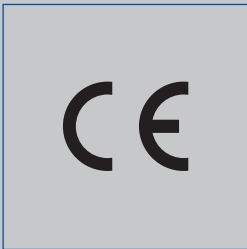




60 mm damper blade



Electric actuator, 24/230 V, with thermoelectric release mechanism (72 °C)



CE compliant according to European regulations



With TROXNETCOM as an option



Tested to VDI 6022

# Tunnel fire dampers

## Type FKT-EU



### Fire and smoke protection for the most critical requirements

Rectangular fire dampers with excellent temperature resistance, for the isolation of duct penetrations between fire compartments

- Nominal sizes 300 × 400 – 600 × 600 mm, in increments of 50 mm
- Casing and damper blade made of temperature-resistant calcium silicate
- Remote control with electric 24 V or 230 V actuator, thermal release at 72 °C
- Low differential pressure and sound power level
- Resists temperatures up to 1300 °C (according to HCM curve)
- Installation with horizontal damper blade shaft
- Casing air leakage to EN 1751, class C

Optional equipment and accessories

- Duct smoke detector RM-O-VS-D or RM-O-3-D
- Integration into the central BMS with TROXNETCOM

Type		Page
FKT-EU	General information	2
	Correct use	5
	Order code	6
	Attachments	7
	Installation details	9
	Quick sizing	10
	Technical data	11
	Dimensions and weight	12
	Specification text	13

### Description



FKT-EU with spring return actuator

### Application

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

### Classification

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

### Nominal sizes

- B × H: 300 × 400 – 600 × 600 mm (in increments of 50 mm)
- Casing length L = 690 mm

### Attachments

- Spring return actuator for 24/230 V AC/DC supply voltage
- Network module for the integration with AS-i or LON networks

### Useful additions

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

### Special features

- Declaration of performance according to Construction Products Regulation
- Classification according to EN 13501-3, EI 120 ( $v_e, i \rightarrow o$ ) S
- Building inspectorate licence Z-56.4212-990, non-hazardous to health
- Complies with the requirements of EN 15650
- Tested for fire resistance properties according to EN 1366-2
- Casing air leakage according to EN 1751, class C
- Resists temperatures up to 1300 °C (according to HCM curve)
- Installation with horizontal damper blade shaft
- Low differential pressure and sound power level
- Integration into the central BMS with TROXNETCOM

### Parts and characteristics

- Installation only with horizontal damper blade shaft

### Construction features

- Square or rectangular construction
- Actuated by a spring return actuator
- Remote control with actuator

### Materials and surfaces

- Casing and damper blade made of calcium silicate
- Brass bearings
- Shafts made of stainless steel

### Installation and commissioning

- Installation in solid concrete or masonry walls
- After installation the damper must remain accessible for inspection, cleaning and repair
- Connected ducts must have an inspection access

Tunnel fire dampers must be installed and attached according to the operating and installation manual.

### Standards and guidelines

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

### Maintenance

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

Technical data

Nominal sizes	300 × 400 to 600 × 600 mm
Casing length	690 mm
Volume flow rate range	Up to 3600 l/s or up to 13000 m <sup>3</sup> /h
Maximum static differential pressure	Up to 2000 Pa
Operating temperature	-30 to 50 °C
Release temperature	72 °C
Upstream velocity*	≤ 12 m/s
Temperature resistance	Up to 1300 °C (according to HCM curve)

### Function

### Functional description

In the event of a fire, tunnel fire dampers shut automatically to prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments.

The spring return actuator enables the motorised opening and closing of the damper blade; it can be activated by the central BMS.

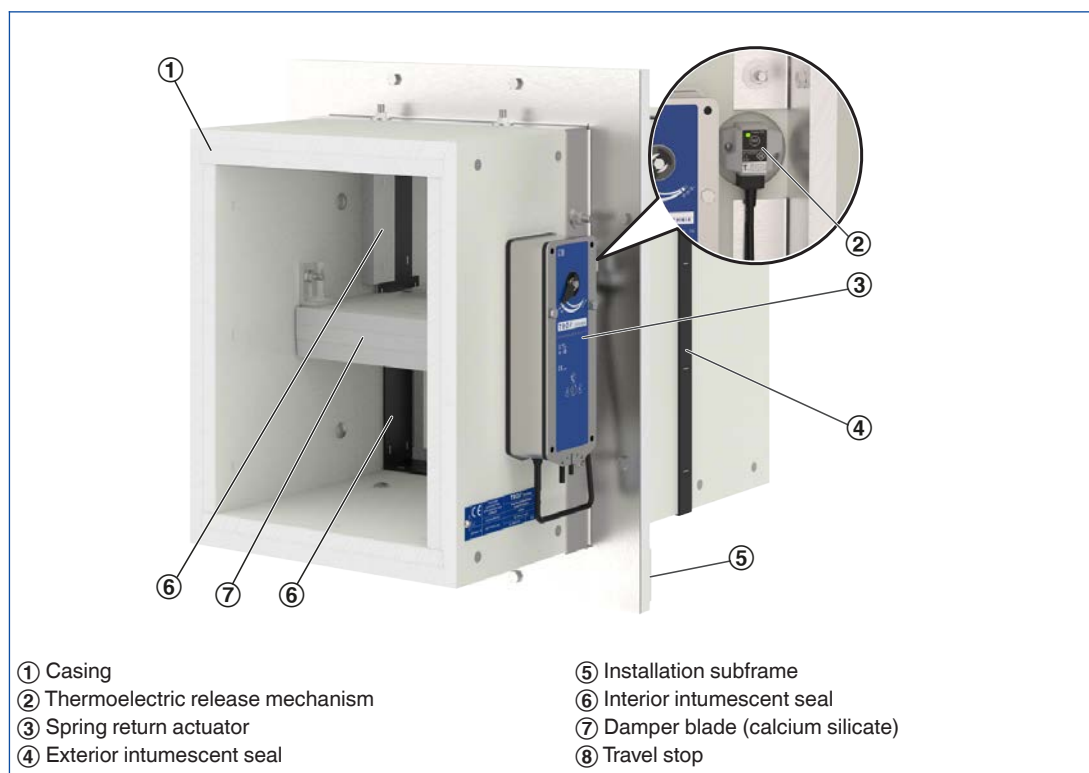
In the event of a fire, the damper is triggered thermoelectrically at 72 °C.

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).

The spring return actuator is fitted with limit switches that can be used for capturing the damper blade position.

### Schematic illustration of FKT-EU

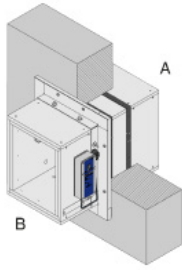


**Design information**

- The fire damper is used as an automatic shut-off device to prevent fire and smoke from spreading through ducting in tunnels
- The fire damper is suitable for supply air and extract air systems
- Operation of fire dampers is allowed only in compliance with installation regulations and the technical data in the installation and operating manual
- Modifying the fire damper or using replacement parts that have not been approved by TROX is not permitted

**If this fire damper is used in Germany:**

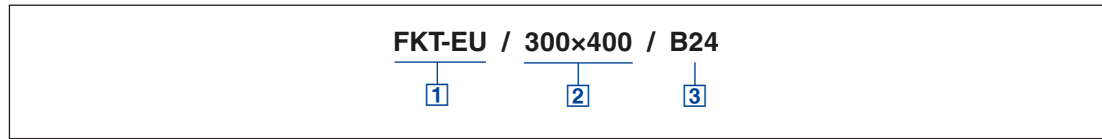
- Do not use it as an air transfer damper
- Do not use it in extract air systems in commercial kitchens

Essential characteristic: fire resistance HCM temperature curve – size [mm]: 300 × 400 to 600 × 600				
Supporting construction	Construction	Installation location	Installation type	Class of performance (EI TT)
	<ul style="list-style-type: none"> <li>• <math>d \geq 250</math> mm</li> <li>• <math>\rho \geq 2300</math> kg/m<sup>3</sup></li> </ul>	in the wall	Dry mortarless installation	EI 120 (v <sub>e</sub> i → o) S

A Installation side, exposed side (i) • B Operating side, non-exposed side (o)

Order code

FKT-EU



1 Type

**FKT-EU** Tunnel fire damper

2 Nominal size [mm]

B × H

3 Attachments

**Spring return actuator**

**BF24** 24 V AC/DC

**BF230** 230 V AC/DC

Order example

**FKT-EU/600x600/BF24**

**Nominal size**

600 × 600 mm

**Attachments**

Spring return actuator BF24-TN-ST TR, release temperature 72 °C

## Description



FKT-EU with spring return actuator

## Application

- An open/close actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close)
- Fire dampers with spring return actuators can be functionally checked OPEN/CLOSED/ OPEN
- Ambient temperature, normal operation -30 to +50 °C
- Two integral limit switches with volt-free contacts can indicate the damper blade position (OPEN and CLOSED)
- BF24-TN-ST TR: The connecting cables of the spring return actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system; BF230-TN TR, which is not fitted with plugs, can also be used

## Technical data



Spring return actuator  
BF24-TN-ST TR

### Spring return actuator BF24-TN-ST TR

<b>Supply voltage</b>		24 V AC ±20 % 50/60 Hz or 24 V DC -10 %/+20 %
<b>Power rating</b>	<b>Spring winding mechanism</b>	7 W
	<b>Hold position</b>	2 W
	<b>Rating</b>	10 VA
<b>Running time</b>	<b>Actuator / spring return</b>	Approx. 140 s/approx. 16 s
<b>Limit switch</b>	<b>Type of contact</b>	2 changeover contacts
	<b>Switching voltage</b>	5 – 120 V DC/5 – 250 V AC
	<b>Switching current</b>	1 mA – 6 A
	<b>Contact resistance</b>	< 100 mΩ
<b>IEC protection class</b>		III (protective extra-low voltage)
<b>Protection level</b>		IP 54
<b>EC conformity</b>		EMC according to 2004/108/EC
<b>Connecting cable</b>	<b>Length / cross section</b>	1 m/2(6*) × 0.75 mm <sup>2</sup>

\* Limit switch



Spring return actuator  
BF230-TN TR

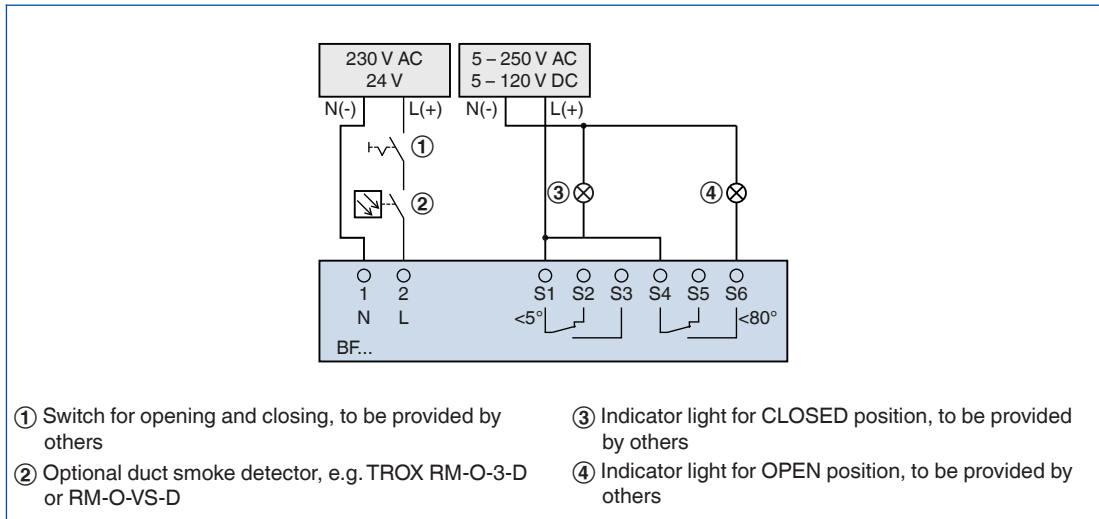
### Spring return actuator type BF230-TN TR

<b>Supply voltage</b>		230 V AC ±14 % 50/60 Hz
<b>Power rating</b>	<b>Spring winding mechanism</b>	8 W
	<b>Hold position</b>	3 W
	<b>Rating</b>	12.5 VA
<b>Running time</b>	<b>Actuator / spring return</b>	Approx. 140 s/approx. 16 s
<b>Limit switch</b>	<b>Type of contact</b>	2 changeover contacts
	<b>Switching voltage</b>	5 – 120 V DC/5 – 250 V AC
	<b>Switching current</b>	1 mA – 6 A
	<b>Contact resistance</b>	< 100 mΩ
<b>IEC protection class</b>		II (protective insulation)
<b>Protection level</b>		IP 54
<b>EC conformity</b>		EMC to 2004/108/EU, low voltage to 2006/95/EU
<b>Connecting cable</b>	<b>Length / cross section</b>	1 m/2(6*) × 0.75 mm <sup>2</sup>

\* Limit switch

## Wiring

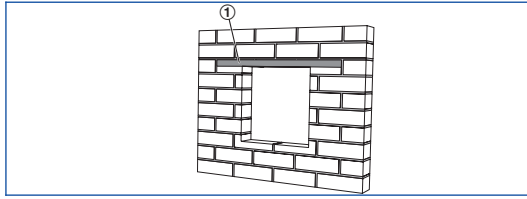
### BF actuator, CLOSED





## Installation types

### Installation opening in solid walls



Depending on the local conditions and the size of the fire damper, installation openings in a solid wall require a lintel ①. The size of each installation opening is given in the installation details.

### Connection of the damper to the ductwork

- The tunnel fire damper can be connected to one or two sheet steel ducts
- Cover grilles can be connected to one side or both sides of the damper. These jobs have to be performed by others.

### Note

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

### Quick sizing – differential pressure and sound power level

Quick sizing tables provide a good overview of the sound power levels and differential pressures that can be expected. Approximate intermediate values can be interpolated. Precise intermediate values and spectral data can be calculated with our Easy Product Finder design programme.

### Volume flow rate [m<sup>3</sup>/h], pressure loss ΔP [Pa] and sound power level [dB(A)] based on damper blade dimensions, at 10 m/s upstream velocity

H	10 m/s	B						
		300	350	400	450	500	550	600
400	m <sup>3</sup> /h	2160	2520	2880	3240	3600	3960	4320
	Pa	22	19	17	15	14	13	12
	dB(A)	44	43	43	43	43	43	43
450	m <sup>3</sup> /h	2430	2835	3240	3645	4050	4455	4860
	Pa	19	17	15	14	13	12	11
	dB(A)	43	42	42	42	42	42	42
500	m <sup>3</sup> /h	2700	3150	3600	4050	4500	4950	5400
	Pa	18	15	14	12	11	11	10
	dB(A)	43	42	42	42	42	42	42
550	m <sup>3</sup> /h	2970	3465	3960	4455	4950	5445	5940
	Pa	16	14	13	11	11	10	9
	dB(A)	43	42	42	42	42	42	42
600	m <sup>3</sup> /h	3240	3780	4320	4860	5400	5940	6480
	Pa	15	13	12	11	10	9	9
	dB(A)	42	41	41	41	41	41	41

Free area

Free area

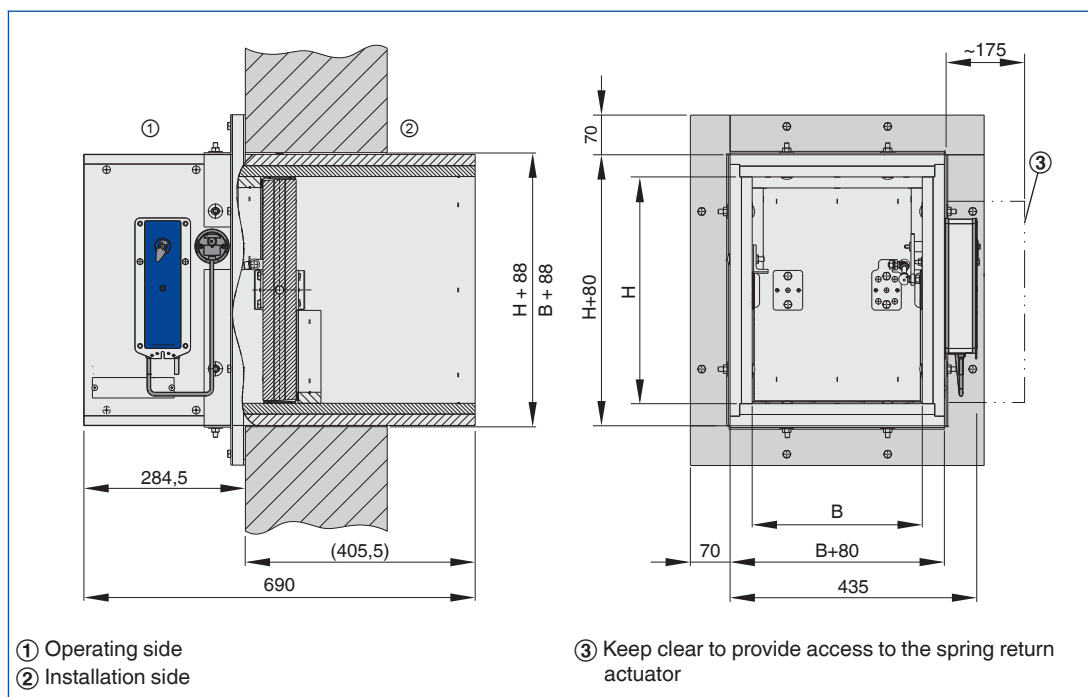
H	B [mm]						
	300	350	400	450	500	550	600
mm	m <sup>2</sup>						
400	0.066	0.080	0.094	0.111	0.123	0.137	0.151
450	0.078	0.095	0.112	0.129	0.145	0.162	0.178
500	0.090	0.110	0.129	0.148	0.167	0.187	0.206
550	0.103	0.124	0.146	0.167	0.189	0.211	0.233
600	0.115	0.140	0.163	0.188	0.212	0.236	0.260

### Dimensions



FKT-EU with spring return actuator

### FKT-EU



### Weights (including actuator)

H	B [mm]						
	300	350	400	450	500	550	600
mm	kg						
400	50	53	57	60	63	66	70
450	53	56	60	63	67	70	73
500	56	59	62	67	70	74	77
550	59	62	65	70	74	77	81
600	62	65	70	73	77	81	85

### Description

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

Square or rectangular tunnel fire damper to product standard EN 15650, tested to EN 1366-2, for the isolation of duct penetrations between fire compartments in the event of a fire. 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. The tunnel fire damper is suitable for installation in solid concrete or masonry walls. A 24 V/230 V spring return actuator closes the damper after it is triggered at 72 °C.

### Special features

- Declaration of performance according to Construction Products Regulation
- Classification according to EN 13501-3, EI 120 (v<sub>e</sub>, i → o) S
- Building inspectorate licence Z-56.4212-990, non-hazardous to health
- Complies with the requirements of EN 15650
- Tested for fire resistance properties according to EN 1366-2
- Casing air leakage according to EN 1751, class C
- Resists temperatures up to 1300 °C (according to HCM curve)
- Installation with horizontal damper blade shaft
- Low differential pressure and sound power level
- Integration into the central BMS with TROXNETCOM

### Materials and surfaces

- Casing and damper blade made of calcium silicate
- Brass bearings
- Shafts made of stainless steel

### Technical data

- Nominal sizes: 300 × 400 – 600 × 600 mm
- Casing length: 690 mm
- Volume flow rate range: Bis 3600 l/s oder bis 13000 m<sup>3</sup>/h
- Acceptable static differential pressure: up to 2000 Pa
- Operating temperature: -30 to 50 °C
- Release temperature 72 °C
- Upstream velocity: ≤ 12 m/s
- Temperature resistance: up to 1300 °C (according to HCM curve)

### Sizing data

- $\dot{V}$  \_\_\_\_\_  
[m<sup>3</sup>/h]
- $\Delta p_{st}$  \_\_\_\_\_  
[Pa]
- Air-regenerated noise
- $L_{PA}$  \_\_\_\_\_  
[dB(A)]

### Order options

#### 1 Type

**FKT-EU** Tunnel fire damper

#### 2 Nominal size [mm]

B × H

#### 3 Attachments

**Spring return actuator**

**BF24** \_\_\_\_\_ 24 V AC/DC

**BF230** \_\_\_\_\_ 230 V AC/DC