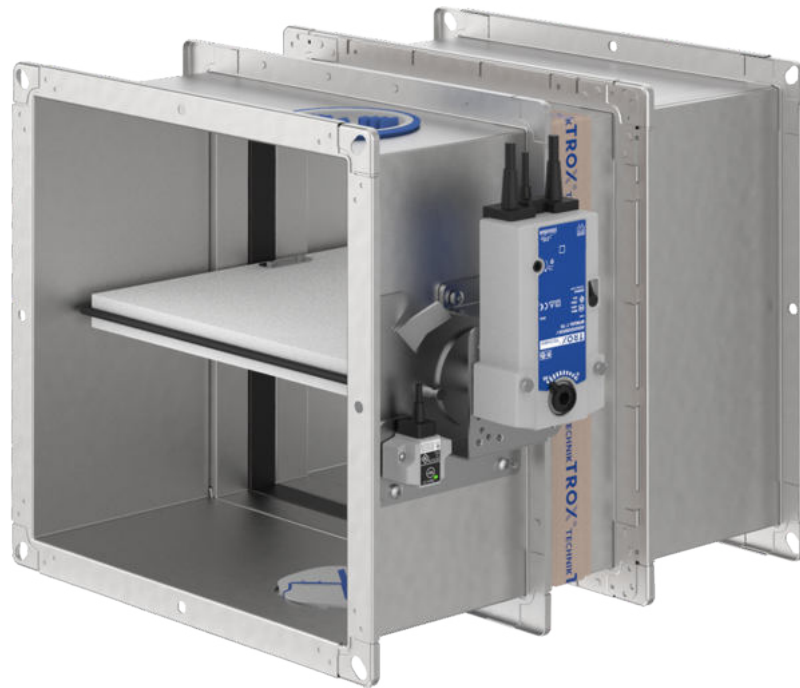




FK2-EU with fusible link for 72 °C or 95 °C

# Fire dampers

## FK2-EU



CE compliant according to European regulations



With TROXNETCOM as an option

### For diverse applications

- Nominal sizes 200 × 100 – 1500 × 800 mm, can be ordered in increments of 1 mm
- Low differential pressure and sound power level
- Explosion-proof construction (ATEX) as an option
- Optionally available as an upstream shutter of an air transfer unit
- Can also be used as an air transfer damper
- 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
- Universal installation options

Optional equipment and accessories

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

Useful additions

- Duct smoke detectors



ATEX certification



Tested to VDI 6022

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## 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 240 ( $v_e, h_o, i \leftrightarrow o$ ) S
- Complies with the requirements of EN 15650
- Tested for fire resistance properties in accordance with EN 1366-2 (300 Pa and 500 Pa negative pressure)
- Certified mortar-based installation with reduced distances of 40 mm to supporting components or 60 mm between two fire dampers (flange to flange)
- Perimeter gap may be up to 225 mm for mortar-based installation
- 2 inspection accesses with bayonet fixing for single-handed operation
- Meets the hygiene requirements of VDI 6022-1, VDI 3803-1, DIN 1946-4, EN 13779, of Ö-Norm H 6020 and H 6021, and of SWKI
- 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 ( $B + H \leq 700$ , class B)
- 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

Performance class up to EN 13501-3, up to EI 240 ( $v_e, h_o, i \leftrightarrow o$ ) S

### Nominal sizes

- B × H: 200 × 100 – 1500 × 800 mm (Intermediate sizes can be ordered in 1 mm increments)
- L: 305 mm or 500 mm

### 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 spring return actuator and duct smoke detector
- With cover grille on both sides as an upstream shutter of an air transfer unit
- With spring return actuator, duct smoke detector and cover grilles at both ends for use as an air transfer damper according to general building inspectorate licence Z-6.50-2540

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
- 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
- Spring return actuator and wired duct smoke detector with 230 VAC, 50/60 Hz or 24 VDC supply voltage
- All attachments can be retrofitted

### Accessories

- Installation kit ES for dry mortarless installation in lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structures or steel support structures, and cladding on both sides
- Installation kit ES for dry mortarless installation in timber stud walls/half-timbered construction as well as solid wood and cross laminated timber walls
- Installation kit ES for dry mortarless installation in shaft walls with metal support structure or steel support structure as well as shaft walls without metal support structure
- Installation kit ES for dry mortarless installation in wooden beam ceilings and solid wood ceilings
- Installation kit E3 for dry mortarless installation in solid walls in an existing installation subframe E1/E2 of the FK-K90 or FK-EU
- Installation kit EW for dry mortarless installation in solid walls with installation subframe
- Installation kit GM for installation into solid non-load-bearing walls with flexible ceiling joint
- Installation kit WA for dry mortarless installation on the face of solid walls and ceiling slabs
- Installation kit WE for dry mortarless installation remote from solid walls, remote from solid ceiling slabs, and remote from lightweight partition walls with metal support structure and cladding on both sides
- Installation kit GL for dry mortarless installation in lightweight partition walls with metal support, cladding on both sides and flexible ceiling joint
- Cover grille
- Flexible connectors
- Circular spigots
- Profile connecting frame

### Useful additions

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

### Construction features

- Rectangular or square construction, rigid casing, both flanges with fixing holes
- Suitable for the connection of ducts, cover grilles, spigots, flexible connectors or profile connecting frames
- The release mechanism is accessible and can be tested from the outside
- 2 inspection access panels, Ø110 mm, which can be opened without any tools
- Remote control with spring return actuator

### Materials and surfaces

TROX 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 shafts and drive linkage made of galvanised steel, in constructions -1 and -2 made of stainless steel
- Plastic bearings
- EPDM and TPE seals

The construction variants with stainless steel or powder-coated casing meet even more critical requirements for 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 situations, 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: 200 × 100 to 1500 × 800 mm
- Casing lengths: 305 and 500 mm
- Volume flow rate range: up to 14400 l/s / up to 51840 m<sup>3</sup>/h
- Differential pressure: 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 installation in Germany:**

- Do not use it in extract air systems in commercial kitchens
- Use as air transfer damper only according to general type approval Z-6.50-2540
- Do not use in combined penetration seal
- 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 building materials that form no dripping droplets (elastomer foams) have to be at least of fire rating class C - s2, d0 according to the German M-VV TB (since 2019/01) guideline. The applicable national building regulations must be adhered to.

## Function

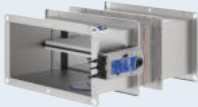

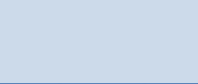

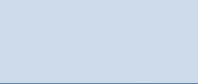
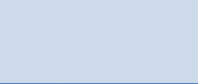

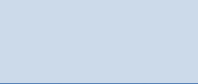
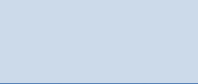

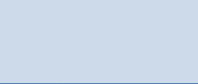
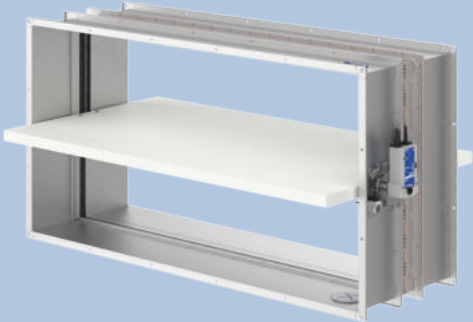

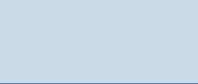
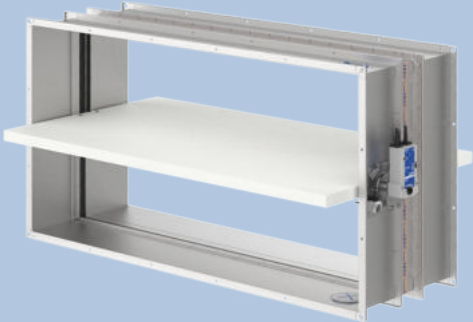
In the event of a fire, fire dampers shut automatically to prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments. In the event of a fire, the damper is triggered at 72 °C or at 95 °C (use in warm air ventilation

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.

### Functional description

### Nominal sizes

H [mm]	B [mm]														1							
	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500								
100																						[A]
150																						
200																						
250																						
300																						
350																						
400																						
450																						
500																						
550																						[B]
600																						
650																						
700																						
750																						
800																						

<sup>1)</sup> Arrangement of the spring return actuator:

[A] = horizontally arranged

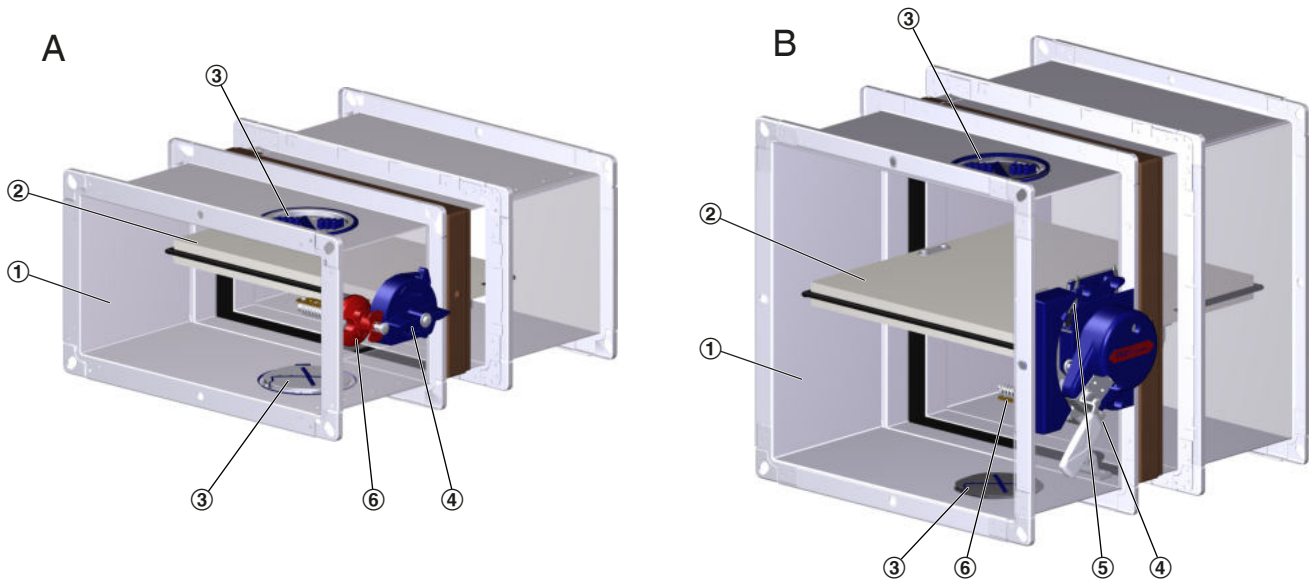
[B] = vertically arranged

### Sizes

1	
2	
3	

Damper blade (30 mm thick) with lip seal for sizes 1 and 2, damper blade (40 mm thick) with travel stop seal for size 3.

Construction with fusible link



A Size 1

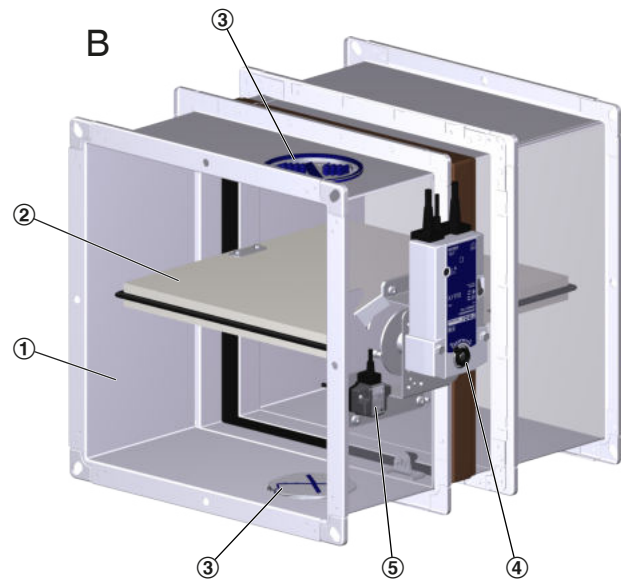
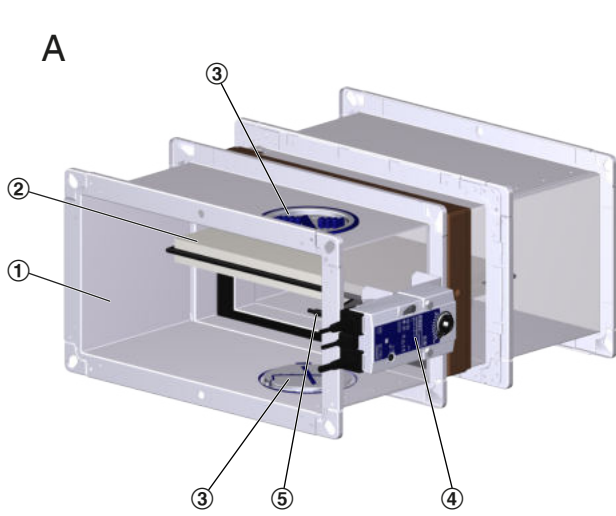
B Sizes 2 and 3

- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ Handle
- ⑤ Lock
- ⑥ Thermal release mechanism with fusible link

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**



A Size 1

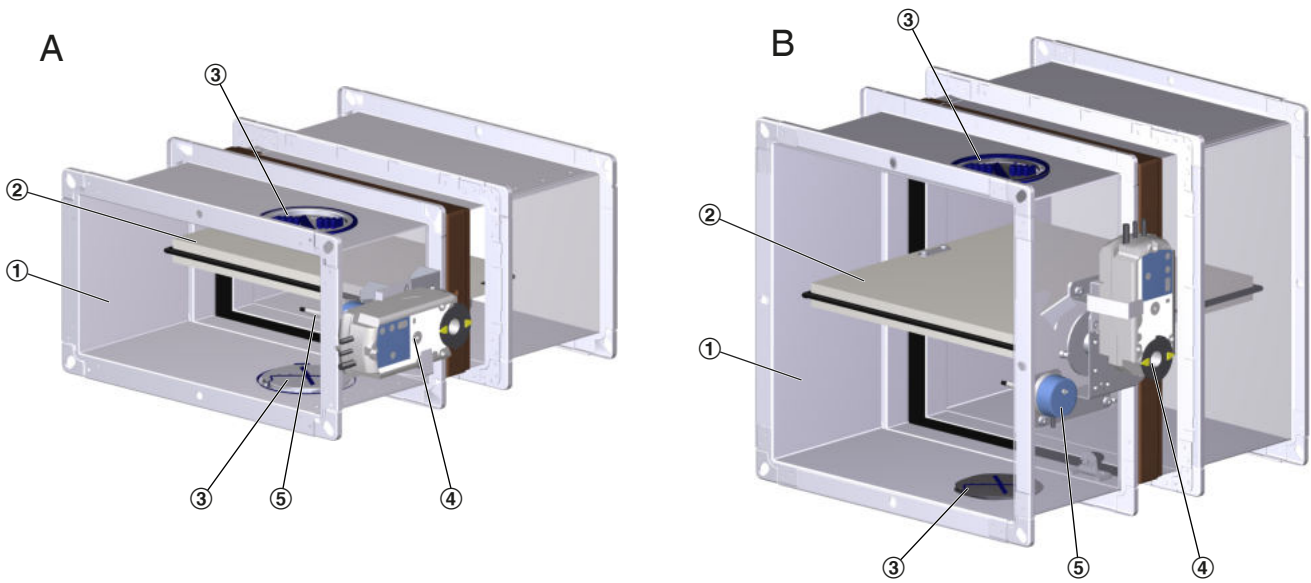
B Sizes 2 and 3

- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ Spring return actuator
- ⑤ Thermoelectric release mechanism with temperature sensor

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



A Size 1

B Sizes 2 and 3

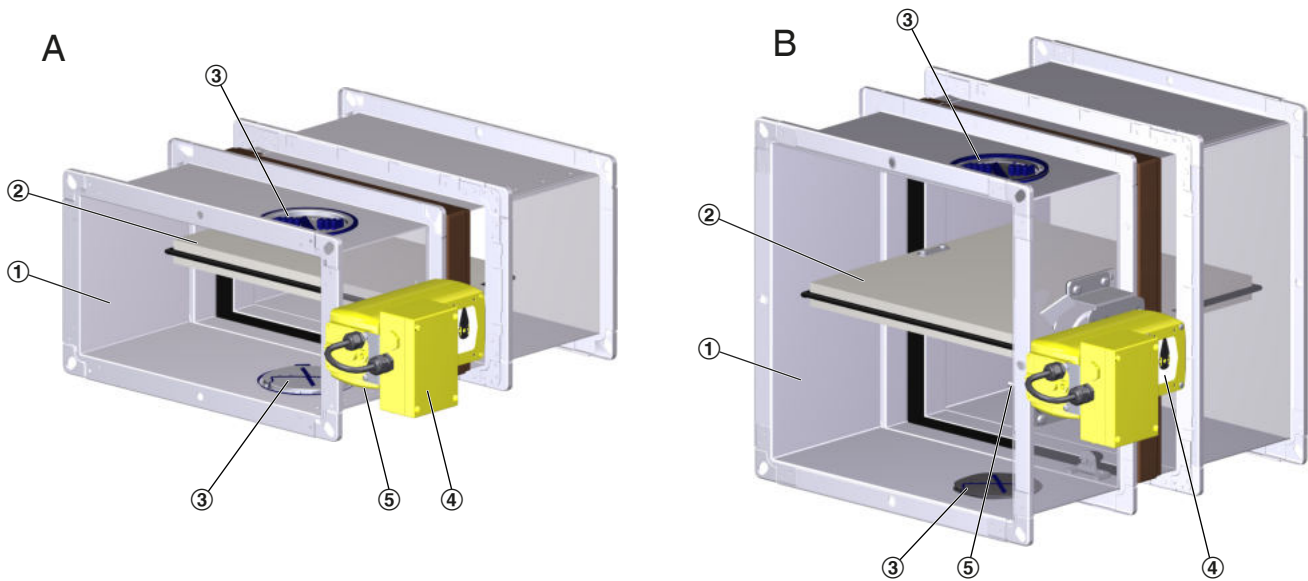
- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ Spring return actuator
- ⑤ Thermoelectric release mechanism with temperature sensor

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**



A Size 1

B Sizes 2 and 3

- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ ExMax or RedMax spring return actuator with ExBox terminal box
- ⑤ Thermoelectric release mechanism ExPro TT with temperature sensor

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 the technical data in the supplementary operating manual 'Explosion-proof fire dampers Type FK2-EU'.

Use in areas with potentially explosive atmospheres (ATEX)  
According to declaration of conformity EPS 20 ATEX 2 058 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

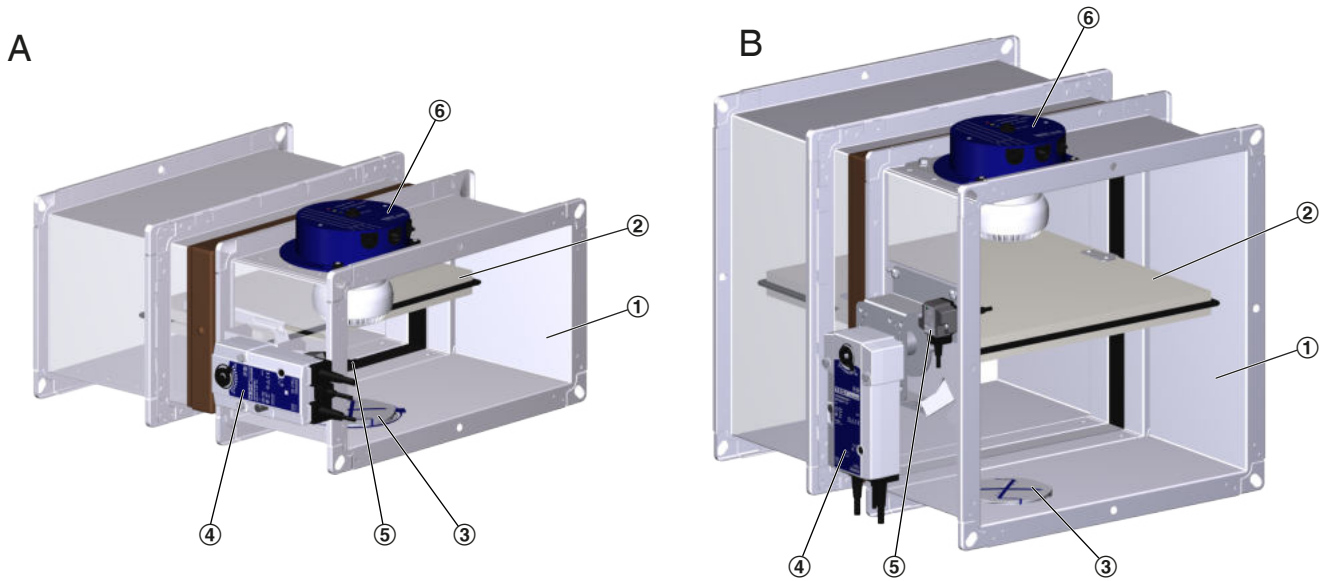
Zones 21, 22: Dusts

RedMax:

Zone 2: Gases, mists and vapours

Zone 22: Dusts

Construction with spring return actuator and duct smoke detector



A Size 1

B Sizes 2 and 3

- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ Spring return actuator
- ⑤ Thermoelectric release mechanism with temperature sensor
- ⑥ Duct smoke detector RM-O-3-D

The spring return actuator enables the motorised closing of the damper blade. In the event of a fire, the damper is triggered thermoelectrically at 72 °C.

Using the damper together with a suitable duct smoke detector, e.g. RM-O-3-D, prevents smoke from being transferred via ductwork into adjacent fire compartments even before it reaches a temperature that would trigger the thermoelectric release mechanism.

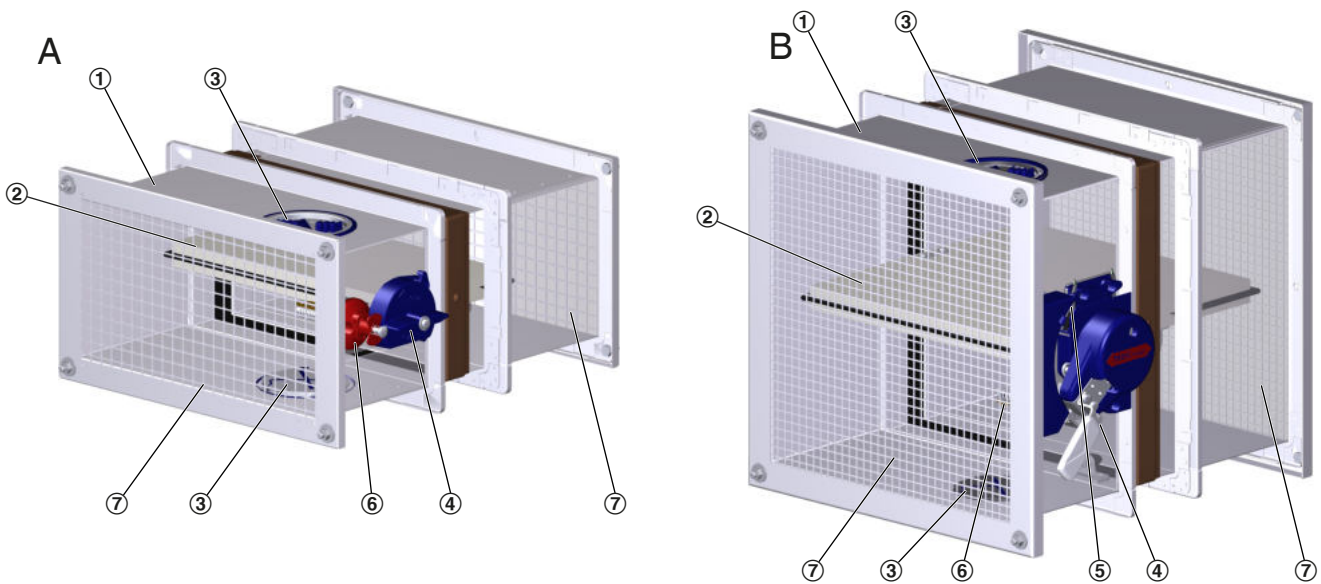
As long as power is supplied to the actuator and as long as no

smoke is detected, the fire damper remains open. If the supply voltage fails, if smoke is detected or if the release temperature is exceeded, the fire 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.

The control input signal can also come from the central BMS.

**Construction with fusible link and cover grille used as an air transfer unit**



A Size 1

B Sizes 2 and 3

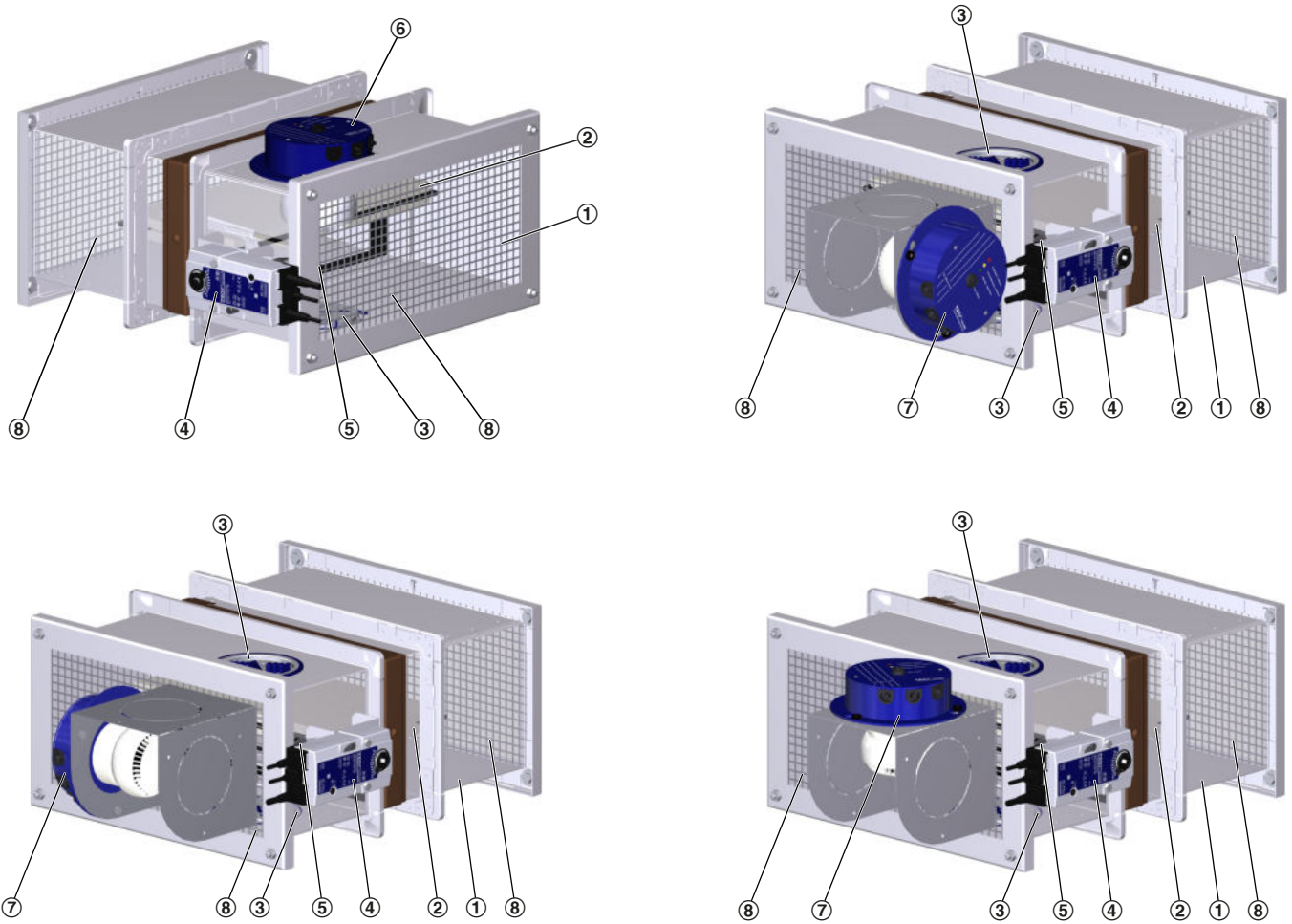
- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ Handle
- ⑤ Lock
- ⑥ Thermal release mechanism with fusible link

Air transfer units prevent fire and smoke from spreading in buildings. The thermal release mechanism closes the air transfer unit when the release temperature (72 °C) is reached. Smoke can, however, spread below this temperature. The air transfer unit consists of the FK2-EU fire damper with thermal release

mechanism (72 °C) and cover grilles on both sides; it does not include a duct smoke detector.

For installation in Germany please note: If a fire damper with only a mechanical shut-off element is to be used as an air transfer unit, the local building regulations apply. Such air transfer units are usually only used for pressure differential systems.

**Construction as air transfer damper, with spring return actuator and duct smoke detector**  
**Size 1**



- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ Spring return actuator
- ⑤ Thermoelectric release mechanism with temperature sensor
- ⑥ Duct smoke detector RM-O-3-D (fixed with adapter metal sheet)
- ⑦ Duct smoke detector RM-O-3-D (fixed with bracket)
- ⑧ Cover grille

Air transfer dampers are designed to shut off openings for air transfer in fire-resistant internal walls and ceiling slabs. To prevent smoke from spreading in buildings, it is extremely important that the smoke is detected at an early stage. Duct smoke detector Type RM-O-3-D is required to control and trigger the air transfer damper. The duct smoke detector operates on the principle of light scattering and detects smoke regardless of its temperature so that air transfer dampers can be closed before the release temperature is reached. The thermoelectric release mechanism of the spring return actuator also triggers the closure of the damper blade. When the release temperature (72 °C) is reached, the temperature sensor in the airflow interrupts the supply voltage to the spring return actuator.

The variant with bracket is intended for installation just below the ceiling. In this case the duct smoke detector is to be fitted at the top right, left or centrally in front of the cover grille. It can be mounted on the drive side or on the non-drive side.

The spring return in the actuator causes the air transfer damper to close (power off to close). A second temperature sensor monitors the ambient temperature. If the supply voltage fails, the damper closes. The air transfer dampers consist of an FK2-EU fire damper, an RM-O-3-D duct smoke detector with general building inspectorate licence Z-78.6-125, a spring return actuator (24 V AC/DC or 230 V AC) with two integral limit switches, and cover grilles on both ends.

### Technical data

Nominal sizes	200 × 100 – 1500 × 800 mm <sup>4</sup>
Casing lengths	305 and 500 mm
Volume flow rate range	Up to 14400 l/s or 51840 m <sup>3</sup> /h
Differential pressure range	Up to 2000 Pa
Temperature range <sup>1,3</sup>	-20 to 50 °C
Release temperature	72 °C or 95 °C (for warm air ventilation systems)
Upstream velocity <sup>2</sup>	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

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

<sup>2</sup> Data applies to uniform upstream and downstream conditions for the fire damper.

<sup>3</sup> Condensation and the intake of humid outdoor air have to be avoided as otherwise operation will be impaired or not possible.

<sup>4</sup> Damper blade with lip seal for sizes 1 and 2, damper blade with travel stop seal for size 3.

For sizes see the functional description.

#### Free area and resistance coefficient, width 200 – 800 mm

H	(1)	B												
		200	250	300	350	400	450	500	550	600	650	700	750	800
100	A [m <sup>2</sup> ]	0.013	0.016	0.02	0.023	0.027	0.03	0.034	0.037	0.041	0.044	0.048	0.051	0.055
100	ζ	1.05	0.96	0.88	0.83	0.78	0.75	0.71	0.69	0.66	0.64	0.62	0.61	0.59
125	A [m <sup>2</sup> ]	0.0175	0.0222	0.027	0.0317	0.0365	0.0412	0.046	0.0507	0.0555	0.0602	0.065	0.0697	0.0745
125	ζ	0.93	0.85	0.78	0.73	0.69	0.66	0.63	0.61	0.59	0.57	0.55	0.54	0.52
150	A [m <sup>2</sup> ]	0.0221	0.0281	0.0341	0.0401	0.0461	0.0521	0.0581	0.0641	0.0701	0.0761	0.0821	0.0881	0.0941
150	ζ	0.85	0.77	0.71	0.67	0.63	0.6	0.58	0.55	0.54	0.52	0.5	0.49	0.48
160	A [m <sup>2</sup> ]	0.024	0.03	0.037	0.043	0.05	0.056	0.063	0.069	0.076	0.082	0.089	0.095	0.102
160	ζ	0.66	0.6	0.55	0.52	0.49	0.47	0.45	0.43	0.41	0.4	0.39	0.38	0.37
200	A [m <sup>2</sup> ]	0.031	0.04	0.048	0.057	0.065	0.074	0.082	0.091	0.099	0.108	0.116	0.125	0.133
200	ζ	0.74	0.67	0.62	0.58	0.55	0.52	0.5	0.48	0.47	0.45	0.44	0.43	0.41
250	A [m <sup>2</sup> ]	0.0397	0.0507	0.0617	0.0727	0.0837	0.0947	0.1057	0.1167	0.1277	0.1387	0.1497	0.1607	0.1717
250	ζ	0.67	0.61	0.56	0.53	0.5	0.47	0.45	0.44	0.42	0.41	0.4	0.38	0.37
300	A [m <sup>2</sup> ]	0.0489	0.0624	0.0759	0.0894	0.1029	0.1164	0.1299	0.1434	0.1569	0.1704	0.1839	0.1974	0.2109
300	ζ	0.62	0.56	0.52	0.49	0.46	0.44	0.42	0.4	0.39	0.38	0.36	0.35	0.34
350	A [m <sup>2</sup> ]	0.0581	0.0741	0.0901	0.1061	0.1221	0.1381	0.1541	0.1701	0.1861	0.2021	0.2181	0.2341	0.2501
350	ζ	0.58	0.52	0.48	0.45	0.43	0.41	0.39	0.38	0.36	0.35	0.34	0.33	0.32
400	A [m <sup>2</sup> ]	0.0673	0.0858	0.1043	0.1228	0.1413	0.1598	0.1783	0.1968	0.2153	0.2338	0.2523	0.2708	0.2893
400	ζ	0.54	0.49	0.46	0.43	0.4	0.39	0.37	0.35	0.34	0.33	0.32	0.31	0.3
450	A [m <sup>2</sup> ]	0.0765	0.0975	0.1185	0.1395	0.1605	0.1815	0.2025	0.2235	0.2445	0.2355	0.2548	0.2741	0.2934
450	ζ	0.57	0.51	0.47	0.43	0.41	0.39	0.37	0.35	0.34	0.33	0.32	0.31	0.3
500	A [m <sup>2</sup> ]	0.0857	0.1092	0.1327	0.1562	0.1797	0.2032	0.2267	0.2502	0.2737	0.266	0.2878	0.3096	0.3314
500	ζ	0.54	0.48	0.44	0.41	0.39	0.37	0.35	0.34	0.33	0.31	0.3	0.3	0.29
550	A [m <sup>2</sup> ]			0.1264	0.1507	0.175	0.1993	0.2236	0.2479	0.2722	0.2965	0.3208	0.3451	0.3694
550	ζ			0.42	0.4	0.37	0.35	0.34	0.32	0.31	0.3	0.29	0.28	0.28
600	A [m <sup>2</sup> ]			0.1394	0.1662	0.193	0.2198	0.2466	0.2734	0.3002	0.327	0.3538	0.3806	0.4074
600	ζ			0.41	0.38	0.36	0.34	0.32	0.31	0.3	0.29	0.28	0.27	0.27
650	A [m <sup>2</sup> ]			0.1524	0.1817	0.211	0.2403	0.2696	0.2989	0.3282	0.3575	0.3868	0.4161	0.4454
650	ζ			0.39	0.37	0.35	0.33	0.31	0.3	0.29	0.28	0.27	0.26	0.26
700	A [m <sup>2</sup> ]			0.1654	0.1972	0.229	0.2608	0.2926	0.3244	0.3562	0.388	0.4198	0.4516	0.4834
700	ζ			0.38	0.35	0.33	0.32	0.3	0.29	0.28	0.27	0.26	0.25	0.25
750	A [m <sup>2</sup> ]			0.1784	0.2127	0.247	0.2813	0.3156	0.3499	0.3842	0.4185	0.4528	0.4871	0.5214
750	ζ			0.37	0.34	0.32	0.31	0.29	0.28	0.27	0.26	0.25	0.25	0.24
800	A [m <sup>2</sup> ]			0.1914	0.2282	0.265	0.3018	0.3386	0.3754	0.4122	0.449	0.4858	0.5226	0.5594
800	ζ			0.36	0.33	0.32	0.3	0.29	0.27	0.26	0.26	0.25	0.24	0.23

(1) Parameters

## Free area and resistance coefficient, width 850 – 1500 mm

H	Parameter	B						
		900	1000	1100	1200	1300	1400	1500
200	A [m <sup>2</sup> ]	0.117	0.1665	0.1442	0.1578	0.1714	0.185	0.1986
200	ζ	0.44	0.42	0.40	0.39	0.38	0.36	0.35
250	A [m <sup>2</sup> ]	0.16	0.2157	0.1972	0.2158	0.2344	0.253	0.2716
250	ζ	0.39	0.37	0.35	0.34	0.33	0.32	0.31
300	A [m <sup>2</sup> ]	0.203	0.2649	0.2502	0.2738	0.2974	0.321	0.3446
300	ζ	0.35	0.34	0.32	0.31	0.30	0.29	0.28
350	A [m <sup>2</sup> ]	0.246	0.2746	0.3032	0.3318	0.3604	0.389	0.4176
350	ζ	0.32	0.31	0.30	0.29	0.28	0.27	0.26
400	A [m <sup>2</sup> ]	0.289	0.3226	0.3562	0.3898	0.4234	0.457	0.4906
400	ζ	0.30	0.29	0.28	0.27	0.26	0.25	0.25
450	A [m <sup>2</sup> ]	0.332	0.3706	0.4092	0.4478	0.4864	0.525	0.5636
450	ζ	0.29	0.28	0.26	0.26	0.25	0.24	0.23
500	A [m <sup>2</sup> ]	0.375	0.4186	0.4622	0.5058	0.5494	0.593	0.6366
500	ζ	0.27	0.26	0.25	0.24	0.24	0.23	0.22
550	A [m <sup>2</sup> ]	0.418	0.4666	0.5152	0.5638	0.6124	0.661	0.7096
550	ζ	0.26	0.25	0.24	0.23	0.23	0.22	0.21
600	A [m <sup>2</sup> ]	0.461	0.5146	0.5682	0.6218	0.6754	0.729	0.7826
600	ζ	0.25	0.24	0.23	0.22	0.22	0.21	0.20
650	A [m <sup>2</sup> ]	0.504	0.5626	0.6212	0.6798	0.7384	0.797	0.8556
650	ζ	0.24	0.23	0.22	0.22	0.21	0.20	0.20
700	A [m <sup>2</sup> ]	0.547	0.6106	0.6742	0.7378	0.8014	0.865	0.9286
700	ζ	0.24	0.23	0.22	0.21	0.20	0.20	0.19
750	A [m <sup>2</sup> ]	0.59	0.6586	0.7272	0.7958	0.8644	0.933	1.0016
750	ζ	0.23	0.22	0.21	0.20	0.20	0.19	0.19
800	A [m <sup>2</sup> ]	0.633	0.7066	0.7802	0.8538	0.9274	1.01	1.0746
800	ζ	0.22	0.21	0.20	0.20	0.19	0.19	0.18

## 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. You can find this on our website at:

[www.trox.de/mytrox/auslegungsprogramm-easy-product-finder-182e16348fac3d33](http://www.trox.de/mytrox/auslegungsprogramm-easy-product-finder-182e16348fac3d33)

## Volume flow rate $q_v$ in [m<sup>3</sup>/h] for differential pressure $\Delta p_{st}$ 35 Pa 200 – 650 mm

H	L <sub>WA</sub> [dB(A)]	B									
		200	250	300	350	400	450	500	550	600	650
100	35	390	484	577	668	759	849	938	1027	1116	1205
125	35	507	627	745	862	978	1093	1208	1322	1435	1548
150	35	619	764	907	1048	1188	1326	1464	1601	1737	1873
160	35	728	897	1063	1227	1390	1550	1710	1869	2027	2185
200	35	835	1028	1216	1402	1586	1769	1950	2130	2309	2487
250	35	1026	1264	1496	1725	1951	2174	2396	2616	2835	3053
300	35	1232	1512	1786	2056	2321	2584	2844	3103	3360	3615
350	35	1434	1757	2071	2379	2683	2984	3281	3577	3870	4161
400	35	1634	1997	2351	2698	3039	3377	3710	4041	4369	4696
450	35	1474	1856	2225	2585	2938	3286	3629	3969	4305	4640
500	35	1647	2071	2480	2878	3269	3652	4031	4406	4778	5146

H	L <sub>WA</sub> [dB(A)]	B									
		200	250	300	350	400	450	500	550	600	650
550	35			2733	3169	3595	4015	4429	4838	5243	5645
600	35			2983	3456	3919	4374	4823	5266	5704	6139
650	35			3232	3742	4241	4730	5213	5689	6160	6627
700	35			3479	4026	4560	5084	5600	6109	6613	7112
750	35			3725	4308	4877	5435	5984	6526	7062	7592
800	35			3970	4589	5193	5784	6367	6941	7508	8070

**Volume flow rate q<sub>v</sub> in [m<sup>3</sup>/h] for differential pressure Δp<sub>st</sub> 35 Pa  
700 – 1500 mm**

H	L <sub>WA</sub> [dB(A)]	B									
		700	750	800	900	1000	1100	1200	1300	1400	1500
100	35	1293	1380	1468							
125	35	1660	1772	1883							
150	35	2008	2142	2276							
160	35	2341	2497	2653							
200	35	2664	2841	3017	2633	2915	3196	3476	3754	4031	4308
250	35	3270	3486	3701	3422	3785	4147	4506	4864	5221	5576
300	35	3869	4122	4374	4172	4611	5048	5482	5915	6345	6774
350	35	4451	4739	5027	4895	5406	5914	6419	6922	7423	7922
400	35	5020	5343	5664	5597	6177	6753	7327	7897	8465	9031
450	35	4972	5302	5630	6282	6929	7572	8211	8847	9480	10110
500	35	5512	5875	6237	6955	7667	8374	9077	9776	10471	11164
550	35	6044	6440	6834	7616	8392	9162	9926	10687	11444	12198
600	35	6570	6998	7424	8269	9107	9938	10763	11584	12401	13214
650	35	7091	7551	8008	8914	9813	10704	11589	12469	13344	14216
700	35	7606	8098	8585	9553	10511	11461	12405	13343	14276	15204
750	35	8118	8640	9158	10186	11203	12211	13213	14208	15197	16181
800	35	8626	9178	9727	10813	11889	12955	14013	15064	16109	17149

**Volume flow rate q<sub>v</sub> in [m<sup>3</sup>/h] for differential pressure Δp<sub>st</sub> 35 Pa  
200 – 650 mm**

H	L <sub>WA</sub> [dB(A)]	B									
		200	250	300	350	400	450	500	550	600	650
100	45	525	690	841	975	1107	1239	1369	1499	1629	1758
125	45	710	870	1088	1258	1427	1595	1762	1928	2094	2258
150	45	880	1115	1323	1529	1733	1935	2136	2336	2534	2732
160	45	1063	1309	1552	1791	2028	2262	2496	2727	2958	3188
200	45	1219	1499	1775	2046	2314	2580	2845	3107	3368	3628
250	45	1498	1844	2183	2517	2846	3173	3496	3818	4137	4455
300	45	1797	2207	2607	2999	3387	3770	4150	4527	4902	5274
350	45	2092	2563	3022	3472	3915	4354	4788	5218	5646	6071
400	45	2384	2915	3431	3937	4435	4927	5413	5896	6375	6851
450	45	2151	2709	3247	3772	4287	4794	5295	5790	6282	6769
500	45	2404	3022	3619	4200	4769	5329	5882	6429	6971	7508
550	45			3987	4623	5246	5858	6462	7059	7650	8237
600	45			4353	5043	5718	6382	7036	7683	8322	8957
650	45			4715	5460	6187	6902	7605	8300	8988	9669



H	L <sub>WA</sub> [dB(A)]	B									
		200	250	300	350	400	450	500	550	600	650
700	45			5076	5874	6653	7418	8170	8913	9648	10376
750	45			5435	6286	7116	7930	8731	9522	10303	11077
800	45			5792	6695	7576	8440	9289	10127	10954	11774

**Volume flow rate  $q_v$  in [m<sup>3</sup>/h] for differential pressure  $\Delta p_{st}$  35 Pa  
700 – 1500 mm**

H	L <sub>WA</sub> [dB(A)]	B									
		700	750	800	900	1000	1100	1200	1300	1400	1500
100	45	1886	2014	2142							
125	45	2422	2585	2748							
150	45	2929	3126	3322							
160	45	3416	3644	3871							
200	45	3887	4145	4402	3842	4254	4663	5071	5477	5882	6285
250	45	4771	5086	5400	4993	5523	6050	6575	7097	7617	8136
300	45	5645	6014	6382	6088	6728	7365	7999	8630	9258	9884
350	45	6494	6915	7334	7142	7888	8629	9366	10100	10830	11558
400	45	7324	7795	8264	8166	9012	9853	10690	11522	12351	13177
450	45	7254	7735	8214	9166	10110	11048	11980	12908	13831	14751
500	45	8042	8572	9100	10147	11186	12217	13243	14263	15278	16289
550	45	8818	9397	9971	11113	12244	13367	14483	15593	16697	17797
600	45	9586	10211	10832	12065	13287	14499	15704	16902	18093	19280
650	45	10345	11016	11683	13006	14317	15617	16908	18192	19470	20741
700	45	11098	11814	12526	13938	15336	16722	18099	19467	20828	22183
750	45	11844	12606	13362	14861	16345	17816	19277	20729	22172	23609
800	45	12586	13391	14191	15777	17346	18901	20444	21978	23503	25020

**Sizing example**

**Given data**

Volume flow rate: 3350 m<sup>3</sup>/h

Maximum width: 300 mm

Sound power level: 45 dB(A)

**Quick sizing**

FK2-EU/400×300×500



## 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 that meets the requirements of the European product standard EN 15650, square or rectangular, with two large inspection accesses that can be opened without tools.

Tested for fire resistance properties to EN 1366-2 (negative pressure of 300 Pa and 500 Pa), with CE marking.

The fire damper manufacturer's declaration of performance (DoP) provides proof that a product is suitable for the respective installation conditions, e.g. in, on the face of and remote from walls or ceilings, with the stated essential characteristics such as size, supporting construction, construction and installation type, and that it has the corresponding class of performance to EN 13501-3.

The ready-for-operation unit includes a release mechanism and a replaceable, fire-resistant damper blade, which, depending on the application, can be either horizontal or vertical. Classification (depending on application):

EI 30 ( $v_e, h_o, i \leftrightarrow o$ ) S to EI 240 ( $v_e, h_o, i \leftrightarrow o$ ) 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 solid walls with partial mortaring
- With installation kit for flexible ceiling joints in solid walls
- 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 ceilings, wooden beam ceilings and historical wooden beam ceilings
- Multiple occupancy up to 4.8 m<sup>2</sup> total fire damper surface area in solid walls and ceiling slabs, lightweight partition walls as well as timber stud walls and half-timbered constructions
- Combined installation with FKRS-EU and FKR-EU in solid walls and ceiling slabs, lightweight partition walls, shaft walls as well as timber stud walls and half-timbered constructions up to 1.2 m<sup>2</sup> total fire damper surface area
- In lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structures or steel support structures
- 4-fold arrangement up to 4.8 m<sup>2</sup> total fire damper surface area with common duct in solid walls, lightweight partition walls as well as timber stud walls and half-timbered constructions
- Mortar-based installation in concrete base on solid ceiling slabs, also combined with FKRS-EU and FKR-EU as well as multiple occupancy up to 4.8 m<sup>2</sup> total fire damper surface area
- In hollow-stone, hollow-section, ribbed and composite ceiling slabs

**Dry mortarless installation**

- In lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structures or steel support structures
- In lightweight partition walls with metal support structure and cladding on both sides, and with flexible ceiling joint
- In timber stud walls and timber frame walls, as well as solid wood and cross laminated timber walls
- In solid walls with installation kit E3 in an existing installation subframe E1/E2 of the FK-K90 or FK-EU
- In solid walls with installation kit EW and installation subframe
- With gypsum board/gypsum plaster fire protection panels in lightweight partition walls with metal support
- With mineral wool in lightweight partition wall with metal support, timber stud walls and half-timbered constructions as well as solid wood walls
- In shaft walls with metal support structure or steel support structure, and in shaft walls without metal support structure
- In solid wood and wooden beam ceilings
- With an installation kit on the face of and remote from solid walls and ceiling slabs
- Remote from lightweight partition walls (wall penetration)

**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
- Multiple occupancy up to 2.4 m<sup>2</sup> total fire damper surface area in solid walls and ceiling slabs, lightweight partition walls as well as timber stud walls and half-timbered constructions

Size dimensions from (B × H) 200 mm × 100 mm – 1500 mm × 800 mm, intermediate sizes can be ordered in 1 mm increments. 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; coating as an option.

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 length 305 mm or 500 mm with a 30 mm (L = 500 mm) flange for the connection to ducts made of non-combustible or combustible materials. Thermal release at 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 to EN 13501-3, to EI 240 (ve, ho, i ↔ o) S
- Complies with the requirements of EN 15650
- Tested for fire resistance properties in accordance with EN 1366-2 (300 Pa and 500 Pa negative pressure)
- Certified mortar-based installation with reduced distances of 40 mm to supporting components or 60 mm between two fire dampers (flange to flange)
- Perimeter gap may be up to 225 mm for mortar-based installation
- 2 inspection accesses with bayonet fixing for single-handed operation
- Meets the hygiene requirements of VDI 6022-1, VDI 3803-1, DIN 1946-4, EN 13779, of Ö-Norm H 6020 and H 6021, and of SWKI
- 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 (B + H ≤ 700, class B)
- 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

**Technical data**

- Nominal sizes: 200 × 100 to 1500 × 800 mm
- Casing lengths: 305 and 500 mm
- Volume flow rate range: up to 14400 l/s / up to 51840 m<sup>3</sup>/h
- Differential pressure: 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

**Materials and surfaces**

TROX 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 shafts and drive linkage made of galvanised steel, in constructions -1 and -2 made of stainless steel
- Plastic bearings
- EPDM and TPE seals

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

**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 240 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, DIN EN 13779 as well as the Önorm H 6020 and H 6021 and the SWKI.
- CE-marked and thus tested for fire protection according to EU regulation 305/2011 and evaluated according to machinery directive 2006/42/EC
- CE-certified mortar-based installation at a distance ≥ 60mm between 2 fire dampers (flange to flange)
- Combined installation with FKRS-EU and FKR-EU in solid walls and ceiling slabs, lightweight partition walls, shaft walls as well as timber stud walls and half-timbered constructions up to 1.2 m<sup>2</sup> total fire damper surface area
- 2 inspection access panels Ø110 mm, with bayonet fixing (can be opened without tools)
- Pressure loss < 15 Pa at reference size 400 × 200 mm and 6 m/s face velocity
- Sound power < 38 dB (A) at reference size 400 × 200 mm and 6 m/s face velocity
- Multiple occupancy up to 4.8 m<sup>2</sup> total fire damper surface area in solid walls and ceiling slabs, lightweight partition walls as well as timber stud walls and half-timbered constructions
- 4-fold arrangement up to 4.8 m<sup>2</sup> with common duct in solid walls, lightweight partition walls as well as timber stud walls and half-timbered constructions
- Multiple occupancy up to 2.4 m<sup>2</sup> total fire damper surface area in solid walls and ceiling slabs, lightweight partition walls as well as timber stud walls and half-timbered constructions

Order code

Order code FK2-EU

FK2-EU - 1 - 7 / DE / 600 × 400 × 500 / ES / A0 / Z43  
 |            |            |            |            |            |            |  
 1            2            3            4            5            6            7

**1 Type**

**FK2-EU** Fire damper

**2 Construction**

No entry: standard construction

**1** Powder-coated casing, RAL 7001 (silver grey)

**2** Stainless steel casing

**7** Impregnated damper blade

**1-7** Powder-coated casing, RAL 7001 (silver grey), and impregnated damper blade

**2-7** Stainless steel casing and impregnated damper blade

**W**<sup>3</sup> With fusible link 95 °C (only for use in warm air ventilation systems)

**B**<sup>4</sup> With coated fusible link 72 °C

**WB**<sup>4</sup> With coated fusible link 95 °C (only for use in warm air ventilation systems)

**3 Country of destination**

**DE** Germany

**CH** Switzerland

**AT** Austria

**NL** Netherlands

**GB** Great Britain

**ES** Spain

**Order example: FK2-EU-W/DE/600×200×500/ES/A0/Z43**

**Construction**

**Release temperature**

**Country of destination**

**Nominal size**

**Accessories 1**

**Accessories 2**

**Attachment**

Other destination countries upon request

**4 Nominal size [mm]**

Specify width × height × length

**5 Accessories 1**

No entry: without accessories

**ES**<sup>2</sup>

**E3**<sup>1</sup>

**EW**<sup>2</sup>

**GM**<sup>2,3</sup>

**WA**<sup>2</sup>

**WE**<sup>2</sup>

**GL100**<sup>2,3</sup>

**GL125**<sup>2,3</sup>

**GL150**<sup>2,3</sup>

**GL175**<sup>2,3</sup>

**6 Accessories 2**

No entry: without accessories

**0A – FR**

**7 Attachments**

**Z00 – ZA14**

<sup>1</sup> Only for FK2-EU with L = 305 mm

<sup>2</sup> Only for FK2-EU with L = 500 mm

<sup>3</sup> Cannot be combined with Z...RM and ZA12

<sup>4</sup> Only with attachments Z00 – Z03 and Z00EX – Z03EX

Galvanised casing

95 °C

Germany

600 × 200 × 500 mm

Installation kit ES

Cover grille on operating side

Spring return actuator 230 V AC

**Order code FK2-EU with thermal insulation as ODA construction to prevent condensation**

**FK2-EU – 1-7-ODA / DE / 600 × 400 × 500 / ... / ... / Z43**  
 |                      |                      |                      |                      |                      |                      |  
 1                      2                      3                      4                      5                      6                      7

**1 Type**

**FK2-EU** Fire damper

**2 Construction**

**1-7-ODA**<sup>1</sup> Powder-coated casing, RAL 7001 (silver grey), impregnated damper blade and insulated damper casing (32 mm Armaflex Ultima)

**3 Country of destination**

- DE** Germany
- CH** Switzerland
- AT** Austria
- NL** Netherlands
- GB** Great Britain
- ES** Spain

Other destination countries upon request

**4 Nominal size [mm]**

Specify width × height × length

**5 Accessories 1**

No entry: without accessories<sup>2</sup>

**6 Accessories 2**

No entry: without accessories<sup>3</sup>

**7 Attachments**

**Z43, Z45, Z60, Z61, ZA07, ZL09, ZL10, ZL11, ZB01, ZA14**

<sup>1</sup> ODA with release temperature 72 °C only

<sup>2</sup> ODA cannot be combined with accessories 1

<sup>3</sup> Accessories 2 cannot be factory mounted, so please order separately

**Order example: FK2-EU-1-7-ODA/600×200×500//ZA07**

**Construction variant**

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

<b>Release temperature</b>	72 °C
<b>Country of destination</b>	Germany
<b>Nominal size</b>	600 × 200 × 500 mm
<b>Accessories 1</b>	None
<b>Accessories 2</b>	None
<b>Attachment</b>	Spring return actuator 24 V and AS-EM

Order code for FK2-EU as an upstream shutter of an air transfer unit

FK2-EU – 1 – 7 / DE / 600 × 400 × 500 / ES / AA / Z01  
 |            |            |            |            |            |            |  
 1            2            3            4            5            6            7

**1 Type**

**FK2-EU** Fire damper

**2 Construction**

No entry: standard construction

**1** Powder-coated casing, RAL 7001 (silver grey)

**2** Stainless steel casing

**7** Impregnated damper blade

**1-7** Powder-coated casing, RAL 7001 (silver grey), and impregnated damper blade

**2-7** Stainless steel casing and impregnated damper blade

**3 Country of destination**

**DE** Germany

**CH** Switzerland

**AT** Austria

**NL** Netherlands

**GB** Great Britain

**ES** Spain

Other destination countries upon request

**4 Nominal size [mm]**

Specify width × height × length

**5 Accessories 1**

No entry: without accessories

**ES**<sup>2</sup>

**E3**<sup>1</sup>

**EW**<sup>2</sup>

**GM**<sup>2</sup>

**GL100**<sup>2</sup>

**GL125**<sup>2</sup>

**GL150**<sup>2</sup>

**GL175**<sup>2</sup>

**6 Accessories 2**

**AA** Cover grilles on both ends

**7 Attachments**

**Z00 – ZB01**

<sup>1</sup> Only for FK2-EU with L = 305 mm

<sup>2</sup> Only for FK2-EU with L = 500 mm

If the damper is to be used as an air transfer unit in Germany

please note:

If a fire damper with only a mechanical shut-off element is to be

used as an air transfer unit, the local building regulations apply.

Such applications may require a building inspectorate licence.

This has to be determined and applied for on a case to case

basis (by others). Such air transfer units are usually only used

for pressure differential systems.

**Order example: FK2-EU/DE/200×200×500/AA/Z03**

<b>Construction</b>	Galvanised casing
<b>Country of destination</b>	Germany
<b>Nominal size</b>	200 × 200 × 500 mm
<b>Accessories 1</b>	None
<b>Accessories 2</b>	Cover grilles on both ends
<b>Attachment</b>	Limit switches for damper blade positions OPEN and CLOSED

Order code FK2-EU as air transfer damper

**FK2-EU – 1 – 7 / DE / 600 × 400 × 500 / ES / AA / Z43RM**  
 |            |            |            |            |            |            |  
 1            2            3            4            5            6            7

**1 Type**

**FK2-EU** Air transfer damper<sup>1</sup>

**2 Construction**

No entry: standard construction

**1** Powder-coated casing, RAL 7001 (silver grey)

**2** Stainless steel casing

**7** Impregnated damper blade

**1-7** Powder-coated casing, RAL 7001 (silver grey), and impregnated damper blade

**2-7** Stainless steel casing and impregnated damper blade

**3 Country of destination**

**DE** Germany

**CH** Switzerland

**AT** Austria

**NL** Netherlands

**GB** Great Britain

**ES** Spain

Other destination countries upon request

**4 Nominal size [mm]**

Specify width × height × length

**5 Accessories 1**

No entry: without accessories

**ES**

**E3**

**EW**

**GM**<sup>2</sup>

**GL100**<sup>2</sup>

**GL125**<sup>2</sup>

**GL150**<sup>2</sup>

**GL175**<sup>2</sup>

**6 Accessories 2**

**AA** Cover grilles on both ends

**7 Attachments**

**Z43RM, Z45RM, ZA12**

<sup>1</sup> For installation in Germany please note: The use as an air transfer damper has to comply with the general type approval

<sup>2</sup> RM-O-3-D to be fixed with a bracket upstream or downstream of the damper

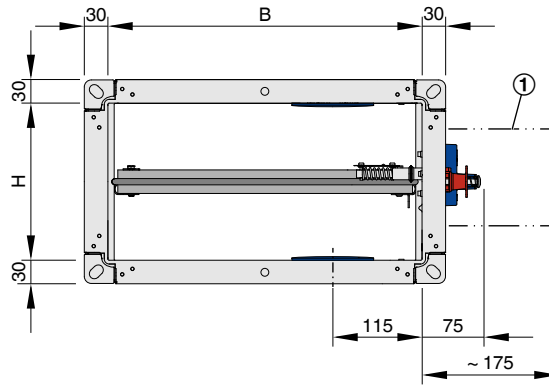
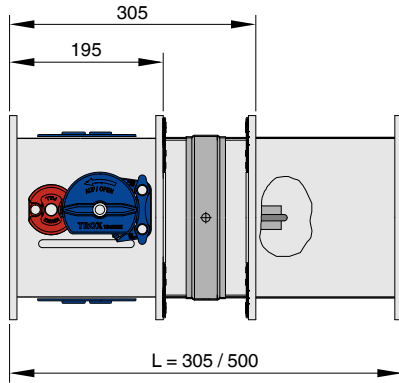
**Order example: FK2-EU-1/DE/200×200×500/AA/Z43RM**

<b>Construction variant</b>	Casing powder-coated, RAL 7001, silver grey
<b>Country of destination</b>	Germany
<b>Nominal size</b>	200 × 200 × 500 mm
<b>Accessories 1</b>	Without
<b>Accessories 2</b>	Cover grilles on both ends
<b>Attachment</b>	Spring return actuator 230 V AC with factory mounted and wired duct smoke detector RM-O-3-D as air transfer damper

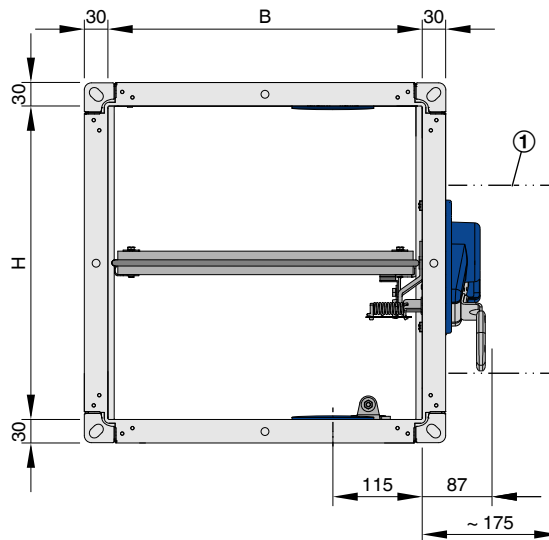
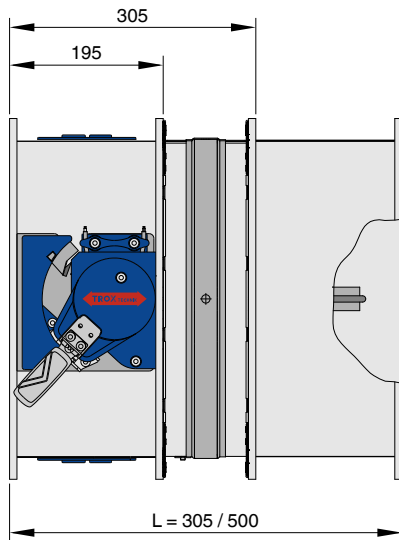
## Dimensions

### FK2-EU with fusible link

#### Size 1



#### Size 2 and 3



① Keep clear to provide access to the release mechanism.  
 Sizes 1 to 3 see functional description.



**FK2-EU with fusible link**

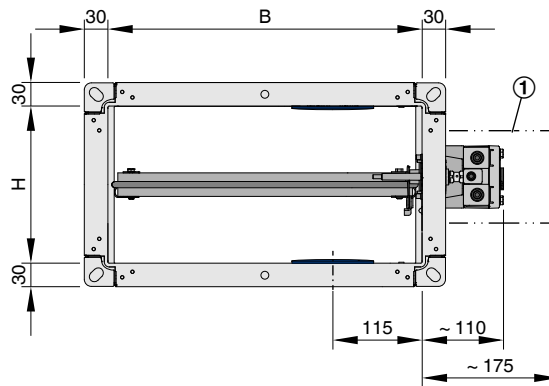
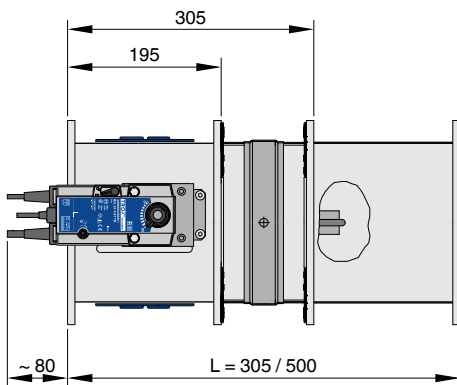
Weight [kg] for casing length L = 305 [mm]/L = 500 [mm]

H	B													
	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
100	4/5	5/6	6/8	7/9	8/11	9/12	10/13	-	-	-	-	-	-	-
150	4/6	5/7	7/9	8/10	9/12	10/13	11/15	-	-	-	-	-	-	-
200	5/7	6/8	7/10	9/12	10/13	11/15	12/16	15/20	16/21	21/27	23/29	24/31	26/32	27/34
250	7/9	8/10	10/12	11/14	12/16	14/18	15/19	16/21	18/23	24/29	25/31	27/33	29/35	30/38
300	8/10	9/12	11/14	12/15	13/17	15/19	16/21	18/23	19/25	26/32	28/34	30/36	32/39	33/41
350	8/11	10/13	11/15	13/17	15/18	16/20	18/22	24/29	26/32	28/34	30/37	32/39	34/42	36/44
400	9/11	11/13	12/16	14/18	16/20	17/22	19/24	26/31	28/34	31/37	33/39	35/42	37/45	39/47
450	10/12	11/14	13/17	15/19	17/21	23/28	26/31	28/34	30/36	33/39	35/42	38/45	40/48	43/50
500	10/13	12/15	14/18	16/20	18/22	25/30	27/33	30/36	33/39	35/42	36/45	40/48	43/51	46/54
550	-	15/19	18/22	21/26	24/28	26/32	29/35	32/38	35/41	37/44	40/47	43/51	46/54	49/57
600	-	16/20	19/23	22/27	25/30	28/33	31/37	34/40	37/43	40/47	43/50	46/53	49/57	52/60
650	-	17/21	20/25	23/28	27/32	30/35	33/39	36/42	39/46	42/49	45/53	48/56	51/60	55/63
700	-	18/22	21/26	25/30	28/33	31/37	35/41	38/44	41/48	44/52	48/55	51/59	54/63	58/67
750	-	19/23	22/27	26/31	29/35	33/39	36/43	40/47	43/50	47/54	50/58	54/62	57/66	61/70
800	-	20/24	24/28	27/33	31/36	34/40	38/44	42/49	45/53	49/57	53/61	56/65	60/69	64/73

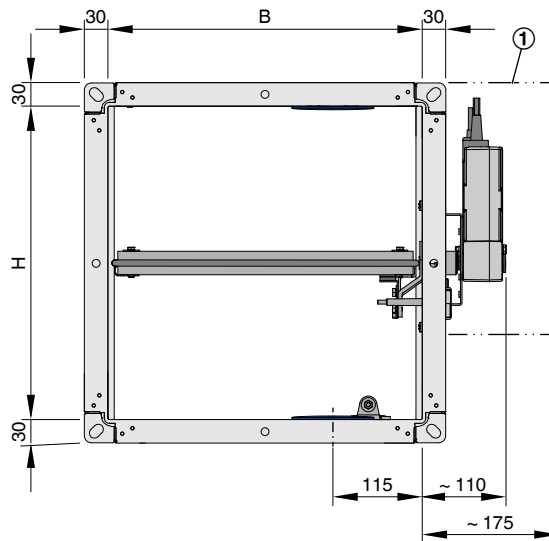
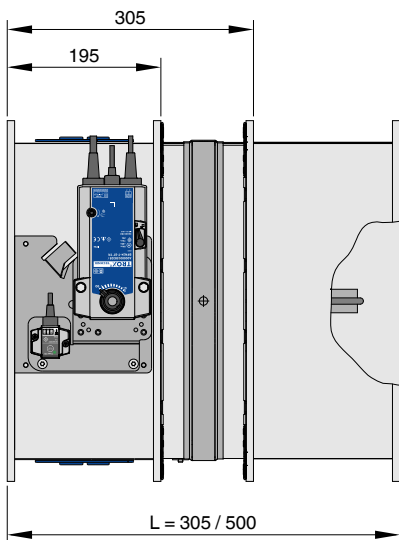
For more information on the constructions of the FK2-EU, see functional description.

**FK2-EU with Belimo spring return actuator  
(FK2-EU/.../Z4\*)**

**Size 1**



**Size 2 and 3**



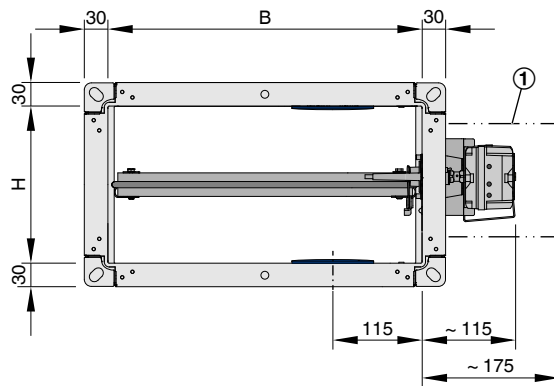
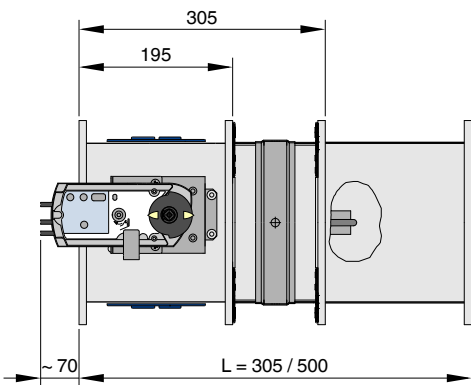
① Keep clear to provide access to the release mechanism.

Weights FK2-EU with fusible link + approx. 1 kg, see table of dimensions for FK2-EU with fusible link.

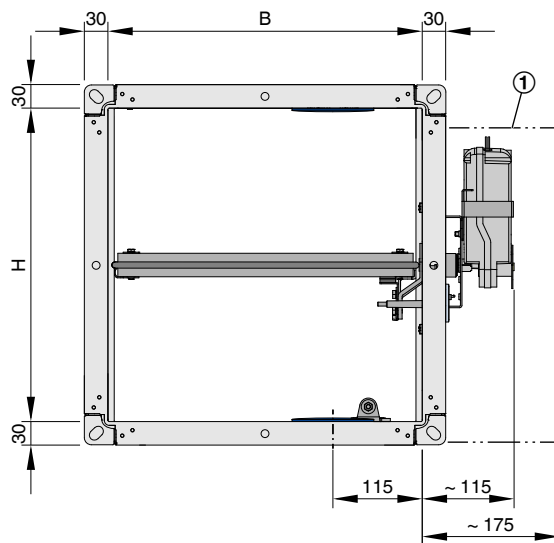
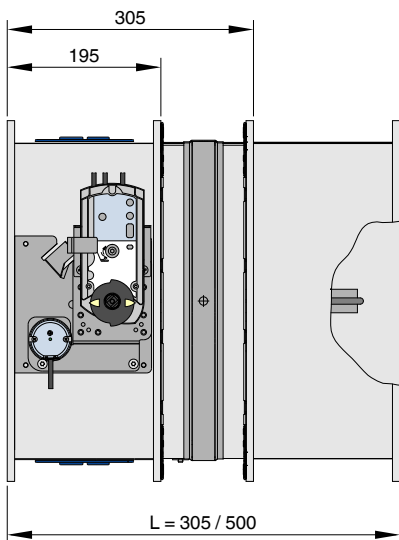
Sizes 1 to 3 and arrangement of the spring return actuator [A] or [B], see functional description.

**FK2-EU with Siemens spring return actuator  
(FK2-EU/.../Z4\*S)**

**Size 1**



**Size 2 and 3**



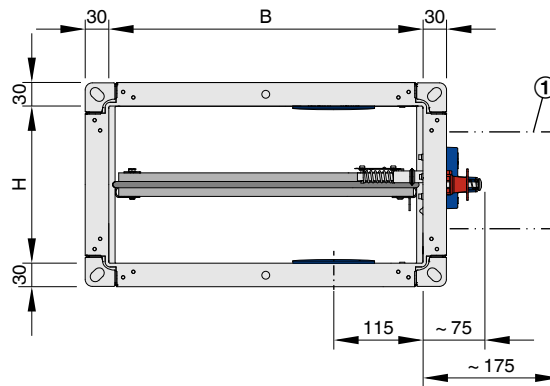
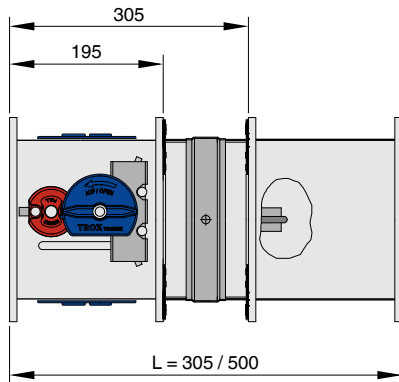
① Keep clear to provide access to the release mechanism.

Weights FK2-EU with fusible link + approx. 1.4 kg, see table of dimensions for FK2-EU with fusible link.

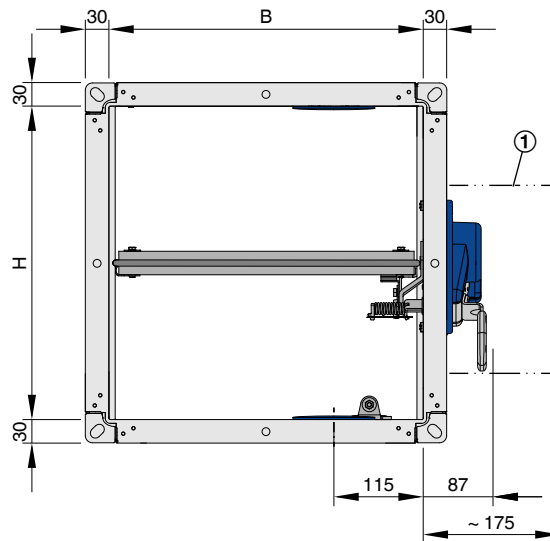
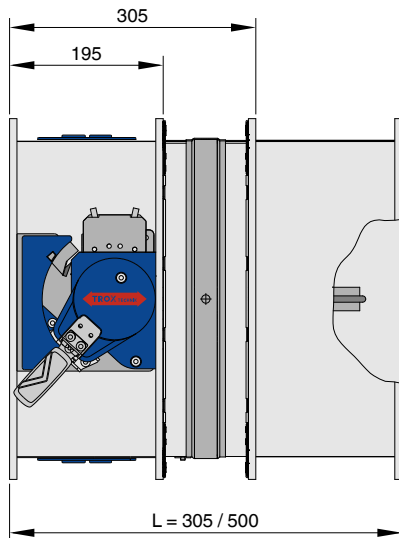
Sizes 1 to 3 and arrangement of the spring return actuator [A] or [B], see functional description.

**FK2-EU with explosion-proof fusible link  
(FK2-EU/.../Z0\*EX)**

**Size 1**



**Size 2 and 3**



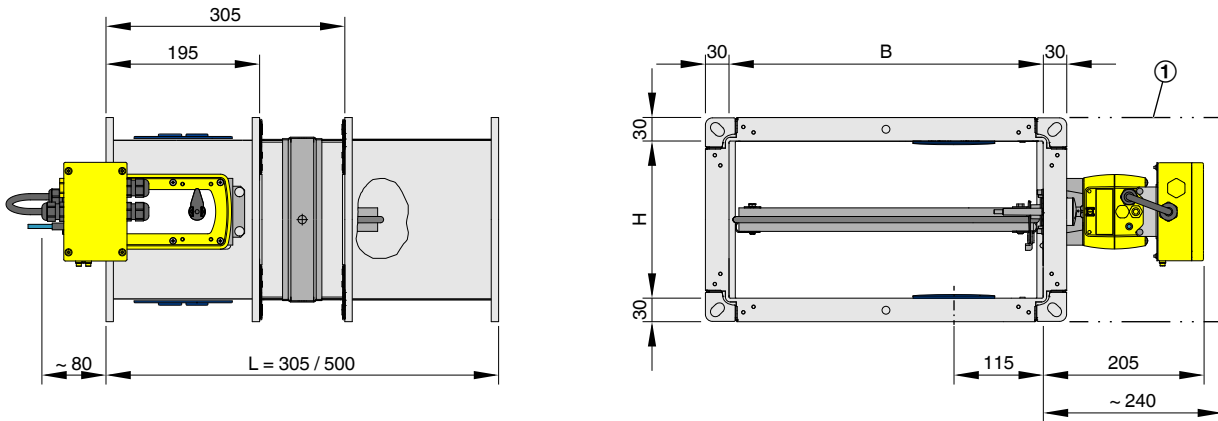
① Keep clear to provide access to the release mechanism.

Weights FK2-EU with fusible link, see table of dimensions for FK2-EU with fusible link, however with explosion-proof fusible link (FK2-EU/.../Z0\*EX).

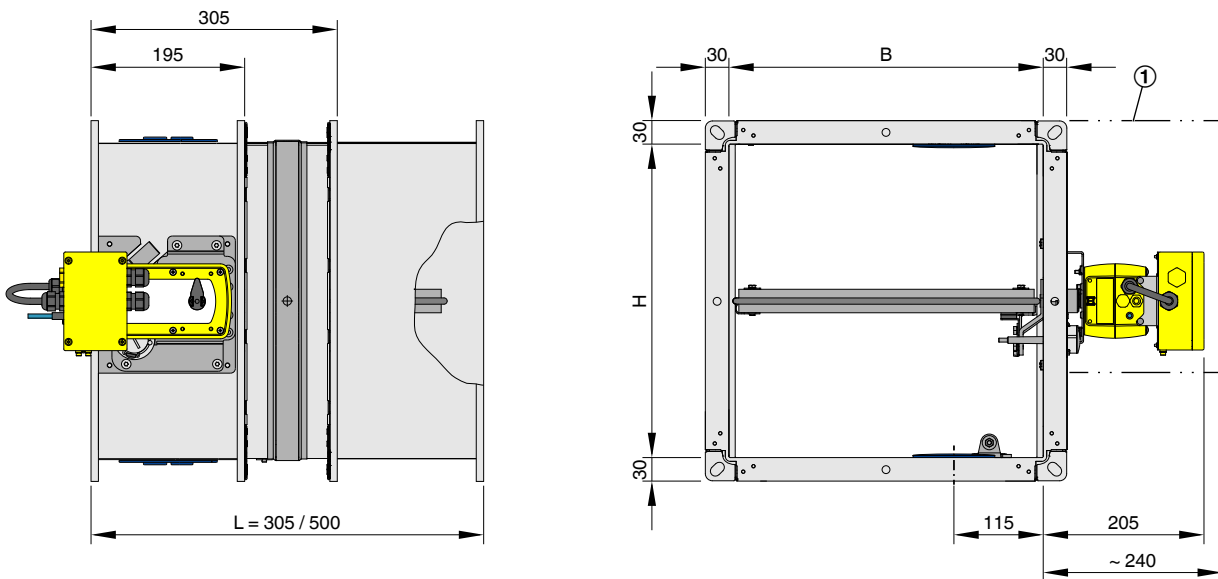
Sizes 1 to 3 see functional description.

**FK2-EU with explosion-proof spring return actuator  
(FK2-EU/.../ZEX\*)**

**Size 1**



**Size 2 and 3**



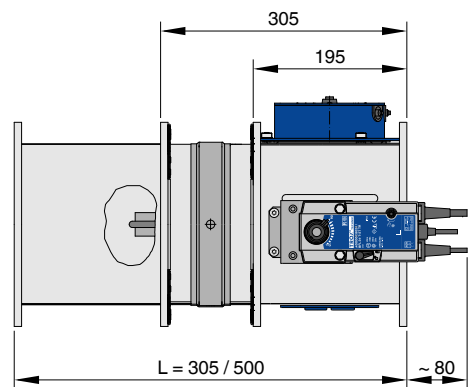
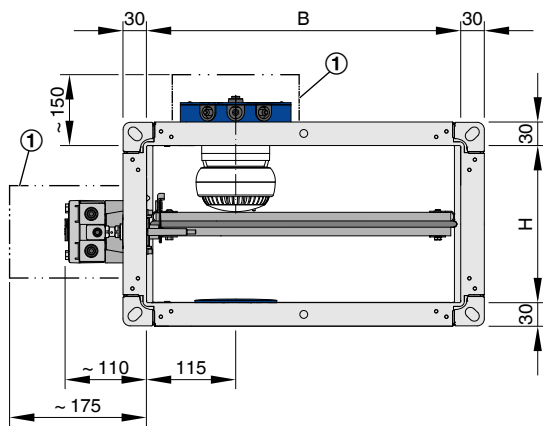
① Keep clear to provide access to the release mechanism.

Weights FK2-EU with fusible link + approx. 4.5 kg, see table of dimensions for FK2-EU with fusible link, however with explosion-proof spring return actuator (FK2-EU/.../ZEX\*).

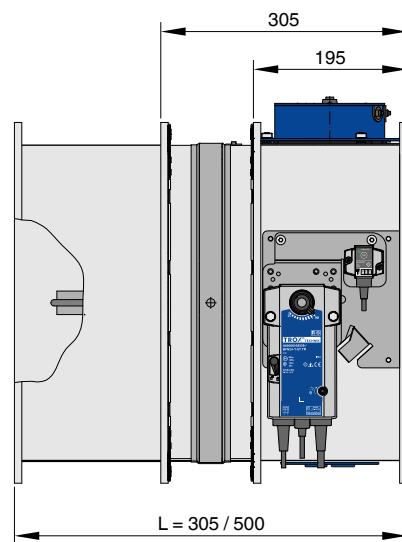
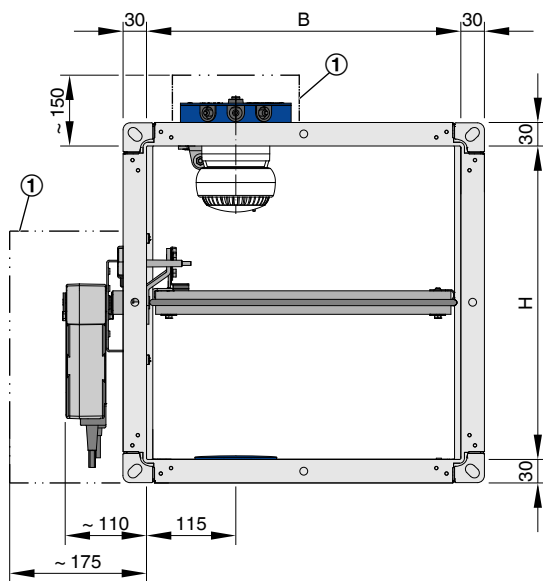
Sizes 1 to 3 and arrangement of the spring return actuator [A] or [B], see functional description.

**FK2-EU with Belimo spring return actuator and duct smoke detector (FK2-EU.../Z4\*RM)**

**Size 1**



**Size 2 and 3**



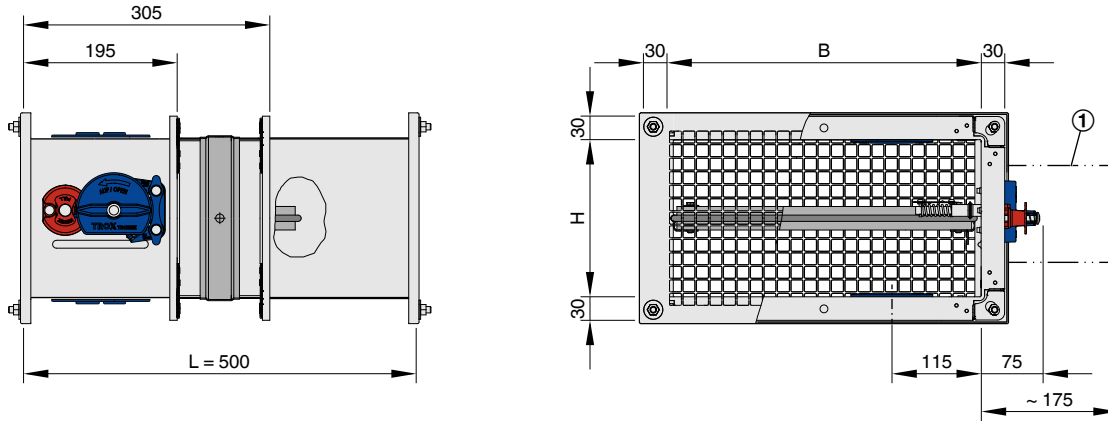
① Keep clear to provide access to the release mechanism.

Weights FK2-EU with fusible link + approx. 2.5 kg, see table of dimensions for FK2-EU with fusible link.

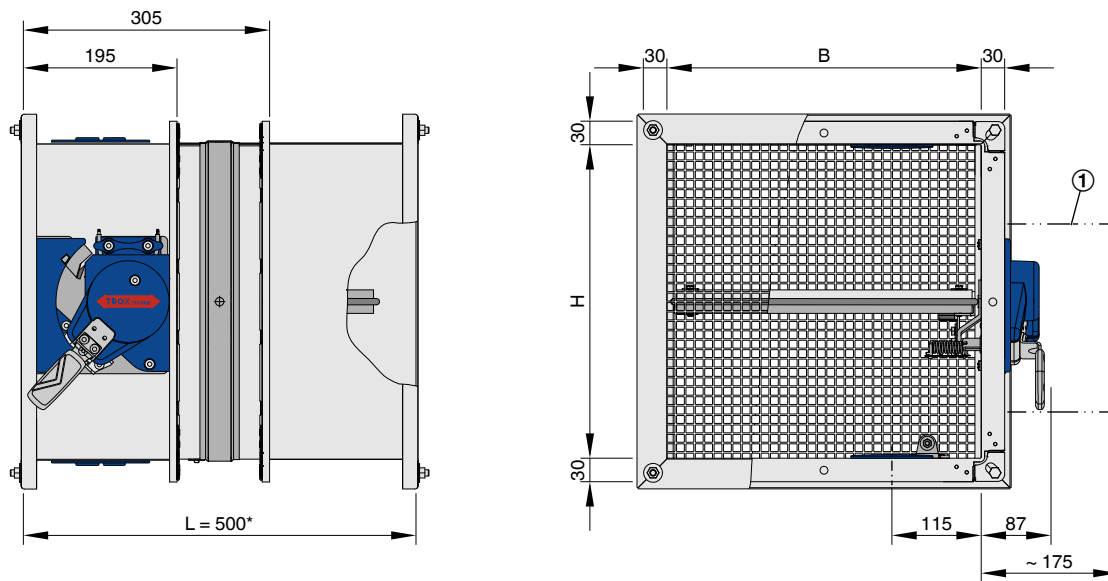
Sizes 1 to 3 and arrangement of the spring return actuator [A] or [B], see functional description.

**FK2-EU with fusible link and cover grille  
(FK2-EU/.../AA/Z0\*) as an upstream shutter of an air transfer unit**

**Size 1**



**Size 2 and 3**



① Keep clear to provide access to the release mechanism.

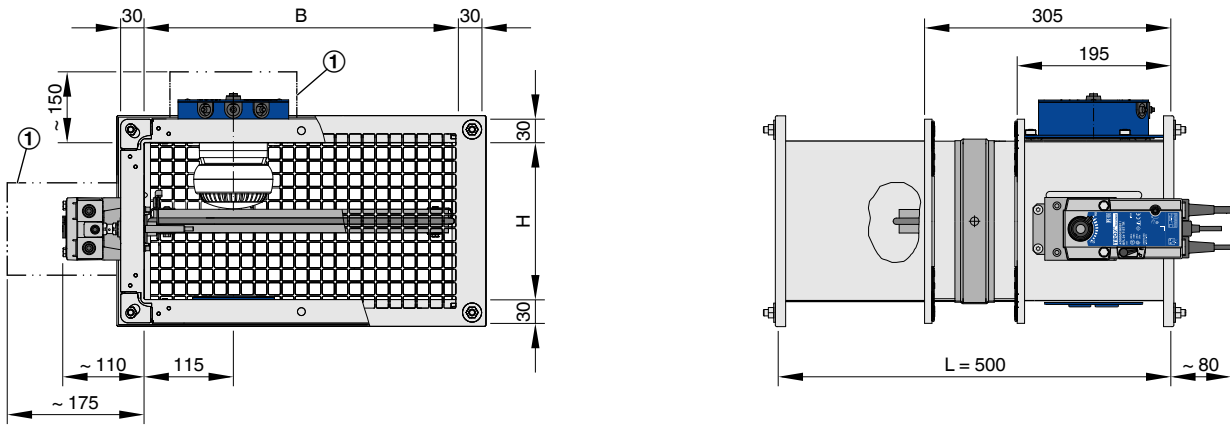
Weights FK2-EU with fusible link (without cover grille), see table of dimensions for FK2-EU with fusible link.

Sizes 1 to 3, see functional description.

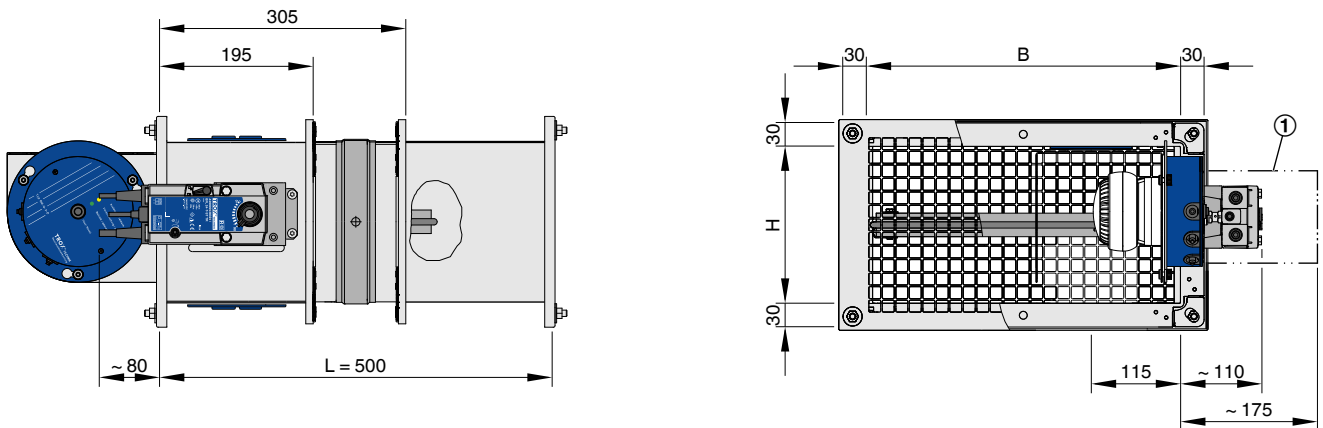
\* Extension pieces required with  $H > 400$  mm

**FK2-EU with Belimo spring return actuator,  
Duct smoke detector and cover grille  
(FK2-EU/.../AA/Z4\*RM) as air transfer damper**

**Size 1**



**FK2-EU with Belimo spring return actuator, duct smoke detector RM-O-3-D (fixing via adapter plate) and cover grille**



**FK2-EU with Belimo spring return actuator, duct smoke detector RM-O-3-D (fixing via bracket, included in the supply package) and cover grille – as an example, variant with bracket on the drive side top right**

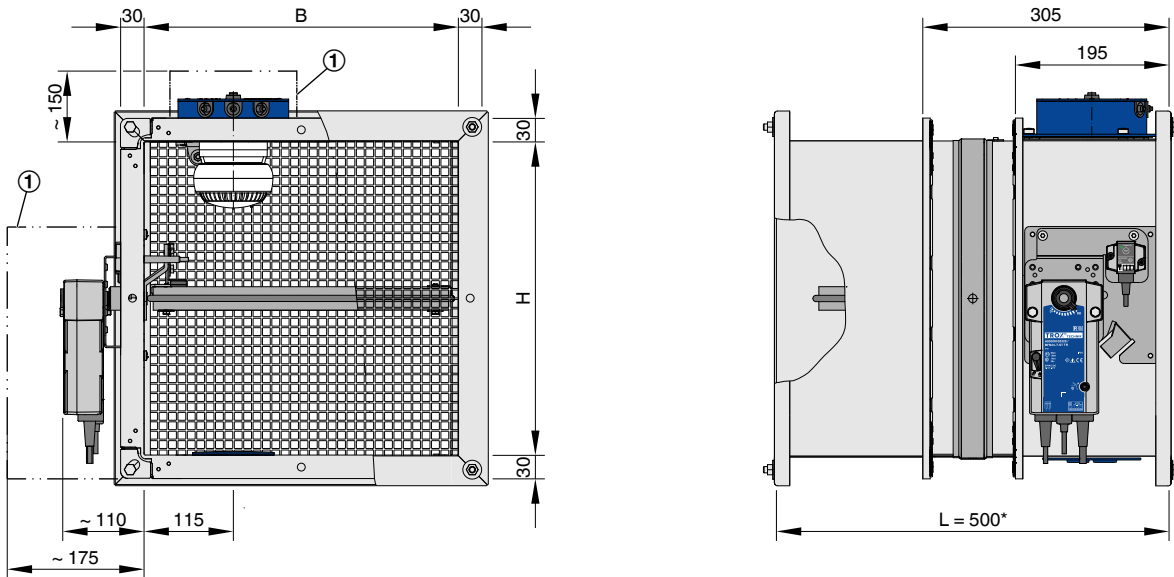
① Keep clear to provide access to the release mechanism.

Weights FK2-EU with fusible link (without cover grille) + approx. 2.5 kg, see table of dimensions for FKR-EU with fusible link. Sizes 1 to 3 and arrangement of the spring return actuator [A] or [B], see functional description.

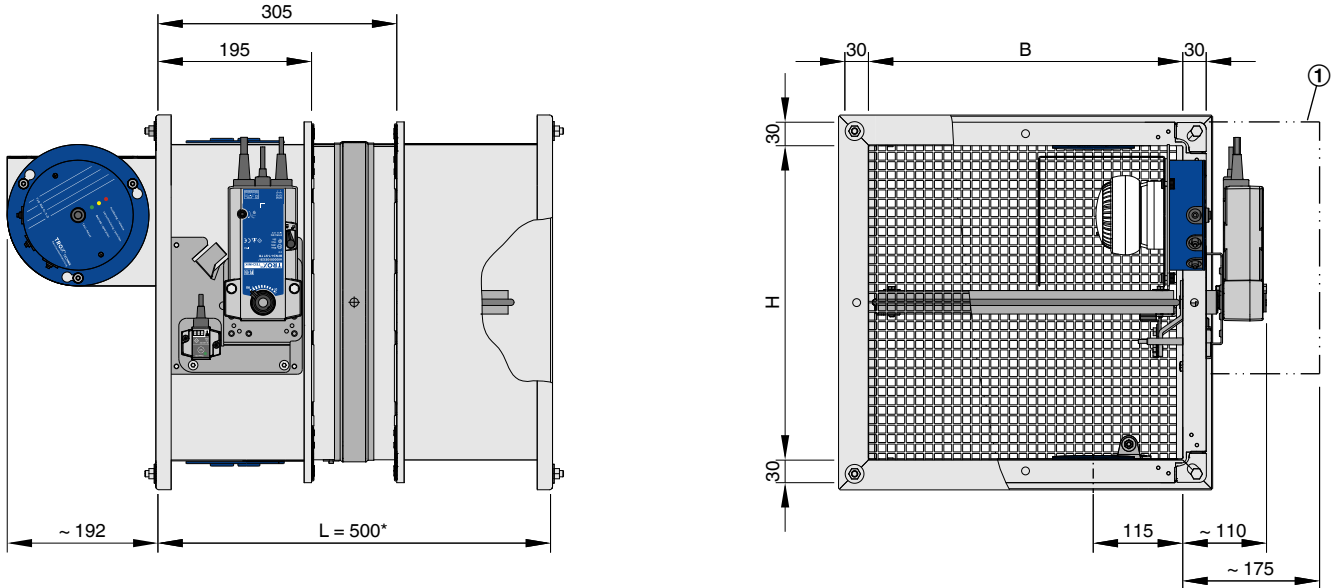


**FK2-EU with Belimo spring return actuator,  
Duct smoke detector and cover grille  
(FK2-EU/.../AA/Z4\*RM) as air transfer damper**

Size 2 and 3



**FK2-EU with Belimo spring return actuator, duct smoke detector RM-O-3-D (fixing via adapter plate) and cover grille**



**FK2-EU with Belimo spring return actuator, duct smoke detector RM-O-3-D (fixing via bracket, included in the supply package) and cover grille – as an example, variant with bracket on the drive side top right**

① Keep clear to provide access to the release mechanism.

Weights FK2-EU with fusible link (without cover grille) + approx. 2.5 kg, see table of dimensions for FKR-EU with fusible link.

Sizes 1 to 3 and arrangement of the spring return actuator [A] or [B], see functional description.

\* Extension pieces required with  $H > 400$  mm

## ODA construction

### Application

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

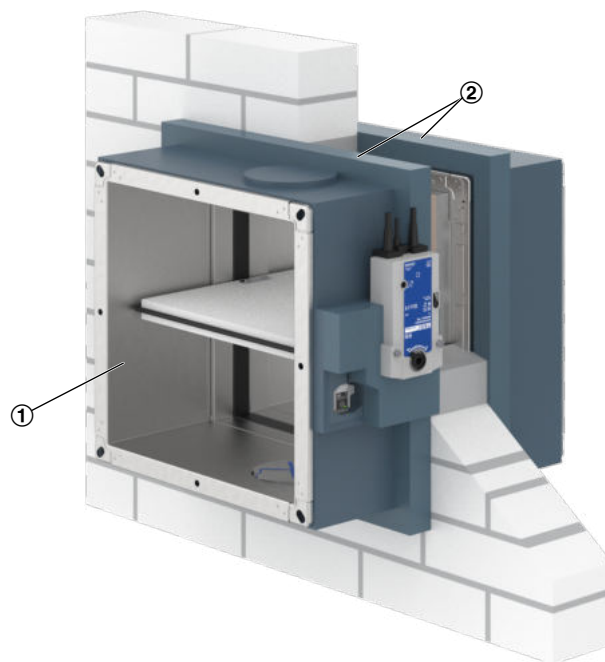
### Materials and surfaces

- 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)

### 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.

### FK2-EU with thermal insulation



### Supply package: FK2-EU with thermal insulation

- ① FK2-EU with thermal insulation on the operating side
- ② Insulating strips, Armaflex Ultima, around the perimeter

## Accessories 1 - Installation kits

### Installation kit ES

#### Application

Universally applicable installation kit for dry mortarless installation

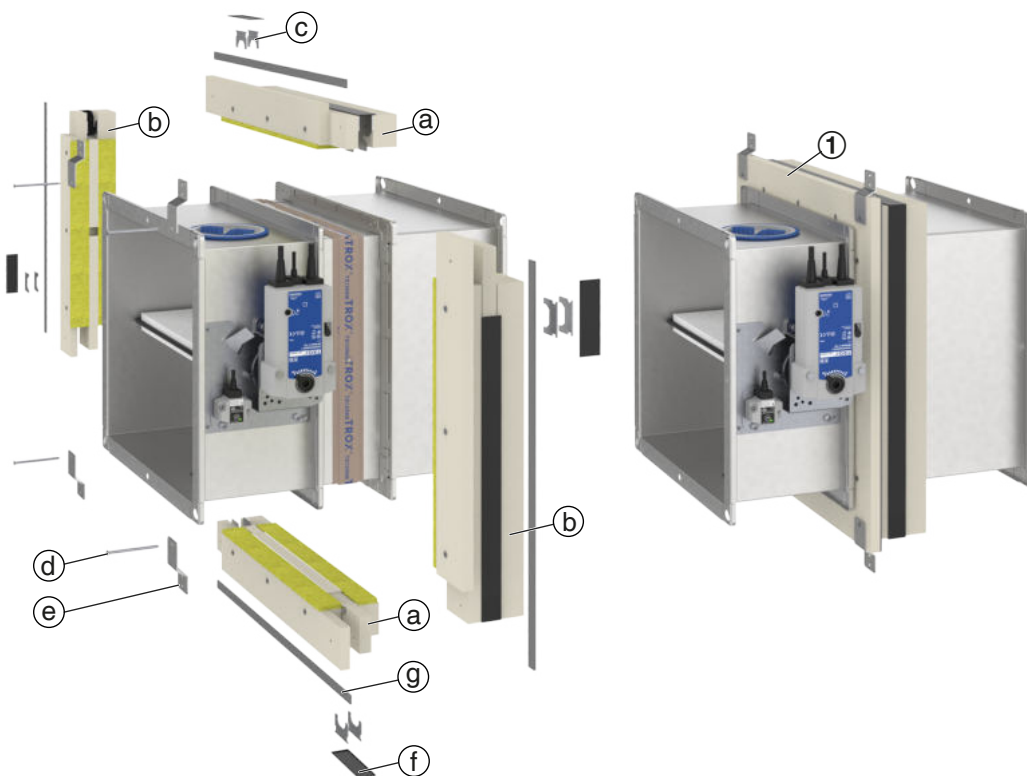
- In lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structures or steel support structures
- In timber stud walls and timber frame walls, as well as solid wood and cross laminated timber walls
- In shaft walls with metal support structure or steel support structure, and in shaft walls without metal support structure
- In solid wood and wooden beam ceilings

#### Notes:

- Fire dampers with installation kit only with casing length  $L = 500$  mm
- The installation kit must be mounted on the fire damper by others
- The installation kit can also be ordered and supplied separately
- Enough clear space is required for installation of the installation kit
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

L	Order code
500	ES

### Installation kit ES



### Installation kit supply package ES

1 Installation kit ES consists of:

- a B section with intumescent seal and mineral wool (2 ×)
- b H section with intumescent seal and mineral wool (2 ×)
- c Connecting clip (8 clips)

- d Chipboard screw 5 × 50 mm (4 – 8 screws, depending on damper size)
- e Bracket (4 – 8 brackets, depending on damper size)
- f Intumescent seal (4 ×)
- g Kerafix 2000 sealing tape

**Installation kit E3**

**Application**

- FK2-EU with installation kit E3 to replace an existing FK-K90 or FK-EU with mortared-in installation subframe E1 or E2

**Requirement**

- Installation subframe E1 or E2 has been installed in the solid wall according to the general building inspectorate licence (FK-K90) or the installation and operating manual (FK-EU)

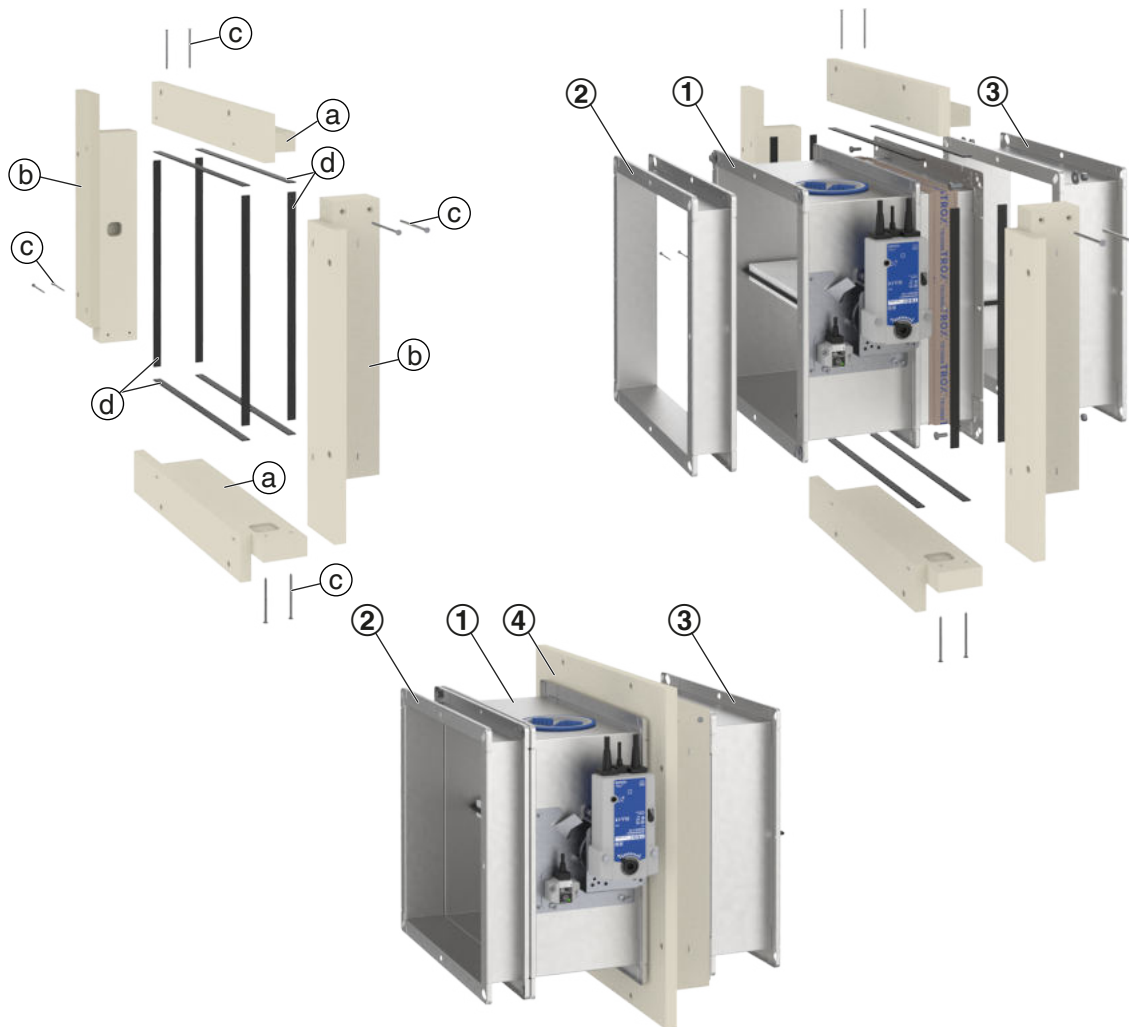
**Note**

- Fire damper FK2-EU and installation kit E3 have to be ordered together. FK2-EU (length 305 mm) is supplied with 2 extension pieces (70 and 125 mm) so that an FK-K90 or FK-EU can be replaced without any changes to the connected ducts.

- The installation kit has to be attached to the fire damper by others.
- Installation kit E3 can also be ordered and supplied separately, in which case the extension pieces on the fire damper (70 and 125 mm) have to be provided and attached by others
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

L	Order code
305 mm with V parts over 500 mm	E3

**Installation kit E3**



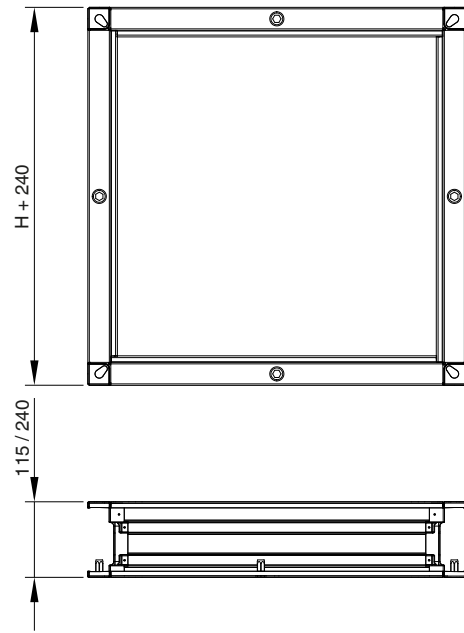
**Installation kit E3 supply package**

Installation kit E3 consists of:

- FK2-EU (L = 305 mm)
- Extension piece (70 mm, factory mounted to FK2-EU)
- Extension piece (125 mm, factory mounted to FK2-EU)

- Installation kit E3:
  - Installation kit B section (2x)
  - Installation kit H section (2x)
  - Chipboard screw, 5 x 80 mm (8 screws)
  - Kerafix 2000 sealing tape (4x B section, 4x H section)

## Installation subframe E1 or E2 of FK-K90 / FK-EU



- 1 Existing and installed  
installation subframe E1 (L = 115 mm)/E2 (L = 240 mm)

## Installation kit EW

### Application

- Installation kit EW for dry mortarless installation in an installation subframe embedded in mortar

### Requirement

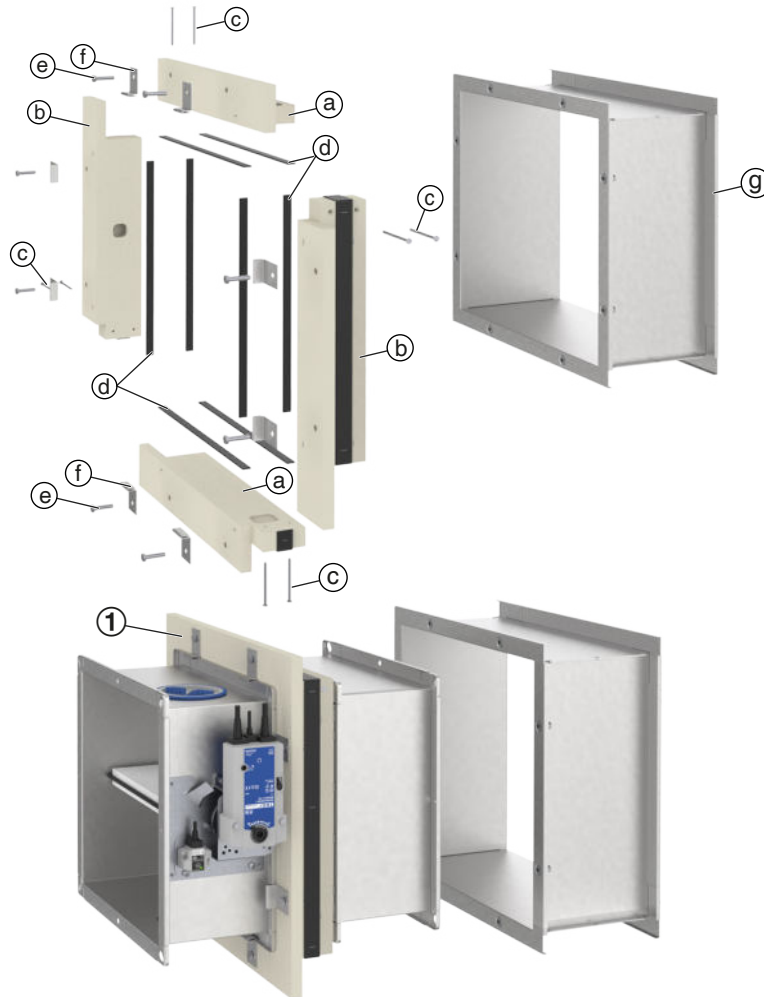
- The installation subframe has been installed in the solid wall with perimeter mortar infill

### Note

- Fire dampers with installation kit only with casing length  $L = 500$  mm
- The installation kit must be mounted on the fire damper by others
- The installation kit and installation subframe can also be ordered and supplied separately
- Enough clear space is required for installation of the installation kit
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

L	Order code
500	EW

## Installation kit EW



### Installation kit EW supply package

1 Installation kit EW consists of:

- a Installation kit B section (2×)
- b Installation kit H section (2×)
- c Chipboard screw,  $5 \times 80$  mm (8 screws)

- d Kerafix 2000 sealing tape (4× B section, 4× H section)
- e Hexagon head screw,  $M8 \times 35$  mm (4 – 16 screws, depending on damper size)
- f Bracket (4 – 16 brackets, depending on damper size)
- g Installation subframe

**Installation kit GM**

**Application**

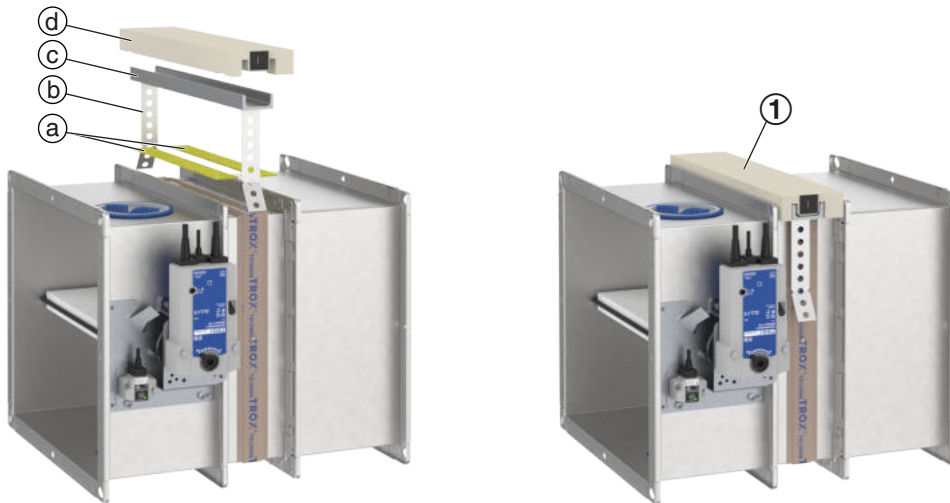
- Installation kit for installation into solid non-load-bearing internal walls with flexible ceiling joint. With the installation kit the fire damper may be installed just below the movement joint; the joint is not interrupted by the installation kit

**Note**

- Fire dampers with installation kit only with casing length L = 500 mm
- Installation only with horizontal damper blade
- The installation kit can also be ordered and supplied separately
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

L	Order code
500	GM

**FK2-EU with installation kit GM**



**Installation kit supply package GM**

- 1 Installation kit GM, consisting of:
- a Filler strips made of mineral wool
  - b Fixing tabs made of galvanised steel

- c U-channels made of galvanised steel
- d Cover section made of special insulation material with intumescent seal

**Installation kit WA****Application**

- Installation kit for Installation on the face of solid walls and ceiling slabs

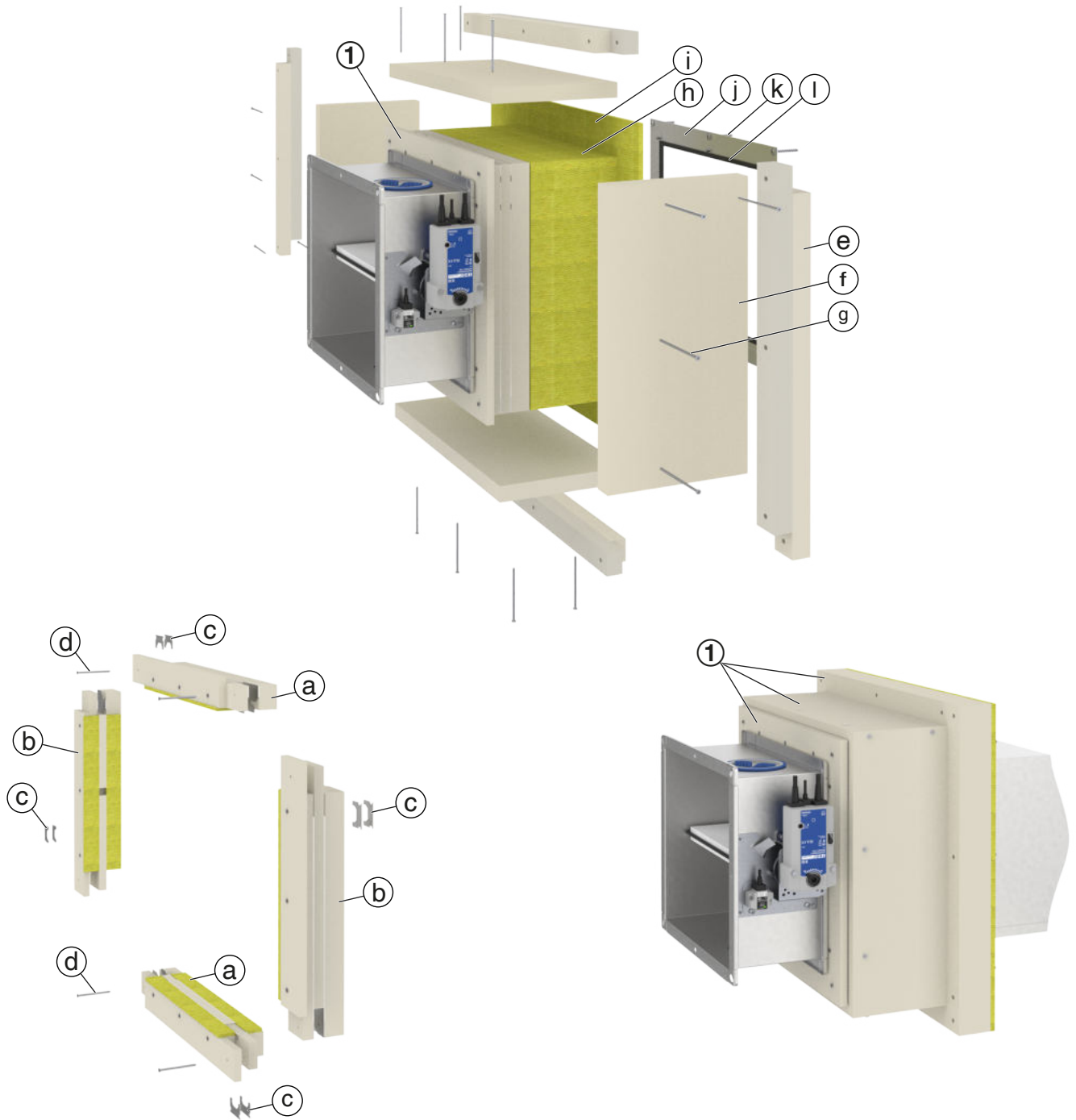
**Note**

- Fire dampers with installation kit only with casing length L = 500 mm
- The installation kit has to be attached to the fire damper by others.
- The installation kit can also be ordered and supplied separately
- Enough clear space is required for installation
- The supplied anchors are suitable for solid concrete walls and ceiling slabs. As an alternative, equivalent fire-rated anchors with suitability certificate (by others) that are suitable for the wall or ceiling slab can also be used; push through installation is also possible.
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

L	Order code
500	WA



Installation kit WA



**Installation kit supply package WA**

- 1 Installation kit WA consists of:
- a B section with mineral wool (2 ×)
- b H section with mineral wool (2 ×)
- c Connecting clip (8 clips)
- d Chipboard screw 5 × 90 mm (4 screws)
- e Multilayer section (2 × B section, 2 × H section)
- f Cover (2 × B section, 2 × H section)
- g Chipboard screw 5 × 70 mm

- (16 – 28 screws, depending on damper size)
- h Cut mineral wool parts (2 × B section, 2 × H section,  $\geq 1000\text{ °C}$ ,  $\geq 80\text{ kg/m}^3$ )
- i Mineral wool strips (2 × B section, 2 × H section,  $\geq 1000\text{ °C}$ ,  $\geq 40\text{ kg/m}^3$ , 10 mm thick)
- j Wall face frame with Kerafix seal
- k Anchor bolt with pan head 6 × 60 mm (4 – 16 bolts, depending on damper size)
- l Kerafix 2000 sealing tape

**Installation kit WE****Application**

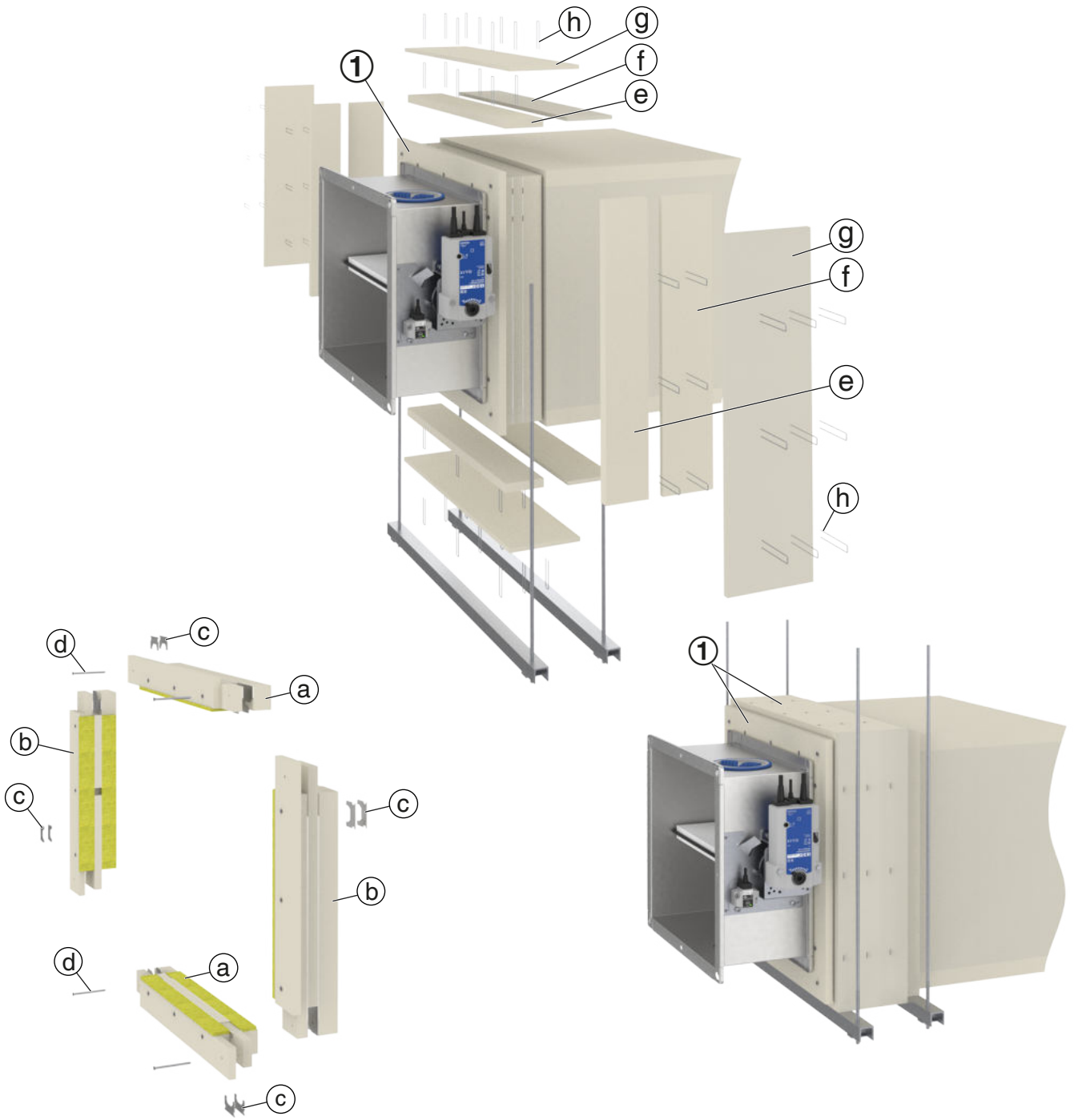
- Installation kit for installation remote from solid walls and ceiling slabs, also remote from lightweight partition walls with cladding on both sides

**Note**

- Fire dampers with installation kit only with casing length L = 500 mm
- The installation kit has to be attached to the fire damper by others.
- The installation kit can also be ordered and supplied separately
- Fire damper to be connected to ducts made of galvanised or stainless steel (by others)
- Fire-resistant cladding made of panel material (provided by others)
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

L	Order code
500	WE

Installation kit WE



**Installation kit supply package WE**

- 1 Installation kit WE, consisting of:
  - a Installation kit B part with mineral wool (2 ×)
  - b Installation kit H part with mineral wool (2 ×)
  - c Connecting clip (8 pieces)

- d Chipboard screw 5 × 90 mm (4 ×)
- e Cover 1 (2 × B side, 2 × H side)
- f Cover 2 (2 × B side, 2 × H side)
- g Cover 3 (2 × B side, 2 × H side)
- h Steel wire clip, 63 mm (by others)

## Installation kit GL

### Application

- Installation kit for installation in lightweight partition walls with metal support structure with cladding on both sides and flexible ceiling joint (dry mortarless installation) directly underneath solid ceiling slabs

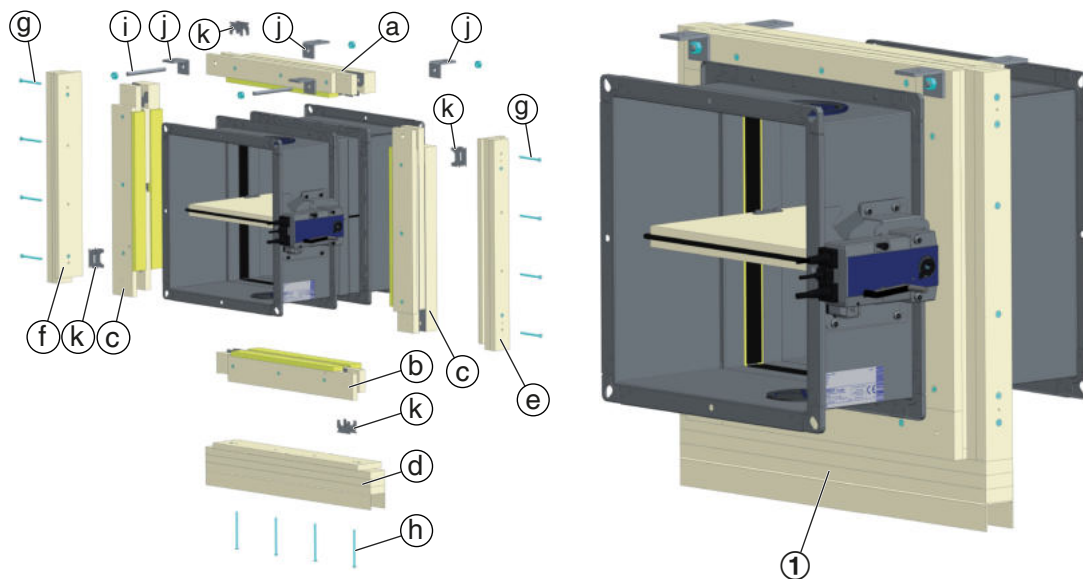
### Note

- Fire dampers with installation kit only with casing length L = 500 mm
- The installation kits are adapted to the wall thickness or the width of the metal stud system
  - GL100 for wall thickness 100 mm when 50 mm sections are used
  - GL125 for wall thickness 125 mm when 75 mm sections are used
  - GL150 for wall thickness 150 mm when 100 mm sections are used
  - GL175 for wall thickness 175 mm when 125 mm sections are used

- Drive side on the right (details for a different installation orientation are available upon request)
- The installation kit has to be attached to the fire damper by others.
- The installation kit can also be ordered and supplied separately
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

L	Order code
500	GL100 GL125 GL150 GL175

## Installation kit GL



### Installation kit supply package GL

1 Installation kit GL, consisting of:

- a B-part above
- b B-part below
- c H-part (2 ×)
- d Panel package including metal section below (depending on wall thickness)

- e Panel package right (depending on wall thickness)
- f Panel package left (depending on wall thickness)
- g Chipboard screw 5 × 80 mm
- h Chipboard screw 5 × 100 mm
- i Threaded rod M10, length approx. 130 mm with nut
- j Steel angle approx. 50 × 40 × 5 mm
- k Connecting clip

## Accessories 2 – Cover grille

### Application

#### Application

- If only one end is to be ducted on site, the other end must have a cover grille. If no end is to be ducted (air transfer unit or air transfer damper), cover grilles are required on both sides.

#### Note

- Heights > 400 mm require extension pieces
- 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 in the cover grilles and extension pieces match those in the fire damper flanges
- Cover grilles are also available separately
- If FK2-EU is used as an air transfer damper with general building inspectorate licence Z-6.50-2540, cover grilles are required for both sides
- If FK2-EU is used as an air transfer unit, cover grilles are required for both sides

- 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 (if any) are made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) or stainless steel (2) dampers)
- Mesh aperture 10 mm × 10 mm, wire width 2 mm

#### For installation in Germany please note:

- Use as an air transfer damper with cover grilles both sides, spring return actuator and duct smoke detector according to general type approval Z-6.50-2540
- If a fire damper is to be used as an air transfer unit, the local building regulations apply. Such air transfer units are usually only used for pressure differential systems.

Operating side	Installation side	Order code	Casing length
Cover grille	–	A0	305/500
–	Cover grille	0A	500
Cover grille	Cover grille	AA *	500
Cover grille	Flexible connector	AS	500
Flexible connector	Cover grille	SA	500
Cover grille	Circular spigot	AR	500
Circular spigot	Cover grille	RA	500
Cover grille	Profile connecting frame	AF	305/500
Profile connecting frame	Cover grille	FA	500

\* AA for FK2-EU as upstream shutter of an air transfer unit and air transfer damper according to general building inspectorate licence Z-6.50-2540.

### Cover grille



① Cover grille, mesh aperture 10 × 10 mm, wire width 2 mm

## Accessories 2 – Flexible connector

### Application

- 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, in lightweight compartment walls and with a fire batt

### Note

- Be sure to comply with the relevant national guidelines and regulations regarding load limits.
- Flexible connectors should be installed in such a way that both ends can absorb both tension and compression
- Heights > 400 mm require an extension piece
- The fixing holes in the flexible connectors and extension pieces match those in the fire damper flanges
- Flexible connectors are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

### Materials and surfaces

- Flexible connectors are made of fibre-reinforced plastic (fire resistance properties to DIN 4102; B2) and galvanised steel
- Extension pieces (if any) are made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) or stainless steel (2) dampers)

Operating side	Installation side	Order code	Casing length
Flexible connector	–	S0	305/500
–	Flexible connector	0S	500
Flexible connector	Flexible connector	SS	500
Flexible connector	Cover grille	SA	500
Cover grille	Flexible connector	AS	500
Flexible connector	Circular spigot	SR	500
Circular spigot	Flexible connector	RS	500
Flexible connector	Profile connecting frame	SF	305/500
Profile connecting frame	Flexible connector	FS	500

### Flexible connector



① Flexible connector

## Accessories 2 – Connecting subframe

- Profile connecting frames are required for the connection of ducts using a sluice gate valve
- In addition to the 4-screw corner joints, the duct and profile connecting frame are connected by means of a sluice gate valve.

### Note

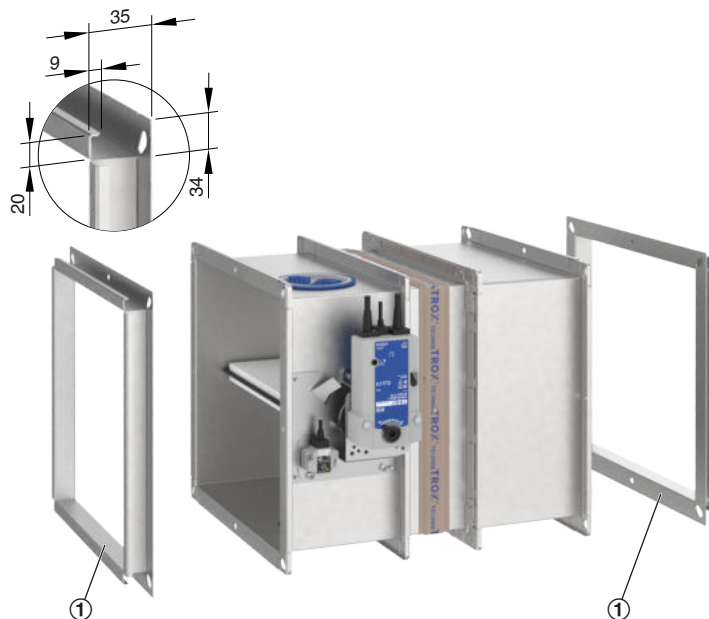
- Lower leakage rates can be achieved when profile connecting frames are installed than when using a flange screw connection
- Profile connecting frames have a sliding rebate
- The fixing holes in the profile connecting frame match those in the fire damper flanges
- Profile connecting frames are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual

### Materials and surfaces

- Profile connecting frame made of galvanised steel

Operating side	Installation side	Order code	Casing length
Profile connecting frame	–	F0	305/500
–	Profile connecting frame	0F	305/500
Profile connecting frame	Profile connecting frame	FF	305/500
Profile connecting frame	Flexible connector	FS	500
Flexible connector	Profile connecting frame	SF	305/500
Profile connecting frame	Cover grille	FA	500
Cover grille	Profile connecting frame	AF	305/500
Profile connecting frame	Circular spigot	FR	500
Circular spigot	Profile connecting frame	RF	305/500

### Profile connecting frame



① Profile connecting frame

## Accessories 2 – Circular spigot

- Circular spigots for rectangular FK2-EU fire dampers facilitate the direct connection of circular ducts.

### Note

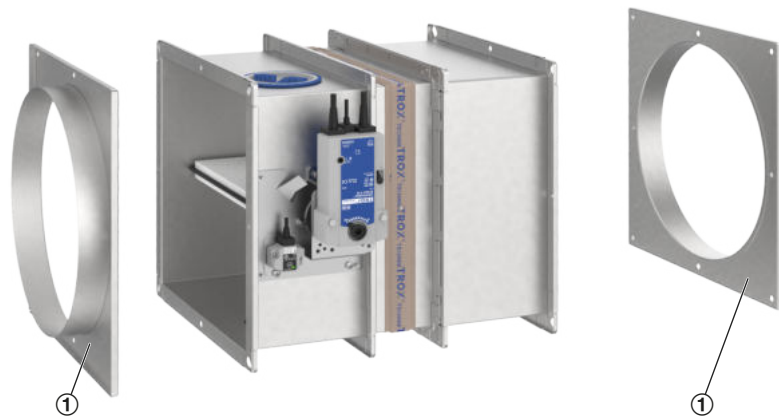
- Extension pieces are required for heights > 400 mm due to construction
- Circular spigots and, if applicable, extension pieces are factory assembled to form a unit
- The fixing holes in the round spigots match those in the fire damper flanges
- Round spigots are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

### Materials and surfaces

- Circular spigots 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	Casing length
Circular spigot	–	R0	305/500
–	Circular spigot	OR	500
Circular spigot	Circular spigot	RR	500
Circular spigot	Flexible connector	RS	500
Flexible connector	Circular spigot	SR	500
Circular spigot	Cover grille	RA	500
Cover grille	Circular spigot	AR	500
Circular spigot	Profile connecting frame	RF	305/500
Profile connecting frame	Circular spigot	FR	500

### Circular spigot



① Circular spigot



**Dimensions [mm]**

Nominal size	B×H	øD
200	200 × 200	198
250	250 × 250	248
300	300 × 300	248
350	350 × 350	313
400	400 × 400	398
450	450 × 450	448
500	500 × 500	498
550	550 × 550	498
600	600 × 600	558
650	650 × 650	628
700	700 × 700	628
750	750 × 750	708
800	800 × 800	798

## Accessories 2 – Extension pieces

- When there are cover grilles, circular spigots, flexible connectors, moulds, etc., you may have to use an extension piece for certain heights

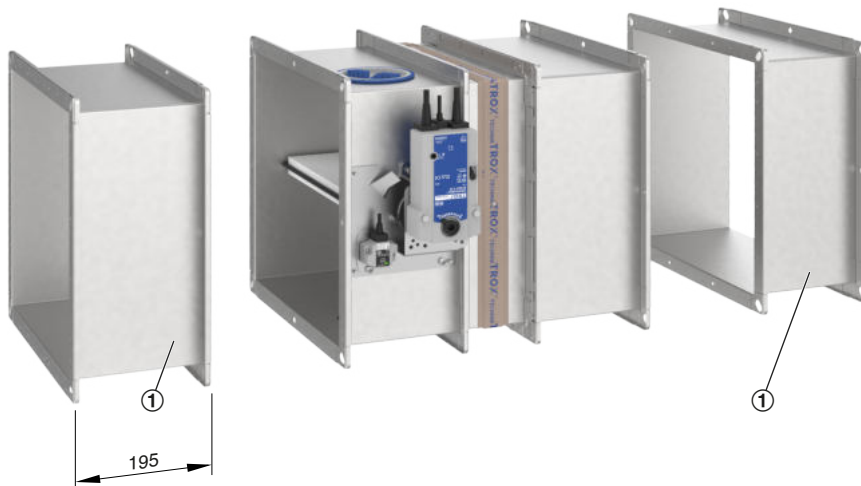
### Note

- The movement of the damper blade must not be obstructed. The distance between the tip of the open damper blade and attachments (moulded parts, etc.) or any accessory should be at least 50 mm
- Fire dampers with flexible connectors, cover grilles and round spigots, including extension parts, are supplied (depending on height)
- The fixing holes in the extension pieces match those in the fire damper flanges
- Extension pieces are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

### Materials and surfaces

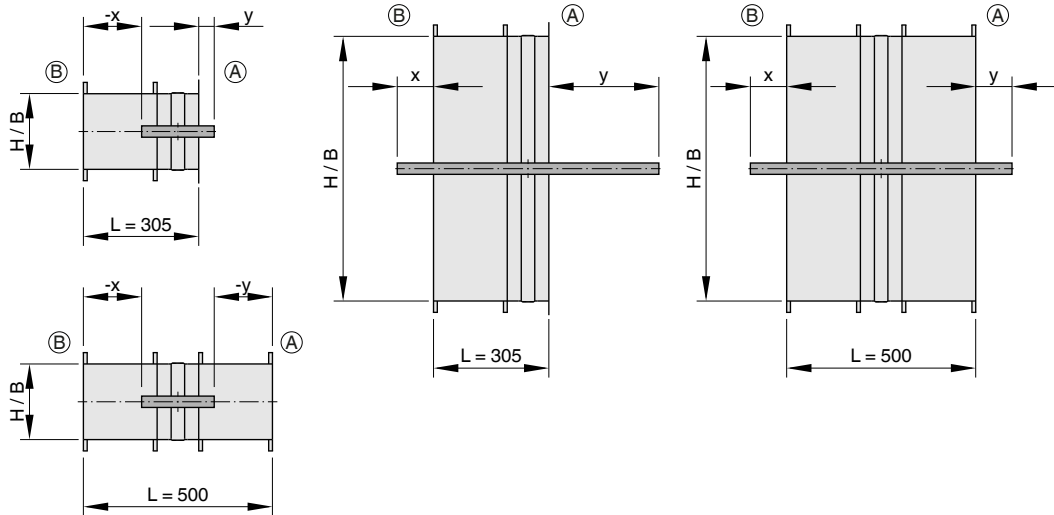
- Extension pieces made of galvanised sheet steel, length 195 mm (and powder-coated silver grey (RAL 7001), when used with powder-coated (1) and stainless steel (2) dampers)

### Extension piece



① Extension pieces

Open blade protrusion



A Installation side  
B Operating side

**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.

Open blade protrusion [mm]

H	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
x	-204	-179	-154	-129	-104	-79	-54	-29 *	-4 *	21 *	46 *	71 *	96 *	121 *	146 *
y (1)	-8 *	17 *	42 *	67 *	92 *	117 *	142 *	167 **	192 **	217 **	242 **	267 **	292 **	317 **	342 **
y (2)	-204	-179	-154	-129	-104	-79	-54	-29 *	-4 *	21 *	46 *	71 *	96 *	121 *	146 *

\* 1 Extension piece required  
\*\* 2 Extension pieces required  
(1) L = 305 mm  
(2) L = 500 mm

Arrangement of extension pieces

L	H	Operating side	Installation side
305	100 – 400	–	195
305	405 – 800	195	2 × 195
500	100 – 400	–	–
500	405 – 800	195	195

## Attachment – Limit switch

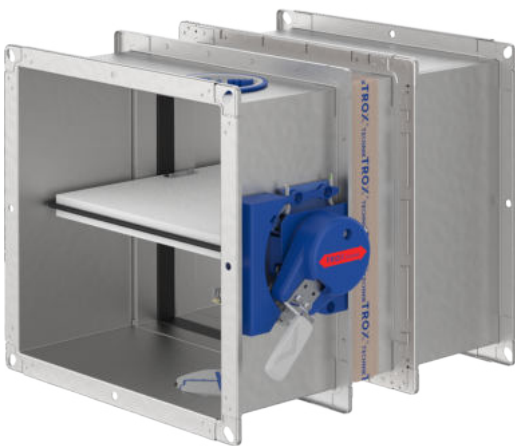
**FK2-EU (fusible link construction) with limit switch**

**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 FK2-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

**FK2-EU with limit switch  
(size 2 shown)**



## Attachment – explosion-proof limit switches

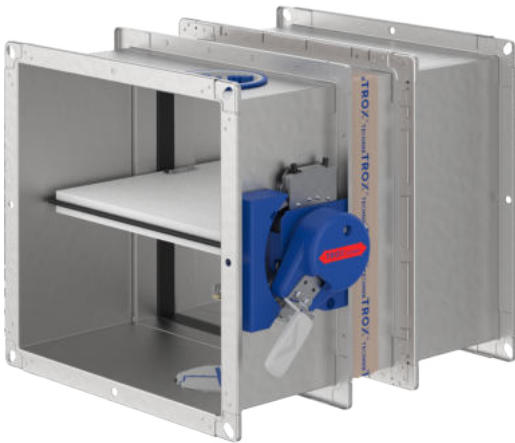
### FK2-EU (fusible link construction) with limit switch in explosion-proof construction

#### Application

- Explosion-proof limit switches with volt-free contacts can indicate the damper blade position
- Declaration of conformity: EPS 20 ATEX 2 058 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 with one or two limit switches; the switches can also be fitted later (requires a conversion kit)
- For technical data and wiring examples please refer to the additional operating manual 'Explosion-proof fire dampers Type FK2-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

### FK2-EU with explosion-proof limit switch (fig. size 2)



Type of actuation	Release mechanism	Labelling	Ambient temperature	Maximum airflow velocity
Spring mechanism	Fusible link	II 2G Ex h IIC T6 Gb	-40 °C ≤ Ta ≤ +50 °C	8 m/s
		II 2D Ex h IIIC T80°C Db		
Spring mechanism	Fusible link and limit switch	II 2G Ex h IIC T6 Gb	-20 °C ≤ Ta ≤ +50 °C	8 m/s
		II 2D Ex h IIIC T80°C Db		

## Attachment – Spring return actuator

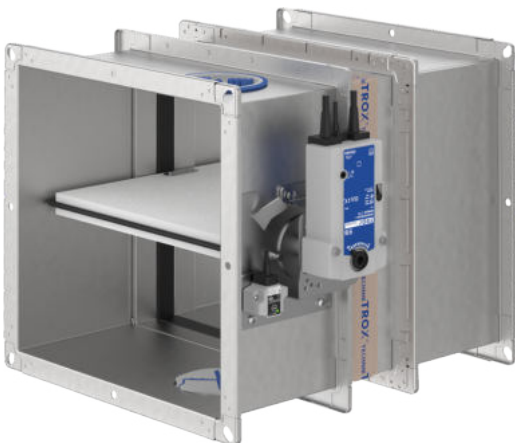
### FK2-EU with spring return actuator

#### Application

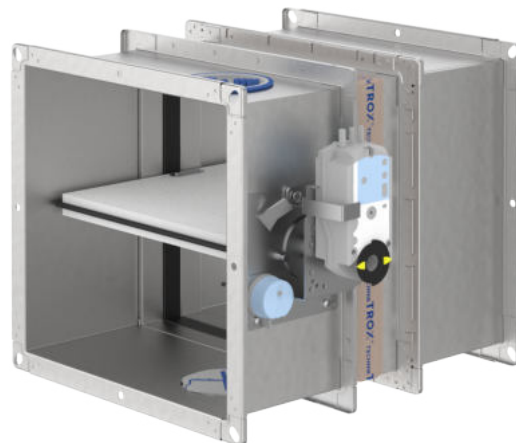
- A spring return actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close)
- Motorised fire dampers can be used to shut off ducts.
- Two integral limit switches with volt-free contacts can indicate damper blade positions 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. If no automation components are used, the 24 V connection is made with a safety transformer (by others)
- A conversion kit is available for retrofitting an actuator to a fire damper with fusible link
- For technical data and wiring examples please refer to the FK2-EU installation and operating manual

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 230 V (Siemens)	Z43S
Spring return actuator 24 V (Siemens)	Z45S

FK2-EU with Belimo spring return actuator (fig. size 2)



FK2-EU with Siemens spring return actuator (fig. size 2)



## Attachment – Explosion-proof spring return actuator

### FK2-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: EPS 20 ATEX 2 058 X
- Technical data and wiring examples, see additional operating manual "Explosion-protected fire dampers, type FK2-EU"

#### Use in areas with potentially explosive atmospheres (ATEX)

According to declaration of conformity EPS 20 ATEX 2 058 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:

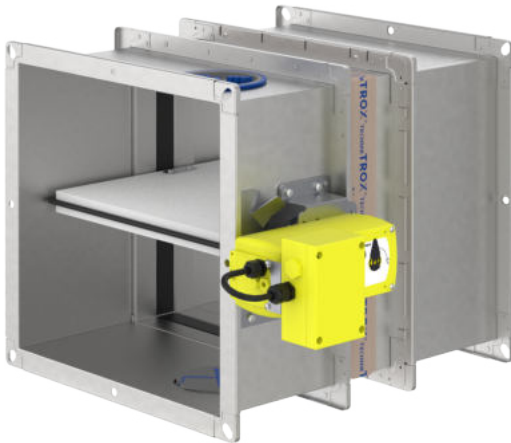
Zones 1, 2: Gases, mists and vapours  
Zones 21, 22: Dusts

#### RedMax:

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

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

### FK2-EU with explosion-proof spring return actuator (fig. size 2)





Type of actuation	Release mechanism	Labelling	Ambient temperature	Maximum airflow velocity
ExMax-15-BF TR	ExPro-TT *	II 2G Ex h IIC T6 Gb II 2D Ex h IIIC T80°C Db	-40 °C ≤ Ta ≤ +40 °C	10 m/s
ExMax-15-BF TR	ExPro-TT *	II 2G Ex h IIC T5 Gb II 2D Ex h IIIC T95°C Db	-40 °C ≤ Ta ≤ +50 °C	10 m/s
RedMax-15-BF TR	ExPro-TT *	II 3G Ex h IIC T6 Gc II 3D Ex h IIIC T80°C Dc	-40 °C ≤ Ta ≤ +40 °C	10 m/s
RedMax-15-BF TR	ExPro-TT *	II 3G Ex h IIC T5 Gc II 3D Ex h IIIC T95°C Dc	-40 °C ≤ Ta ≤ +50 °C	10 m/s

\* Release temperature: 72 °C



## Attachment – Spring return actuator and RM-O-3-D

### FK2-EU with spring return actuator and duct smoke detector RM-O-3-D

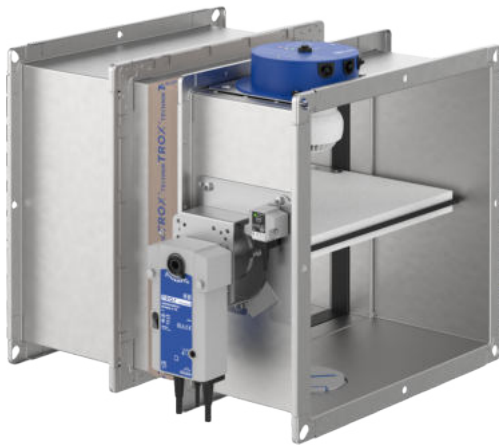
#### Application

- An open/close actuator allows for remote control of the fire damper and/or release by a suitable duct smoke detector
  - If the supply voltage fails, or with thermoelectric release or smoke detection 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 type RM-O-3-D duct smoke detector must be installed in the lower inspection access and arranged at the top when assembling the fire damper
  - For the technical data and wiring examples, see the installation and operating manual for FK2-EU and/or the operating and installation manual for duct smoke detector type RM-O-3-D

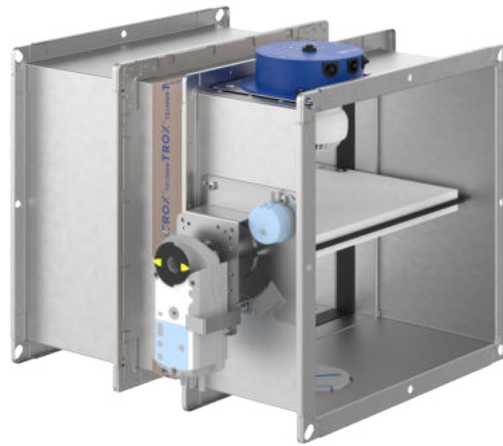
Attachment	Order code
With spring return actuator 230 V (Belimo) and integrated duct smoke detector type RM-O-3-D	Z43RM <sup>1</sup>
With spring return actuator 24 V (Belimo) and integrated duct smoke detector type RM-O-3-D	Z45RM <sup>1</sup>
With spring return actuator 230 V (Siemens) and integrated duct smoke detector type RM-O-3-D	Z43RMS <sup>1</sup>
With spring return actuator 24 V (Siemens) and integrated duct smoke detector type RM-O-3-D	Z45RMS <sup>1</sup>

<sup>1</sup> If the unit is not connected to ducting, cover grilles are required on both ends. When combined with a spring return actuator, a duct smoke detector RM-O-3-D and cover grilles on both ends, this is an air transfer damper with general building inspectorate licence: Z-6.50-2540.

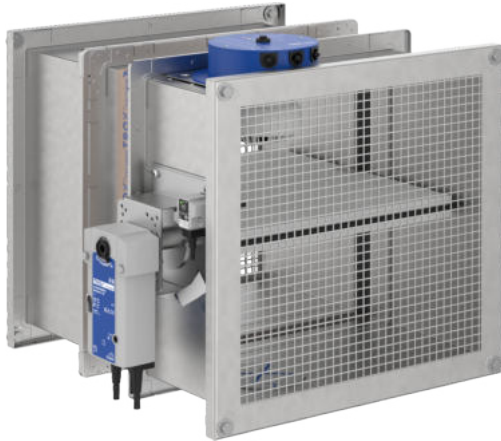
### FK2-EU with Belimo spring return actuator and duct smoke detector (fig. size 2)



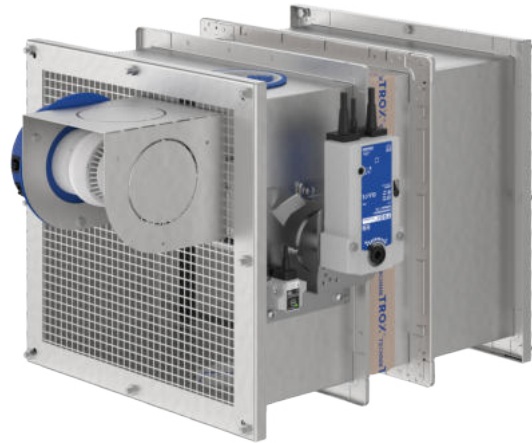
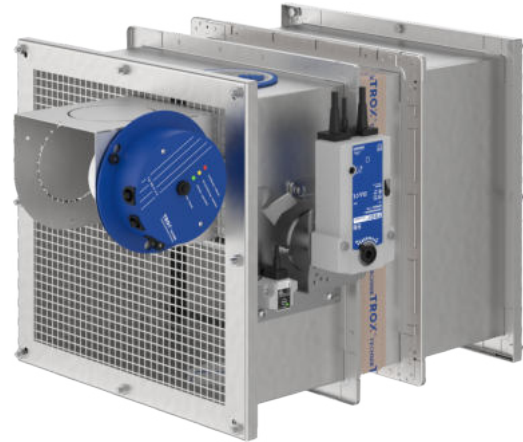
### FK2-EU with Siemens spring return actuator and duct smoke detector (fig. size 2)



FK2-EU with Belimo spring return actuator and duct smoke detector (fixing via adapter plate) used as an air transfer damper (fig. size 2)



FK2-EU with Belimo spring return actuator and duct smoke detector (fixing via bracket, included in the supply package) as air transfer damper (fig. size 2)



The duct smoke detector can be installed on the operation and installation side.

## Attachment – Spring return actuator and TROXNETCOM

### FK2-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 mounted and wired
- Using both a spring return actuator and TROXNETCOM enables the integration of various components (modules) into a network regardless of the manufacturer
- The modules control actuators and/or receive signals from sensors

#### AS-i

- The 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
- This allows for controlling the actuator and monitoring the actuator run 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

#### 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: To provide the control input signal for one or two fire dampers
- WA1/B3-AD: Connection box for connecting the second fire damper with 24 V DC supply voltage to MB-BAC-WA1/2
- 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 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: To provide the control input signal for one or two fire dampers
- WA1/B3-AD: Connection box for connecting the second fire damper with 24 V DC supply voltage to 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

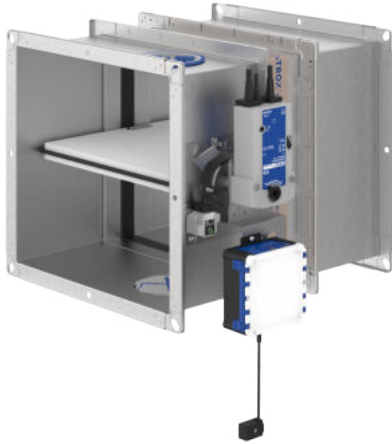
#### TNC-EASYCONTROL

- 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, RM-O-3-D and AS-EM	ZA12
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
Spring return actuator 24 V and MB-BAC-WA1/2	ZB01

**FK2-EU with Belimo spring return actuator and  
TROXNETCOM**

(fig. size 2)



## Attachment – Explosion-proof spring return actuator and TROXNETCOM

### FK2-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 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"> <li>▪ Duct smoke detector for fire dampers and smoke protection dampers</li> <li>▪ General building inspectorate licence Z-78.6-125</li> <li>▪ For airflow velocities from 1 – 20 m/s</li> <li>▪ Independent of the airflow direction</li> <li>▪ Supply voltage 230 V AC, 50/60 Hz or 24 V DC with voltage monitoring module (VWM) (upon request)</li> <li>▪ Volt-free signal and alarm relays</li> <li>▪ Integral signal lamps</li> <li>▪ Contamination level indicator</li> <li>▪ Automatic adjustment of alarm threshold</li> <li>▪ Long service life</li> <li>▪ Temperature range 0 – 60 °C</li> </ul> | <ul style="list-style-type: none"> <li>▪ Duct smoke detector for fire dampers and smoke protection dampers</li> <li>▪ General building inspectorate licence Z-78.6-67</li> <li>▪ For airflow velocities from 1 – 20 m/s</li> <li>▪ Independent of the airflow direction</li> <li>▪ Airflow monitoring with warning for lower limit 2 m/s</li> <li>▪ Supply voltage 230 V AC, 50/60 Hz</li> <li>▪ Volt-free signal and alarm relays</li> <li>▪ Integral signal lamps</li> <li>▪ Contamination level indicator</li> <li>▪ Automatic adjustment of alarm threshold</li> <li>▪ Long service life</li> <li>▪ Temperature range 0 – 60 °C</li> </ul> |
|---|--|

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.

RM-O-3-D can also be supplied assembled and wired for FK2-EU with standard application.

## Nomenclature

**NS** [mm]

Nominal size of fire damper

**L** [mm]

Length of the fire damper

**q<sub>v</sub>** [m<sup>3</sup>/h]; [l/s]

Volume flow rate

**L<sub>WA</sub>** [dB(A)]

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

**A** [m<sup>2</sup>]

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<sub>st</sub>** [Pa]

Static differential pressure

**Lengths**

All lengths are given in millimetres [mm] unless stated otherwise.