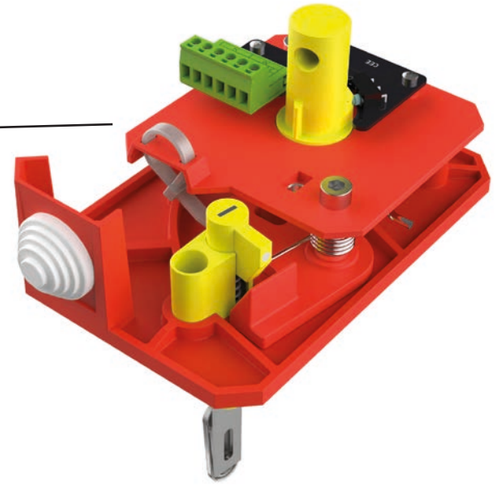
Nominal voltage	N/A
Power	N/A
Switching capacity	1 mA…500 mA, 5VDC…48 VDC
Blade closing time	Spring: 1 second
Blade opening time	Manual
Manual activation	Release button on the casing
Degree of protection	IP 42
Ambient temperature range	min. -30 °C, max. 50 °C
Ambient humidity	95% r.h., non-condensing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

Wiring diagram



FC			DC		
NC	NO	C	NC	NO	C
11	12	13	14	15	16

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



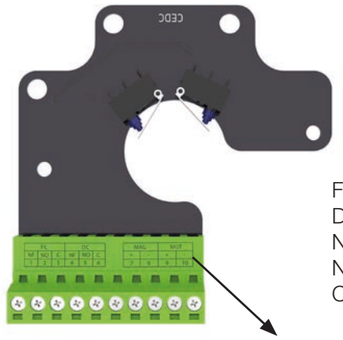
SOLENOID ACTUATOR
EMS-S

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

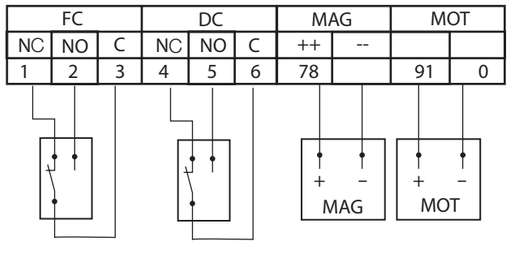
Technical specifications

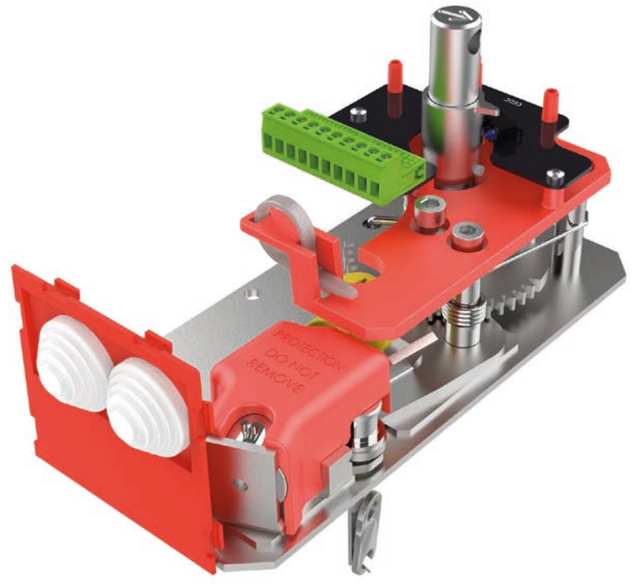
Nominal voltage	Solenoid: 24/ 48 VDC
Power	Dual voltage SOLENOID: Break of current: Pnom = 1.6 W
Switching capacity	1 mA…500 mA, 5 VDC…48 VDC
Blade closing time	Spring: 1 second
Blade opening time	Manual
Manual activation	Release button on the casing
Degree of protection	IP 42
Ambient temperature range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

Wiring diagram



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





ELECTRIC ACTUATOR

M24-S, M230-S, M24-S-ST, M230-S-ST

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

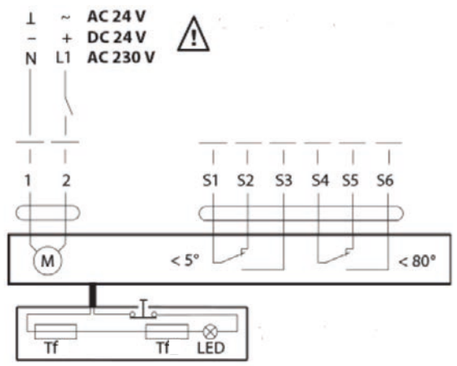
When switch on tripping device is released, the damper will open. Damper can be opened without connecting to a voltage with enclosed handle by turning it in the direction of the arrow on electric actuator (clockwise). Damper can be locked in the desired position by fast turning handle a quarter of a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

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

Technical specifications

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

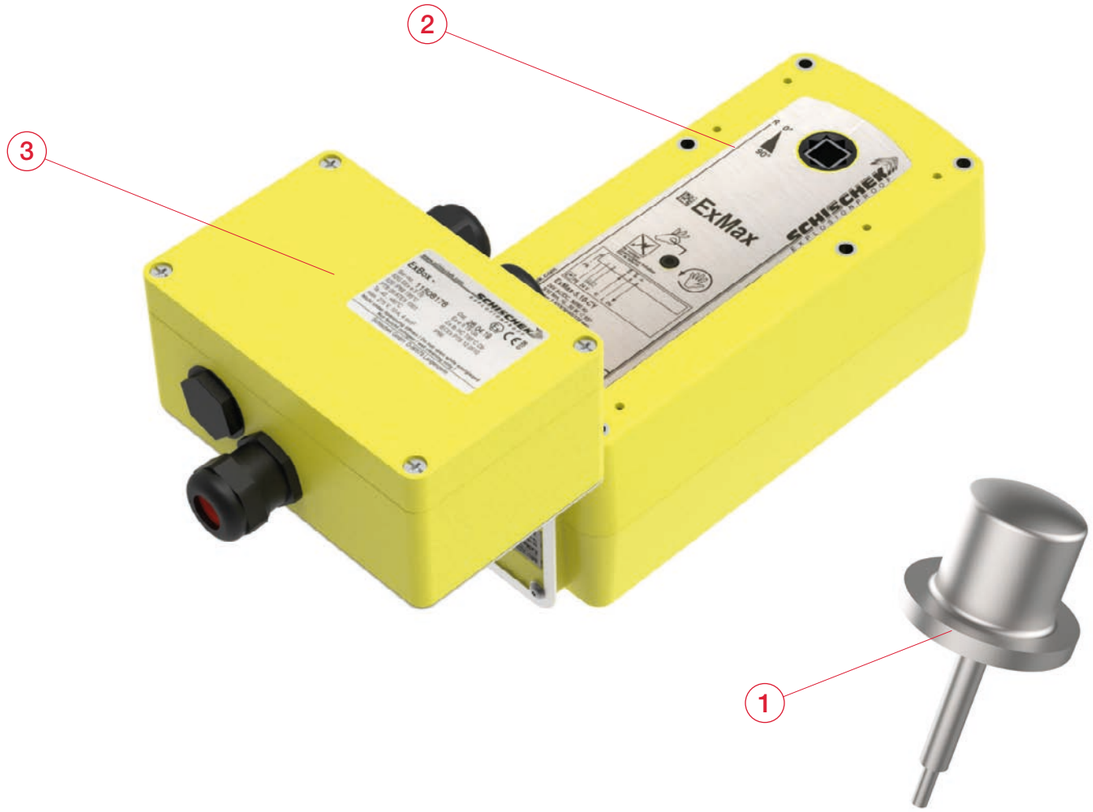
Wiring diagram



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

ELECTRIC ACTUATOR
SCHISCHEK ExMax

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



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

1) Tecnical documentation Safety temperature trigger Schischek ExPro-TT

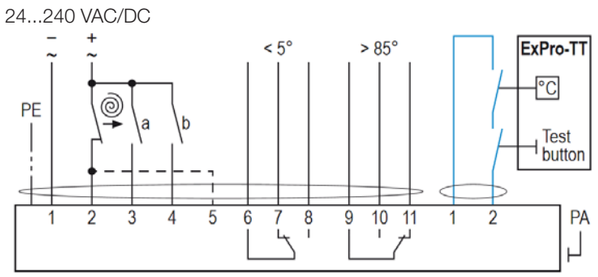
2) Tecnical documentation electric actuator Schischek ExMax-5.10-BF

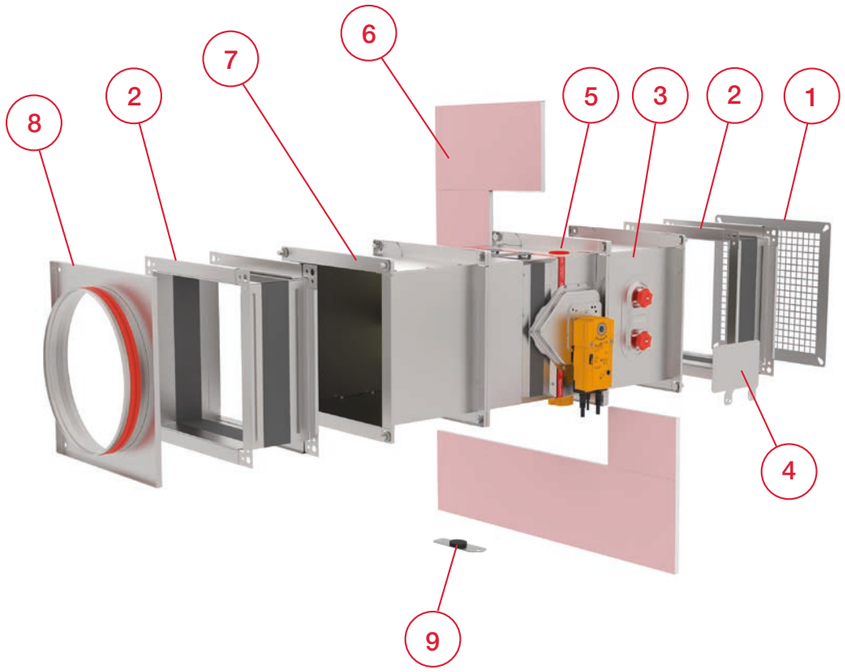
3) Tecnical documentation Ex-e terminal box ExBox-BF

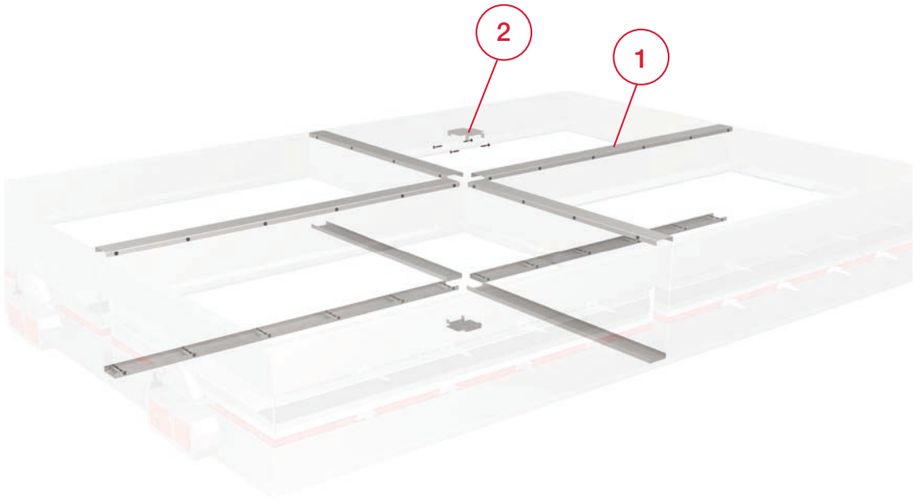
Technical specifications

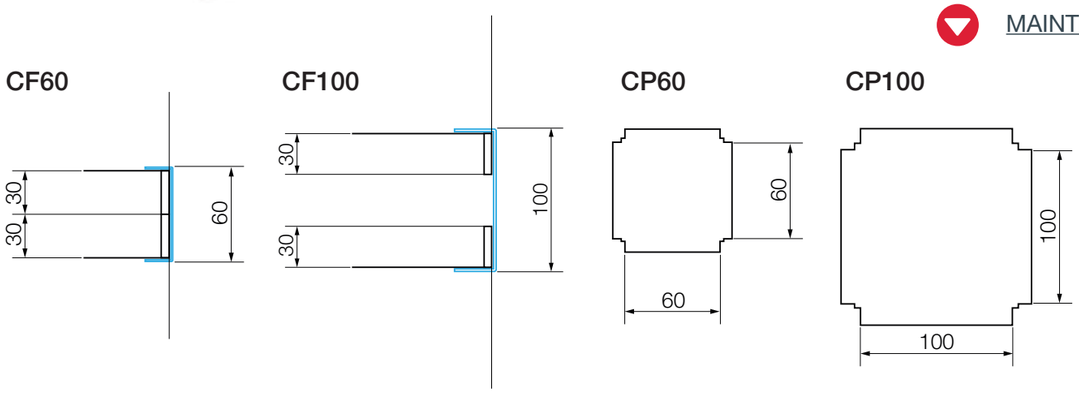
Type	ExMax -5.10-BF
Torque	5/10 Nm
Power Supply	24-230 V AC/DC
Running time	3/15/30/60/120 s / 90°
Spring return	3 or 10s / 90°
Control mode	On-Off, 3 position
Feedback	2 x aux switches + Ex. tripping device
Ambient temperature range	min. -40 °C, max. 40 °C
Ambient humidity	0-90% r.h., non-condensing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

Wiring diagram









Accessories

1. **FD-A-SG** Safety grill- Safety grill is used for protection of the fire damper and duct from large debris. Safety grille is produced out of galvanized steel and perforated with square 10x10mm perforation providing approx. 70% free cross section area. Fire damper, safety grille and, if applicable, extension piece are assembled at the factory t form a unit. FD-A-SG1-operation side, FD-A-SG2-installation side
2. **FD-A-FLEX** Flexible duct connections - Flexible duct connectors are used in HVAC systems for isolation from structure-borne noise, expansion compensation and fire damper connections (total length 130 mm, flexible 70mm).
3. **FD-A-EXT1** Extension piece on operation side - is used when the height of the fire damper is more than 350mm and damper blade in open position is protruding out of the casing.
4. **FD-A-CMB** Communication module bracket - is used when the height of the fire damper is more than 350mm and damper blade in open position is protruding out of the casing.
5. **FD-A-IH** Inspection hatch - is used for performing regular visual functionality inspection checks.
6. **FD-A-CSP** GKF boards for dry installation - Calcium silicate plates are used in dry installations as insulation cover. It keeps the insulation in place and provides for better fire penetration characteristics of the whole installation. Cover the complete perimeter around fire damper from both sides with boards in 150 mm height.
7. **FD-A-EXT2** Extension piece on installation side (250 mm)
8. **FD-A-CIRC** Circular connections - Are used to connect the circular ventilation ducts to the rectangular fire dampers.
9. **FD-BP-KIT** Thermal fuse blanking plate- is used for covering the thermal fuse hole on the casing in case of changing from the motor to the manual actuator. Installation with performed with 2 self-taping screws

Accessories for Battery installations

1. **CF60** - Connecting frame 60 mm

   CF100 - Connecting frame 100 mm

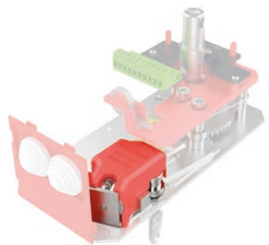
-Connecting frame length is 200... 1500 [mm]

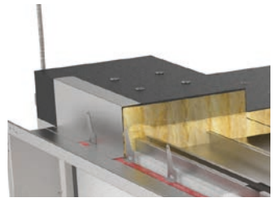
2. **CP60** - Connecting plate 60 mm

   CP100 - Connecting plate 100 mm

Attach the connecting frames to the dampers using the self-tapping screws every 150 mm and 4 self-tapping screws on every connecting plate.

CF60/CP60 kits are used when minimum possible size of the battery is needed. In this installation flanges are installed next to each other. CF100/CP100 kits are used when overall size of the battery installation needs match standard ventilation duct sizes (i.e. divisible by 50mm).





Spare parts

For safety reasons, parts need to be changed by a trained personnel or the manufacturer.

WARNING! Install the original parts only!

1. **FD-A-THERM-72** Fuse kit
2. **FD-A-R25S-KIT** Double contact S kit
3. **FD-A-R40S-KIT** Double contact S kit
4. **FD-A-EMS-KIT** Solenoid actuator
5. **FD-A-BAT72** Belimo thermal fuse 72°C
6. **FD-A-ZBAT95** Belimo thermal fuse 95°C
7. **Belimo BFL** Kit A Upgrade to electric actuator (Belimo BFL)
8. **Belimo BFN** Kit B Upgrade to electric actuator (Belimo BFN)
9. **Belimo BF** Kit C Upgrade to electric actuator (Belimo BF)
10. **FD-A-R40** R40 manual mechanism
11. **FD-A-ERK** Electric actuator rotation kit
12. **FD-SSA** Smoke sensor
13. **MWC** Mineral wool cover (for remote installation)

SMOKE SENSOR ASSEMBLY FD-A-SSA

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

M

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

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

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

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

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

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

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

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

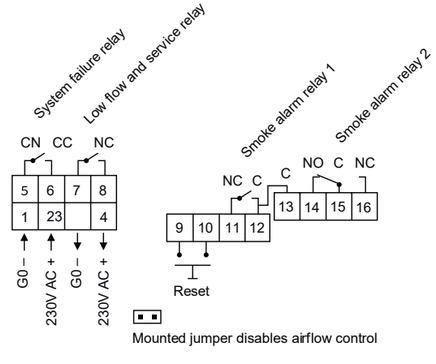
For more information, visit website:
Technical documentation Calectro

Technical specifications

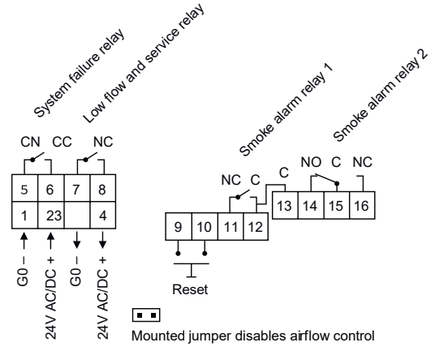
	FD-A-UG-8-E-24	FD-A-UG-8-E-230
Voltage Supply	24V AC/DC ±10% Not polarity sensitive	230V AC ±10%, Not polarity sensitive
Detector type	Optical EVC-PR-DA	Optical EVC-PR-DA
Max. power consumption	85 mA (DC), 235 mA (AC)	100 mA
Operating temperature	-20°C to +55°C	
Maximum humidity	95% rH	
Duct air velocity range	1 to 20 m/s	
Approvals	VdS, CE, EN-54-27	
Relay output	Potential free	
Smoke alarm relays	One changing contacts 250V, 8A and one bracking contact 250V, (A	
Service alarm	One breaking contact 250V, 1A	
System error alarm	One breaking contact 250V, 1A	
Low Flow alarm:	One breaking contact 250V, 1A	
LED on smoke detector:	Yellow - service alarm(contamination) Red - smoke alarm	
LED on PCB:	Green - normal operation Yellow flashing - system error Yellow - Low-Flow	

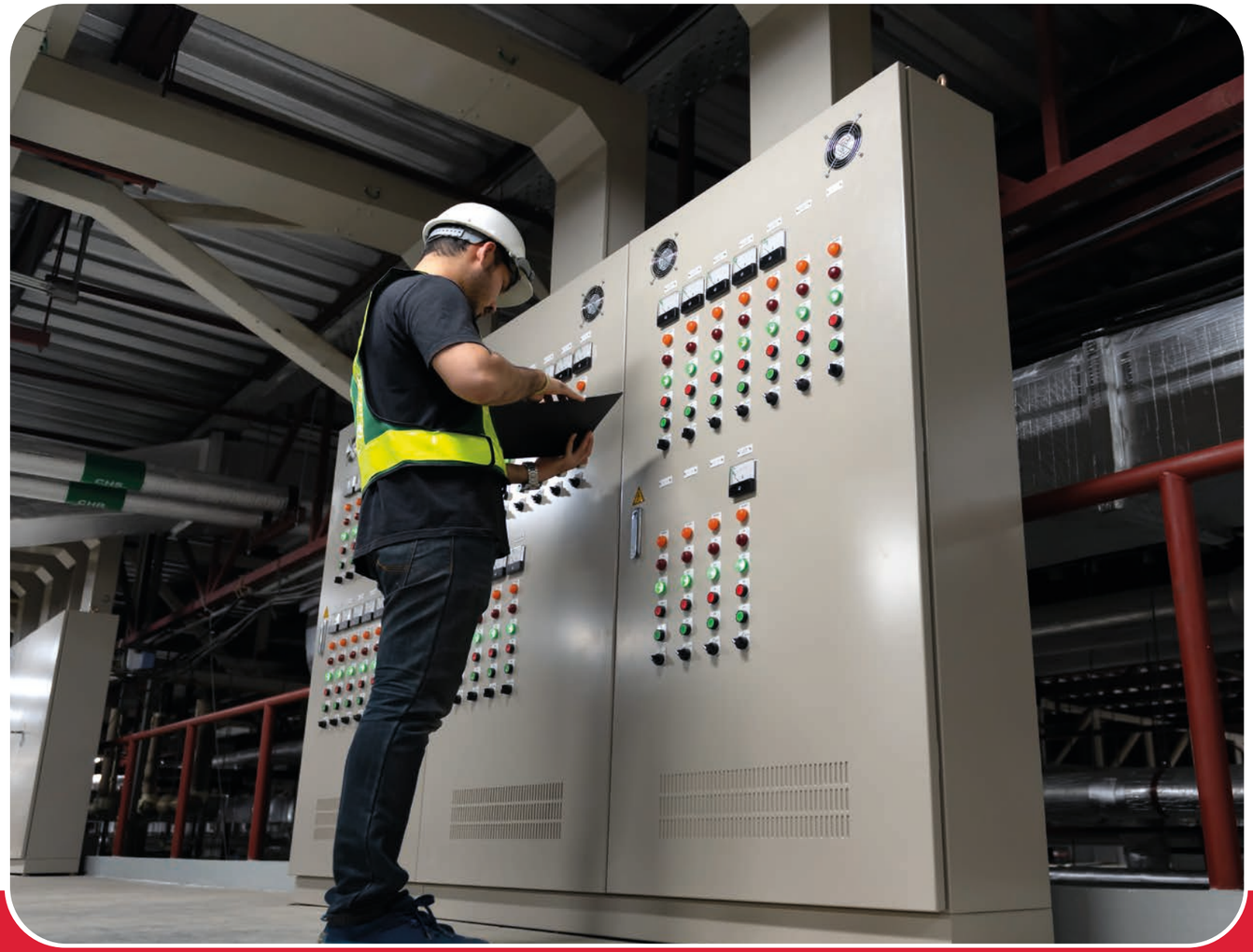
Wiring diagram

FD-A-UG-8-ZB-230V (DIBt)



FD-A-UG-8-ZB-24V (DIBt)





TRANSPORT

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

STORAGE

If the damper is not installed immediately:

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

Please properly dispose of packaging material.

MAINTENANCE AND OPERATION

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

- Provide regular testing/inspection of the fire dampers. Inspection/test intervals should be caried out every six months or less according to the local legislature
- After each intervention, provide a systematic cleaning of dust and especially the solenoid and its movable plate
- Check the if the electrical terminals are tightened
- Cleaning instruction: clean with a sponge, with water or a mild detergent
- Disinfection instruction: spray disinfectant (desinfectant may contain alcohol which is flammable, take precaution to avoid ignition)

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

COMMISSIONING

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

FUNCTIONS

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

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FIRE DAMPER - FDC

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