

Fire dampers

Type FKS-EU



FKS-EU with fusible link for 72 °C or 95 °C



CE compliant according to European regulations



With TROXNETCOM as an option



Tested to VDI 6022



Compact dimensions, ideal for restricted spaces

Small rectangular fire damper for the isolation of duct penetrations between fire compartments, available in many sizes

- Nominal sizes 200 × 100 to 800 × 200 mm
- Low differential pressure and sound power level
- Optional stainless steel casing or powder-coated casing for increased corrosion protection
- Integration into the central BMS with TROXNETCOM
- Universal installation options

Optional equipment and accessories

- Electric actuator 24 V/230 V
- Release temperature 72/95 °C

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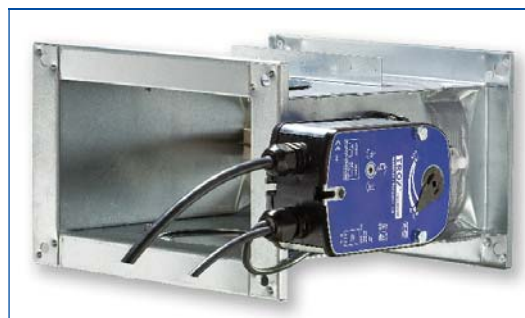
Variants

Product examples

FKS-EU with fusible link



Fire damper Type FKS-EU



Description



Fire damper Type FKS-EU

For detailed information on attachments see Chapter K4 – 1.2.

Application

- Fire dampers of Type FKS-EU, with CE marking and declaration of performance, for the isolation of duct penetrations between fire compartments in the event of a fire
- To prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments

Classification

- Class of performance to EN 13501-3, up to EI 120 (v_e , h_o , $i \leftrightarrow o$) S

Variants

- With fusible link
- With spring return actuator

Nominal sizes

- B x H: 200 x 100 – 800 x 200 mm (width in increments of 50 mm)
- L: 300 mm

Attachments

- Limit switch for damper blade position indication
- Spring return actuator for 24 V AC/DC or 230 V AC supply voltage
- Network module for the integration with AS-i or LON networks

Accessories

- Cover plate (to keep the fire damper stable and hence facilitate mortaring)
- Cover grille
- Flexible connectors
- Extension piece

Useful additions

- Duct smoke detector RM-O-3-D
- Duct smoke detector with airflow monitor RM-O-VS-D

Special characteristics

- Declaration of performance according to Construction Products Regulation
- Classification to EN 13501-3, up to EI 120 (v_e , h_o , $i \leftrightarrow o$) S
- Building inspectorate licence Z-56.4212-991, non-combustible and non-hazardous to health
- Complies with the requirements of EN 15650
- Tested to EN 1366-2 for fire resistance properties
- Hygiene complies with VDI 6022 part 1 (07/2011), VDI 3803 (10/2002), DIN 1946 part 4 (12/2008), and EN 13779 (09/2007)
- Corrosion protection according to EN 15650 in connection with EN 60068-2-52
- Closed blade air leakage to EN 1751, class 2
- Casing air leakage to EN 1751, class C
- Low differential pressure and sound power level
- Any airflow direction
- Integration into the central BMS with TROXNETCOM

Parts and characteristics

- Easy dry mortarless installation into solid walls and ceiling slabs, lightweight partition walls, fire walls and shaft walls using an installation block
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)

Construction features

- Rectangular or square construction, rigid casing, both flanges with fixing holes (System 30)
- Suitable for the connection of ducts, flexible connectors or a cover grille
- The release mechanism is accessible and can be tested from the outside
- Two inspection access panels
- Intermediate dimensions in 50 mm increments for width
- Remote control with spring return actuator

Materials and surfaces

Casing:

- Galvanised sheet steel
- Galvanised sheet steel, powder-coated RAL 7001
- Stainless steel 1.4301

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

- Damper blade shaft made of galvanised steel or stainless steel
- Plastic bearings
- Seals of elastomer

The construction variants with stainless steel or powder-coated casing meet even more critical requirements for corrosion protection. Detailed listing on request.

Installation and commissioning

Installation is to be carried out according to the operating and installation manual

Mortar-based installation:

- In solid walls and ceiling slabs
- In lightweight partition walls and fire walls with metal support structure and cladding on both sides
- In shaft walls with metal support structure and cladding on one side

Dry mortarless installation:

- In solid walls and ceiling slabs with installation block E
- In lightweight partition walls with metal support structure and cladding on both sides: with installation block E
- In shaft walls with metal support structure and cladding on one side with installation block E

Standards and guidelines

- Construction Products Regulation
- EN 15650:2010 – Ventilation for buildings – Fire dampers
- EN 1366-2:1999 Fire resistance tests for service installations – Fire dampers
- EN 13501-3:2010 Fire classification of construction products and building elements
- EN 1751:1999 Ventilation for buildings – Air terminal devices

Maintenance

- The functional reliability of the fire damper must be tested at least every six months; this has to be arranged by the owner of the ventilation system; functional tests must be carried out in compliance with the basic maintenance principles stated in EN 13306 and DIN 31051. If two consecutive tests, one 6 months after the other, are successful, the next test can be conducted one year later.
- A functional test involves closing the damper blade and opening it again; with a spring return actuator this can be done via remote control
- Fire dampers must be included in the regular cleaning schedule of the ventilation system.
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data

Nominal sizes	200 × 100 to 800 × 200 mm
Casing length	300 mm
Volume flow rate range	Up to 1600 l/s or up to 5760 m ³ /h
Differential pressure range	Up to 1500 Pa
Operating temperature	At least 0 – 50 °C **
Release temperature	72 °C or 95 °C (for warm air ventilation systems)
Upstream velocity*	≤ 8 m/s with standard construction; ≤ 10 m/s with spring return actuator

* Data applies to uniform upstream and downstream conditions for the fire damper

** Temperatures may differ for units with attachments

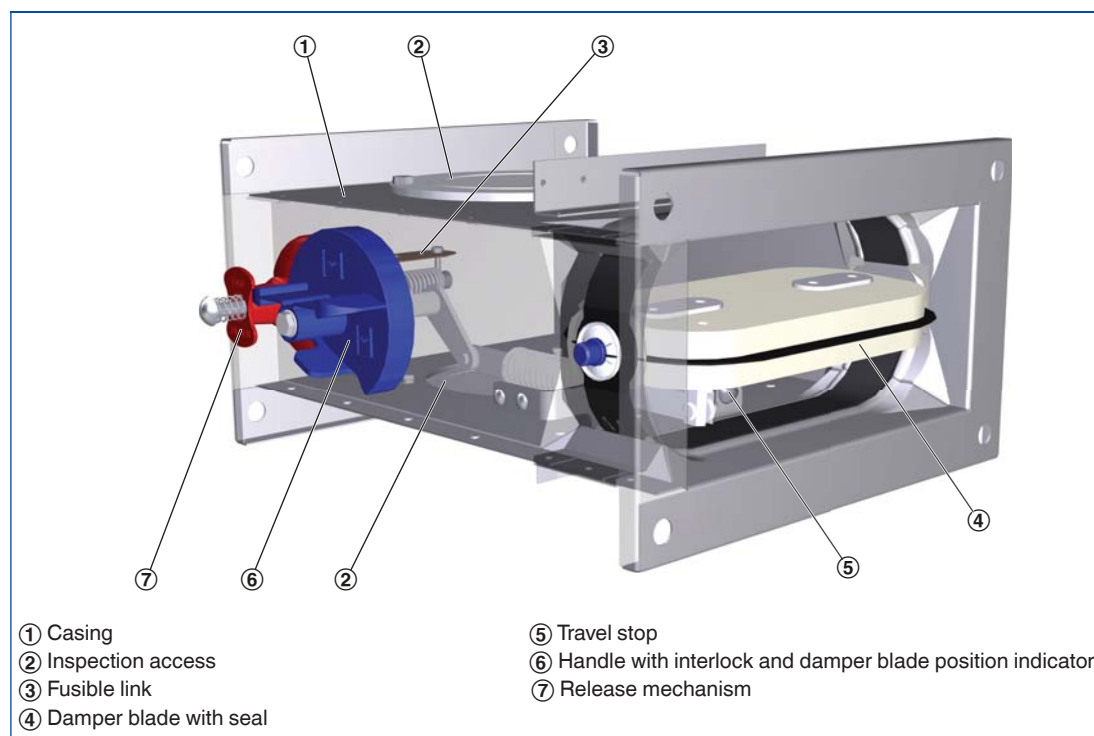
Function

Construction with fusible link

Functional description

In the event of a fire, fire dampers shut automatically to prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments. In the event of a fire, the damper is triggered at 72 °C or at 95 °C (use in warm air ventilation systems) by a fusible link. The release mechanism is accessible and can be tested from the outside.

Schematic illustration of FKS-EU with fusible link



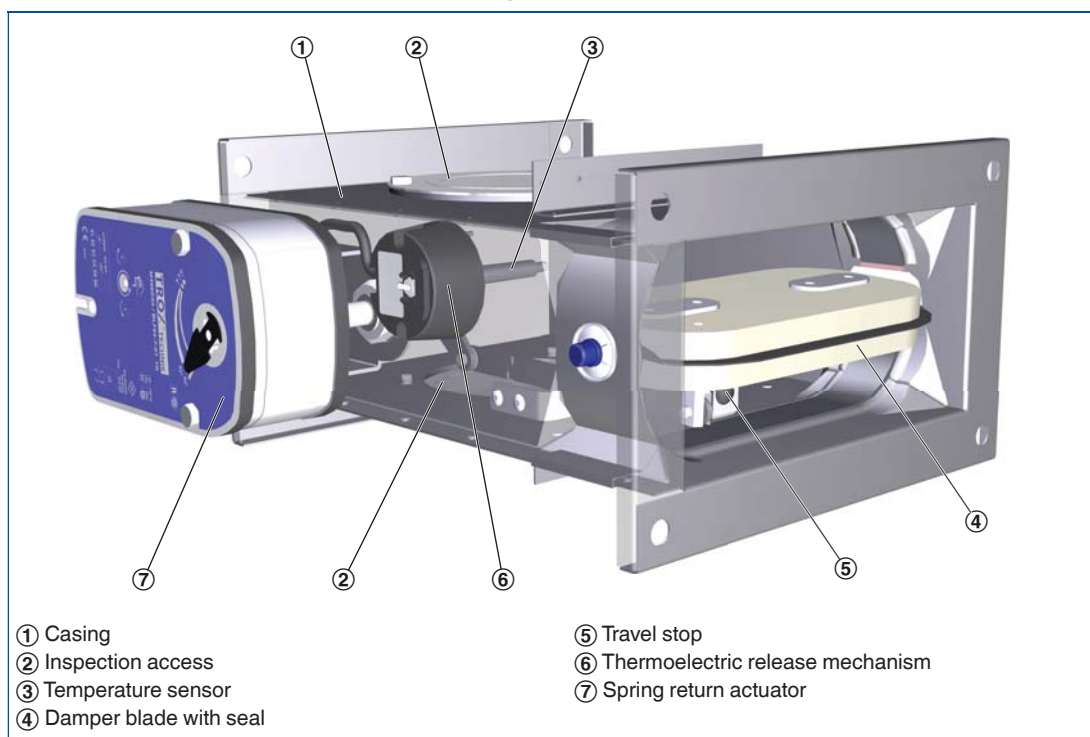
Function

Construction
with spring return actuator

Functional description

The spring return actuator enables the motorised opening and closing of the damper blade; it can be activated by the central BMS. In the event of a fire, the damper is triggered thermoelectrically at 72 °C or 95 °C (use in warm air ventilation systems). As long as power is supplied to the actuator, the damper blade remains open. If the supply voltage fails, the damper closes (power off to close). Motorised fire dampers can be used to shut off ducts. The torque of each actuator is sufficient to open and close the damper blade even while the fan is running. The spring return actuator is fitted with limit switches that can be used for capturing the damper blade position.

Schematic illustration of FKS-EU with spring return actuator

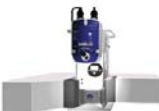


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Design information

- Approved only for use in ventilation and air conditioning systems
- A class of performance up to EI 120 ($v_e, h_o, i \leftrightarrow o$) S can only be achieved with ducts connected on both ends, or with a duct on one end and a cover grille on the other end.
- If the fire damper is installed in a solid wall, solid ceiling slab, lightweight partition wall or shaft wall with a lower fire resistance class than that of the fire damper, the fire resistance class of the wall or ceiling slab applies also to the FKS-EU (details upon request)
- Ducting must be installed in such a manner that it does not impose any significant loads on the fire damper in the event of a fire.
- For particular applications it is recommended that flexible connectors are used to connect rigid ducting to the unit.
- Fire dampers must be installed, connected and secured according to the operating and installation manual.

Correct use in solid walls and ceiling slabs

Installation location		Construction and building material	Minimum thickness	Performance class	Mortar-based installation	Dry mortarless installation
			mm	EI TT (v _e -h _o , i ↔ o) S		
Solid walls		Solid walls, gross density ≥ 500 kg/m³	100	EI 120 S	N	–
		Solid walls, gross density ≥ 500 kg/m³	100	EI 90 S	N	E
Solid ceiling slabs		Solid ceiling slabs, gross density ≥ 600 kg/m³	150	EI 120 S	N	–
		Solid ceiling slabs, gross density ≥ 600 kg/m³	150	EI 90 S	N	E
		Solid ceiling slabs, gross density ≥ 600 kg/m³	150	EI 90 S	N	–

N = Mortar-based installation, E = Installation block

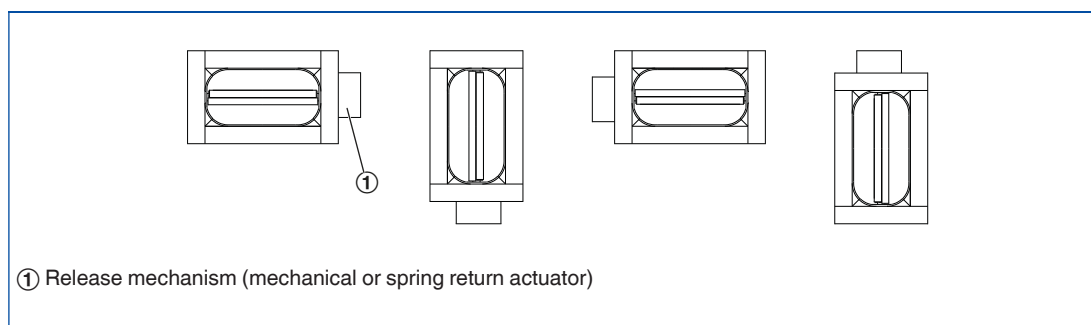
Correct use in lightweight partition walls and fire walls

Installation location		Construction and building material	Minimum thickness	Performance class	Mortar-based installation	Dry mortarless installation
			mm	EI TT (v _e -h _o , i ↔ o) S		
Lightweight partition walls with metal support structure and cladding on both sides		Lightweight partition walls	100	EI 90 S	N	E
Fire walls with metal support structure and cladding on both sides		Fire walls	115	EI 90 S	N	E
Lightweight partition walls with metal support structure and cladding on one side		Shaft walls	90	EI 90 S	N	E

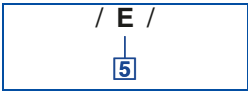
N = Mortar-based installation, E = Installation block

Installation orientation

Installation orientation with horizontal ducts



Description



Order code detail

Application

- Installation block E for dry mortarless installation into solid walls and ceiling slabs, into lightweight partition walls with metal support structure and cladding on one side or on both sides, and in lightweight fire walls
- The installation block is factory mounted to the fire damper
- The unit is installed without a mortar mix by simply inserting it into the prepared installation opening
- In the event of a fire the intumescent seal closes the remaining gap.
- A cover plate conceals any gaps and is used for screw fixing

Materials and surfaces

- The installation block is sheet steel with a special sealing compound
- Cover plate and casing of the installation block made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)

Installation block	Order code
Installation block with cover plate	E

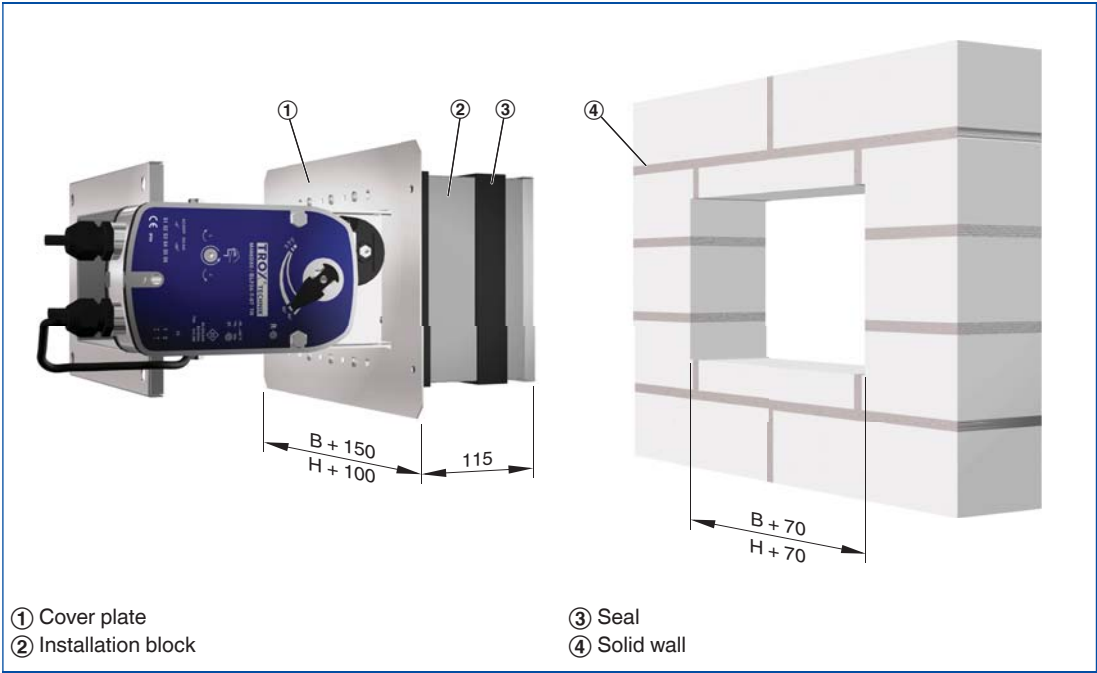
FKS-EU with fusible link, dimensions [mm] and weight [kg]

H	B						
	200	300	400	500	600	700	800
100	7.7	9.7	11.6	13.7	15.8	17.8	19.8
125	8.5	10.5	12.4	14.4	16.4	18.5	20.6
150	8.8	10.9	12.9	15.1	17.3	19.4	21.4
160	8.9	11.0	13.1	15.4	17.7	19.7	21.7
200	9.7	12.1	14.5	16.6	18.7	21.0	23.2

Width B: Intermediate dimensions in 50 mm increments are available.

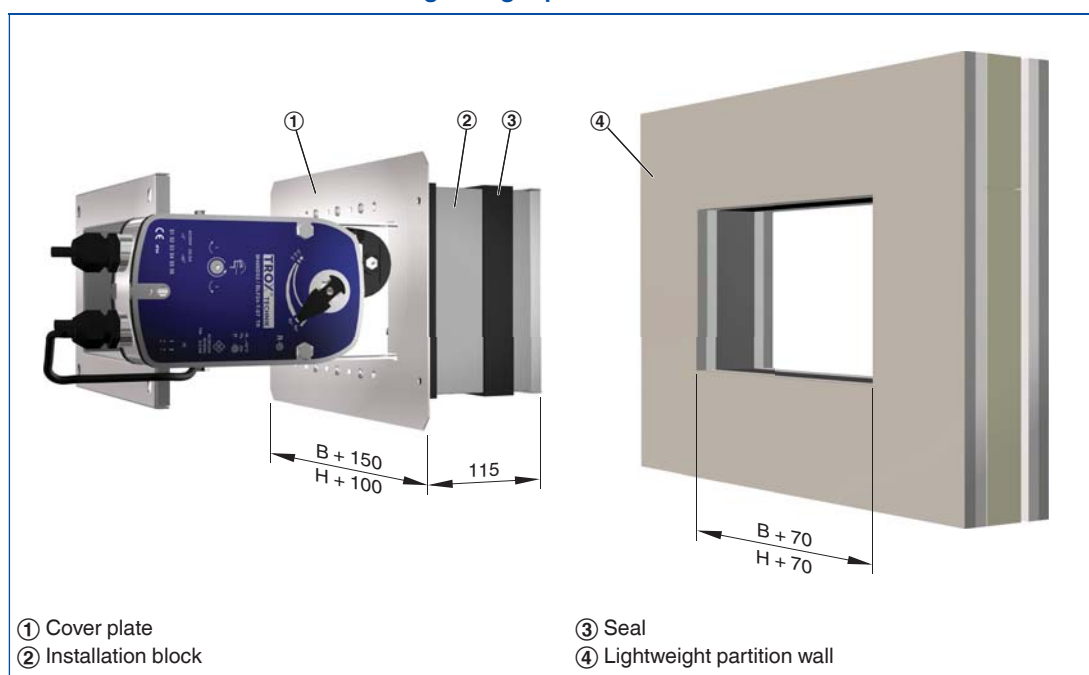
FKS-EU with spring return actuator: weight + 2 kg.

FKS-EU with installation block in a solid wall

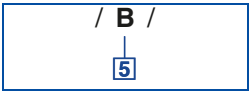


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FKS-EU with installation block in a lightweight partition wall



Description



Order code detail

Application

- A cover plate facilitates mortar-based installation (perimeter mortar infill)

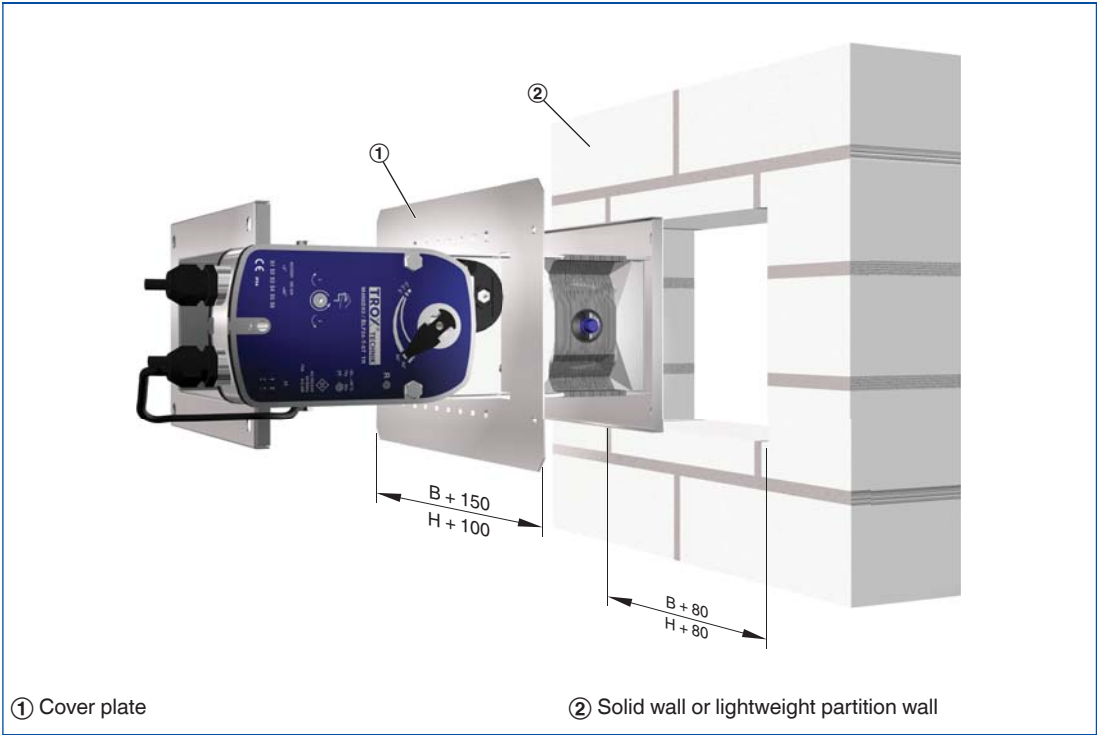
It is supplied unassembled and allows for positioning the fire damper in the installation opening and for applying the perimeter mortar infill.

Materials and surfaces

- Cover plate made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)

Cover plate	Order code
Cover plate	B

FKS-EU with cover plate



Description



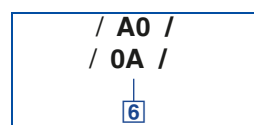
Cover grille for FKS-EU

Application

- If only one end is to be ducted on site, the other end must have a cover grille
- Fire dampers ordered with a cover grille may be supplied with an extension piece if required
- The extension is factory mounted to the damper
- The free area of the cover grille is approx. 65%
- Cover grilles are also available separately
- An extension piece is required on the installation side
- Cover grilles both ends may be used in Germany only for air transfer dampers with general building inspectorate licence

Materials and surfaces

- Cover grilles made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)



Order code detail

Cover grille for FKS-EU

Operating side	Installation side	Order code
Cover grille	–	A0
–	Cover grille	0A*

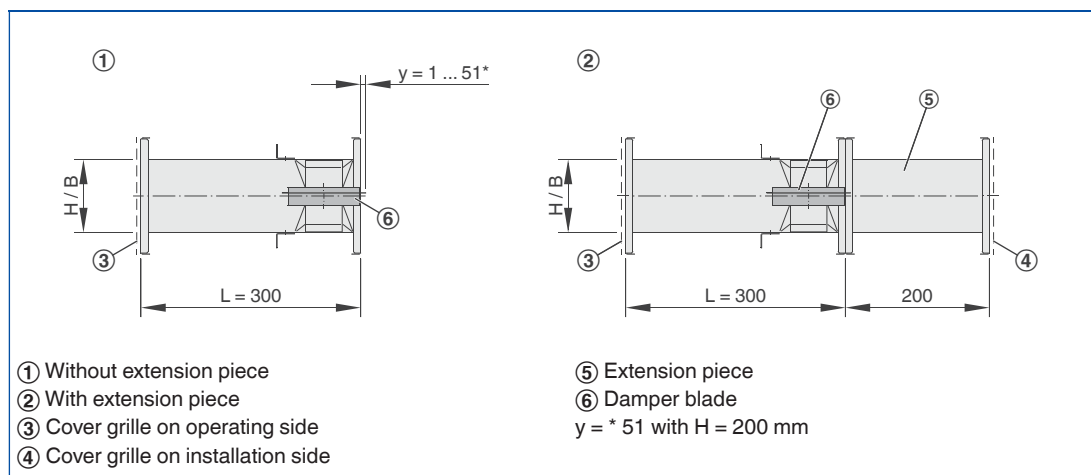
* Extension piece required

The distance »a« between the open damper blade and the spigot should be 50 mm.

Cover grille



Cover grille



Description



Flexible connector with flange for FKS-EU

Application

- Ducting must be installed in such a manner that it does not impose any significant loads on the fire damper in the event of a fire.
- For information on how to limit such loads please refer to the guideline regarding fire protection requirements on ventilation systems (Lüftungsanlagen-Richtlinie, LüAR)
- As ducts may expand and walls may become deformed in the event of a fire, we recommend using flexible connectors for the following applications: installation in lightweight partition walls, in lightweight shaft walls and in lightweight fire walls
- Flexible connectors should be installed in such a way that both ends can compensate both tension and compression
- Flexible ducts can be used as an alternative
- An extension piece is required on the installation side
- Flexible connectors are supplied unassembled
- The fixing holes in the flexible connectors and extension pieces match those in the fire damper flanges
- Flexible connectors are also available separately

Materials and surfaces

- Flexible connectors made of galvanised steel and fibre-reinforced plastic
- Fire resistance properties to 4102; B2

/ S0 /
/ OS /
/ SS /
6

Order code detail

Flexible connector for FKS-EU

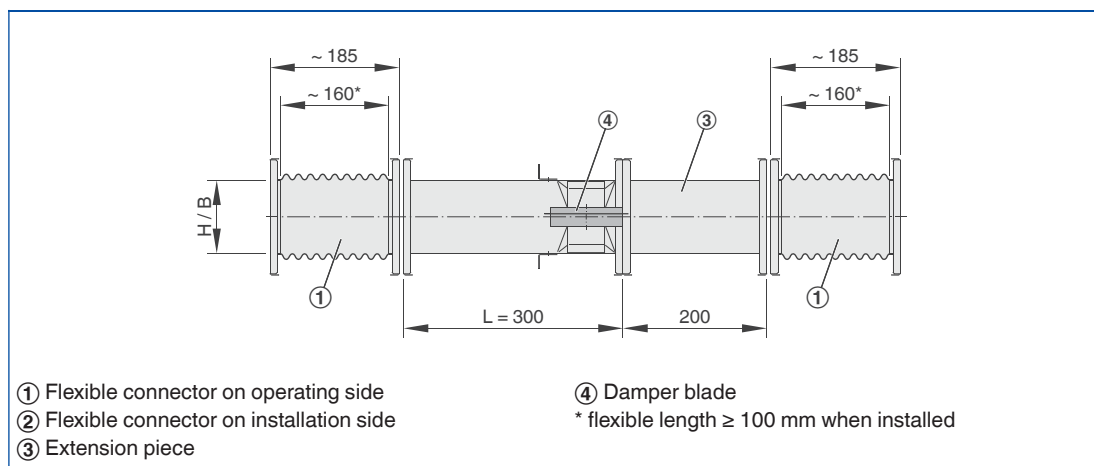
Operating side	Installation side	Order code
Flexible connector	–	S0
–	Flexible connector	OS
Flexible connector	Flexible connector	SS

The distance »a« between the open damper blade and the flexible connector should be 50 mm.

Flexible connector



Flexible connector



Description



Extension piece
for FKS-EU

Application

- Fire dampers ordered with flexible connector or cover grille are supplied including extension piece
- Extension pieces are also available separately

Materials and surfaces

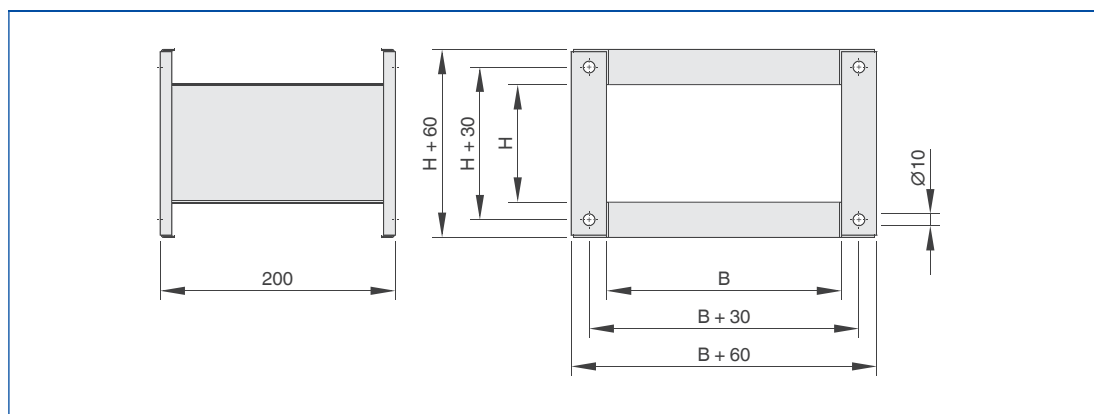
- Extension pieces made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)

Installation and commissioning

- The distance »a« between the open damper blade and the cover grille or circular spigot should be 50 mm

When using cover grilles or flexible connectors an extension piece is required.

Extension piece



1

Description



Limit switch

For detailed information
on limit switches
see Chapter 1.2

FKS-EU with limit switch

- Limit switches with volt-free contacts enable the damper blade position indication.
- Up to the maximum switch rating, relays or indicator lights for fire alarm systems can be used
- One limit switch each is required for damper blade positions OPEN and CLOSED
- Fire dampers with a fusible link can be supplied with one or two limit switches; the switches can also be fitted later

/ Z01
/ Z02
/ Z03
7

Order code detail

Attachments	Order code
Limit switch for damper blade position CLOSED	Z01
Limit switch for damper blade position OPEN	Z02
Limit switches for damper blade positions CLOSED and OPEN	Z03

Description



FKS-EU with
spring return actuator

For detailed information
on the spring return
actuator see Chapter 1.2

FKS-EU with spring return actuator

- An open/close actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close)
- Fire dampers with spring return actuators can be functionally checked OPEN/CLOSED/OPEN
- Ambient temperature, normal operation -30 to 50 °C
- Two integral limit switches with volt-free contacts enable the damper blade position indication (OPEN and CLOSED)
- BLF24-T-ST TR: The connecting cables of the spring return actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system
- A conversion kit is available for adding an actuator to the standard construction
- In case of conventional wiring (Z45) the voltage is supplied by a safety transformer

/ Z43
/ Z45


Bestellschlüsseldetail

Attachments	Order code
BLF230-T TR	Z43
BLF24-T-ST TR	Z45

Description



FKS-EU with
TROXNETCOM module

For detailed information
on TROXNETCOM
see Chapter 1.2

FKS-EU with spring return actuator and TROXNETCOM

- Fire dampers with spring return actuator BLF24-T-ST TR and the modules shown here as attachments form a functional unit ready for automatic operation.
- The components are factory assembled and wired
- It enables the integration of different components (modules) into a network regardless of the manufacturer
- The modules control actuators and/or receive signals from sensors

Application

LON:

- LON indicates a standard local operating network system with manufacturer-independent communications
- Data transmission is based on a uniform protocol
- LonMark defines standards to ensure product compatibility
- Only the bus line and the supply voltage remain to be connected by others
- LON-WA1/B2: To provide the control input signal for up to two fire dampers
- LON-WA1/B2-AD: Connection box for connecting the second fire damper with 24 V DC supply voltage to LON-WA1/B2-AD
- LON-WA1/B2-AD230: Connection box with integral 230/24 V power supply unit for the connection of a second actuator-driven 24 V fire damper to LON-WA1/B2

AS-i:

- The AS interface is a global standard bus system according to EN 50295 and IEC 62026-2
- The module sends the control signals between the spring return actuator and the controller and power unit
- This allows for controlling the actuator and monitoring of its running time during functional testing
- The voltage (24 V DC) for the module and the actuator is supplied via the two-wire AS-i flat cable
- Function display: operation, 4 inputs, 2 outputs

/ ZL06
/ ZL07
/ ZL08
/ ZA07

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Order code detail

Attachments	Order code
LON-WA1/B2 and BLF24-T-ST TR	ZL06
LON-WA1/B2-AD and BLF24-T-ST TR	ZL07
LON-WA1/B2-AD230 and BLF24-T-ST TR	ZL08
AS-EM and BLF24-T-ST TR	ZA07

Description



Duct smoke detector
RM-O-3-D



Duct smoke detector
RM-O-VS-D

For detailed information
on the duct smoke
detector see Chapter 1.2

General

- To prevent smoke from spreading in buildings, it is extremely important that the smoke is detected at an early stage.
- Duct smoke detectors that operate on the principle of light scattering detect the smoke regardless of its temperature so that the fire dampers can be closed before the release temperature of 72 °C is reached
- If the air contains suspended particles, as is the case with smoke, beams of light are deflected off these. A sensor (photodiode), which does not receive light in clear air, is illuminated by the scattered light.
- The fire damper or smoke protection damper blade is released when the brightness of the scattered light exceeds a certain threshold

Application

RM-O-3-D:

- Duct smoke detector for fire dampers and smoke protection dampers
- General building inspectorate licence Z-78.6-125
- For airflow velocities from 1 – 20 m/s
- Independent of the airflow direction
- Supply voltage 230 V AC, 50/60 Hz or 24 V DC with voltage monitoring module (VWM) (upon request)
- Volt-free signal and alarm relays
- Integral signal lamps
- Contamination level indicator
- Automatic adjustment of alarm threshold
- Long service life
- Temperature range 0 – 60 °C

RM-O-VS-D:

- Duct smoke detector for fire dampers and smoke protection dampers
- General building inspectorate licence Z-78.6-67
- For airflow velocities from 1 – 20 m/s
- Independent of the airflow direction
- Airflow monitoring with warning for lower limit 2 m/s
- Supply voltage 230 V AC, 50/60 Hz
- Volt-free signal and alarm relays
- Integral signal lamps
- Contamination level indicator
- Automatic adjustment of alarm threshold
- Long service life
- Temperature range 0 – 60 °C

Attachments	Order code
Smoke detector	RM-O-3-D
	RM-O-VS-D

Duct smoke detectors are attachments and to be ordered separately.

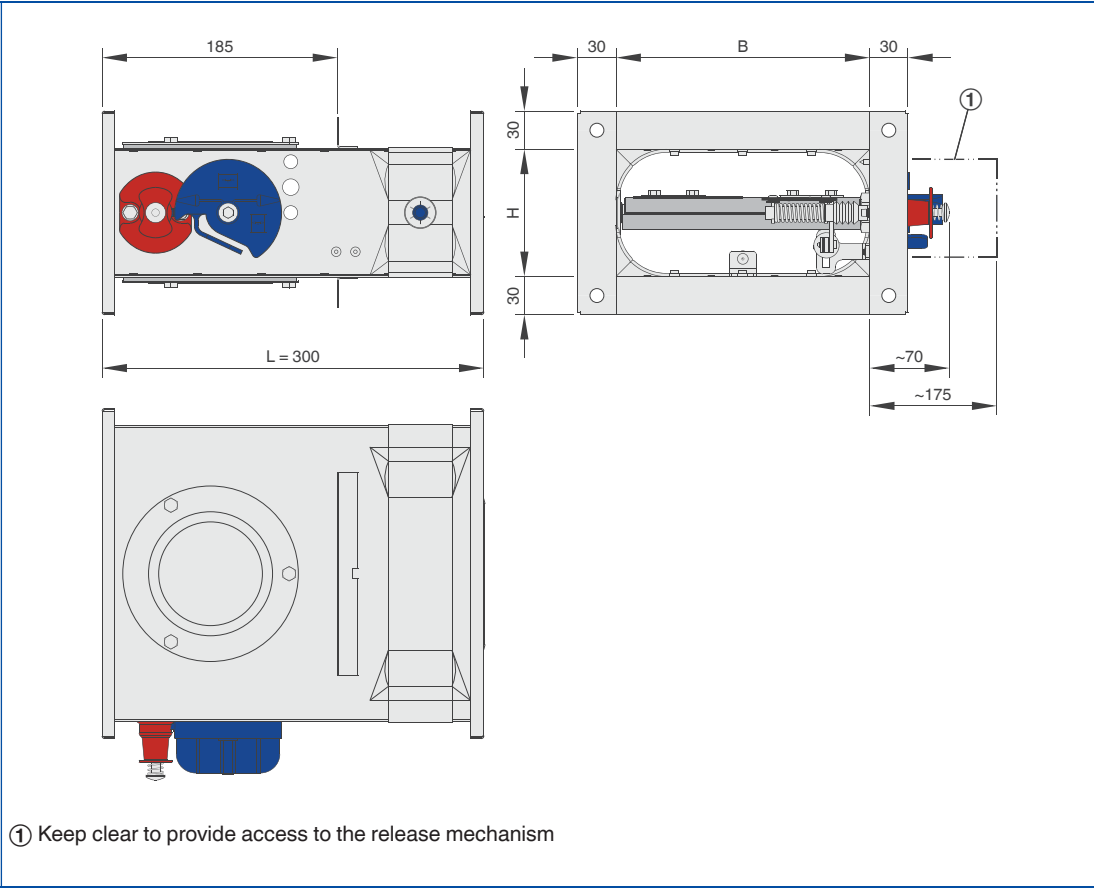
H [mm]	Parameter	B [mm]				
		100	125	150	160	200
200	A [m ²]	0.01	0.02	0.02	0.02	0.03
	ζ	1.46	0.98	0.71	0.63	0.43
300	A [m ²]	0.02	0.03	0.03	0.04	0.05
	ζ	1.26	0.84	0.60	0.54	0.36
400	A [m ²]	0.03	0.04	0.05	0.05	0.07
	ζ	1.17	0.77	0.55	0.49	0.33
500	A [m ²]	0.03	0.05	0.06	0.06	0.08
	ζ	1.11	0.73	0.52	0.46	0.31
600	A [m ²]	0.04	0.05	0.07	0.08	0.10
	ζ	1.08	0.71	0.50	0.44	0.29
700	A [m ²]	0.05	0.06	0.08	0.09	0.12
	ζ	1.05	0.69	0.49	0.43	0.28
800	A [m ²]	0.05	0.07	0.09	0.10	0.13
	ζ	1.04	0.68	0.48	0.42	0.28

Dimensions



FKS-EU with fusible link

FKS-EU with fusible link



Dimensions [mm] / Weight [kg]

H	B						
	200	300	400	500	600	700	800
100	3.3	4.1	4.9	5.7	6.5	7.4	8.2
125	3.6	4.5	5.3	6.2	7	7.8	8.6
150	3.7	4.7	5.6	6.6	7.5	8.4	9.2
160	3.8	4.8	5.7	6.7	7.7	8.6	9.4
200	4.1	5.3	6.5	7.5	8.4	9.4	10.3

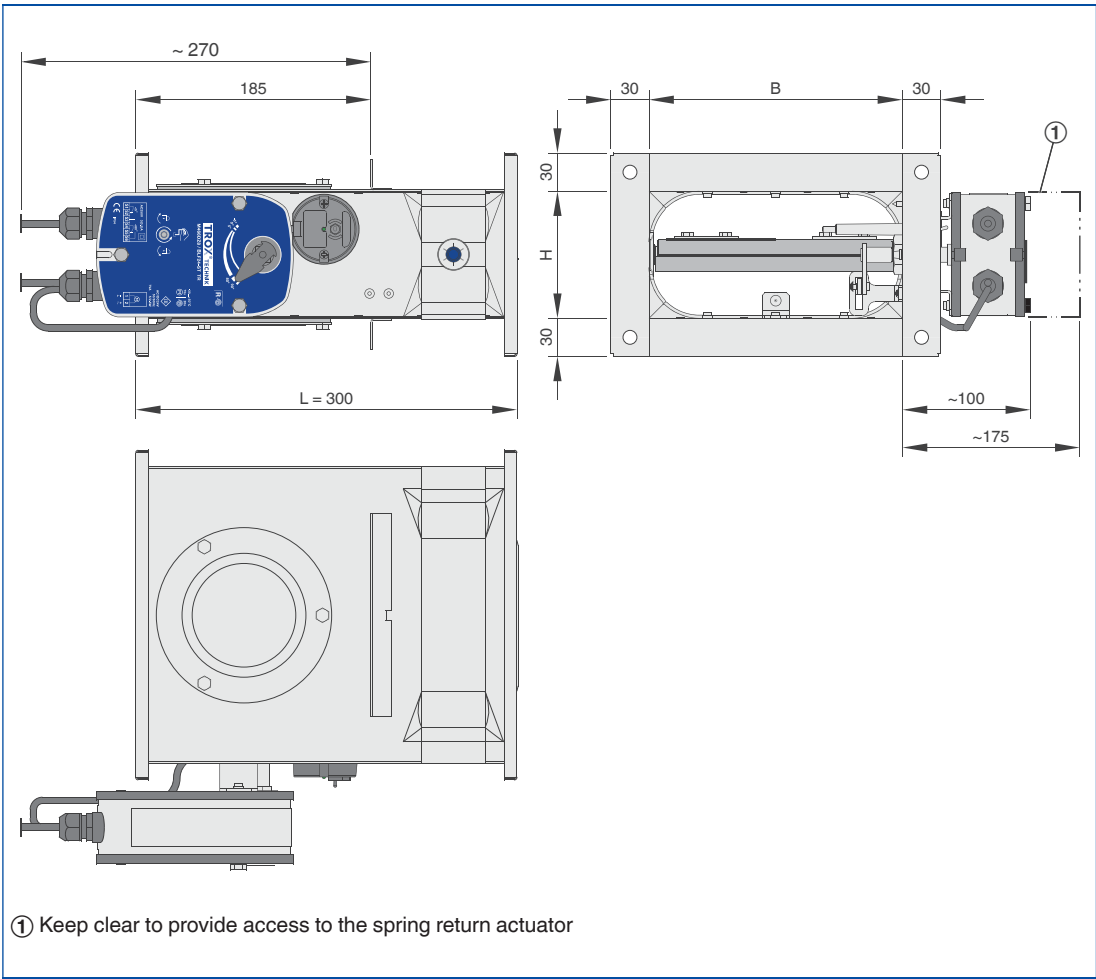
Width B: Intermediate dimensions in 50 mm increments are available.

Dimensions

FKS-EU with spring return actuator



Fire damper Type FKS-EU



Dimensions [mm] / Weight [kg]

H	B						
	200	300	400	500	600	700	800
100	5.3	6.1	6.9	7.7	8.5	9.4	10.2
125	5.6	6.5	7.3	8.2	9	9.8	10.6
150	5.7	6.7	7.6	8.6	9.5	10.4	11.2
160	5.8	6.8	7.7	8.7	9.7	10.6	11.4
200	6.1	7.3	8.5	9.5	10.4	11.4	12.3

Width B: Intermediate dimensions in 50 mm increments are available.

Description

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Rectangular or square fire dampers with flanges, for the isolation of duct penetrations between fire compartments. Tested for fire resistance properties to EN 1366-2, with CE marking and declaration of performance according to the Construction Products Regulation. Ready-for-operation unit, which includes a fire-resistant damper blade and a release mechanism. For mortar-based installation and dry mortarless installation into solid walls and ceiling slabs, lightweight partition walls and fire walls with cladding on both sides; also in shaft walls with metal support structure and cladding on one side. Casing length 300 mm, for the connection to ducts made of non-combustible or combustible materials. Thermal or thermoelectric release at 72 °C or 95 °C (warm air ventilation systems). Constructions with spring return actuator for opening and closing the fire damper independent of the nominal size and even while the ventilation system is running, e.g. for a functional test. Construction with installation block for easy dry mortarless installation.

Special characteristics

- Declaration of performance according to Construction Products Regulation
- Classification to EN 13501-3, up to EI 120 ($v_e, h_o, i \leftrightarrow o$) S
- Building inspectorate licence Z-56.4212-991, non-combustible and non-hazardous to health
- Complies with the requirements of EN 15650
- Tested to EN 1366-2 for fire resistance properties
- Hygiene complies with VDI 6022 part 1 (07/2011), VDI 3803 (10/2002), DIN 1946 part 4 (12/2008), and EN 13779 (09/2007)
- Corrosion protection according to EN 15650 in connection with EN 60068-2-52
- Closed blade air leakage to EN 1751, class 2
- Casing air leakage to EN 1751, class C
- Low differential pressure and sound power level
- Any airflow direction
- Integration into the central BMS with TROXNETCOM

Materials and surfaces

Casing:

- Galvanised sheet steel
- Galvanised sheet steel, powder-coated RAL 7001
- Stainless steel 1.4301

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

- Damper blade shaft made of galvanised steel or stainless steel
- Plastic bearings
- Seals of elastomer

The construction variants with stainless steel or powder-coated casing meet even more critical requirements for corrosion protection.

Detailed listing on request.

Technical data

- Nominal sizes: 200 × 100 mm – 800 × 200 mm
- Casing length: 300 mm
- Volume flow rate range: Up to 1600 l/s or 5760 m³/h
- Differential pressure: up to 1500 Pa
- Operating temperature: at least 0 – 50 °C **
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Upstream velocity: ≤ 8 m/s with standard construction; ≤ 10 m/s * with actuator

* Data applies to uniform upstream and downstream conditions for the fire damper

** Temperatures may differ for units with attachments

Sizing data

- $\dot{V}$ _____ [m³/h]
- Δp_{st} _____ [Pa]
- L_{WA} Air-regenerated noise _____ [dB(A)]

Order options

1 Type

FKS-EU Fire damper

2 Construction

No entry: standard construction

- ☐ **1** Powder-coated casing
- ☐ **2** Stainless steel casing
- ☐ **7** Coated damper blade
- ☐ **1 – 7** Powder-coated casing and coated damper blade
- ☐ **2 – 7** Stainless steel casing and coated damper blade
- ☐ **W¹** With fusible link 95 °C (only for use in warm air ventilation systems)

3 Country of destination

- ☐ **DE** Germany
- Other destination countries upon request

4 Nominal size [mm]

- ☐ B × H × L

5 Accessories 1

No entry: none

- ☐ **E** Installation block
- ☐ **B** Cover plate

6 Accessories 2

No entry: none

- ☐ **S0 – AS**

7 Attachments

- ☐ **Z00 – ZL08**

¹ W can be combined with all constructions listed under **2**