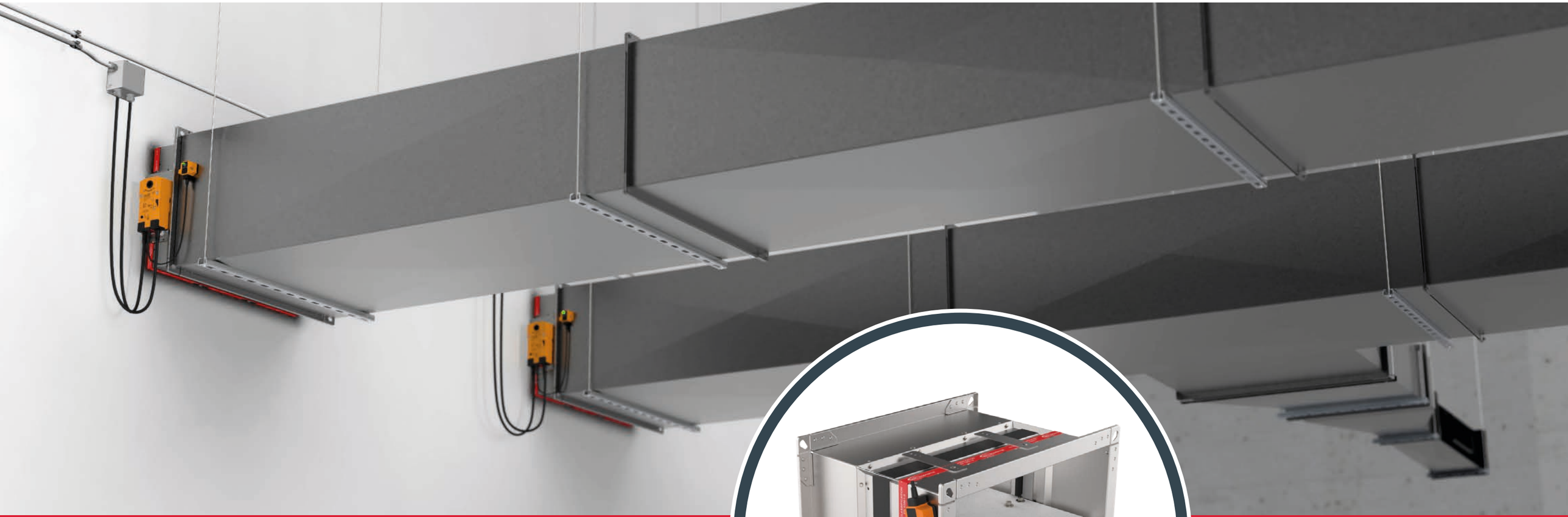
Gradna 78A, 10430 Samobor, Croatia
+385 (0)1 33 62 513
info@klimaoprema.com
www.klimaoprema.com



Product catalog

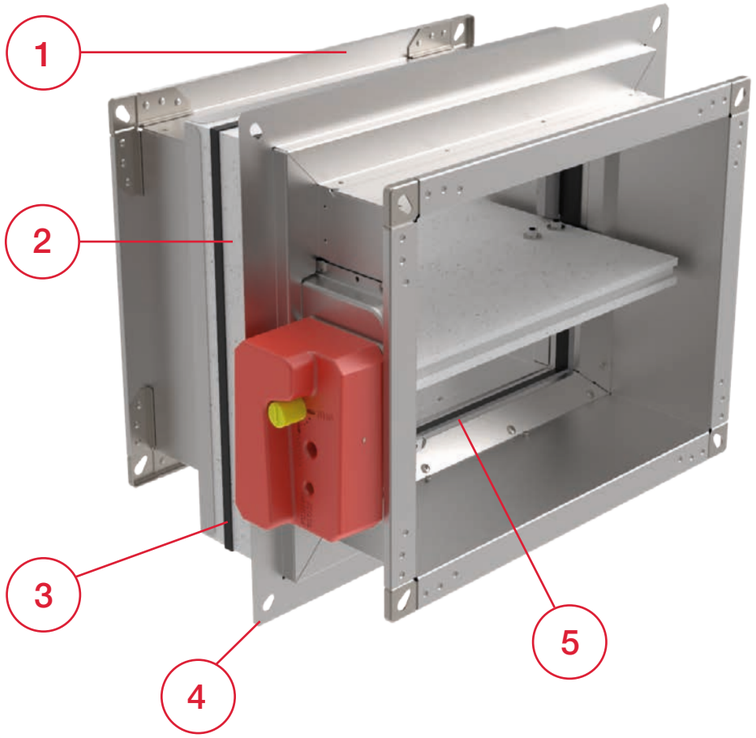
FD

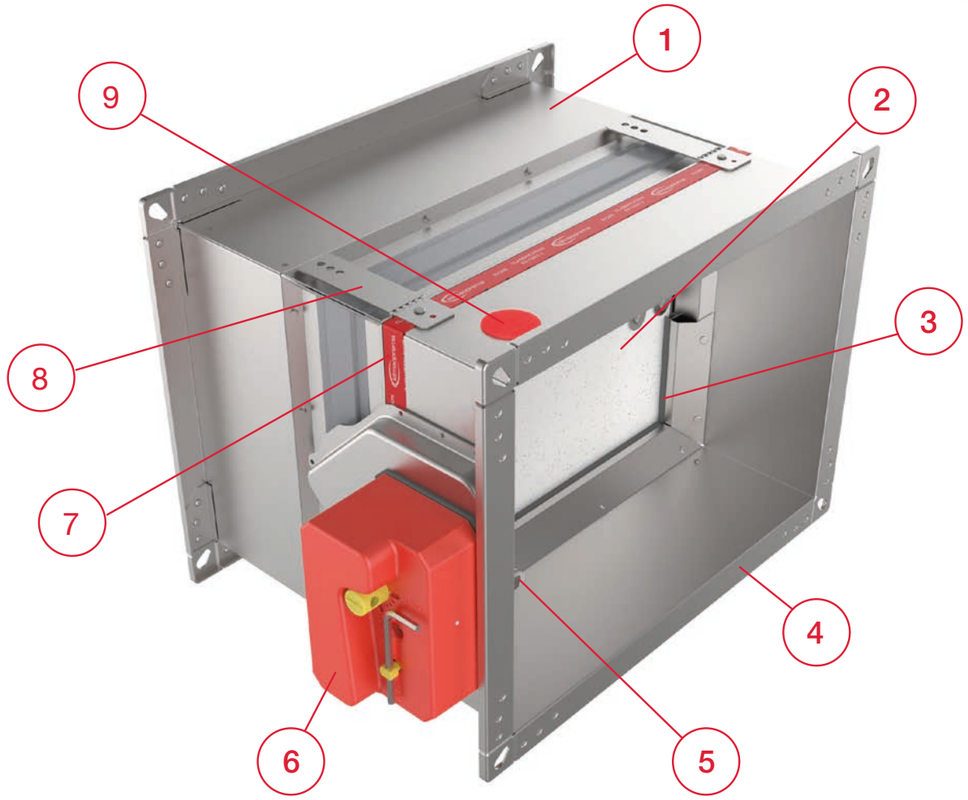
Fire damper

Fire protection

Version 1.0.0
Issue Date: 03.06.2026.

1. Flange
2. Gypsum layers
3. Intumescent joint
4. Contact layer
5. Cold smoke seal





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

PRODUCT OVERVIEW

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

Fire damper case 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 FD25 are produced up to size 800x600 and have 25 mm thick damper blade. Fire dampers FD40 are produced in sizes 800x650 up until 1500x800 and have 40 mm thick damper blade.

FD25 fire dampers are equipped with R25 manual mechanism and FD40 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.

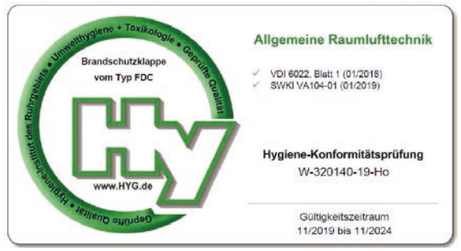
Additionl equipment for manual mechanism include end contact switches for damper position signalling. Electromagnetic actuators feature spring return mechanism with electromagnet for remote activation. Additional equipment for electromagnetic mechanism include end contact switches for damper position 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. Klimaoprema fire dampers are also suitable for installation in buildings with high hygienic demands such as hospitals, clinics and pharmaceutical areas.

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

Our FD 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.
FD Environmental Product Declaration

FIRE RESISTANCE CLASSIFICATION

FD 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 in vertical or horizontal).

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 installation manual which can be found within this document.

Please consult latest Declaration of Performance on our website:

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

** **Stainless steel not possible 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 FD25	100x200 - 800x600 [mm]
Nominal sizes FD40	800x650 - 1500x800 [mm]
Casing length	350 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 ranges	up to 1.000 Pa
Casing air leakage	Class C, EN 1751
Closed blade air leakage	Class 3, EN 1751
Upstream velocity	< 10 m/s
EC conformity	EN 13501-3, EN 1366-2, EN 15650, EN 1751, EN 15882-2-2015
Declaration of performance	DoP 710 xxx

MODELS

Casings

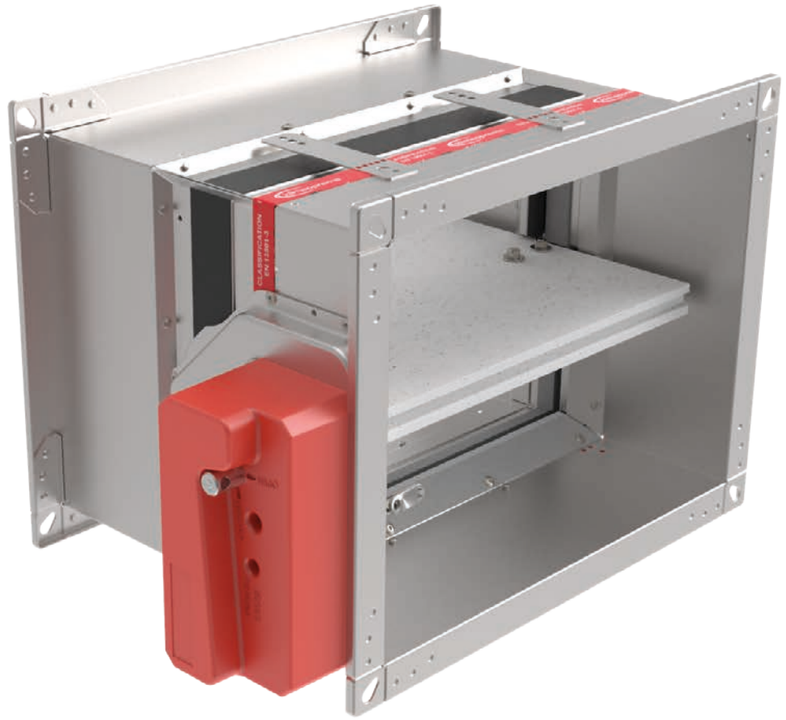
FD25
Fire damper with 25 mm damper blade and fire classification up to EI120S.
Sizes range from 100x200 till 800x600.

FD40
Fire damper with 40 mm damper blade and fire classification up to EI120S.
Sizes range from 800x650 till 1500x800.

FD25 - APP
Fire damper with integrated Applique installation kit with 25 mm damper blade and fire classification up to EI90S. Sizes range from 100x200 till 800x600.

FD25 - MF1
Fire damper with integrated MF1 installation frame with 25 mm damper blade.
Sizes range from 100x200 till 800x600.

FD25/FD40 - MF2
Fire damper with integrated MF2 installation frame with and fire classification up to EI90S. Sizes range from 100x200 till 1500x800.



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
FD25	-	**400x300**	-	**M230-S**	-	**IH**

(1)
FD25 100x200 till 800x600
FD40 800x650 till 1500x800
FD25-APP 100x200 till 800x600
FD25-MF1 100x200 till 800x600
FD25-MF2 100x200 till 800x600
FD40-MF2 800x650 till 1500x800

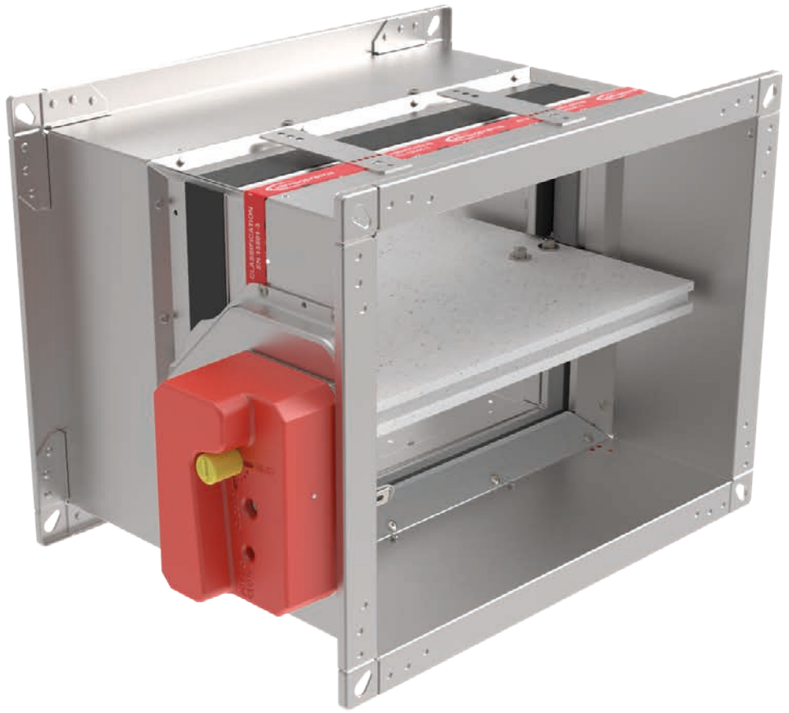
(2) Damper dimensions
B(W) x H [mm]

(3)
R - manual drive
R-S - manual drive with limit switches
M230-S - electric actuator AC230 V
M230-S-ST - electric actuator AC230 V with connection plug
M24-S - electric actuator AC/DC 24 V
M24-S-ST - electric actuator AC/DC 24 V with connection plug
M24-S-T95 -electric actuator AC/DC 24 V with thermal fuse 95 °C
EMS-S - electromagnetic drive, permanent
EX - electric actuator Schischek ExMax-5.10-BF +ExPro-TT+ExBox-BF

(4)
IH - inspection hatch

FD25/FD40 - 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)
- FD25 fire dampers are equipped with R25 manual mechanism
- FD40 fire dampers are equipped with R40 manual mechanism

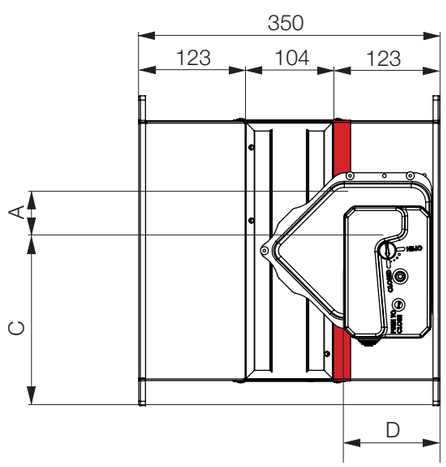


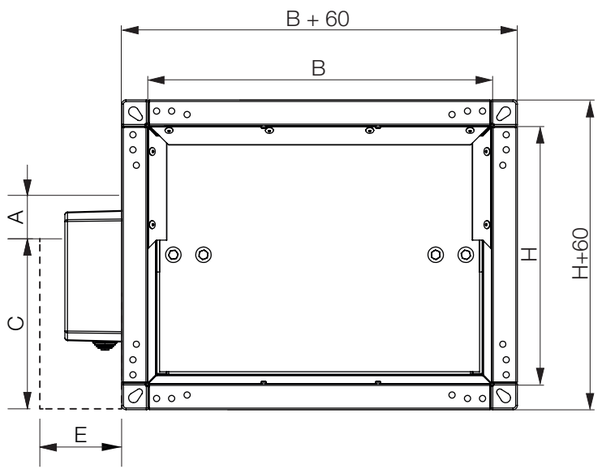
Product	A [mm]	C [mm]	D [mm]	E [mm]
FD 25	55	150	105	150
FD 40	55	200	105	200

Length of damper blade outside of casing:

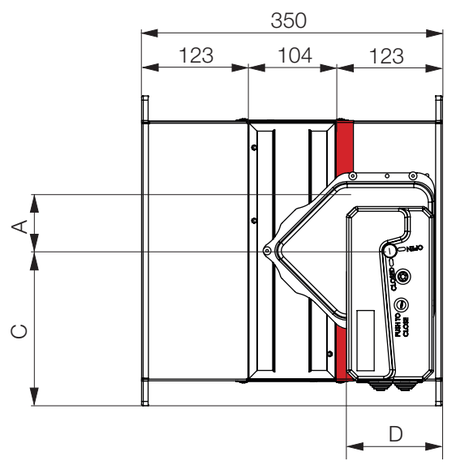
X=(H/2)-175 [mm]

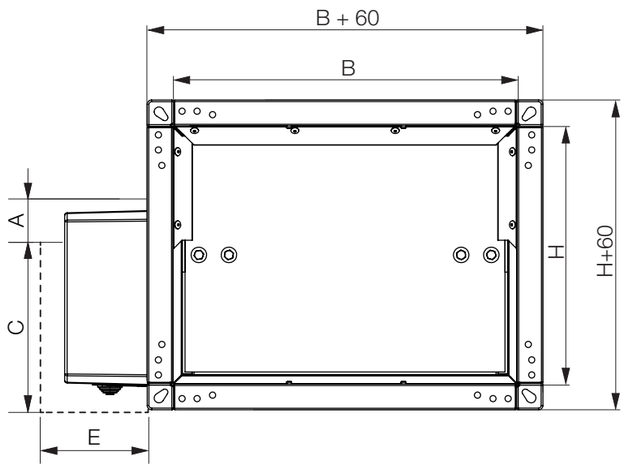
FD25-R25





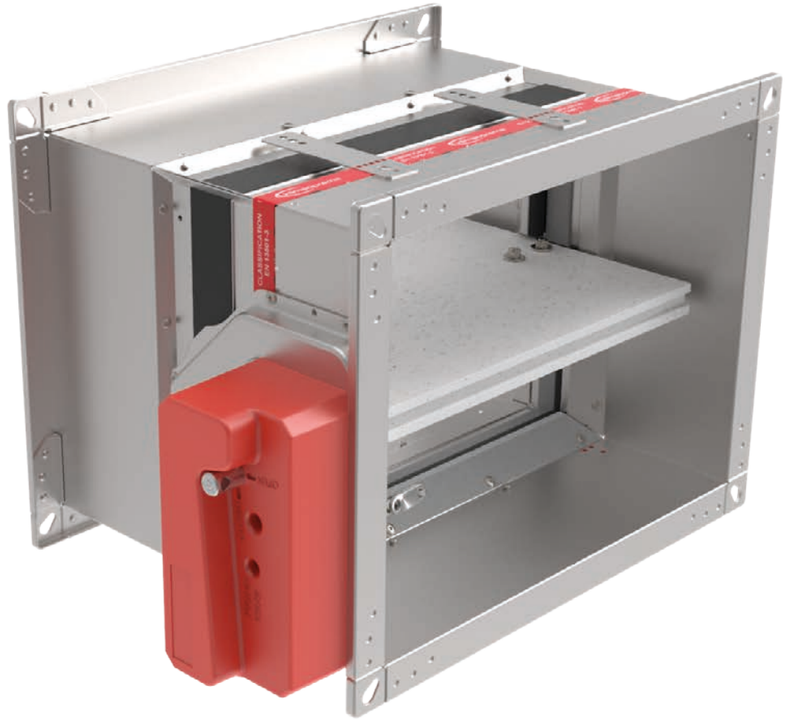
FD40-R40





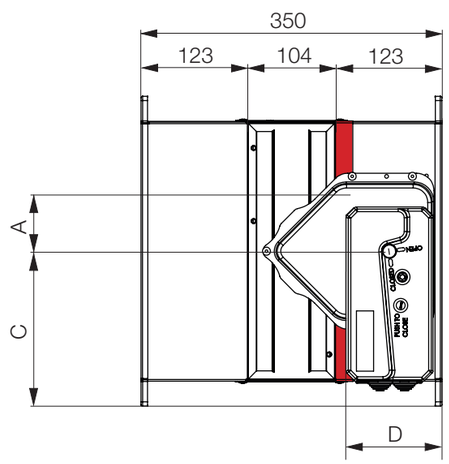
FD25/FD40 - EMS (solenoid actuator)

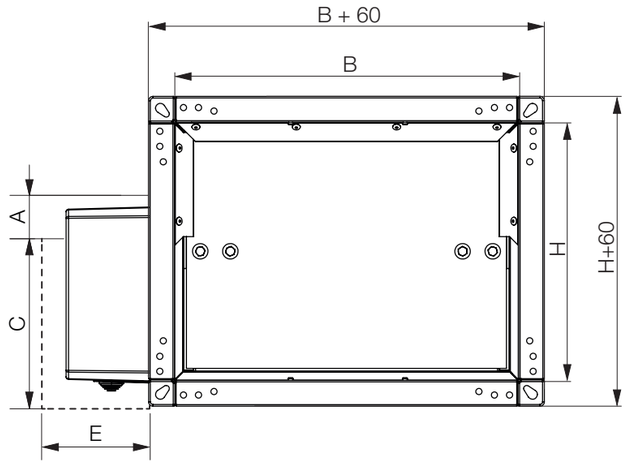
- Spring return actuator with integrated limit switches and thermal fuse release mechanism (72 °C)
- Manual re arming
- Possible closing with solenoid
- Manual closing possible
- EMS - solenoid actuator is constantly under power. Actuating mechanism is tripped when the power is interrupted, or thermal fuse is melted.



Product	A [mm]	C [mm]	D [mm]	E [mm]
FD 25	55	150	105	150
FD 40	55	200	105	200

B - Width of the fire damper
H - Height of the fire damper
(C+A) x E - Keep clear to provide access for operation



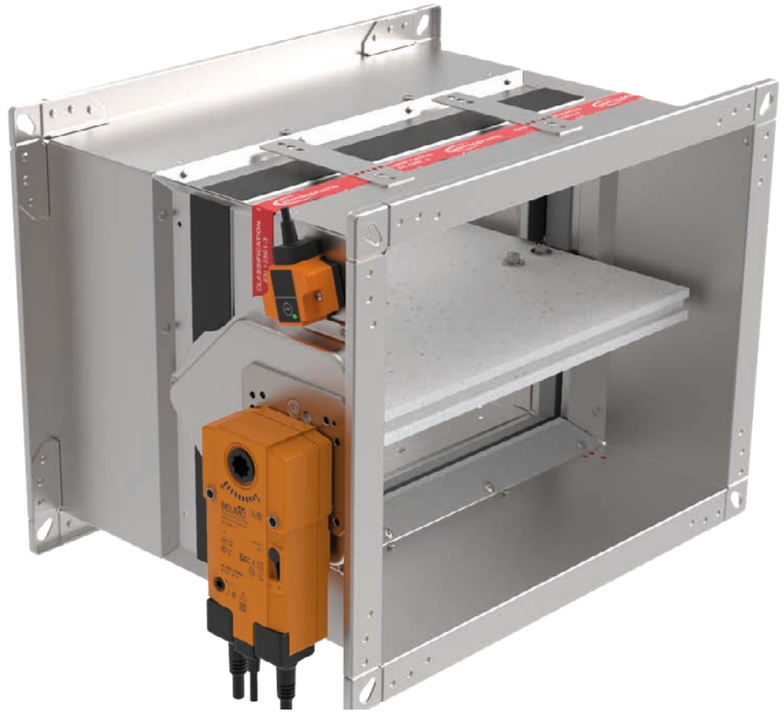


Length of damper blade outside of casing:

X=(H/2)-175 [mm]

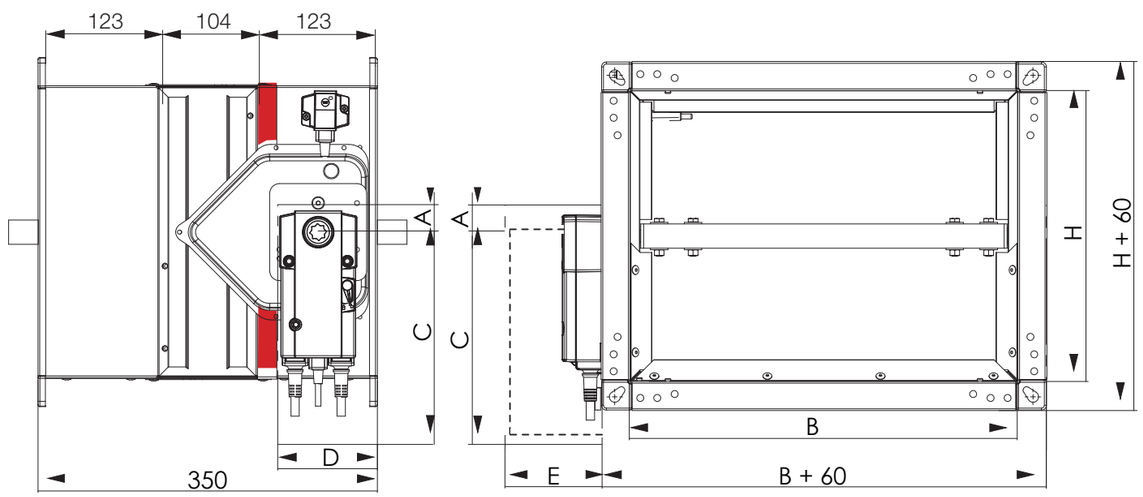
FD25/FD40 - M (electric actuator)

- 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



Actuator	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

B - Width of the fire damper
H - Height of the fire damper
(C+A) x E - Keep clear to provide access for operation



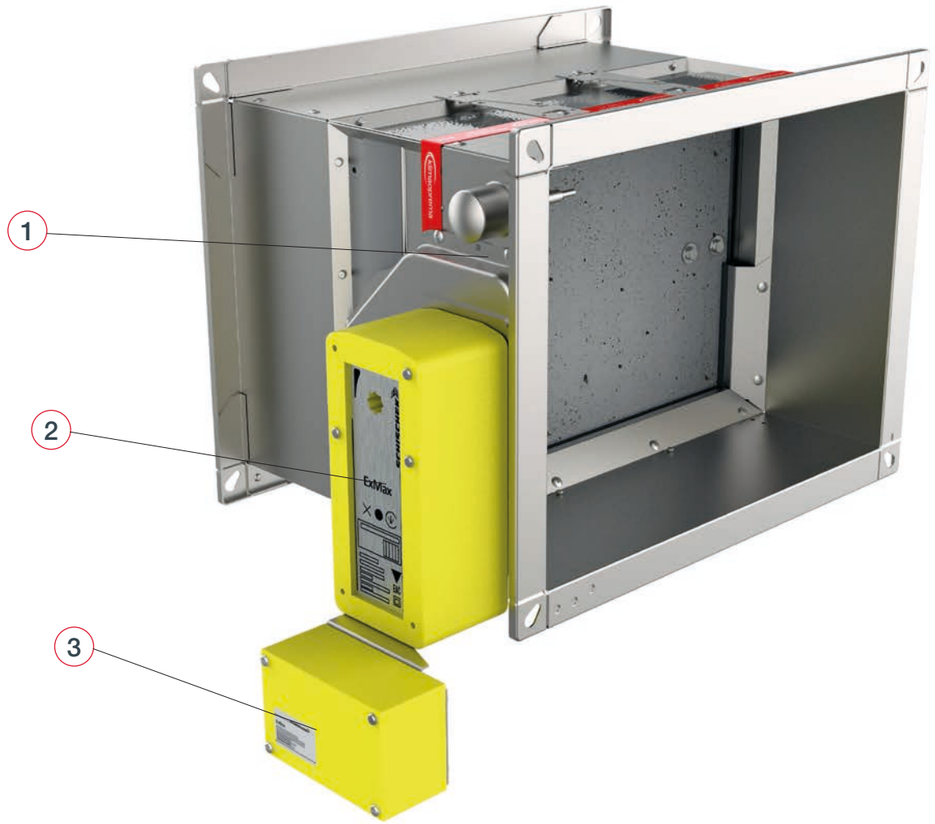
Length of damper blade outside of casing:

X=(H/2)-175 [mm]

FD25/FD40 - 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 23.



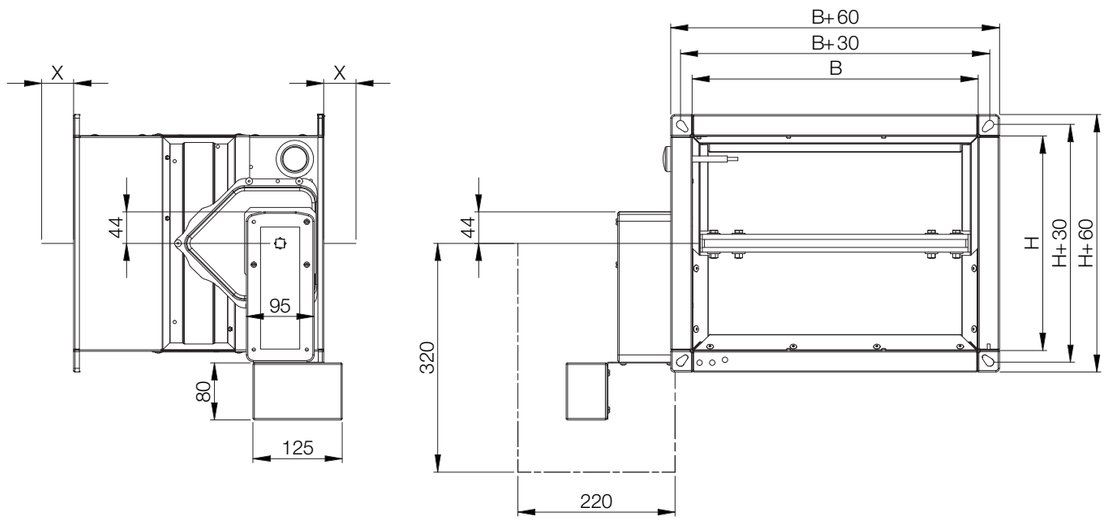
Ex classification of product:

II 2G Ex h IIC T6 Gb

II 2D Ex h IIIC T80°C Db

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

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

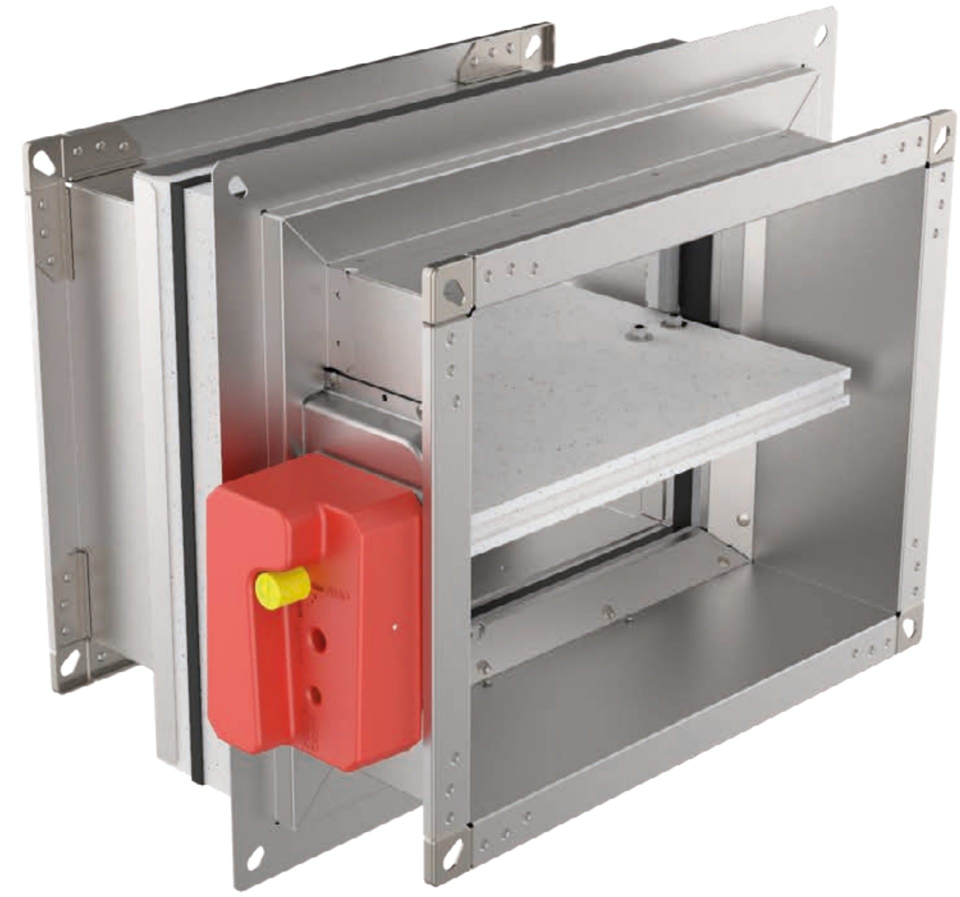


Length of damper blade outside of casing:

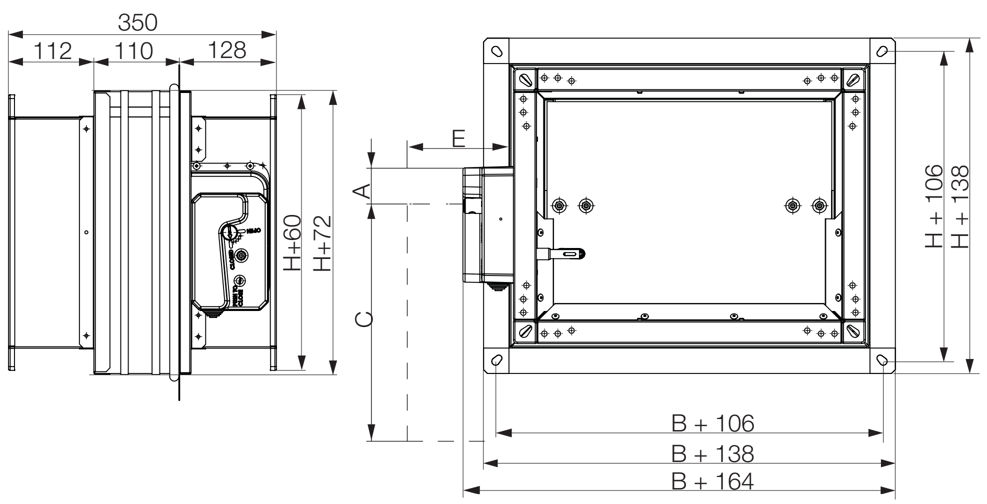
X=(H/2)-175 [mm]

FD25 - APP
Applique installation frame

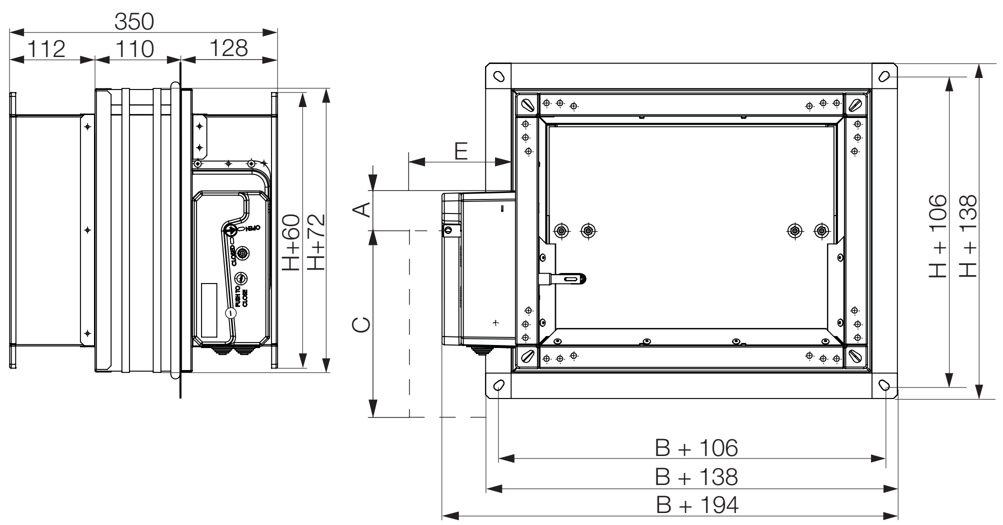
- Fire damper with integrated Applique installation kit with 25 mm damper blade for quick and easy installation in rigid and flexible walls
- Made out of calcium silicate boards
- Fire classification up to EI90S.
- Sizes range from 100x200 till 800x600.
- Quick wall mounting with screws, 4 pcs 4,8x60 mm
- Factory assembled to the fire damper



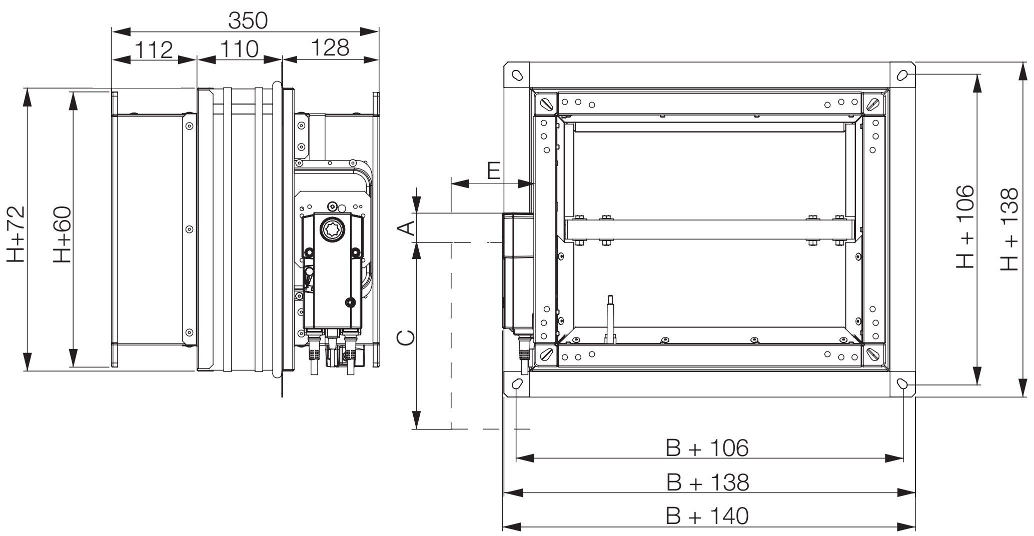
FD25-APP-R



FD25-APP-EMS



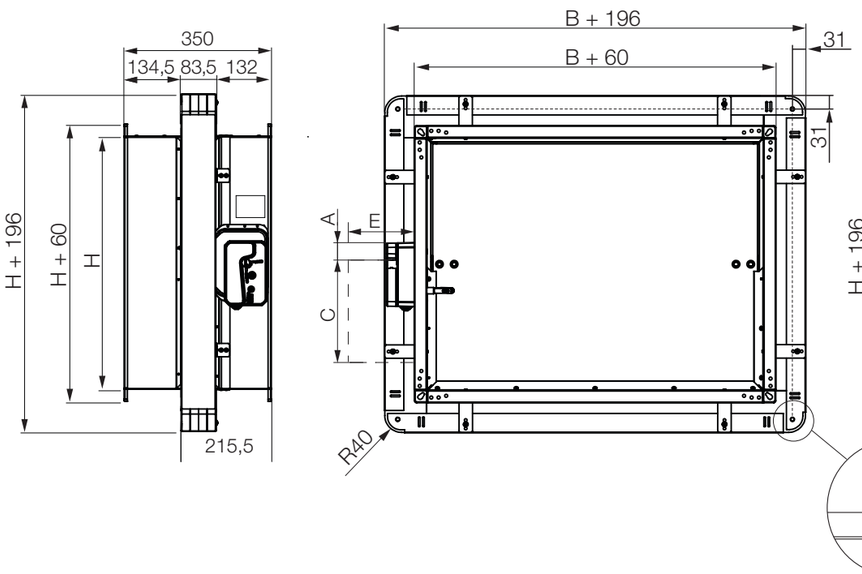
FD25-APP-M



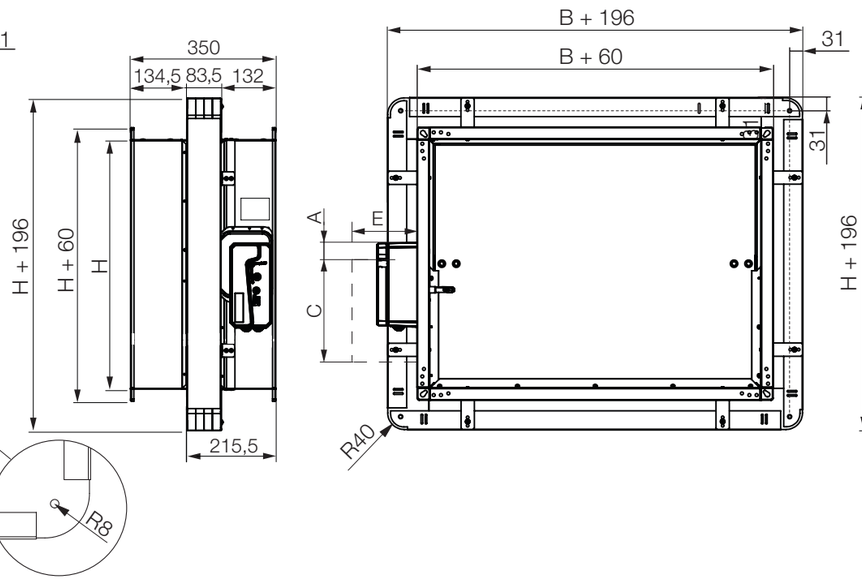
FD25
MF1 installation frame

- Fire damper with integrated MF1 installation frame with 25 mm damper blade for quick and easy installation on rigid and flexible walls
- Sizes range from 100x200 till 800x600.
- Made out of calcium silicate boards
- Quick wall mounting with screws, 4 pcs, 6x140 mm
- Factory assembled to the fire damper

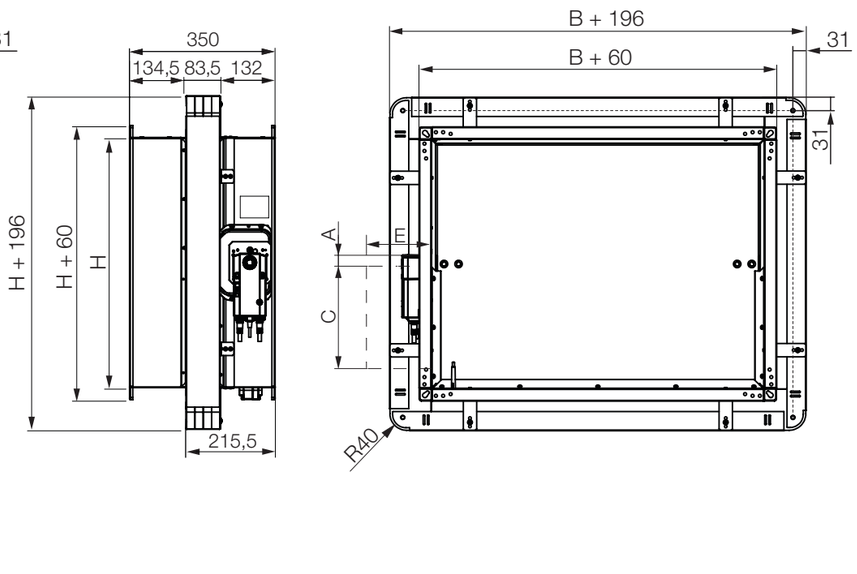
FD25-MF1-R



FD25-MF1-EMS

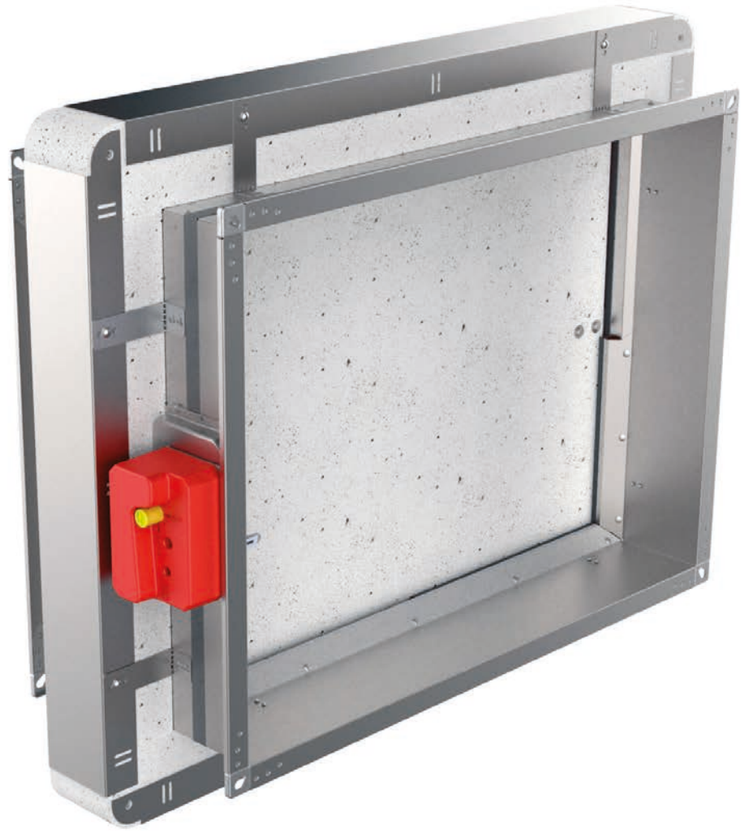


FD25-MF1-M

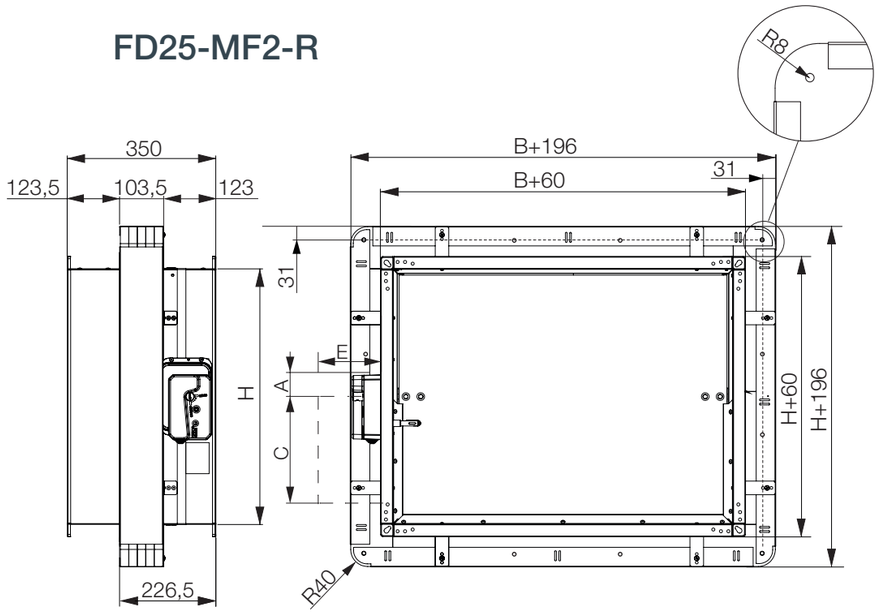


FD25/FD40
MF2 installation frame

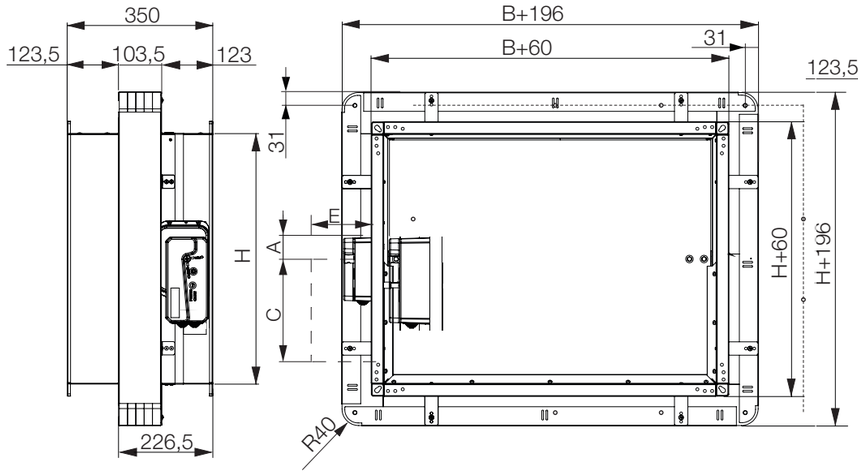
- Fire damper with integrated MF2 installation frame with and fire classification up to EI90S for quick and easy installation on rigid and flexible walls
- Sizes range from 100x200 till 1500x800.
- Made out of calcium silicate boards
- Quick wall mounting with screws, 12 pcs, 6x140 mm
- Factory assembled to the fire damper



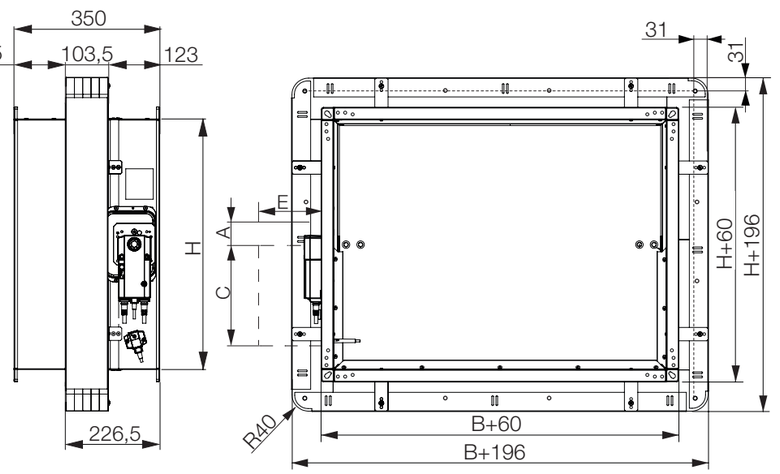
FD25-MF2-R



FD25-MF2-EMS
FD40-MF2-R / FD40-MF2-EMS



FD25-MF2-M
FD40-MF2-M



Weights tables

FD-R Weight [kg]

H\B	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200	5,0	5,6	6,1	6,7	7,3	7,9	8,6	9,2	9,8	10,5	11,1	11,7	12,3	13,0	13,6	17,0	17,7	18,4	19,2	19,9	20,6	21,3	22,1	22,8	23,5	24,3	25,0	25,7	26,4
250	5,7	6,2	6,7	7,4	8,1	8,8	9,5	10,1	10,8	11,5	12,2	12,9	13,6	14,3	15,0	19,0	19,8	20,7	21,5	22,3	23,1	24,0	24,8	25,6	26,5	27,3	28,1	28,9	29,8
300	6,3	6,8	7,3	8,1	8,8	9,6	10,3	11,1	11,8	12,6	13,3	14,1	14,8	15,6	16,3	21,0	22,0	22,9	23,8	24,7	25,7	26,6	28,3	29,2	30,1	31,1	32,0	32,9	33,9
350	6,9	7,4	7,9	8,8	9,6	10,4	11,2	12,0	12,8	13,6	14,5	15,3	16,1	16,9	17,7	23,1	24,1	25,1	26,1	27,2	28,2	29,2	31,0	32,0	33,1	34,1	35,1	36,2	37,2
400	7,6	8,1	8,6	9,5	10,3	11,2	12,1	13,0	13,8	14,7	15,6	16,5	17,3	18,2	19,1	25,8	27,0	28,1	29,2	30,4	31,5	32,6	33,7	34,9	36,0	37,1	38,3	39,4	40,5
450	8,2	8,7	9,2	10,1	11,1	12,0	13,0	13,9	14,8	15,8	16,7	17,7	18,6	19,5	20,5	27,9	29,1	30,3	31,6	32,8	34,0	35,2	36,5	37,7	38,9	40,2	41,4	42,6	43,8
500	8,8	9,3	9,8	10,8	11,8	12,8	13,8	14,8	15,8	16,8	17,8	18,8	19,8	20,8	21,8	29,9	31,2	32,6	33,9	35,2	36,5	37,9	39,2	40,5	41,9	43,2	44,5	45,8	47,2
550	9,4	9,9	10,5	11,5	12,6	13,6	14,7	15,8	16,8	17,9	19,0	20,0	21,1	22,2	23,2	31,9	33,4	34,8	36,2	37,6	39,1	40,5	41,9	43,4	44,8	46,2	47,6	49,1	50,5
600	10,1	10,6	11,1	12,2	13,3	14,5	15,6	16,7	17,8	19,0	20,1	21,2	22,3	23,5	24,6	34,0	35,5	37,0	38,5	40,1	41,6	43,1	44,7	46,2	47,7	49,2	50,8	52,3	53,8
650				16,5	18,1	19,7	21,3	23,0	24,6	26,2	27,8	29,5	31,1	32,7	34,4	36,0	37,6	39,2	40,9	42,5	44,1	45,8	47,4	49,0	50,6	52,3	53,9	55,5	57,1
700					19,0	20,7	22,5	24,2	25,9	27,6	29,4	31,1	32,8	34,6	36,3	38,0	39,7	41,5	43,2	44,9	46,7	48,4	50,1	51,8	53,6	55,3	57,0	58,7	60,5
750						21,8	23,6	25,4	27,2	29,1	30,9	32,7	34,6	36,4	38,2	40,0	41,9	43,7	45,5	47,4	49,2	51,0	52,8	54,7	56,5	58,3	60,1	62,0	63,8
800							24,7	26,6	28,6	30,5	32,4	34,4	36,3	38,2	40,1	42,1	44,0	45,9	47,9	49,8	51,7	53,6	55,6	57,5	59,4	61,3	63,3	65,2	67,1

R25

R40

FD Weight [kg]

H\B	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200	4,5	5,1	5,6	6,2	6,8	7,4	8,1	8,7	9,3	10,0	10,6	11,2	11,8	12,5	13,1	15,3	16,0	16,7	17,5	18,2	18,9	19,6	20,4	21,1	21,8	22,6	23,3	24,0	24,7
250	5,2	5,7	6,2	6,9	7,6	8,3	9,0	9,6	10,3	11,0	11,7	12,4	13,1	13,8	14,5	17,3	18,1	19,0	19,8	20,6	21,4	22,3	23,1	23,9	24,8	25,6	26,4	27,2	28,1
300	5,8	6,3	6,8	7,6	8,3	9,1	9,8	10,6	11,3	12,1	12,8	13,6	14,3	15,1	15,8	19,3	20,3	21,2	22,1	23,0	24,0	24,9	26,6	27,5	28,4	29,4	30,3	31,2	32,2
350	6,4	6,9	7,4	8,3	9,1	9,9	10,7	11,5	12,3	13,1	14,0	14,8	15,6	16,4	17,2	21,4	22,4	23,4	24,4	25,5	26,5	27,5	29,3	30,3	31,4	32,4	33,4	34,5	35,5
400	7,1	7,6	8,1	9,0	9,8	10,7	11,6	12,5	13,3	14,2	15,1	16,0	16,8	17,7	18,6	24,1	25,3	26,4	27,5	28,7	29,8	30,9	32,0	33,2	34,3	35,4	36,6	37,7	38,8
450	7,7	8,2	8,7	9,6	10,6	11,5	12,5	13,4	14,3	15,3	16,2	17,2	18,1	19,0	20,0	26,2	27,4	28,6	29,9	31,1	32,3	33,5	34,8	36,0	37,2	38,5	39,7	40,9	42,1
500	8,3	8,8	9,3	10,3	11,3	12,3	13,3	14,3	15,3	16,3	17,3	18,3	19,3	20,3	21,3	28,2	29,5	30,9	32,2	33,5	34,8	36,2	37,5	38,8	40,2	41,5	42,8	44,1	45,5
550	8,9	9,4	10,0	11,0	12,1	13,1	14,2	15,3	16,3	17,4	18,5	19,5	20,6	21,7	22,7	30,2	31,7	33,1	34,5	35,9	37,4	38,8	40,2	41,7	43,1	44,5	45,9	47,4	48,8
600	9,6	10,1	10,6	11,7	12,8	14,0	15,1	16,2	17,3	18,5	19,6	20,7	21,8	23,0	24,1	32,3	33,8	35,3	36,8	38,4	39,9	41,4	43,0	44,5	46,0	47,5	49,1	50,6	52,1
650				14,8	16,4	18,0	19,6	21,3	22,9	24,5	26,1	27,8	29,4	31,0	32,7	34,3	35,9	37,5	39,2	40,8	42,4	44,1	45,7	47,3	48,9	50,6	52,2	53,8	55,4
700					17,3	19,0	20,8	22,5	24,2	25,9	27,7	29,4	31,1	32,9	34,6	36,3	38,0	39,8	41,5	43,2	45,0	46,7	48,4	50,1	51,9	53,6	55,3	57,0	58,8
750						20,1	21,9	23,7	25,5	27,4	29,2	31,0	32,9	34,7	36,5	38,3	40,2	42,0	43,8	45,7	47,5	49,3	51,1	53,0	54,8	56,6	58,4	60,3	62,1
800							23,0	24,9	26,9	28,8	30,7	32,7	34,6	36,5	38,4	40,4	42,3	44,2	46,2	48,1	50,0	51,9	53,9	55,8	57,7	59,6	61,6	63,5	65,4

EMS-S +2,2 kg

EX +4,6 kg

PRODUCT OVERVIEW
DIMENSIONS
INSTALLATIONS
ACTUATORS
ACCESSORIES
MAINTENANCE AND OPERATION

DIMENSIONS

FD-M Weight [kg]

H/B	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200	5,6	6,2	6,9	7,5	8,1	8,7	9,4	10,0	10,6	11,3	11,9	12,5	13,1	13,8	14,4	17,8	18,5	19,2	20,0	20,7	21,4	22,1	22,9	23,6	24,3	25,1	25,8	26,5	27,2
250	6,1	6,8	7,5	8,2	8,9	9,6	10,3	10,9	11,6	12,3	13,0	13,7	14,4	15,1	15,8	19,8	20,6	21,5	22,3	23,1	23,9	24,8	25,6	26,4	27,3	28,1	28,9	29,7	30,6
300	6,6	7,4	8,1	8,9	9,6	10,4	11,1	11,9	12,6	13,4	14,1	14,9	15,6	16,4	17,1	21,8	22,8	23,7	24,6	25,5	26,5	27,4	28,3	29,3	30,2	31,1	32,0	33,0	33,9
350	7,1	7,9	8,7	9,6	10,4	11,2	12,0	12,8	13,6	14,4	15,3	16,1	16,9	17,7	18,5	23,9	24,9	25,9	26,9	28,0	29,0	30,0	31,1	32,1	33,1	34,1	35,2	36,2	37,2
400	7,6	8,5	9,4	10,3	11,1	12,0	12,9	13,8	14,6	15,5	16,4	17,3	18,1	19,0	19,9	25,9	27,0	28,1	29,3	30,4	31,5	32,7	33,8	34,9	36,0	37,2	38,3	39,4	40,6
450	8,1	9,1	10,0	10,9	11,9	12,8	13,8	14,7	15,6	16,6	17,5	18,5	19,4	20,3	21,3	27,9	29,1	30,4	31,6	32,8	34,1	35,3	36,5	37,7	39,0	40,2	41,4	42,7	43,9
500	8,6	9,6	10,6	11,6	12,6	13,6	14,6	15,6	16,6	17,6	18,6	19,6	20,6	21,6	22,6	29,9	31,3	32,6	33,9	35,3	36,6	37,9	39,2	40,6	41,9	43,2	44,6	45,9	47,2
550	9,1	10,2	11,3	12,3	13,4	14,4	15,5	16,6	17,6	18,7	19,8	20,8	21,9	23,0	24,0	32,0	33,4	34,8	36,3	37,7	39,1	40,5	42,0	43,4	44,8	46,3	47,7	49,1	50,5
600	9,6	10,8	11,9	13,0	14,1	15,3	16,4	17,5	18,6	19,8	20,9	22,0	23,1	24,3	25,4	34,6	36,1	37,6	39,1	40,7	42,2	43,7	45,3	46,8	48,3	49,8	51,4	52,9	54,4
650				13,7	14,9	16,1	17,3	18,5	19,6	20,8	22,0	30,1	31,8	33,4	35,0	36,6	38,3	39,9	41,5	43,1	44,8	46,4	48,0	49,7	51,3	52,9	54,5	56,2	57,8
700					15,6	16,9	18,1	19,4	20,6	21,9	23,1	31,8	33,5	35,3	37,0	38,7	40,4	42,2	43,9	45,6	47,4	49,1	50,8	52,5	54,3	56,0	57,7	59,4	61,2
750						17,7	19,0	20,3	21,6	23,0	24,3	33,4	35,3	37,1	39,0	40,8	42,6	44,4	46,3	48,1	49,9	51,8	53,6	55,4	57,2	59,1	60,9	62,7	64,6
800							19,9	21,3	22,6	24,0	25,4	35,0	37,0	39,0	40,9	42,9	44,8	46,7	48,7	50,6	52,5	54,4	56,4	58,3	60,2	62,1	64,1	66,0	67,9

BFL

BFN

BF

PRODUCT OVERVIEW

DIMENSIONS

INSTALLATIONS

ACTUATORS

ACCESSORIES

MAINTENANCE AND OPERATION

Applique

APP installation frame weight [kg]

H/B	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
200	4,2	4,7	5,2	5,7	6,2	6,7	7,2	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3
250	4,7	5,2	5,7	6,2	6,7	7,2	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8
300	5,2	5,7	6,2	6,7	7,2	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8	12,3
350	5,7	6,2	6,7	7,2	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8	12,3	12,8
400	6,2	6,7	7,2	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8	12,3	12,8	13,3
450	6,7	7,2	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8	12,3	12,8	13,3	13,8
500	7,2	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8	12,3	12,8	13,3	13,8	14,3
550	7,7	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8	12,3	12,8	13,3	13,8	14,3	14,8
600	8,2	8,7	9,2	9,7	10,3	10,8	11,3	11,8	12,3	12,8	13,3	13,8	14,3	14,8	15,3

MF1

MF1 installation frame weight [kg]

H/B	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
200	9,1	10,0	10,9	11,8	12,7	13,6	14,5	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7
250	10,0	10,9	11,8	12,7	13,6	14,5	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6
300	10,9	11,8	12,7	13,6	14,5	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6	23,5
350	11,8	12,7	13,6	14,5	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6	23,5	24,5
400	12,7	13,6	14,5	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6	23,5	24,5	25,4
450	13,6	14,5	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6	23,5	24,5	25,4	26,3
500	14,5	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6	23,5	24,5	25,4	26,3	27,2
550	15,4	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6	23,5	24,5	25,4	26,3	27,2	28,1
600	16,3	17,2	18,1	19,0	19,9	20,8	21,7	22,6	23,5	24,5	25,4	26,3	27,2	28,1	29,0

DIMENSIONS

MF2

MF2 installation frame weight [kg]

H/B	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200	10,7	11,8	12,9	14,0	15,1	16,2	17,3	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5
250	11,8	12,9	14,0	15,1	16,2	17,3	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6
300	12,9	14,0	15,1	16,2	17,3	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7
350	14,0	15,1	16,2	17,3	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8
400	15,1	16,2	17,3	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9
450	16,2	17,3	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0
500	17,3	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0	48,1
550	18,4	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0	48,1	49,2
600	19,5	20,6	21,7	22,8	23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0	48,1	49,2	50,4
650				23,9	25,0	26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0	48,1	49,2	50,4	51,5
700					26,1	27,2	28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0	48,1	49,2	50,4	51,5	52,6
750						28,3	29,4	30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0	48,1	49,2	50,4	51,5	52,6	53,7
800							30,5	31,6	32,7	33,8	34,9	36,0	37,1	38,2	39,3	40,4	41,5	42,6	43,7	44,8	45,9	47,0	48,1	49,2	50,4	51,5	52,6	53,7	54,8

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]

ZETA VALUES FD25															
H/B	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**	**600**	**650**	**700**	**750**	**800**
200	1.92	1.67	1.42	1.18	0.99	0.86	0.82	0.77	0.71	0.66	0.65	0.64	0.62	0.59	0.59
250	1.43	1.22	1.02	0.82	0.68	0.61	0.58	0.54	0.52	0.49	0.48	0.43	0.43	0.42	0.42
300	1.15	0.98	0.82	0.65	0.51	0.47	0.45	0.43	0.40	0.40	0.39	0.33	0.33	0.32	0.31
350	0.91	0.78	0.66	0.54	0.44	0.40	0.38	0.37	0.35	0.34	0.33	0.28	0.28	0.27	0.27
400	0.77	0.67	0.58	0.49	0.39	0.35	0.34	0.32	0.30	0.29	0.29	0.25	0.25	0.25	0.24
450	0.61	0.54	0.47	0.40	0.31	0.28	0.28	0.26	0.25	0.25	0.24	0.23	0.22	0.22	0.22
500	0.57	0.50	0.43	0.36	0.28	0.26	0.25	0.24	0.23	0.22	0.22	0.21	0.20	0.20	0.20
550	0.51	0.42	0.33	0.24	0.21	0.18	0.18	0.18	0.17	0.15	0.15	0.15	0.15	0.15	0.14
600	0.49	0.40	0.31	0.22	0.19	0.17	0.17	0.16	0.15	0.15	0.15	0.14	0.13	0.13	0.13

ZETA VALUES FD40																										
H/B	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**	**600**	**650**	**700**	**750**	**800**	**850**	**900**	**950**	**1000**	**1050**	**1100**	**1150**	**1200**	**1250**	**1300**	**1350**	**1400**	**1450**	**1500**
200	11.64	9.56	7.48	6.91	6.33	5.71	5.09	5.06	5.04	4.75	4.46	4.45	4.44	4.42	4.39	4.11	3.84	3.83	3.81	3.80	3.79	3.74	3.69	3.69	3.69	3.67	3.66
250	8.58	7.11	5.65	5.20	4.76	4.29	3.82	3.80	3.78	3.56	3.33	3.32	3.31	3.29	3.27	3.07	2.86	2.85	2.84	2.83	2.83	2.80	2.78	2.78	2.78	2.77	2.76
300	5.51	4.67	3.83	3.50	3.18	2.86	2.55	2.54	2.53	2.36	2.20	2.19	2.18	2.17	2.15	2.02	1.89	1.88	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86
350	4.47	3.78	3.10	2.84	2.58	2.32	2.07	2.05	2.03	1.91	1.78	1.77	1.76	1.75	1.75	1.64	1.53	1.52	1.52	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51
400	3.42	2.89	2.37	2.17	1.98	1.78	1.59	1.56	1.53	1.45	1.36	1.35	1.34	1.34	1.34	1.26	1.17	1.17	1.17	1.16	1.15	1.15	1.15	1.15	1.15	1.15	1.15
450	2.91	2.47	2.02	1.85	1.67	1.50	1.33	1.31	1.30	1.23	1.15	1.15	1.14	1.14	1.14	1.07	1.00	1.00	1.00	0.99	0.97	0.97	0.97	0.97	0.97	0.97	0.97
500	2.40	2.04	1.68	1.52	1.36	1.21	1.07	1.07	1.07	1.00	0.94	0.94	0.94	0.94	0.94	0.88	0.82	0.82	0.82	0.81	0.80	0.80	0.80	0.80	0.80	0.80	0.80
550	2.13	1.81	1.48	1.35	1.22	1.09	0.97	0.95	0.93	0.88	0.82	0.82	0.82	0.82	0.82	0.76	0.71	0.71	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.69	0.68
600	1.86	1.57	1.28	1.18	1.08	0.97	0.87	0.84	0.80	0.76	0.71	0.70	0.69	0.69	0.69	0.64	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.58	0.57
650			1.10	1.02	0.93	0.85	0.77	0.74	0.70	0.66	0.62	0.62	0.61	0.61	0.61	0.57	0.53	0.53	0.53	0.53	0.53	0.53	0.52	0.52	0.52	0.51	0.50
700			0.93	0.85	0.78	0.72	0.67	0.63	0.60	0.57	0.53	0.53	0.53	0.53	0.53	0.50	0.47	0.47	0.47	0.47	0.47	0.46	0.45	0.44	0.44	0.44	0.44
750				0.75	0.71	0.65	0.60	0.58	0.56	0.53	0.50	0.49	0.47	0.47	0.47	0.44	0.42	0.42	0.42	0.42	0.42	0.41	0.40	0.40	0.40	0.40	0.40
800					0.63	0.58	0.54	0.53	0.52	0.49	0.46	0.44	0.41	0.41	0.41	0.39	0.36	0.36	0.36	0.36	0.36	0.36	0.35	0.35	0.35	0.35	0.35

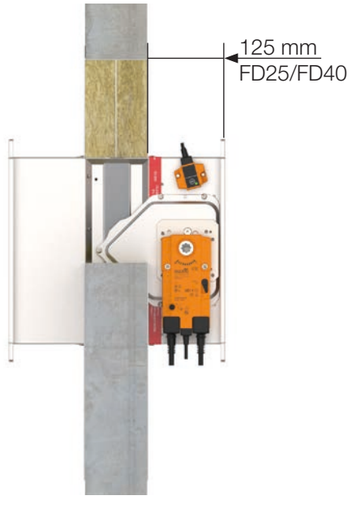
INSTALLATION

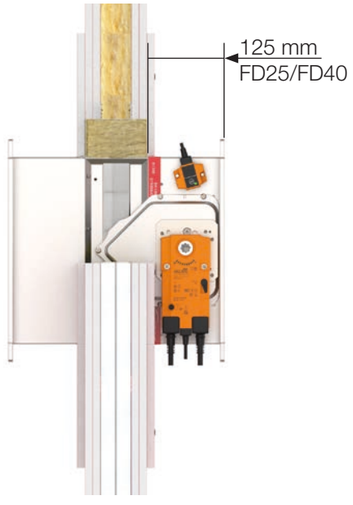
The FD25/FD40 fire damper is always tested in standardized support frames (both in concrete and flexible walls) according to EN 1366-2:2015 Tables 3/4/5. The results obtained are valid for all similar support frames with a thickness, density, and/or fire resistance rating that is equal to or exceeds that of the test structure.

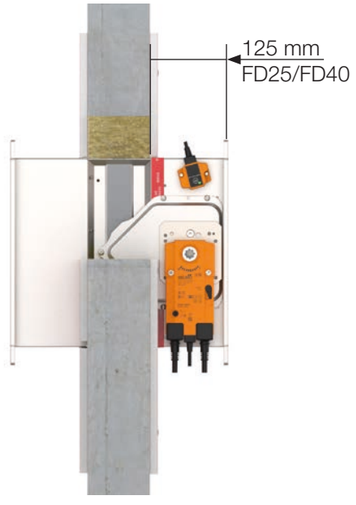
The duct connected to the fire damper must be supported or suspended in such a way that the damper does not bear its own weight. The damper must not support any parts of the surrounding structure or wall that could be damaged and cause the damper to fail.

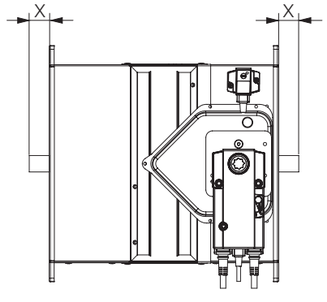
Recommended:
Connect the fire damper to flexible connectors (see accessory FD-A-FLEX) both ends when installing them in:

- Lightweight walls
- Lightweight shaft walls
- Soft bulkhead systems
- Solid wood walls









Install the compensator so, that the flexible part has a minimum distance of 50 mm from the edge of a damper‘s blade in open position.

The damper driving mechanism can be placed on either side of the wall, however it needs to be placed so as to ensure easy access during inspection. Mounting is possible with the blade axis in horizontal or in vertical position.

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

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

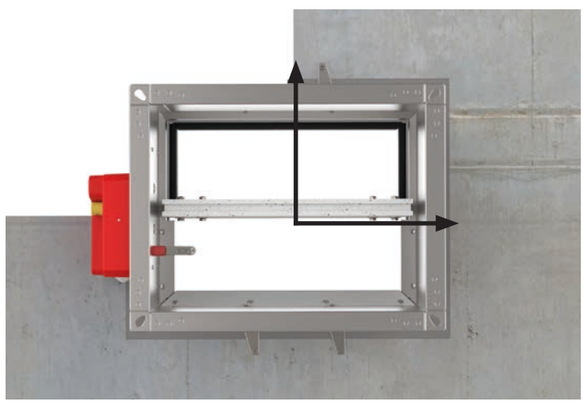
Type of sealing	Recommended opening	Maximum opening
Mortar	B(H) + 80	B(H) + 150
Mineral wool	B(H) + 80	B(H) + 120
Fire Batt/Weichschott	B(H) + 300	B(H) + 450

All dampers can be installed with the blade axis in a horizontal position or a vertical position in all installation types except installation remote from the wall and battery installation.

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 installation with Applique/MF1/MF2 installation frame).

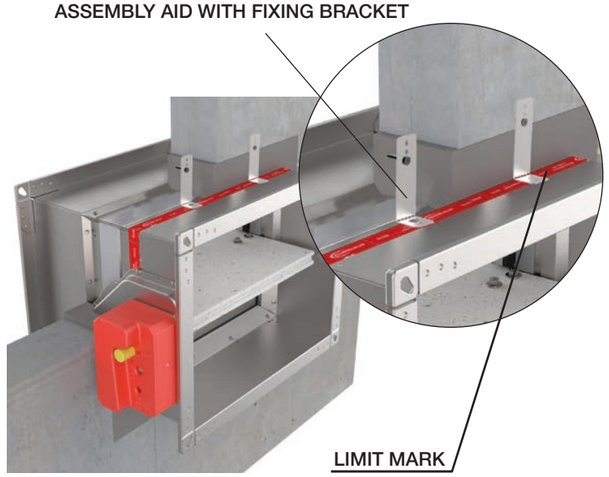
Assembly aid / Installation depth

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 123 mm)**.

ASSEMBLY AID WITH FIXING BRACKET



Range	Supporting construction		Type of installation	Classification	Supporting construction details	Wall thickness	Tested underpressure
FD25 / FD40	Rigid wall		Gypsum plaster/Mortar	EI 120 (ve i↔o)S	Aerated concrete (≥ 450 kg/m³) Reinforced concrete (≥ 2200 kg/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 (≥ 995 kg/m³)	≥ 70 mm	500Pa
	Flexible wall		Gypsum plaster / Mortar (without cover boards)	A: 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	500Pa
			Gypsum plaster / Mortar and cover boards	A:FD25 EI 90 (ve i↔o)S A: FD40 EI 120 (ve i↔o)S B: EI 60 (ve i↔o)S			300Pa
			Mineral wool and cover boards	A: EI 90 (ve i↔o)S B: EI 60 (ve i↔o)S			500Pa
				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
				EI 90 (ve i↔o)S	Cross laminated timber (30+40+30 mm)	≥ 100 mm	300Pa
			Eurobond Firemaster Extra	FD25:EI 60 (i↔o)S FD40: EI 60 S/ EI 90 S (i↔o)S	Mineral wool (≥ 23 kg/m³)		300Pa
FD40			Eurobond Firemaster Extra, Battery 2x2, 1x2, 2x1	FD40: EI 90 (i↔o)S	Mineral wool (≥ 23 kg/m³)		300Pa
FD25 / FD40	Sliding ceiling	Rigid wall	Gypsum plaster / Mortar + Mineral wool (70 kg/m³)	EI 120 (ve i↔o)S	Aerated concrete (≥ 450 kg/m³)	≥ 100 mm	300Pa
		Flexible wall	Gypsum plaster / Mortar and cover boards + Mineral wool (115 kg/m³)	EI 120 (ve i↔o)S	Plasterboard type F (EN520)	≥ 100 mm	300Pa
	Floor/ceiling		Gypsum plaster/Mortar	EI 120 (ho i↔o)S	Aerated concrete (≥ 450 kg/m³) Reinforced concrete (≥ 2200 kg/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 - FD

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

Applique kit installation

MF1/MF2 kit installation

Remote from wall installation

Battery installation

Range	Supporting construction		Type of installation	Classification	Supporting construction details	Wall thickness	Tested underpressure
APP INSTALLATION FRAME FD25 100x200 till 800x600 mm	Rigid wall		 APPLIQUE (installation frame)	EI 90 (ve i↔o)S	Aerated concrete (≥ 450 kg/m^3) Reinforced concrete (≥ 2200kg/m^3)	≥ 100 mm	500Pa
			 APPLIQUE (installation frame)	EI 90 (ve i↔o)S	Gypsum blocks (≥ 995 kg/m^3)	≥ 70 mm	500Pa
	Flexible wall		 APPLIQUE (installation frame)	EI 90 (ve i↔o)S EI 60 (ve i↔o)S	Plasterboard type F (EN520) type A (EN520)	≥ 100 mm	500Pa
MF1/ MF2 INSTALLATION FRAME FD25 MF1/MF2 100x200 till 800x600 mm FD40 MF2 800x600 till 1500x800 mm	Rigid wall		 MF1 (installation frame)	FD25: EI 60 (ve i↔o)S	Aerated concrete (≥ 450 kg/m^3) Reinforced concrete (≥ 2200kg/m^3)	≥ 100 mm	500Pa
			 MF2 (installation frame)	EI 90 (ve i↔o)S			FD25: 300Pa FD40: 500Pa
			 MF1 (installation frame)	FD25: EI 60 (ve i↔o)S	Gypsum blocks (≥ 995 kg/m^3)	≥ 70 mm	500Pa
			 MF2 (installation frame)	EI 90 (ve i↔o)S			
	Flexible wall		 MF1 (installation frame)	A: FD25:EI 60 (ve i↔o)S B: FD25: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			FD25: 300Pa FD40: 500Pa
	Floor/ceiling		 MF1 (installation frame)	FD25: EI 120 (ho i↔o)S	Aerated concrete (≥ 450 kg/m^3) Reinforced concrete (≥ 2200 kg/m^3)	≥ 100 mm	300Pa
			 MF2 (installation frame)	FD40: EI 90 (ho i↔o)S			
MF2 INSTALLATION FRAME FD25/FD40	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	

INSTALLATION

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

https://hth24.info/Klimaoprema-Brandschutz

- Aerated concrete (≥ 450 kg/m^3) or reinforced concrete (≥ 2200 kg/m^3) wall, more than 100 mm thick
- Gypsum blocks (≥ 995 kg/m^3) wall, more than 70 mm thick
- Plasterboard wall, type F (EN520), Plasterboard wall, type A (EN520), more than 100 mm thick
- Shaft wall, steel frame construction
- Aerated concrete (≥ 450 kg/m3) or reinforced concrete (≥ 2200 kg/m^3) ceiling / floor, more than 100 mm thick

FIRE DAMPER - FD

- Gypsum plaster, mortar sealing od mortar and cover boards
- Sealing with mineral wool and cover boards
- Sealing with mineral wool and fireproof coating - FireBatt
- Applique kit installation
- MF1/MF2 kit installation
- Remote from wall installation
- Battery 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
(up to 800x600)

R40
(800x600 up to1500x800)

R25

R25 manual actuator is installed on FD25 fire dampers range from 100x200 till 800x600. 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.

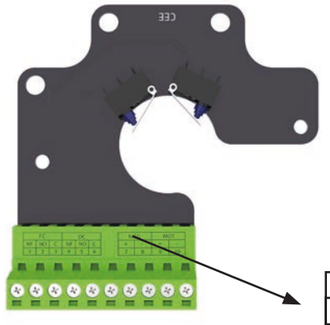
R40

R40 manual actuator is installed on FD40 fire dampers from 800x600 till 1500x800. It is available in version with (R-S) and without (R) end switches. In 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

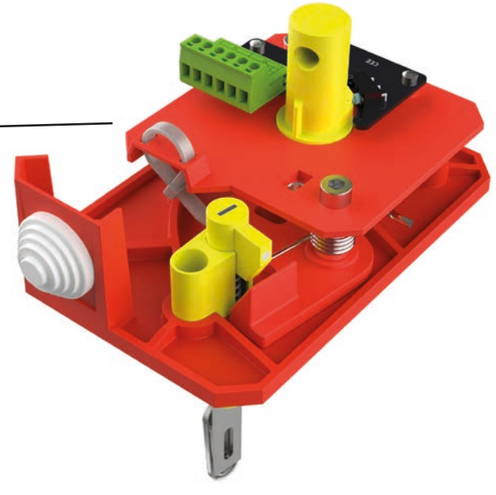
Nominal voltage	N/A
Power	N/A
Switching capacity	1mA…500mA, 5VDC…48VDC
Blade closing time	Spring: 1 sec
Blade opening time	Manual
Manual activation	Release button on the casing
Degree of protection	IP 42
Ambient temperature range	min. -30 °C, max. 50 °C
Ambient humidity	95% r.h., non-condensing
Service 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
NF = normally closed
C = common



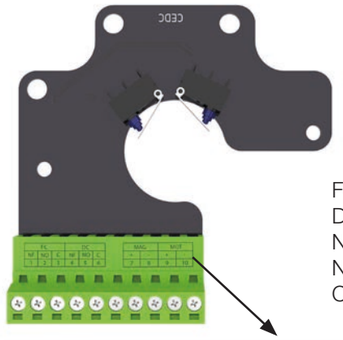
SOLENOID ACTUATOR
EMS-S

Electromagnetic operating mechanism, comes with end switches as standard. In case of fire, the fire damper closes automatically. Damper closing can be initiated either by thermal fuse melting or remotely by triggering the electromagnet. Electromagnet is constantly under power and activates closing of the damper blade in case the power cuts out. Upon closure, damper blade is locked in closed position and can only be opened manually. Thermal fuse melting point is 72 °C. EMS-S mechanism is the same for FD25/FD40 fire dampers.

Technical specifications

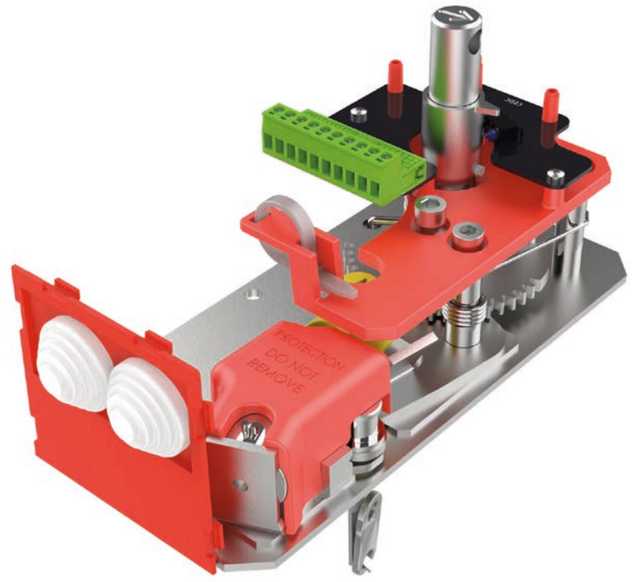
Nominal voltage	Solenoid: 24/48 VDC
Power	Dual voltage SOLENOID: Break of current: Pnom = 1.6W
Switching capacity	1 mA…500 mA, 5 VDC…48 VDC
Blade closing time	Spring: 1 sec
Blade opening time	Manual
Manual activation	Release button on the casing
Degree of protection	IP 42
Ambient temperature range	min.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

Wiring diagram



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

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



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 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 (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.

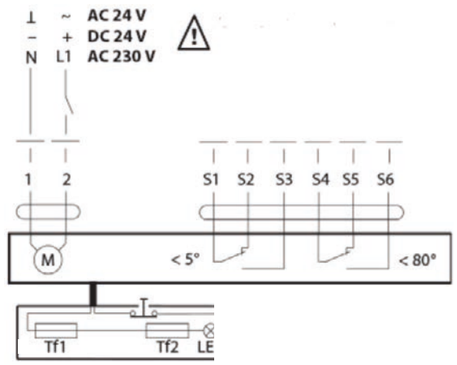
When switch on tripping device is released, the damper will open. Damper can be opened without connecting to a voltage with enclosed handle turning in the direction of the arrow on electric actuator (clockwise). Damper can be locked in the desired position by fast turning back handle a quarter of a turn (counter clockwise) 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	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					

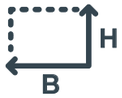
Wiring diagram



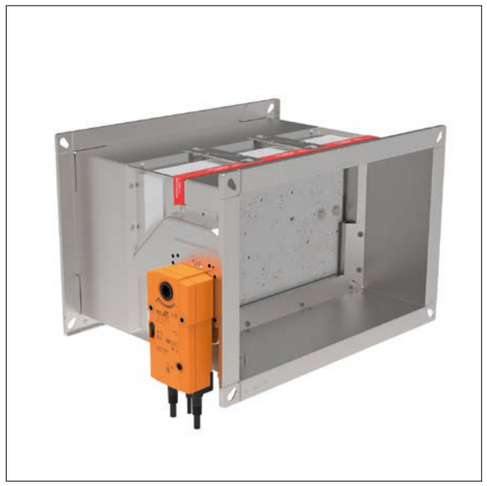
1	negative (direct-current) or neutral (alternating current)
2	positive (direct-current) or faze (alternating current)
S1	common micro switch closed damper
S2	normally closed micro switch closed damper
S3	normally open micro switch closed damper
S4	common micro switch open damper
S5	normally closed micro 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

Position of thermal fuse

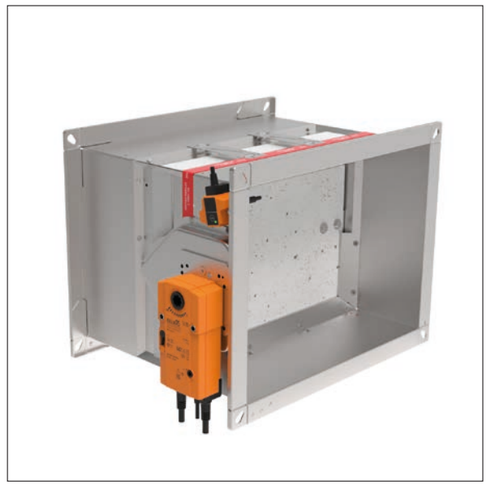


H < 300
Thermal fuse is located on the underside of the fire damper.



Bottom view

300 ≤ H ≤ 450
Thermal fuse is located on the same side as Belimo actuator (above).



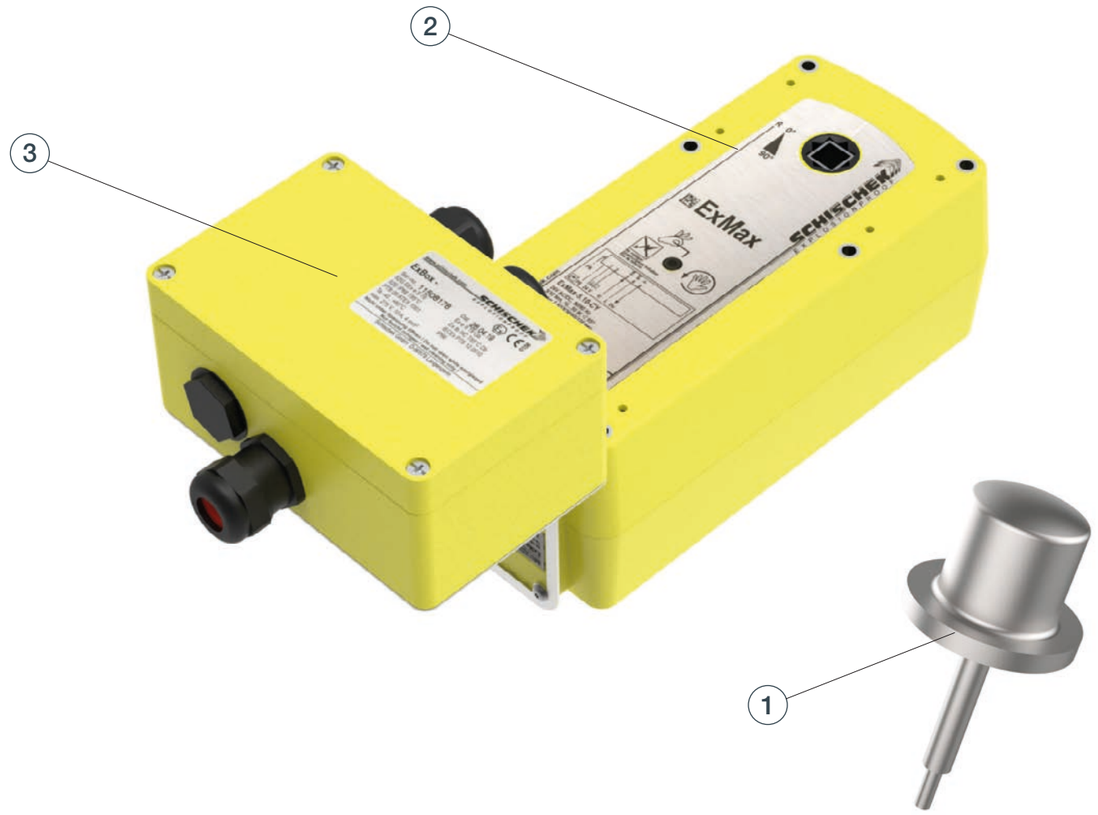
Side view

H > 450
Thermal fuse is located on the same side as Belimo actuator (below).

Side view

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

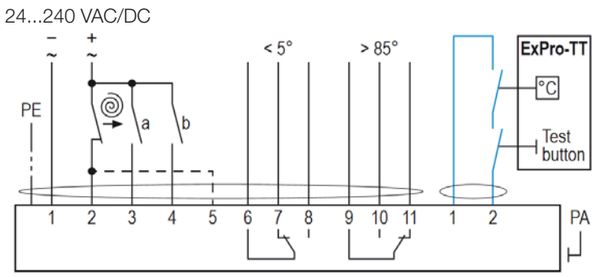
2) Tecnical documentation electric actuator Schischek ExMax-5.10-BF

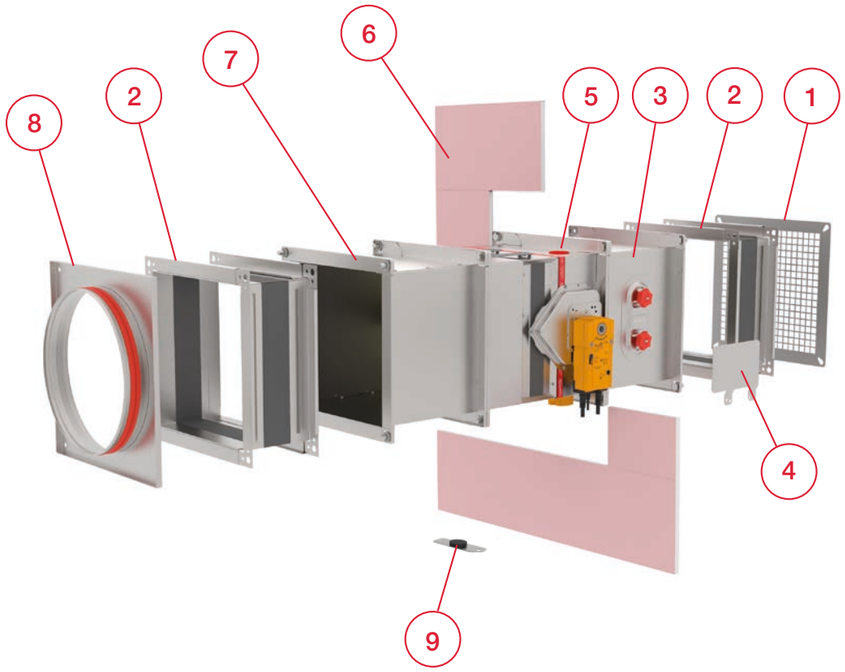
3) Tecnical documentation Ex-e terminal box ExBox-BF

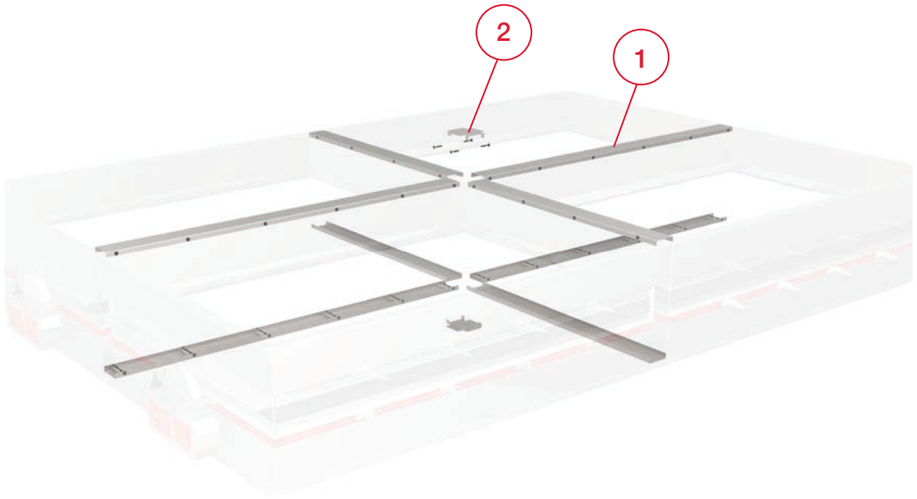
Technical specifications

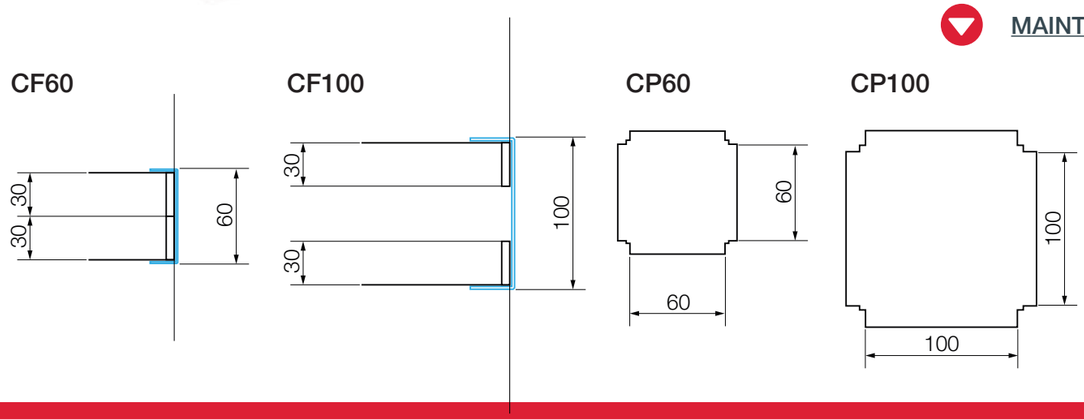
Type	ExMax -5.10-BF
Torque	5/10 Nm
Power Supply	24-230 V AC/DC
Running time	3/15/30/60/120 s / 90°
Spring return	3 or 10s / 90°
Control mode	On-Off, 3 position
Feedback	2 x aux switches + Ex. tripping device
Ambient temperature range	min. -40 °C, max. 40 °C
Ambient humidity	0-90% r.h., non-condensing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

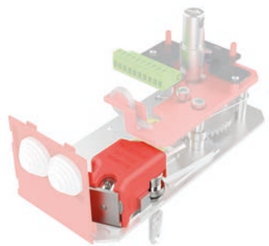
-Connecting frame length is 200... 1500 [mm]

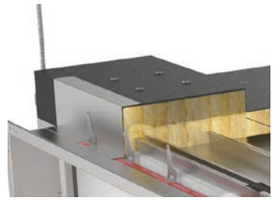
2. **CP60** - Connecting plate 60 mm

   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-SSA-DIBt

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: 415 mm), smoke sensor and specially designed venturi pipe inside the duct.

(1) Type	(2) Accessories	(3) Dimension	(4) Voltage
FD-A	**- SSA**	**- 400x300**	**- 24**

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

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

(3) BxH nominal size of the rectangular 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.
dh=(2xHxB)/(H+B)s, dh - hydraulic duct diameter.

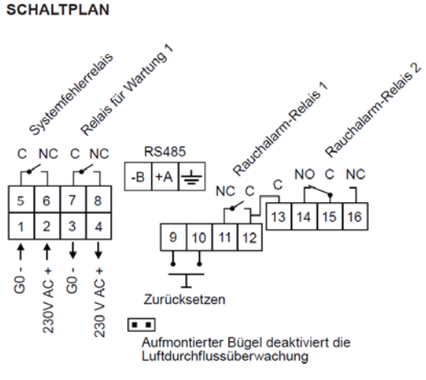
Technical specifications

	FD-A-UG-8-ZB-24	FD-A-UG-8-ZB-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	

Wiring diagram

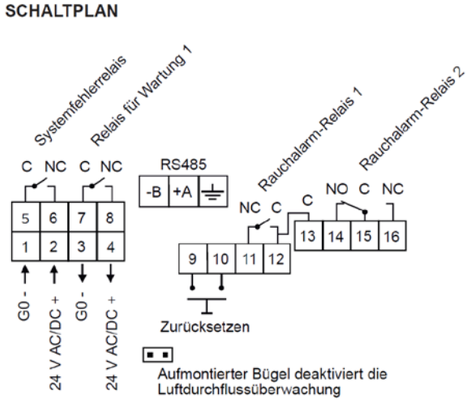
FD-A-UG-8-ZB-230V (DIBt)

SCHALTPLAN



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

SCHALTPLAN



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 a dry place.
- Do not store the unit below -20 °C or above 50 °C.

Please properly dispose of packaging material!

MAINTENANCE AND OPERATION

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

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

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

COMMISSIONING

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

FUNCTIONS

1) 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

www.hth.info

Rehkamp 9, 30853 Langenhagen
+49 511 / 726090-0
hannover@hth.info

FIRE DAMPER - FD

Images are for informational purposes only and may differ from the actual product.
Follow the latest versions of the catalog on the website.

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