



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

Fire dampers

FKR-EU



CE compliant according to
European regulations



For large diameters, with or without a flange

Large circular fire damper for the isolation of duct penetrations between 2 fire compartments, available in 9 nominal sizes

- Nominal sizes: 315 – 800 mm
- Low differential pressure and sound power level
- Flanges as an option
- Explosion-proof construction (ATEX) as an option
- Optionally available as an upstream shutter of an air transfer unit
- Optional stainless steel casing or powder-coated casing for increased corrosion protection
- Optionally available with thermal insulation to prevent condensation
- Integration into the central BMS with TROXNETCOM



ATEX certification

Optional equipment and accessories

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

Useful additions

- Duct smoke detectors



Tested to VDI 6022

General information	2	Accessories 2 – extension piece	35
Function	4	Attachment – Limit switch	38
Technical data	10	Attachment – Spring return actuator	39
Quick sizing	10	Attachment – Spring return actuator in Ex construction	40
Specification text	12	Attachment – Spring return actuator and TROXNETCOM	41
Order code	14	Attachment – Explosion-proof spring return actuator and	
Dimensions	17	TROXNETCOM	43
ODA construction	22	Attachment – Duct smoke detectors	44
Accessories 1 – installation kit	24	Nomenclature	45
Accessories 2 – cover grille	26		
Accessories 2 – flexible connector	30		

General information

Application

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

Special features

- Declaration of performance in accordance with European Construction Products Regulation
- Classification according to EN 13501-3 up to EI 120 ($v_e, h_o, i \leftrightarrow o$) S
- Complies with the requirements of EN 15650
- Tested for fire resistance properties in accordance with EN 1366-2 (300 Pa negative pressure)
- Certified mortar-based installation with reduced distances of 40 mm to supporting components or 40 mm between two fire dampers (flange to flange)
- Surrounding gap dimensions in the mortar-based installation with mortar up to 225 mm permitted
- Hygienic requirements are fulfilled in accordance with VDI 6022-1, VDI 3803-1, DIN 1946-4 and EN 13779, as well as Önorm H 6020 and H 6021 and SWKI
- Corrosion protection according to EN 15650 in connection with EN 60068-2-52
- Closed blade air leakage to EN 1751, class 4
- Casing air leakage to EN 1751, class C
- Low differential pressure and sound power level
- Any airflow direction
- Integration into the central building management system with the international standard fire damper system in accordance with IEC 62026-2 with AS interface is possible

Classification

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

Nominal sizes

- 315, 355, 400, 450, 500, 560, 630, 710, 800 mm
- L: 495 mm or 550 mm (depending on casing construction)

Variants

- With fusible link
- With fusible link for use in potentially explosive atmospheres
- With spring return actuator
- With spring return actuator for use in potentially explosive atmospheres
- With cover grille on both sides as an upstream shutter of an air transfer unit

The following applies to Germany:

If fire dampers with a purely mechanical shut-off element are to be used as an upstream shutter of an air transfer unit, the local building regulations must be observed. Usually the use of such upstream shutters of air transfer units is restricted to pressure differential systems.

Parts and characteristics

- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Single-handed operation
- Approved installation orientation from 0° to 360°
- Explosion-proof constructions for zones 1, 2, 21, 22

Attachments

- Limit switch for damper blade position indication
- Spring return actuator for 24 V AC/DC or 230 V AC supply voltage
- Limit switch for damper blade position indication for use in potentially explosive atmospheres
- Spring return actuator for 24 – 230 V supply voltage, for use in potentially explosive atmospheres
- Network module for the integration with AS-i or LON networks
- All attachments can be retrofitted

Accessories

- Installation block TQ for dry mortarless installation into lightweight partition walls / fire walls with metal support structure and cladding on both sides, as well as timber stud walls, half-timbered and solid wood wall, as well as solid wood and wood beam ceilings
- Cover grilles
- Flexible connectors
- Extension piece

Useful additions

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

Construction features

- Rigid, circular casing with spigot connections suitable for circular ducts. Spigots with lip seal on both ends, suitable for commercially available circular ducts to EN 1506 or EN 13180; alternatively with flanges on both ends. Flanges, to EN 12220
- Suitable for the connection of ducts, cover grilles or flexible connectors
- The release mechanism is accessible and can be tested from the outside
- 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 impregnation

ODA construction:

- Damper casing made of galvanised sheet steel with powder coating and thermal insulation, damper blade made of special insulating material with impregnation (only in conjunction with spring return actuator)

Other components:

- Damper blade shaft in stainless steel
- Plastic plain bearings
- Seals of elastomer

The design variants with a stainless steel or powder-coated casing fulfil increased requirements in terms of corrosion protection. Detailed listing on request.

Standards and guidelines

- Construction Products Regulation
- EN 15650 Ventilation for buildings – Fire dampers
- EN 1366-2 Fire resistance tests for service installations – Fire dampers
- EN 13501-3 Fire classification of construction products and building elements
- EN 1751 Ventilation for buildings – Air terminal devices
- 2006/42/EC – Machinery Directive

Supply package

If attachments and accessories are supplied from the factory with the fire dampers, they are already taken into account in the order code. Depending on the installation situation, supplementary materials for assembly and fixing may be needed to ensure proper installation, e.g. mortar, screws, mineral wool, etc. Such materials are not included in the supply package, unless they are expressly described as included in the supply package. The selection of additional attachments or accessories as well as the identification and provision of materials for assembly and fixing is the responsibility of those involved in the building project and must be done taking into account the required classification.

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 2 consecutive tests, one 6 months after the other, are successful, the next test on the fire damper 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 for the ventilation system
- For details on functional tests, maintenance and inspection refer to the installation and operating manual

Technical data

- Nominal sizes: 315 to 800 mm
- Casing lengths: 495 and 550 mm
- Volume flow rate range: up to 6000 l/s / up to 21600 m³/h
- Differential pressure range: up to 2000 Pa
- Temperature range: -20 – 50 °C
- Upstream velocity*: Standard construction ≤ 8 m/s, construction with spring return actuator ≤ 12 m/s, construction with explosion-proof actuator ExMax/RedMax-15-BF TR ≤ 10 m/s

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

Incorrect use

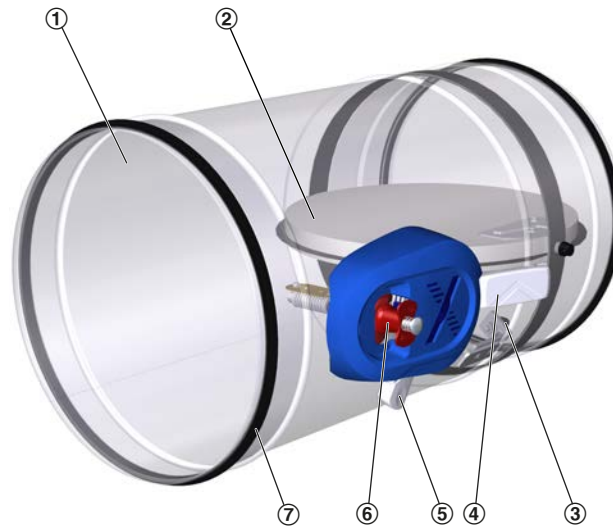
- without specially approved attachments in areas with potentially explosive atmospheres
- as a smoke control damper
- outdoors without sufficient protection against the effects of weather
- in atmospheres where chemical reactions, whether planned or unplanned, may cause damage to the fire damper or lead to corrosion

The following applies to Germany

- Do not use it in extract air systems in commercial kitchens
- Do not use it as an air transfer damper
- Do not use in combined penetration seal
- Do not use in fire protection block bulkhead.
- Approvals under building regulations may be required for the use of upstream shutters of air transfer units. This must be checked and applied for by others.
- Flame-resistant, non-dripping building materials (elastomeric foams) must at least correspond to fire rating class C - s2, d0 according to the specifications of MVV TB (since 2019/01). The applicable national building regulations must be adhered to

Function

Functional description Construction with fusible link



- ① Casing
- ② Damper blade with seal
- ③ Travel stop for CLOSED position
- ④ Handle
- ⑤ Release tab
- ⑥ Thermal release mechanism with fusible link
- ⑦ Lip seal

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. One or two limit switches (optional attachment) can be used to indicate the damper blade position.

Construction with Belimo spring return actuator

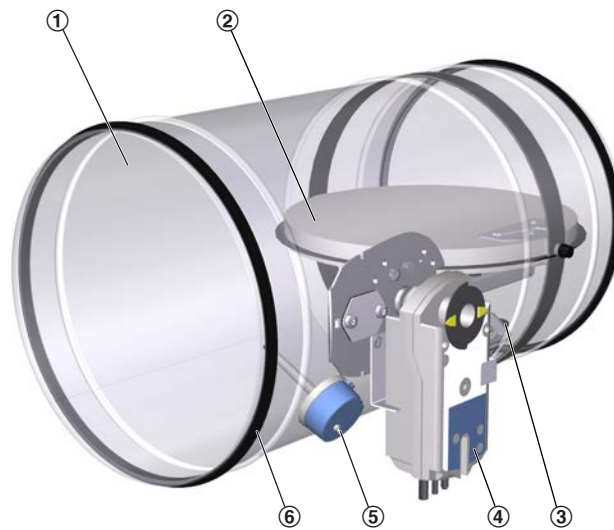


- ① Casing
- ② Damper blade with seal
- ③ Travel stop for CLOSED position
- ④ Spring return actuator
- ⑤ Thermoelectric release mechanism with temperature sensor
- ⑥ Lip seal

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.

Construction with Siemens spring return actuator

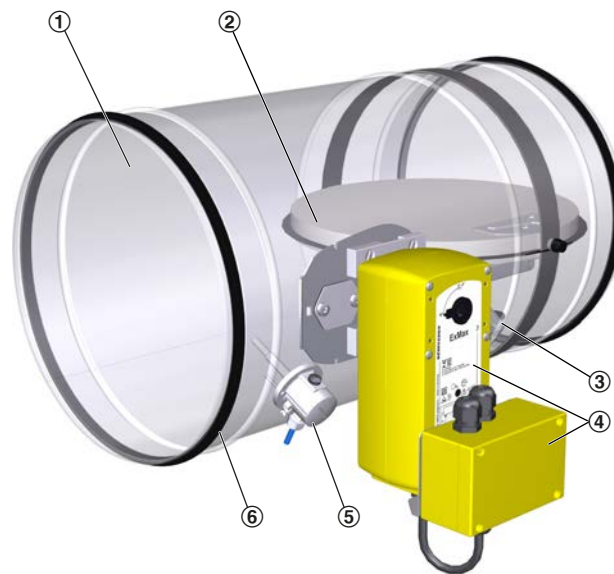


- ① Casing
- ② Damper blade with seal
- ③ Travel stop for CLOSED position
- ④ Spring return actuator
- ⑤ Thermoelectric release mechanism with temperature sensor
- ⑥ Lip seal

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.

Construction with spring return actuator, explosion-proof



- ① Casing
- ② Damper blade with seal
- ③ Travel stop for CLOSED position
- ④ ExMax or RedMax spring return actuator with ExBox terminal box
- ⑤ ExPro TT thermoelectric release mechanism with temperature sensor
- ⑥ Lip seal

The fire damper is used as a shut-off device to prevent fire and smoke from spreading through ducting in areas with potentially explosive atmospheres. The fire damper is suitable for supply air and extract air systems in potentially explosive atmospheres. For details on the operation of the fire damper refer to the operating and installation manual and to the technical data in the supplementary operating manual "Explosion-proof fire dampers type FKR-EU".

Use in areas with potentially explosive atmospheres (ATEX) According to declaration of conformity TÜV 13 ATEX 128437 X, the fire damper may be used in the following areas with potentially explosive atmospheres.

The values specified in the technical data Observe the ambient temperatures, as well as the triggering and actuation types.

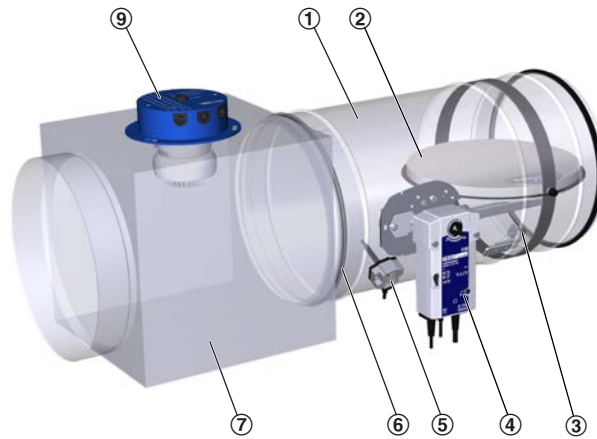
ExMax:

- Zones 1, 2: Gases, mists and vapours
- Zones 21, 22: Dusts

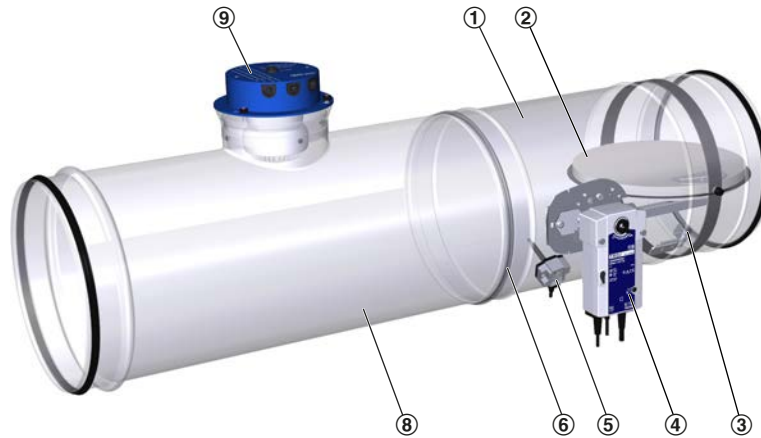
RedMax:

- Zone 2: Gases, mists and vapours
- Zone 22: Dusts

Construction with Belimo spring return actuator and duct smoke detector in a rectangular duct



Construction with Belimo spring return actuator and duct smoke detector in a circular duct



- ① Casing
- ② Damper blade with seal
- ③ Travel stop for CLOSED position
- ④ Spring return actuator
- ⑤ Thermoelectric release mechanism with temperature sensor
- ⑥ Lip seal
- ⑦ Rectangular duct, by others
- ⑧ T-piece or saddle connector, by others
- ⑨ Duct smoke detector, e.g. RM-O-3-D (to be ordered separately)

The spring return actuator enables the motorised closing of the fire damper. In the event of a fire, the damper is triggered thermoelectrically at 72°C. In combination with a suitable duct smoke detector RM-O-3-D, smoke is prevented from being transferred via ductwork into adjacent fire compartments even before it reaches a temperature that would trigger the thermoelectric release mechanism. The duct smoke detector must be installed by others in a rectangular duct. Alternatively, the installation can be carried out by others in a circular duct, in a T-piece.

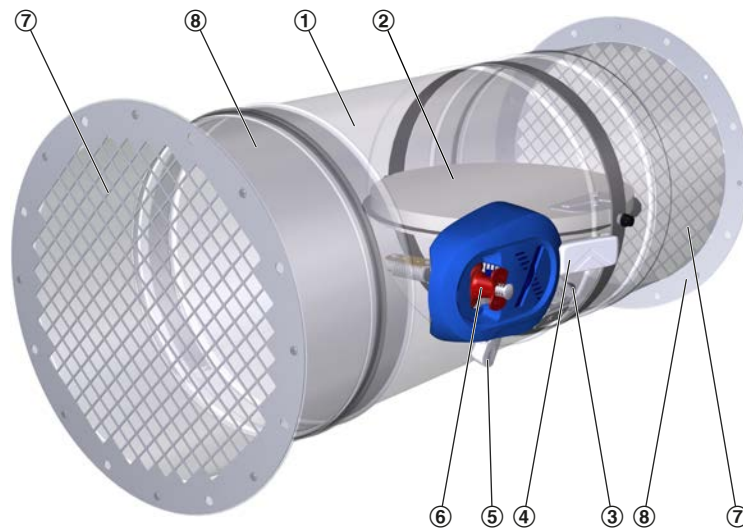
The duct smoke detector must always be placed at the top. Deviating arrangements are possible, provided that the specifications of the general building inspectorate licence of the duct smoke detector are observed.

As long as power is supplied to the actuator and smoke is not detected, the fire damper remains open. If the supply voltage fails, the detection of smoke and exceeding of the release temperature leads to a closing of the fire damper (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.

A control input signal from the central BMS is possible.

Construction with fusible link and cover grille on both sides as an air transfer damper



- ① Casing
- ② Damper blade with seal
- ③ Travel stop for CLOSED position
- ④ Handle
- ⑤ Release tab
- ⑥ Thermal release mechanism with fusible link
- ⑦ Cover grille
- ⑧ Extension piece

Upstream shutters of air transfer units prevent fire and smoke from spreading in buildings. The thermal release mechanism closes the upstream shutter of the air transfer unit when the release temperature (72°C) is reached. Smoke can, however, spread below this temperature.

The upstream shutter of the air transfer unit consists of the FKR-EU fire damper with a thermal release mechanism for 72°C and with cover grilles on both sides, but without a duct smoke detector.

The following applies to Germany:

If fire dampers with a purely mechanical shut-off element are to be used as an upstream shutter of an air transfer unit, the local building regulations must be observed. Usually the use of such upstream shutters of air transfer units is restricted to pressure differential systems.

Technical data

Nominal sizes	315 – 800 mm
Casing lengths	495 and 550 mm
Volume flow rate range	Up to 6000 l/s or 21600 m ³ /h
Differential pressure range	Up to 2000 Pa
Temperature range ^{1,3}	-20 to 50 °C
Release temperature	72 °C or 95 °C (for warm air ventilation systems)
Upstream velocity ²	Standard construction ≤ 8 m/s, Construction with spring return actuator ≤ 12 m/s, Construction with explosion-proof actuator ExMax/RedMax-15-BF TR ≤ 10 m/s

¹ Temperatures may differ for units with attachments. Details for other applications are available on request.

² Data applies to uniform upstream and downstream conditions for the fire dampers.

³ Condensation and the intake of humid fresh air have to be avoided as otherwise operation will be impaired or not be possible.

Free area and resistance coefficient

NG	(1)	(2)
315	0.069	0,44
355	0.089	0,34
400	0.114	0,26
450	0.140	0,21
500	0.175	0,17
560	0.222	0,13
630	0.285	0,10
710	0.365	0,08
800	0.468	0,06

(1) A [m²]

(2) ζ

Quick sizing

Quick sizing tables provide a good overview of the volume flow rates with different sound power levels as well as of differential pressures of up to 35 Pa. Approximate intermediate values can

be interpolated. Precise intermediate values can be calculated with our Easy Product Finder design program.

Volume flow rate q_v for differential pressure $\Delta p_{st} < 35$ Pa

NG	(1)	(2)	(3)	(4)
315	460	670	1660	2400
355	570	820	2040	2940
400	700	1000	2500	3610
450	820	1180	2940	4240
500	980	1410	3530	5080
560	1190	1710	4280	6160
630	1450	2090	5230	7520
710	1780	2560	6400	9210



NG	(1)	(2)	(3)	(4)
800	2170	3130	7810	11250

(1) 35 L_{WA} [dB(A)] in l/s

(2) 45 L_{WA} [dB(A)] in l/s

(3) 35 L_{WA} [dB(A)] in m³/h

(4) 45 L_{WA} [dB(A)] in m³/h

The Easy Product Finder allows you to size products using your project-specific data. You will find the Easy Product Finder on our website.

Sizing example

Given data:

Volume flow rate: 3600 m³/h

Sound power level: ≤ 45 dB(A)

Quick sizing

FKR-EU/400

Specification text

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

Specification text

Fire damper according to the European product standard EN 15650 in circular construction style. Tested for fire resistance properties according to EN 1366-2, with CE label. The fire damper manufacturer's declaration of performance (DoP) provides proof of the respective installation conditions, e.g., in walls or ceilings, along with the basic characteristics such as size, support structure, design and installation type and the respective classes of performance in accordance with the classification standard EN 13501-3.

Ready-to-use units contain a release mechanism and an interchangeable, fire-resistant damper blade that can be arranged horizontally or vertically and in all intermediate positions (0 - 360°) depending on the use.

Depending on application, classified from:

EI 30 (v_e, h_o i ↔ o) S to EI 120 (v_e, h_o i ↔ o) S

Suitable for:

Mortar-based installation

- In solid walls, walls made from gypsum wall boards, lightweight partition walls, compartment walls, safety partition walls and walls to provide radiation protection
- In shaft walls with metal support structures or steel support structures
- In timber stud walls and timber frame walls, as well as solid wood and cross laminated timber walls
- In and on solid walls and in combination with timber beam, solid wood and modular ceilings (System Cadolto)
- In solid wood, wooden beam and historical wooden beam ceilings
- If several fire dampers are installed in a solid wall, ceiling slab, lightweight partition wall, timber stud wall and half-timbered wall, their combined area must not exceed 4.8 m²
- Can be installed together with FK2-EU in solid walls and ceiling slabs, lightweight partition walls, timber stud walls, half-timbered walls and shaft walls

Dry mortarless installation

- In lightweight partition walls and compartment walls with metal support structure and cladding on both sides: with installation kit TQ
- In timber stud walls and timber frame walls, as well as solid wood and cross laminated timber walls with installation kit TQ
- In solid wood and wooden beam ceilings with installation kit TQ

Fire batt installation

- In solid walls and ceiling slabs

- In lightweight partition walls, compartment walls, safety partition walls and walls to provide radiation protection, with metal support structure or steel support structure
- In timber stud walls, half-timbered constructions, solid wood walls and CLT walls

Sizes from nominal size 315 mm – 800 mm.

Optimised low-leakage casing, up to leakage class C to EN 1751 with low differential pressure and low sound power level.

Fire damper casing made of galvanised sheet steel, optionally galvanised sheet steel with powder coating RAL 7001 or stainless steel 1.4301.

Damper blade made of special insulation material, optionally with coating.

Corrosion protection according to EN 15650 in connection with EN 60068-2-52. Hygienic requirements are fulfilled in accordance with VDI 6022-1, VDI 3803-1, DIN 1946-4, DIN EN 13779 as well as the Önorm H 6020 and H 6021 and the SWKI. Casing in spigot design (length 550 mm) or flange design (length 495 mm) for connection to ducts made of non-combustible or combustible building materials.

Thermal release for 72°C or 95°C

(warm air ventilation systems) with a fusible link or thermoelectrically with a spring return actuator, push button and indicator light (LED). Constructions with a brushless actuator for opening and closing the fire damper, also when the ventilation system is running and independent of the nominal size, are particularly suitable for functional checks and for shutting off sections of the duct system. Retrofit of spring return actuators without modification of the rod is possible from the outside.

Explosion-proof constructions for zones 1, 2, 21 and 22 available with limit switch or spring return actuator.

In the version with thermal insulation made of 32 mm synthetic cellular rubber, fire rating class: B-s2-d0, spring return actuator and perimeter mortar infill, suitable for reducing condensation in the case of outdoor air intake (ODA Outdoor air).

Special features

- Declaration of performance in accordance with European Construction Products Regulation
- Classification according to EN 13501-3 up to EI 120 (v_e, h_o, i ↔ o) S
- Complies with the requirements of EN 15650
- Tested for fire resistance properties in accordance with EN 1366-2 (300 Pa negative pressure)
- Certified mortar-based installation with reduced distances of 40 mm to supporting components or 40 mm between two fire dampers (flange to flange)
- Surrounding gap dimensions in the mortar-based installation with mortar up to 225 mm permitted

- Hygienic requirements are fulfilled in accordance with VDI 6022-1, VDI 3803-1, DIN 1946-4 and EN 13779, as well as Önorm H 6020 and H 6021 and SWKI
- Corrosion protection according to EN 15650 in connection with EN 60068-2-52
- Closed blade air leakage to EN 1751, class 4
- Casing air leakage to EN 1751, class C
- Low differential pressure and sound power level
- Any airflow direction
- Integration into the central building management system with the international standard fire damper system in accordance with IEC 62026-2 with AS interface is possible

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 impregnation

ODA construction:

- Damper casing made of galvanised sheet steel with powder coating and thermal insulation, damper blade made of special insulating material with impregnation (only in conjunction with spring return actuator)

Other components:

- Damper blade shaft in stainless steel
- Plastic plain bearings
- Seals of elastomer

The design variants with a stainless steel or powder-coated casing fulfil increased requirements in terms of corrosion protection. Detailed listing on request.

Technical data

- Nominal sizes: 315 to 800 mm
- Casing lengths: 495 and 550 mm
- Volume flow rate range: up to 6000 l/s / up to 21600 m³/h
- Differential pressure range: up to 2000 Pa
- Temperature range: -20 – 50 °C
- Upstream velocity*: Standard construction ≤ 8 m/s, construction with spring return actuator ≤ 12 m/s, construction with explosion-proof actuator ExMax/RedMax-15-BF TR ≤ 10 m/s

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

Equivalence criteria

- The declaration of performance according to the Construction Products Regulation describes all CE-certified installation types including the performance class up to EI 120 S according to EN 13501-3 as well as the essential characteristics of at least the permissible size and supporting structure
- Hygienic requirements are fulfilled in accordance with VDI 6022-1, VDI 3803-1, DIN 1946-4 and EN 13779, as well as the Önorm H 6020 and H 6021 and the SWKI.
- CE-marked and thus tested for fire resistance properties according to EU regulation 305/2011 and evaluated according to machinery directive 2006/42/EC
- CE-certified mortar-based installation at a distance ≥ 40mm between 2 fire dampers (flange to flange)
- Combined mortar-based installation with fire dampers of the FK2-EU type in solid walls, lightweight partition walls with cladding on both sides, timber stud walls and half-timbered walls, shaft walls with metal studs with cladding on one side, and solid ceiling slabs
- Pressure loss < 10 Pa at reference size 400 mm and 6 m/s upstream velocity
- Sound power < 38 dB(A) at reference size 400 mm and 6 m/s upstream velocity

Order code

Order code FKR-EU

FKR-EU - ... - 1 / DE / 315 / TQ / A0 / Z43
 | | | | | | | |
 1 2 3 4 5 6 7 8

1 Type

FKR-EU Fire damper

AT Austria

NL Netherlands

Other countries of destination upon request

2 Flange

No entry: none (construction with spigots)

FL² Flanges on both ends

5 Nominal size [mm]

315, 355, 400, 450, 500, 560, 630, 710, 800

3 Construction

No entry required: None

1 Powder-coated casing RAL 7001

2 Stainless steel casing

7 Impregnated damper blade

1 – 7 Powder-coated casing RAL 7001 and impregnated damper blade

2 – 7 Stainless steel casing and impregnated damper blade

W¹ With fusible link 95°C (only for use in warm air ventilation systems)

B³ With coated fusible link 72°C

WB³ With coated fusible link 95°C (only for use in warm air ventilation systems)

6 Accessories 1

No entry required: None

TQ² Installation kit (construction with spigots)

7 Accessories 2

No entry required: None

S0 – AS

8 Attachments

Z00 – ZEX4

¹ with all constructions **2** and **3** Can be combined, but not with attachments **8** ZEX1 – ZEX4

² TQ cannot be combined with FKR-EU-FL

³ Only for attachments Z00 - Z03 and Z00EX - Z03EX

4 Country of destination

DE Germany

CH Switzerland

Order example: FKR-EU-1/DE/500/SS/ZL09

Construction variant

Casing (construction with spigots) powder-coated, silver grey (RAL 7001)

Release temperature

72 °C

Country of destination

Germany

Nominal size

500 mm

Accessories 1

Without

Accessories 2

Flexible connector on operating and installation sides

Attachment

Spring return actuator 24 V and LON module LON-WA1/B3

Order code FKR-EU with thermal insulation as ODA construction to prevent condensation

FKR-EU - ... - **1-7-ODA** / DE / 315 / ... / ... / Z43
 | | | | | | |
 1 2 3 4 5 6 7 8

1 Type
FKR-EU Fire damper

5 Nominal size [mm]
315, 355, 400, 450, 500, 560, 630, 710, 800

2 Flange
No entry: none (construction with spigots)
FL Flanges on both ends

6 Accessories 1
No entry required: None²

3 Construction
1-7-ODA¹ Powder-coated housing RAL 7001, impregnated damper blade and insulated damper housing (32 mm Armaflex Ultima)

7 Accessories 2
No entry required: None³

4 Country of destination
DE Germany
Other countries of destination upon request

8 Attachments
Z43, Z45, Z60, Z61, ZA07, ZL09, ZL10, ZL11, ZB01, ZA14

¹ ODA only with 72°C release temperature
² ODA cannot be combined with accessories 1
³ Accessories 2 cannot be factory mounted, when needed please order separately

Order example: FKR-EU-1-7-ODA/560/ZA07

Construction variant

Casing (construction with spigots) powder-coated, silver grey (RAL 7001),
impregnated damper blade and insulated damper casing (32 mm Armaflex Ultima)

Release temperature	72 °C
Country of destination	Germany
Nominal size	560 mm
Accessories 1	Without
Accessories 2	Without
Attachment	Spring return actuator 24 V and AS-EM

Order code for FKR-EU as an upstream shutter of an air transfer unit

FKR-EU - ... - 1 / DE / 500 / TQ / AA / Z01
 | | | | | | | |
 1 2 3 4 5 6 7 8

1 Type

FKR-EU Fire damper

2 Flange

No entry: none (construction with spigots)

FL² Flanges on both ends

3 Construction

No entry required: None

1 Powder-coated casing RAL 7001

2 Stainless steel casing

7 Impregnated damper blade

1 – 7 Powder-coated casing RAL 7001 and impregnated damper blade

2 – 7 Stainless steel casing and impregnated damper blade

4 Country of destination

Upon request

5 Nominal size [mm]

315, 355, 400, 450, 500, 560, 630, 710, 800

Order example: FKR-EU-1/DE/400/AA/Z03

Construction variant

Release temperature

Country of destination

Nominal size

Accessories 1

Accessories 2

Attachment

6 Accessories 1

No entry required: None

TQ² Installation kit (construction with spigots)

7 Accessories 2

AA Cover grilles on both ends

8 Attachments

Z00 – ZB01

²TQ cannot be combined with FKR-EU-FL

For Germany, the following applies when used as an upstream shutter of an air transfer unit:

If fire dampers with a purely mechanical shut-off element are to be used as an upstream shutter of an air transfer unit, the local building regulations must be observed. This may require building authority approvals. This must be checked and applied for by others. Usually the use of such upstream shutters of air transfer units is restricted to pressure differential systems.

Casing (construction with spigots) powder-coated, silver grey (RAL 7001)

72 °C

Germany

400 mm

Without

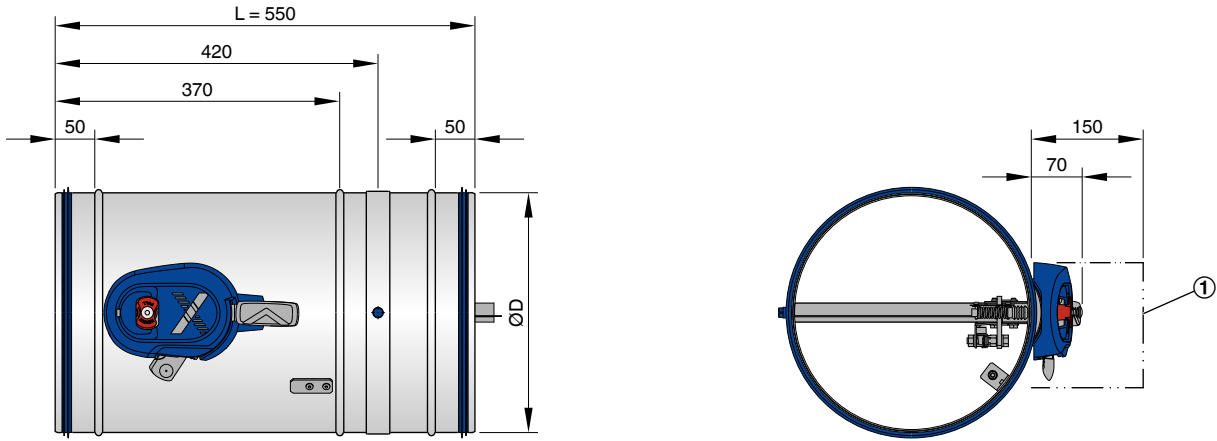
Cover grilles on both ends

Limit switches for damper blade positions OPEN and CLOSED

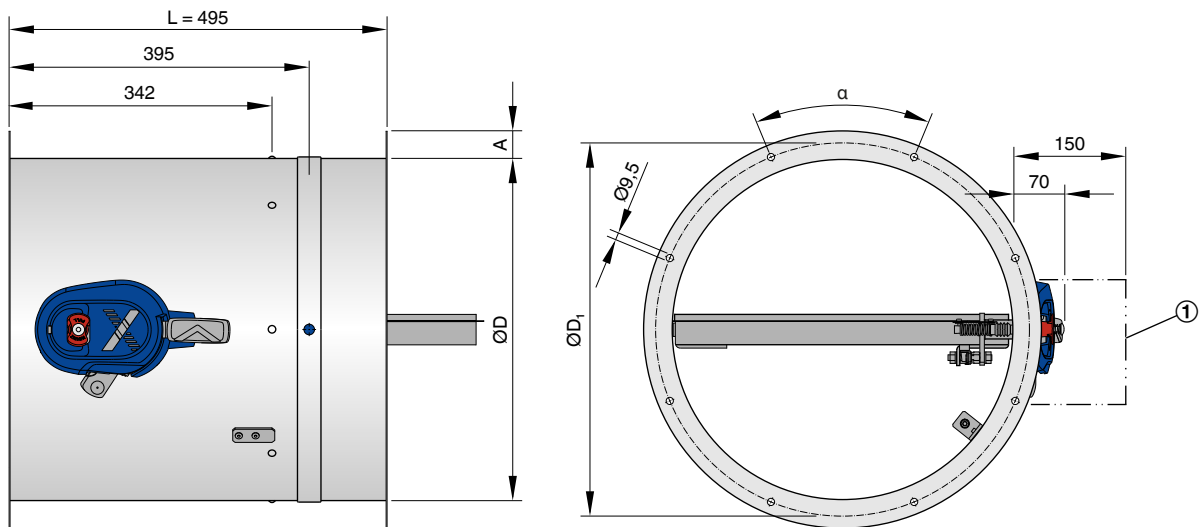
Dimensions

FKR-EU with fusible link (FKR-EU/.../Z0*)

Spigot construction



Flange construction



① Keep clear to provide access to the release mechanism.

FKR-EU with fusible link (FKR-EU/.../Z0*)

NG	(1)	(2)	(3)	(4)	(5)	(6)	(7)
315	314	352	31	45	8	6,8	19,5
355	354	392	31	45	8	7,3	21,8
400	399	438	31	45	8	8,5	25,0
450	449	488	36	45	8	14,1	33,1
500	499	538	36	45	8	16,4	37,8
560	559	600	36	30	12	18,0	42,6
630	629	670	36	30	12	21,3	49,7
710	709	750	36	30	12	25,7	58,7
800	799	840	36	22.5	16	28,6	67,3

(1) ØD [mm]

(2) ØD₁ [mm]

(3) A [mm]

(4) a [°]

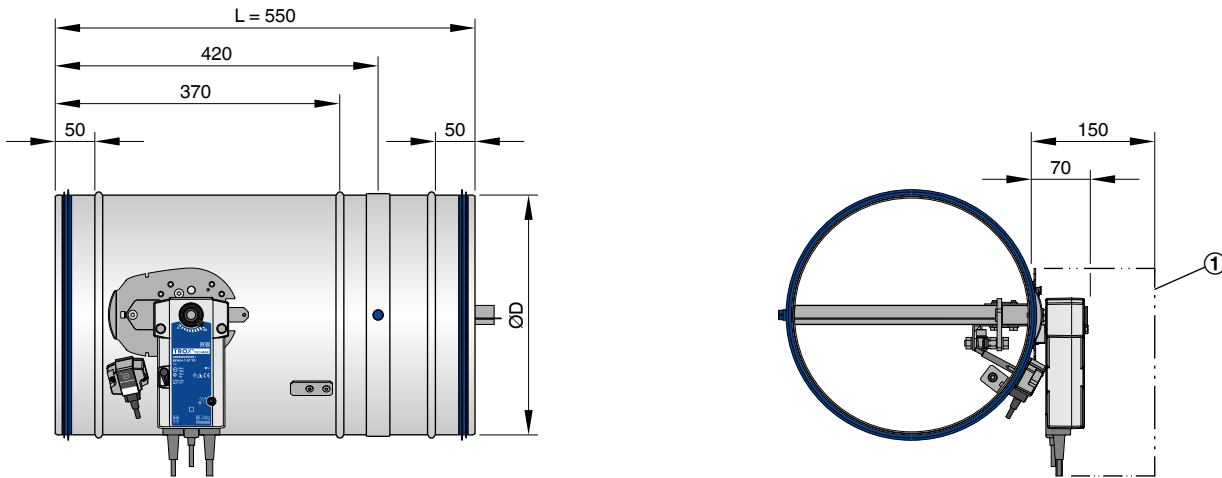
(5) Number of holes

(6) FKR-EU with fusible link [kg]

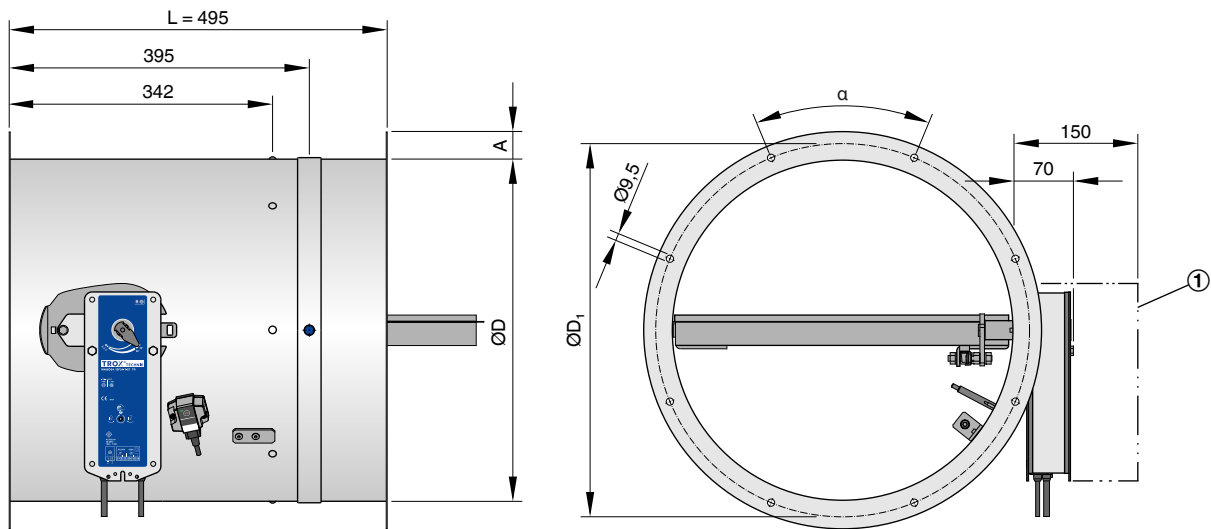
(7) ... and installation kit TQ [kg]

FKR-EU with Belimo spring return actuator (FKR-EU/.../Z4*)

Spigot construction



Flange construction

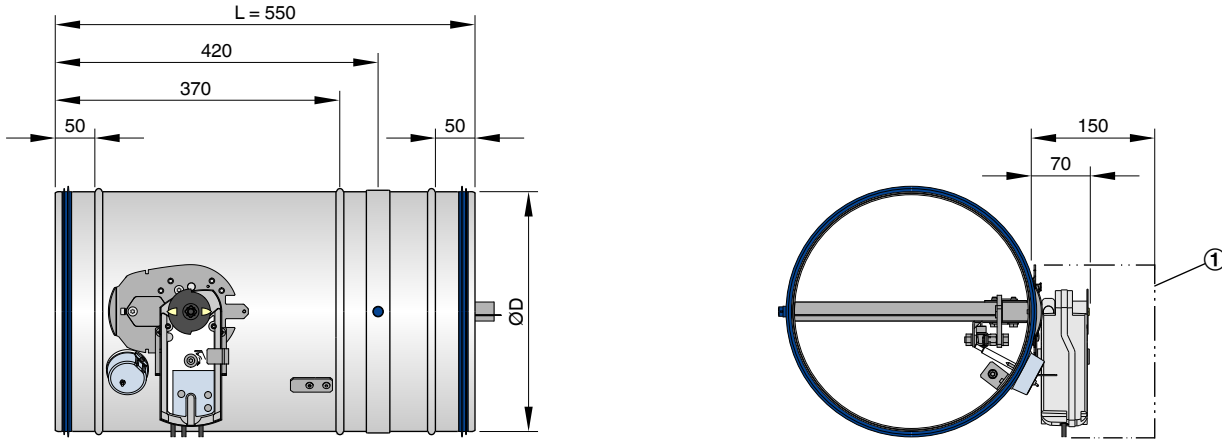


① Keep clear to provide access to the release mechanism.

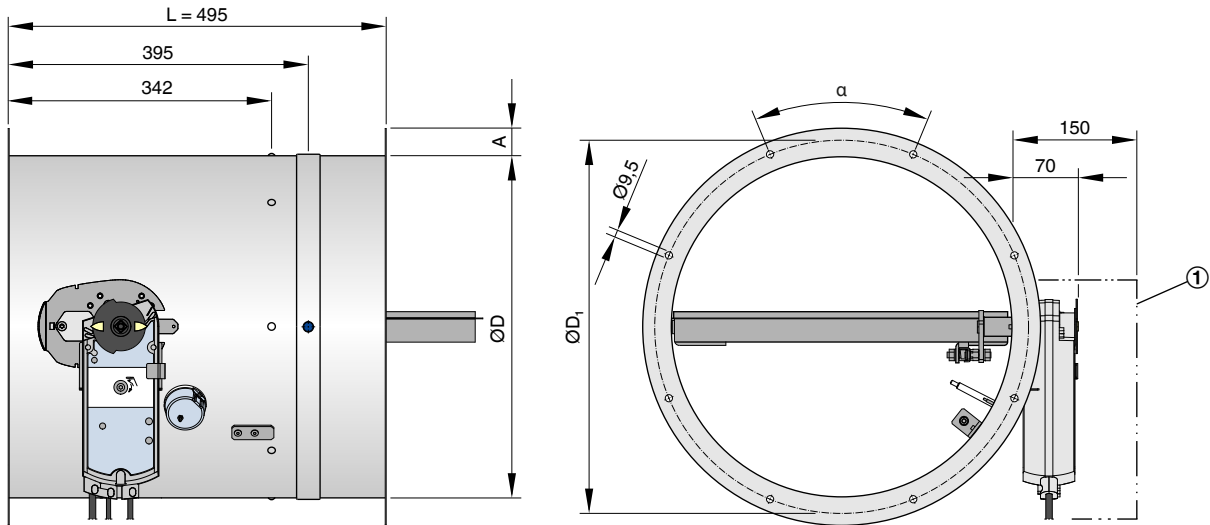
Weights FKR-EU with fusible link + approx. 1 kg (BFN... for nominal sizes DN 315 - 400 mm) or 3 kg (BF... for nominal sizes DN 450 - 800 mm), see table of dimensions for FKR-EU with fusible link.

FKR-EU with Siemens spring return actuator
(FKR-EU/.../Z4*S)

Spigot construction



Flange construction

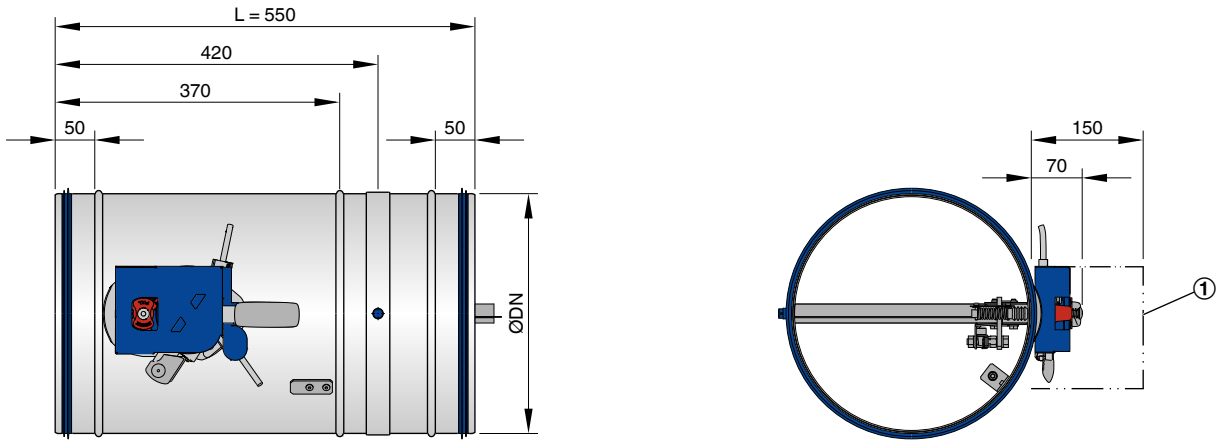


① Keep clear to provide access to the release mechanism.

Weights FKR-EU with fusible link + approx. 1.4 kg (GNA... for nominal sizes DN 315 - 400 mm) or 2.5 kg (GGA... for nominal sizes DN 450 - 800 mm), see table of dimensions for FKR-EU with fusible link.

FKR-EU with explosion-proof fusible link
(FKR-EU/.../Z0*EX)

Spigot construction

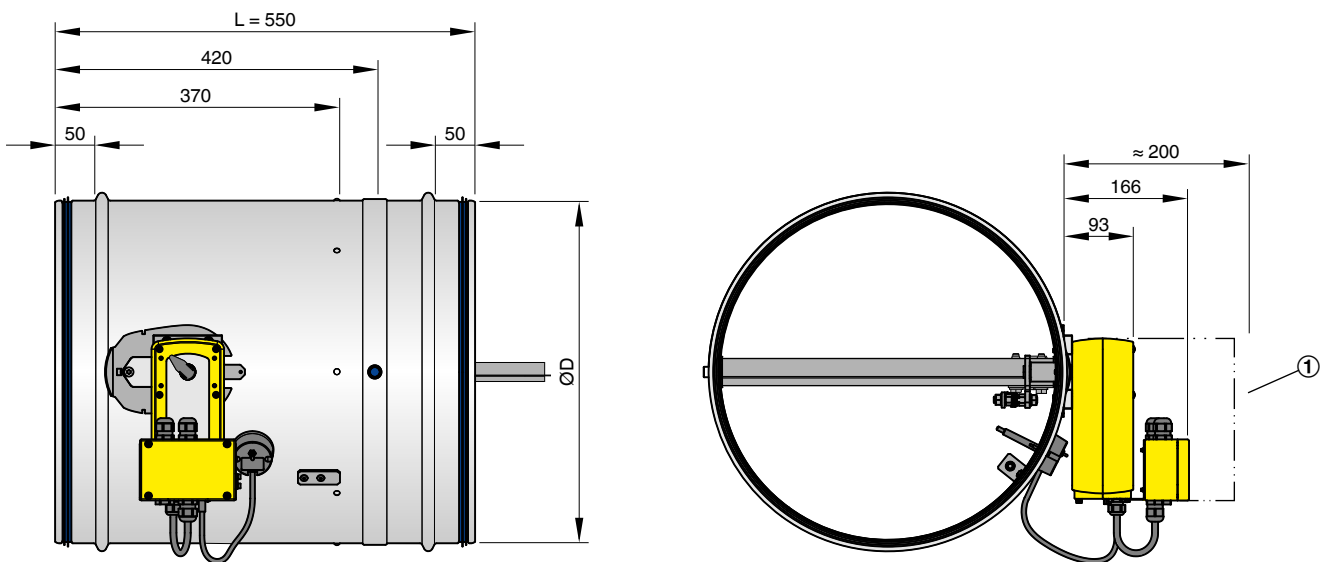


① Keep clear to provide access to the release mechanism.

Weights FKR-EU with fusible link, see table of dimensions for FKR-EU with fusible link
Flange version as page 17, but with fusible link in Ex version (FKR- EU/.../Z0*EX).

FKR-EU with explosion-proof spring return actuator
(FKR-EU/.../ZEX*)

Spigot construction

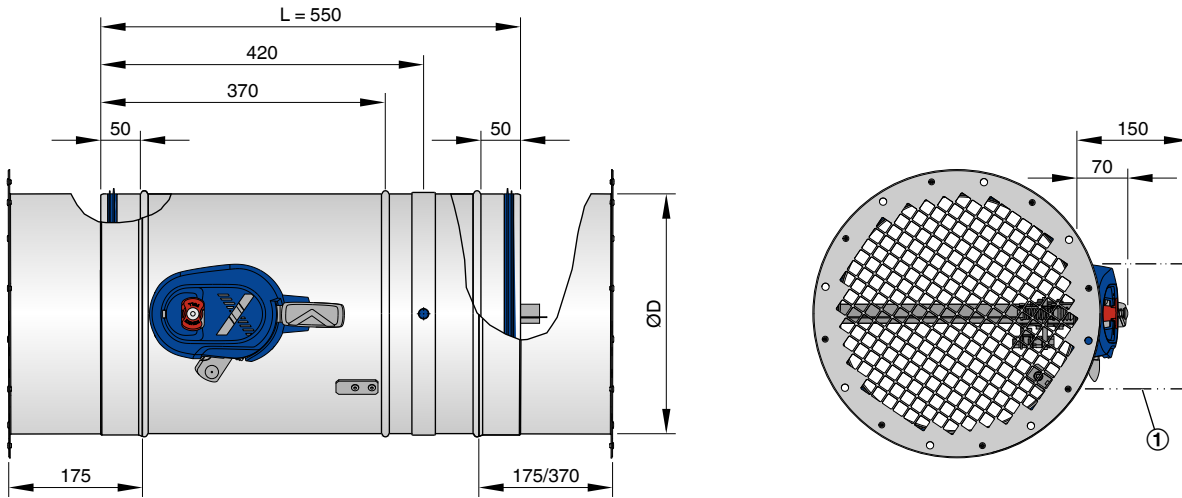


① Keep clear to provide access to the release mechanism.

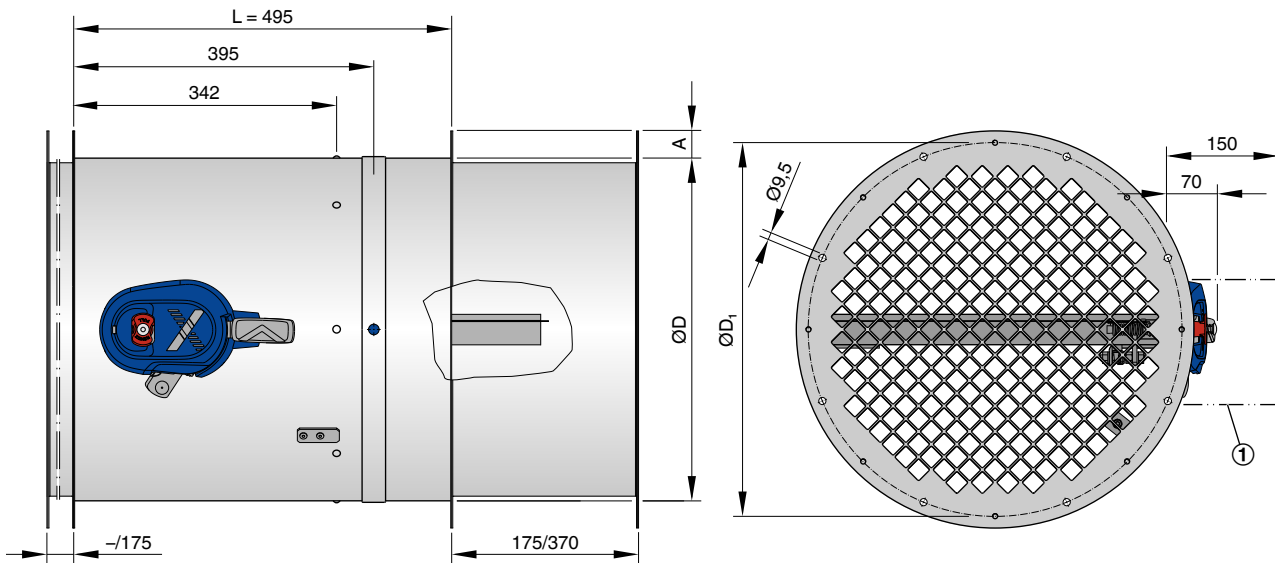
Weights FKR-EU with fusible link + approx. 4.5 kg, see table of dimensions for FKR-EU with fusible link
Flange construction as on page 17, but with spring return actuator in Ex version (FKR-EU/.../ZEX*)

FKR-EU with fusible link (FKR-EU/.../Z0*) and cover grille on both sides as an air transfer damper

Spigot construction



Flange construction



① Keep clear to provide access to the release mechanism.

Weights FKR-EU with fusible link, see table of dimensions for FKR-EU with fusible link

ODA construction

Application

- Suitable for reducing condensation with outdoor air intake (ODA Outdoor air)
- Only suitable for mortar-based installation with perimeter mortar infill

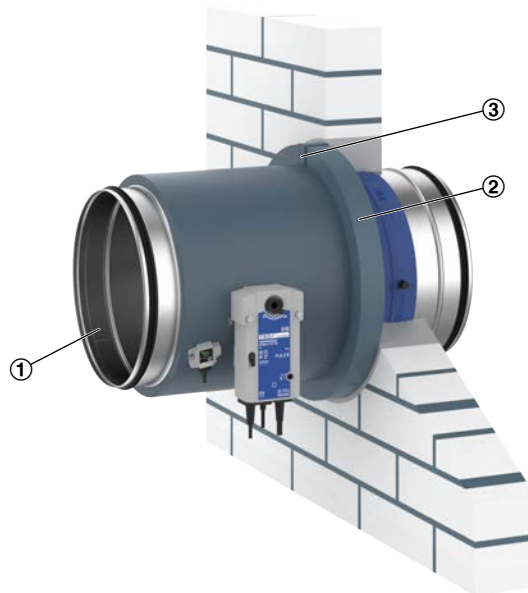
Note:

For further information relevant to design, in particular information on installation situations, please refer to the fire damper installation and operating manual and the additional installation manual for the ODA construction.

Materials and surfaces

- Damper blade casing made of galvanised sheet steel, powder-coated (1)
- Impregnated damper blade
- Thermal insulation on the operating side made of 32 mm synthetic cellular rubber, fire rating class: B-s2-d0
- Only in combination with spring return actuator (possible attachments Z43, Z45, Z60, Z61, ZA07, ZL09, ZL10, ZL11, ZB01, ZA14)

FKR-EU with thermal insulation



Supply package: FKR-EU with thermal insulation

- ① FKR-EU with thermal insulation on the operating side
- ② Insulating strips, Armaflex Ultima, around the perimeter
- ③ Armaflex tape

Accessories 1 – installation kit

Installation kit TQ

- Square installation kit TQ (for FKR-EU in spigot design) for dry mortarless installation:
 - In lightweight partition walls and compartment walls with metal support structure and cladding on both sides
 - In timber stud walls and timber frame walls, as well as solid wood and cross laminated timber walls
 - In solid wood and wooden beam ceilings
- The installation kit 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

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

Note:

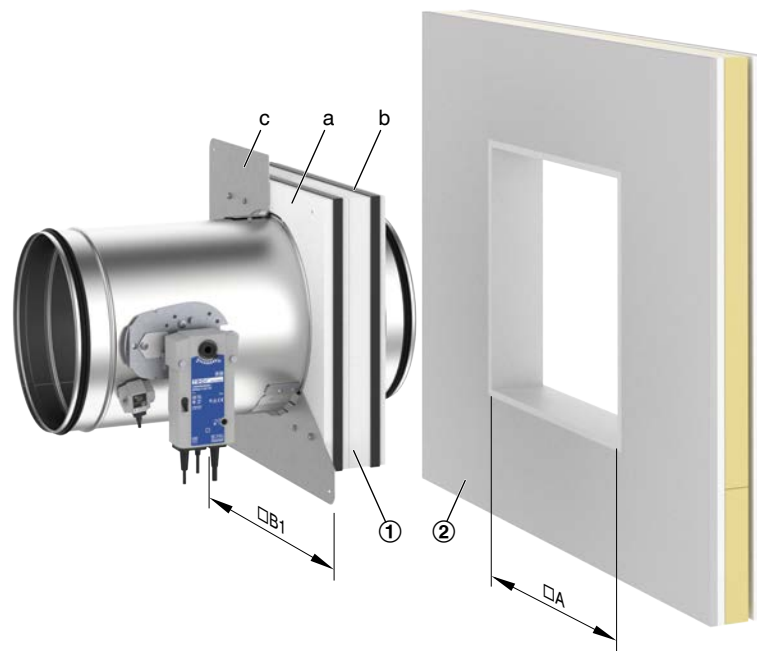
For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

Accessories 1	Order code
Square installation kit	TQ

Dimensions of installation opening/cover plate [mm]

NG	315	355	400	450	500	560	630	710	800
□A	435	475	520	570	620	680	750	830	920
□B1	515	555	600	650	700	760	830	910	1000

FKR-EU with square installation kit TQ



Installation kit supply package TQ

1 Installation kit TQ, consisting of:

a Installation kit

b Seal

c Cover plate

2 Lightweight partition wall or compartment wall

Accessories 2 – cover grille

Application

- If only one end is to be ducted on site, the other end must have a cover grille
- For certain nominal sizes extension pieces may be required, see table
- Fire damper, cover grille and, if applicable, extension piece are factory assembled to form a unit
- The free area of the cover grille is approx. 70 %
- The fixing holes and extension pieces in the cover grilles and extension pieces match those in the fire damper flanges (applies only to FKR-EU-FL)
- Cover grilles are also available separately

- Mesh aperture 15 mm × 15 mm, wire width 2 mm

The following applies to Germany:

If fire dampers are used as upstream shutters of air transfer units, the national building regulations must be observed. Usually the use of such upstream shutters of air transfer units is restricted to pressure differential systems.

Note:

For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

Materials and surfaces

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

Operating side	Installation side	Order code
Cover grille	–	A0
–	Cover grille	0A
Cover grille	Cover grille	AA*
Cover grille	Flexible connector	AS
Flexible connector	Cover grille	SA

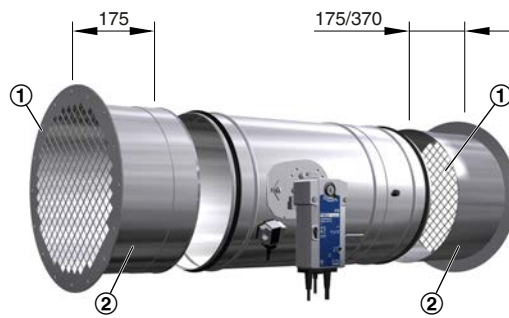
* AA for FKR-EU as an upstream shutter of an air transfer unit



Arrangement and length of extension pieces [mm]

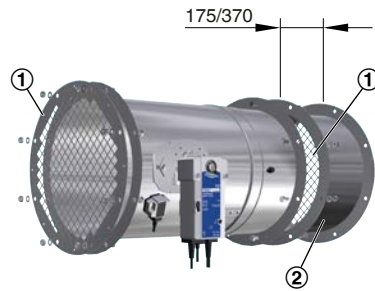
NG	Operating side FKR-EU / FKR-EU-FL	Installation side FKR-EU / FKR-EU-FL
315	175/-	175/175
355	175/-	175/175
400	175/-	175/175
450	175/-	175/175
500	175/-	175/175
560	175/-	370/370
630	175/-	370/370
710	175/-	370/370
800	175/175	370/370

Cover grille for FKR-EU



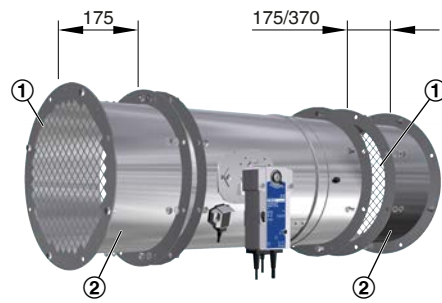
- ① Cover grille, mesh aperture 15×15 mm
Wire width 2 mm, approx. 1 mm thick
- ② Extension piece

Cover grille for FKR-EU-FL



- ① Cover grille, mesh aperture 15×15 mm
Wire width 2 mm, approx. 1 mm thick
- ② Extension piece

Cover grille for FKR-EU-FL with extension pieces



- ① Cover grille, mesh aperture 15×15 mm
Wire width 2 mm, approx. 1 mm thick
- ② Extension piece

Extension piece and cover grille are supplied factory assembled.

Accessories 2 – flexible connector

Application

- Ducting must be installed in such a way that it does not impose any significant loads on the fire damper in the event of a fire. Be sure to comply with the relevant national guidelines and regulations
- As ducts may expand and walls may become deformed in the event of a fire, we recommend using flexible connectors for installation in lightweight partition walls, shaft walls and lightweight compartment walls, as well as fire batt installation.
- Flexible connectors should be installed in such a way that both ends can absorb both tension and compression
- Flexible ducts can be used as an alternative
- For certain nominal sizes extension pieces may be required, see table
- The fixing holes in the flexible connectors and extension pieces match those in the fire damper flanges (applies only to FKR-EU-FL)
- Flexible connectors are supplied separately and can be fixed by others

- Flexible connectors are also available separately

Materials and surfaces

- Flexible connectors made of galvanised steel and fibre-reinforced plastic (only FKR-EU-FL)
- Extension piece made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)
- Fire resistance properties to 4102; B2

Note:

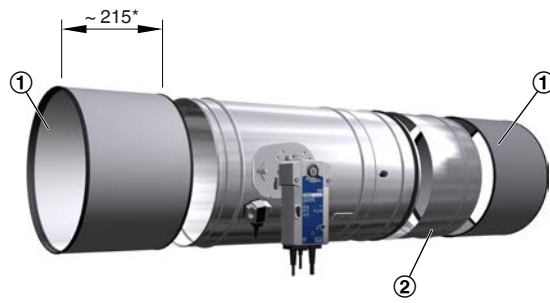
For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

Operating side	Installation side	Order code
Flexible connector	–	S0
–	Flexible connector	0S
Flexible connector	Flexible connector	SS
Flexible connector	Cover grille	SA
Cover grille	Flexible connector	AS

Arrangement and length of extension pieces [mm]

NG	Operating side FKR-EU / FKR-EU-FL	Installation side FKR-EU / FKR-EU-FL
315	-/-	175/175
355	-/-	175/175
400	-/-	175/175
450	-/-	175/175
500	-/-	175/175
560	-/-	370/370
630	-/-	370/370
710	-/175	370/370
800	175/175	370/370

Flexible connector for FKR-EU

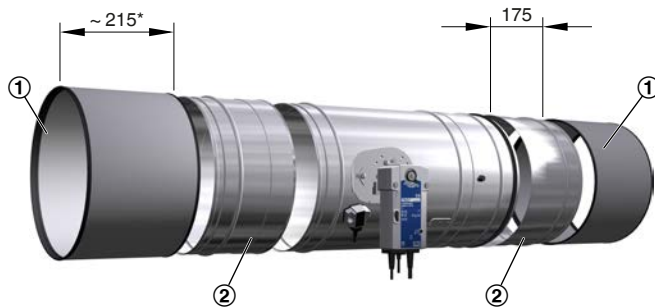


① Flexible connector

② Extension piece

* flexible length ≥ 100 mm when installed

Flexible connector for FKR-EU with extension pieces

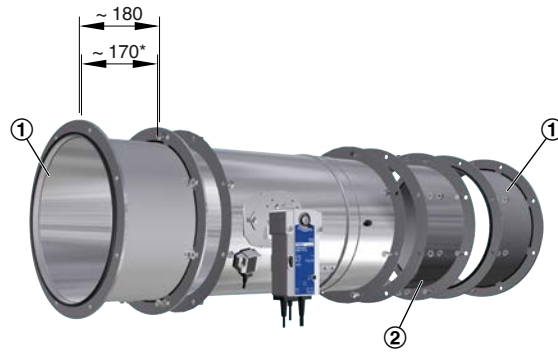


① Flexible connector

② Extension piece

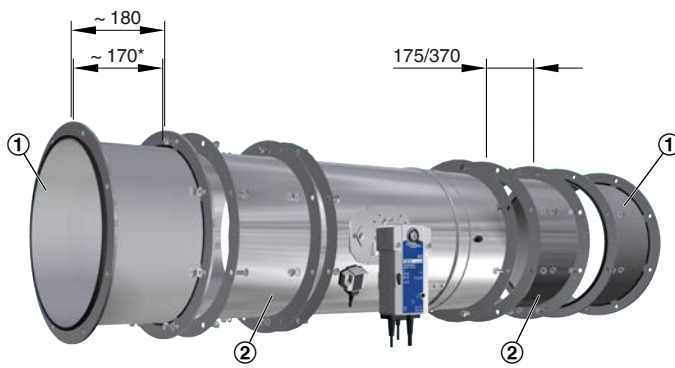
* flexible length ≥ 100 mm when installed

Flexible connector for FKR-EU-FL



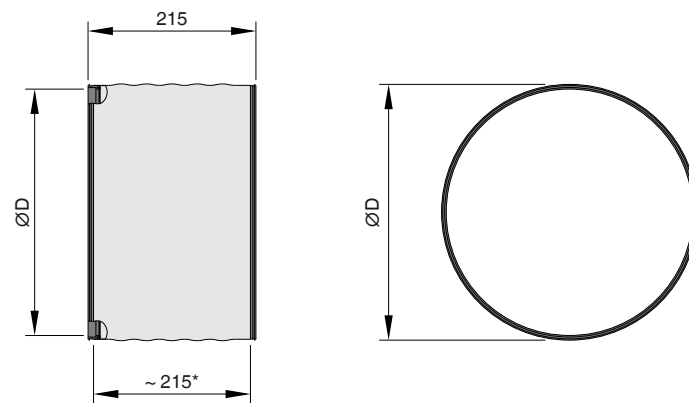
- ① Flexible connector
- ② Extension piece
- * flexible length ≥ 100 mm when installed

Flexible connector for FKR-EU-FL with extension pieces



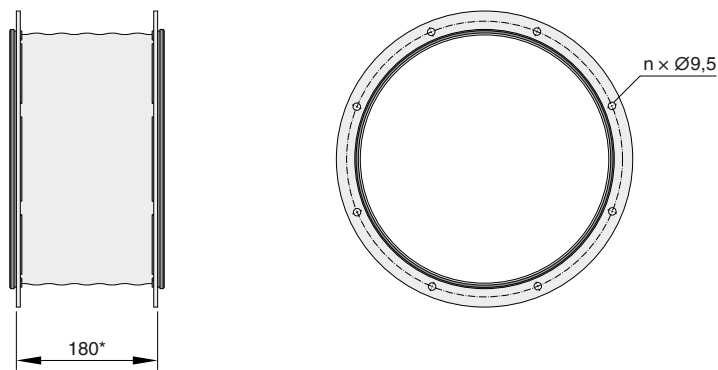
- ① Flexible connector
- ② Extension piece
- * flexible length ≥ 100 mm when installed

Flexible connector for FKR-EU



* Flexible length ≥ 100 mm when installed

Flexible connector for FKR-EU-FL



* Flexible length ≥ 100 mm when installed

Accessories 2 – extension piece

Application

- When there are cover grilles, flexible connectors, circular duct bends, etc., you may have to use an extension piece for certain heights.
- Fire dampers with cover grilles and flexible connectors are supplied, including extension pieces
- Extension pieces are also available separately

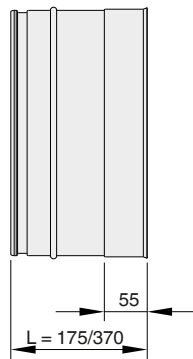
Materials and surfaces

- 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)

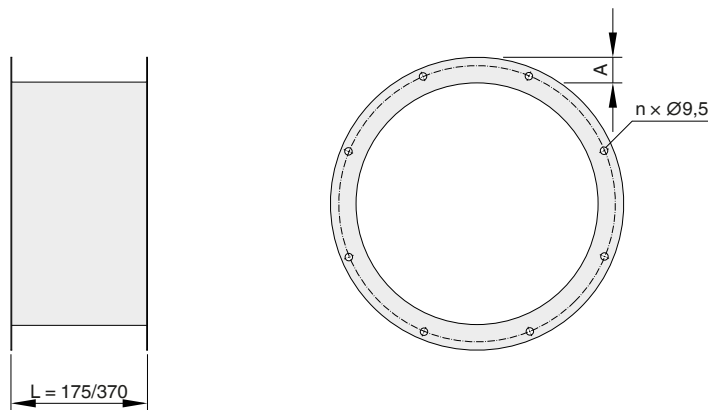
Note:

For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

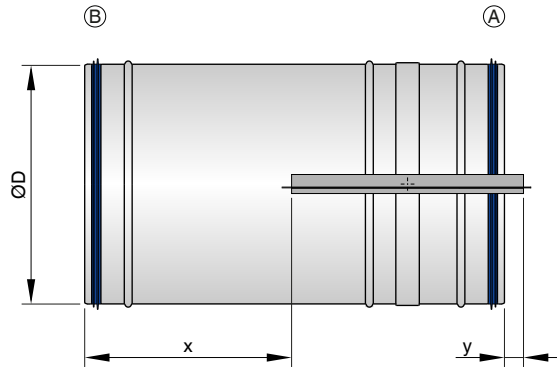
Extension piece for FKR-EU



Extension piece for FKR-EU-FL



FKR-EU open blade protrusion

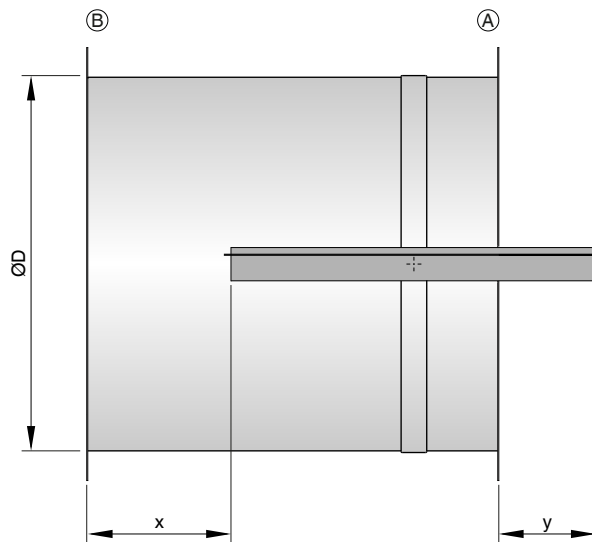


- Ⓐ Installation side
- Ⓑ Operating side

Open blade protrusion [mm]

NG	315	355	400	450	500	560	630	710	800
x	-270	-250	-230	-200	-175	-145	-110	-70	-25
y	25	45	70	90	115	145	180	220	265

FKR-EU-FL open blade protrusion



- Ⓐ Installation side
- Ⓑ Operating side

Open blade protrusion [mm]

NG	315	355	400	450	500	560	630	710	800
----	-----	-----	-----	-----	-----	-----	-----	-----	-----



x	-240	-220	-200	-170	-145	-115	-80	-40	5
y	55	75	100	125	150	180	215	255	300

Note:
The movement of the damper blade must not be obstructed by any accessory. The distance between the tip of the open damper blade and any accessory (moulded part, etc.) must be at least 50 mm.

Attachment – Limit switch

FKR-EU (variant with fusible link) with limit switch

Application

- Limit switches with volt-free contacts can indicate the damper blade position
- 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 or retrofitted with one or two limit switches (a conversion kit is required for a retrofit).
- For the technical data and wiring examples, see the installation and operating manual for FKR-EU

Attachment	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

FKR-EU (variant with fusible link) with limit switch in

Explosion-proof

Application

- Explosion-proof limit switches with volt-free contacts can indicate the damper blade position
- Declaration of conformity: TÜV 13 ATEX 128437 X
- Up to the maximum switch rating, relays or indicator lights for fire alarm systems can be used
- The limit switches must be connected in a separately approved casing with a type of protection according to EN 60079-0
- One limit switch each is required for damper blade positions OPEN and CLOSED
- Fire dampers with a fusible link can be supplied or retrofitted with one or two limit switches (a conversion kit is required for a retrofit).
- For technical data and wiring examples refer to the supplementary operating manual "Explosion-proof fire dampers, Type FKR-EU".

Attachment	Order code
Limit switch for damper blade position CLOSED	Z01EX
Limit switch for damper blade position OPEN	Z02EX
Limit switches for damper blade positions CLOSED and OPEN	Z03EX

Type of actuation	Release mechanism	Labelling	Ambient temperature	Maximum airflow velocity
Spring mechanism	Fusible link	II 2 D c T80 °C II 2 G c IIC T6	-40 – 40 °C	8 m/s
Spring mechanism	Fusible link and limit switch	II 2 D c T80 °C II 2 G c IIC T6	-20 – 40 °C	8 m/s

Attachment – Spring return actuator

FKR-EU with spring return actuator

Application

- A spring return 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)
 - Motorised fire dampers can be used to shut off ducts
 - Two integral limit switches with volt-free contacts can indicate the damper blade position (OPEN and CLOSED)
- The connecting cables of the 24 V spring return actuator are fitted with plugs. This ensures quick and easy connection to the TROX AS-i bus system. Without automation components, the 24 V connection is made via a safety transformer provided by others
 - A conversion kit is available for retrofitting an actuator to a fire damper with fusible link.
 - For the technical data and wiring examples, see the installation and operating manual for FKR-EU

Attachment	Order code
Spring return actuator 230 V (Belimo)	Z43
Spring return actuator 24 V (Belimo)	Z45
Spring return actuator 24 V (Belimo) including power supply unit BKN230-24-C-MP TR	Z60
Spring return actuator 24 V (Belimo) including power supply unit BKN230-24-C-MP TR and control module BKS24-1 TR	Z61
Spring return actuator 24 V (Belimo) including power supply unit BKN230-24-C-MP TR and control module BKS24-1 TR	Z43S
Spring return actuator 24 V (Siemens)	Z45S

FKR-EU with Belimo spring return actuator, spigot construction



FKR-EU with Siemens spring return actuator, spigot construction



Attachment – Spring return actuator in Ex construction

FKR-EU with explosion-proof spring return actuator

Application

- A spring return actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- The fire damper can be used in supply and extract air systems in areas with potentially explosive atmospheres
- 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
- Two integral limit switches with volt-free contacts can indicate the damper blade position (OPEN and CLOSED)
- The electrical connection is made in the explosion-proof terminal box
- Release temperature of the spring return actuator 72 °C
- Declaration of conformity: TÜV 13 ATEX 128437 X
- For technical data and wiring examples refer to the supplementary operating manual "Explosion-proof fire dampers, Type FKR-EU".

Use in areas with potentially explosive atmospheres (ATEX)

According to declaration of conformity TÜV 13 ATEX 128437 X, the fire damper may be used in the following areas with potentially explosive atmospheres.

The ambient temperatures and types of release and actuation specified in the technical data are binding.

ExMax:

Zones 1, 2: Gases, mists and vapours

Zones 21, 22: Dusts

RedMax:

Zone 2: Gases, mists and vapours

Zone 22: Dusts

Attachment	Order code
ExMax-15-BF TR	ZEX1
RedMax-15-BF TR	ZEX3

FKR-EU with explosion-proof spring return actuator

Spigot construction



Type of actuation	Release mechanism	Labelling	Ambient temperature	Maximum airflow velocity
ExMax-15-BF TR	ExPro-TT *	II 2 D c T80 °C II 2 G c IIC T6	-40 – 40 °C	10 m/s
RedMax-15-BF TR	ExPro-TT *	II 3 D c T80 °C II 3 G c IIC T6	-40 – 40 °C	10 m/s

* Release temperature: 72 °C

Attachment – Spring return actuator and TROXNETCOM

FKR-EU with spring return actuator and TROXNETCOM

Application

- Fire dampers with a 24 V spring return actuator (Belimo) and the modules described here as attachments form a functional unit ready for automatic operation.
- The components are factory assembled and wired
- The combination spring return actuator with TROXNETCOM enables brand-neutral and cross-sector integration of various components (modules) in one network
- The modules control actuators and/or receive signals from sensors

AS-i

- AS interface is a global standard bus system according to EN 50295 and IEC 62026-2.
- The module transmits the control signals between the spring return actuator and the controller and power unit
- The control of the actuator and monitoring of run time for functional tests is thus possible
- 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

MODBUS RTU/BACnet MS/TP (RS485)

- MODBUS RTU and BACnet MS/TP are protocols for RS485 communication systems
- Data transmission is based on uniform protocols
- Only the bus line and the supply voltage remain to be connected by others
- MB-BAC-WA1/2: for the control of 1 – 2 fire dampers
- WA1/B3-AD: junction box for the 2nd fire damper with 24 V DC supply voltage to the MB-BAC-WA1/2
- WA1/B3-AD230: junction box with integrated power supply unit 230/24 V for connection of a 2nd motor-driven 24 V fire damper to the MB-BAC-WA1/2 LON

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/B3: for the control of 1 – 2 fire dampers
- WA1/B3-AD: junction box for the 2nd fire damper with 24 V DC supply voltage to the LON-WA1/B3
- WA1/B3-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-A1/B3

TNC-EASYCONTROL

- TNC-LINKBOX is a wiring aid for connecting a fire damper and the configurable parallel circuit for the TNC-EASYCONTROL decentralised operating and monitoring system.

Attachment	Order code
Spring return actuator 24 V and AS-EM	ZA07
Spring return actuator 24 V and MB-BAC-WA1/2	ZB01
Spring return actuator 24 V and LON-WA1/B3	ZL09
Spring return actuator 24 V and WA1/B3-AD	ZL10
Spring return actuator 24 V and WA1/B3-AD230	ZL11
Spring return actuator 24 V and TNC-Linkbox	ZA14

FKR-EU with Belimo spring return actuator and
TROXNETCOM

Spigot construction



Attachment – Explosion-proof spring return actuator and TROXNETCOM

FKR-EU with explosion-proof spring return actuator and TROXNETCOM

Application

- The fire dampers with spring return actuator ExMax/RedMax-15-BF-TR and module AS-EM/C form a functional unit ready for automatic operation.
- The combination explosion-protected spring return actuator with TROXNETCOM enables brand-neutral and cross-sector integration of various components (modules) in one network
- The modules control actuators and/or receive signals from sensors
- The module is to be installed and wired outside of the potentially explosive atmosphere by others

AS-i

- AS interface is a global standard bus system according to EN 50295 and IEC 62026-2.
- The module transmits the control signals between the spring return actuator and the controller and power unit
- The control of the actuator and monitoring of run time for functional tests is thus possible
- Function display: operation, 4 inputs, 2 outputs

Attachment	Order code
ExMax-15-BF TR and AS-EM/C	ZEX2
RedMax-15-BF TR and AS-EM/C	ZEX4

Attachment – Duct smoke detectors

Application

- 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

Duct smoke detector RM-O-3-D



Duct smoke detector RM-O-VS-D



- | | |
|--|---|
| <ul style="list-style-type: none"> ▪ 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 | <ul style="list-style-type: none"> ▪ 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 |
|--|---|

Attachment	Order code
Duct smoke detector	RM-O-3-D
Duct smoke detector	RM-O-VS-D

Duct smoke detectors are attachments and to be ordered separately.
 The duct smoke detector can only be mounted onto an even surface, e.g. a rectangular duct

Nomenclature

NS [mm]

Nominal size of fire damper

L [mm]

Length of the fire damper

q_v [m³/h]; [l/s]

Volume flow rate

L_{WA} [dB(A)]

A-weighted sound power level of air-regenerated noise for the fire damper

A [m²]

Free area

ζ

Resistance coefficient (fully ducted)

B [mm]

Width of the fire damper

H [mm]

Height of the fire damper

v [m/s]

Airflow velocity based on the upstream cross section (B × H or diameter)

Δp_{st} [Pa]

Static differential pressure