

Fire and Smoke Protection Systems

2015



Fire and Smoke Protection Systems

2015

The Control Systems catalogue corresponds to section 4 of the previously used KLIMA 2 catalogue.

The TROX catalogues have been completely revised and now offer several new features:

- Hardcover editions
- Simplified navigation
- List of advantages of each product at a glance
- Different chapters for principal products, additional components, and attachments

The following documentation is available to help you select and size TROX components and systems:

- Technical leaflets in the catalogues
- Design manuals
- Easy Product Finder design programme
- Compendium CD
- Website www.troxtechnik.com

This catalogue is a carbon neutral product.

TROX[®] TECHNIK

The art of handling air

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Air terminal devices



Air-Water Systems / Decentralised Ventilation



Multileaf Dampers / Attenuators / External Weather Louvres



Fire and Smoke Protection Systems

The Control Systems catalogue corresponds to section 4 of the previously used KLIMA 2 catalogue.



Control units



Control Systems



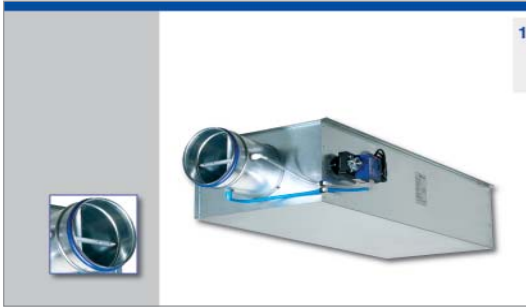
Filter Units / Filter Elements



X-CUBE – Air Handling Units



X-FANS – Building Fans



Technical document, or leaflet

Technical product documentation

... comprise:

- Product descriptions
- Information on the materials used
- Aerodynamic and acoustic data
- Dimensions
- Details on product characteristics
- Specification texts

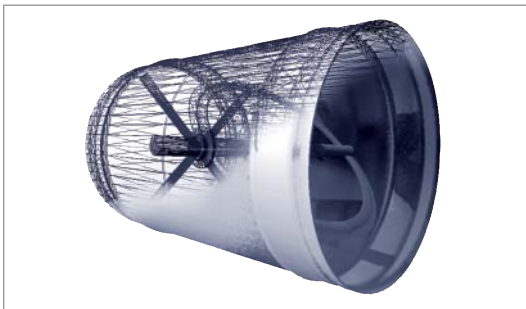


Design manual

Design manuals

... comprise:

- Basic information and technical concepts
- Step-by-step product design
- Overview and explanation on how to select the ideal system components

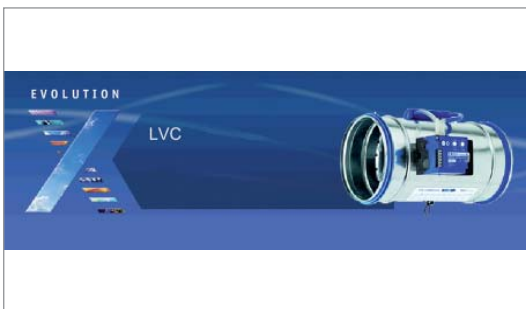


Design programme

Easy Product Finder design programme

... comprises everything to select and size TROX products:

- Technical data
- Diagrams, photos
- Order codes that can be edited
- CAD drawings(3D model; export function for DXF and other standard formats)
- Specification texts for each product and variant



Internet

Website www.troxtechnik.com

The entire documentation is available on the internet.

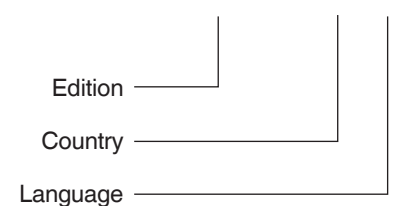
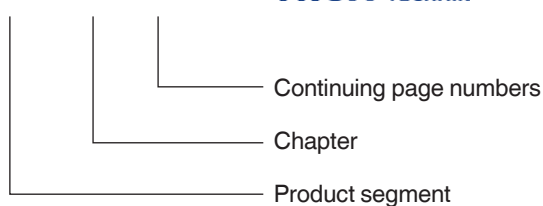
- Catalogue download center
- Individual product leaflets
- Installation examples
- References

Page numbering

K4 – 0.0 – 4

TROX® TECHNIK

06/2015 – DE/en



1



- 1 Fire dampers**
 - 1.1 Fire dampers
 - 1.2 Attachments
 - 1.3 Basic information and nomenclature
-

2



- 2 Smoke protection dampers**
 - 2.1 Smoke protection dampers
 - 2.2 Basic information and nomenclature
-

3



- 3 Duct smoke detectors**
 - 3.1 Duct smoke detectors
 - 3.2 Basic information and nomenclature
-

4



- 4 Smoke control dampers**
 - 4.1 Smoke control dampers
 - 4.2 Basic information and nomenclature
-

5



- 5 Tunnel dampers**
 - 5.1 Tunnel dampers
 - 5.2 Basic information and nomenclature
-

6



- 6 TROXNETCOM**
 - 6.1 LON
 - 6.2 AS-i
 - 6.3 Decentralised operating and monitoring systems
 - 6.4 Basic information and nomenclature
-

Additional information

- Z – 1 Product index
 - Z – 2 Disclaimer
 - Z – 3 TROX contact information
-



1 Fire dampers

Fire dampers are used for automatically shutting off fire compartments in ventilation and air conditioning systems. Their class of performance varies (up to EI 120 S), depending on their use. They are suitable for the installation in solid walls, solid ceiling slabs, lightweight partition walls (stud walls), lightweight fire walls and lightweight shaft walls. Depending on the selected type, they can be installed on the face of solid walls, adjacent to solid walls or remote from solid walls, and in lightweight partition walls with flexible ceiling joint. Mortar-based installation or dry mortarless installation is possible, with various installation kits or a fire batt system. Installation is carried out according to the operating and installation manual.

1.1 Fire dampers	Type	Page
 <p>For diverse applications</p>	FK-EU	1.1 – 1
 <p>Compact dimensions, ideal for restricted spaces</p>	FKS-EU	1.1 – 49
 <p>For large diameters, with or without a flange</p>	FKR-EU	1.1 – 74
 <p>Compact dimensions, ideal for restricted spaces</p>	FKRS-EU	1.1 – 111
 <p>For diffusers in suspended F30 ceilings</p>	KU-K30	1.1 – 139
 <p>For the extract air of commercial kitchens</p>	KA-EU	1.1 – 152



Fire protection valves for supply and extract air

FV-EU

1.1 – 169

1.2 Attachments for fire dampers

Type

Page



Attachments for fire dampers

Attachments for fire dampers

1.2 – 1

1.3 Basic information and nomenclature



Fire dampers

1.3 – 1



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



CE compliant according
to European regulations



With TROXNETCOM
as an option



ATEX certification



Tested to VDI 6022

Fire dampers

Type FK-EU



For diverse applications

Rectangular fire damper for the isolation of duct penetrations between fire compartments, for a variety of installation situations, available in many different sizes and constructions

- Nominal sizes 200 × 200 – 1500 × 800 mm, in increments of 1 mm
- Low differential pressure and sound power level
- Explosion-proof construction (ATEX) as an option
- Air transfer damper as an option
- Optional stainless steel casing or powder-coated casing for increased corrosion protection
- Integration into the central BMS with TROXNETCOM
- Universal installation options

Optional equipment and accessories

- Electric actuator 24 V/230 V
- Release temperature 72/95 °C
- Duct smoke detector RM-O-3-D

1

Type		Page
FK-EU	General information	1.1 – 2
	Correct use	1.1 – 10
	Order code	1.1 – 15
	Installation kit – installation in solid walls	1.1 – 16
	Installation kit – installation with flexible ceiling joint	1.1 – 18
	Installation kit – for installation on the face of solid walls	1.1 – 19
	Installation kit – for installation adjacent to solid walls	1.1 – 20
	Installation kit – for installation remote from solid walls	1.1 – 21
	Installation kit – for installation in lightweight partition walls/fire walls	1.1 – 23
	Cover grille	1.1 – 25
	Circular spigot	1.1 – 27
	Flexible connector	1.1 – 29
	Extension piece	1.1 – 31
	Limit switch	1.1 – 33
	Spring return actuator	1.1 – 34
	Air transfer damper	1.1 – 35
	TROXNETCOM	1.1 – 36
	Duct smoke detectors	1.1 – 37
	Quick sizing	1.1 – 38
	Free area, resistance coefficient and correction values	1.1 – 40
	Dimensions and weight – FK-EU	1.1 – 42
	Dimensions and weight – FK-EU/.../Z4*	1.1 – 43
	Dimensions and weight – FK-EU/.../ZEX*	1.1 – 44
	Dimensions and weight – FK-EU/.../Z**RM	1.1 – 45
	Dimensions – Duct connection	1.1 – 46
	Specification text	1.1 – 47
	Basic information and nomenclature	1.3 – 1

Variants

Product examples

FK-EU with fusible link



FK-EU with spring return actuator



FK-EU with spring return actuator
(explosion-proof)



FK-EU as air transfer damper



Description



Fire damper Type FK-EU

For detailed information on attachments see Chapter K4 – 1.2.

Application

- TROX fire dampers of Type FK-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 180 ($v_e, h_o, i \leftrightarrow o$) S

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 spring return actuator, duct smoke detector and cover grilles on both ends for use as an air transfer damper, with general building inspectorate licence Z-6.50-2031

Nominal sizes

- B × H: 200 × 200 – 1500 × 800 mm (in increments of 1 mm))
- L: 375 mm or 500 mm

Attachments

- Limit switch for damper blade position indication
- Limit switch for damper blade position indication for use in potentially explosive atmospheres
- Spring return actuator for 24 V AC/DC or 230 V AC supply voltage
- 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 pre-wired duct smoke detector, 24 V or 230 V supply voltage

Accessories

- Installation subframe and installation kit for dry mortarless installation in solid walls
- Installation kit for installation into solid non-load-bearing walls with flexible ceiling joint
- Installation kit for dry mortarless installation on the face of solid walls
- Installation kit for dry mortarless installation adjacent to solid walls
- Installation kit for dry mortarless installation remote from solid walls and ceiling slabs
- Installation kit for dry mortarless installation in lightweight partition walls/fire walls with metal support structure and cladding on both sides
- Installation kit for dry mortarless installation into shaft walls with or without metal support structure but with cladding on one side
- Installation kit for installation into lightweight partition walls with flexible ceiling joint
- Flexible connectors
- Cover grille
- Circular spigots

Useful additions

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

Special characteristics

- Declaration of performance according to Construction Products Regulation
- Classification to EN 13501-3, up to EI 180 ($v_e, h_o, i \leftrightarrow o$) S
- Building inspectorate licence Z-56.4212-991 for fire resistance properties
- Complies with the requirements of EN 15650
- Tested to EN 1366-2 for fire resistance properties
- Hygiene complies with VDI 6022 part 1 (07/2011), VDI 3803 (10/2002), DIN 1946 part 4 (12/2008), and EN 13779 (09/2007)
- Corrosion protection according to EN 15650 in connection with EN 60068-2-52
- Closed blade air leakage to EN 1751, class 2
- Casing air leakage to EN 1751, class C; $(B + H) \leq 700$, class B
- Low differential pressure and sound power level
- Any airflow direction
- Integration into the central BMS with TROXNETCOM

Parts and characteristics

- Fire dampers with casing length L = 500 mm only for installation: with installation subframe and installation kit; with installation kit for lightweight partition walls; adjacent to solid walls and remote from solid walls
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Single-handed operation

Construction features

- Rectangular or square construction, rigid casing, both flanges with fixing holes
- Suitable for the connection of ducts, spigots, flexible connectors or a cover grille
- The release mechanism is accessible and can be tested from the outside
- Two inspection access panels
- Remote control with spring return actuator

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

- Damper blade shafts and driving linkage made of stainless steel
- Brass or stainless steel bearings
- Seals of polyurethane or elastomer

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

Installation and commissioning

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

Mortar-based installation:

- In solid walls and ceiling slabs
- In non-load-bearing solid walls with flexible ceiling joint: with installation kit GM
- In lightweight partition walls and fire walls with metal support structure and cladding on both sides

Dry mortarless installation:

- In solid walls: with installation kit and installation subframe E1/E2
- In lightweight partition walls and fire walls with metal support structure and cladding on both sides: with installation kit ES
- In lightweight partition walls with metal support structure, cladding on both sides and flexible ceiling joint: with installation kit GL100
- In shaft walls with or without metal support structure and cladding on one side: with installation kit ES
- On the face of solid walls: with installation kit WA or WA short
- Adjacent to solid walls: with installation kit WV
- Remote from solid walls: with installation kit WE
- Remote from solid ceiling slabs: with installation kit WE (in horizontal duct)

Standards and guidelines

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

Maintenance

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

Technical data

Nominal sizes	200 × 200 to 1500 × 800 mm
Casing lengths	375 and 500 mm
Volume flow rate range	Up to 14400 l/s or up to 51840 m ³ /h
Differential pressure range	Up to 2000 Pa
Operating temperature	At least 0 – 50 °C **
Release temperature	72 °C or 95 °C (for warm air ventilation systems)
Upstream velocity*	≤ 8 m/s with standard construction; ≤ 12 m/s with spring return actuator

Note: Upstream velocity for the explosion-proof actuator ExMax/RedMax-15-BF TR is ≤ 10 m/s

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

** Temperatures may differ for units with attachments

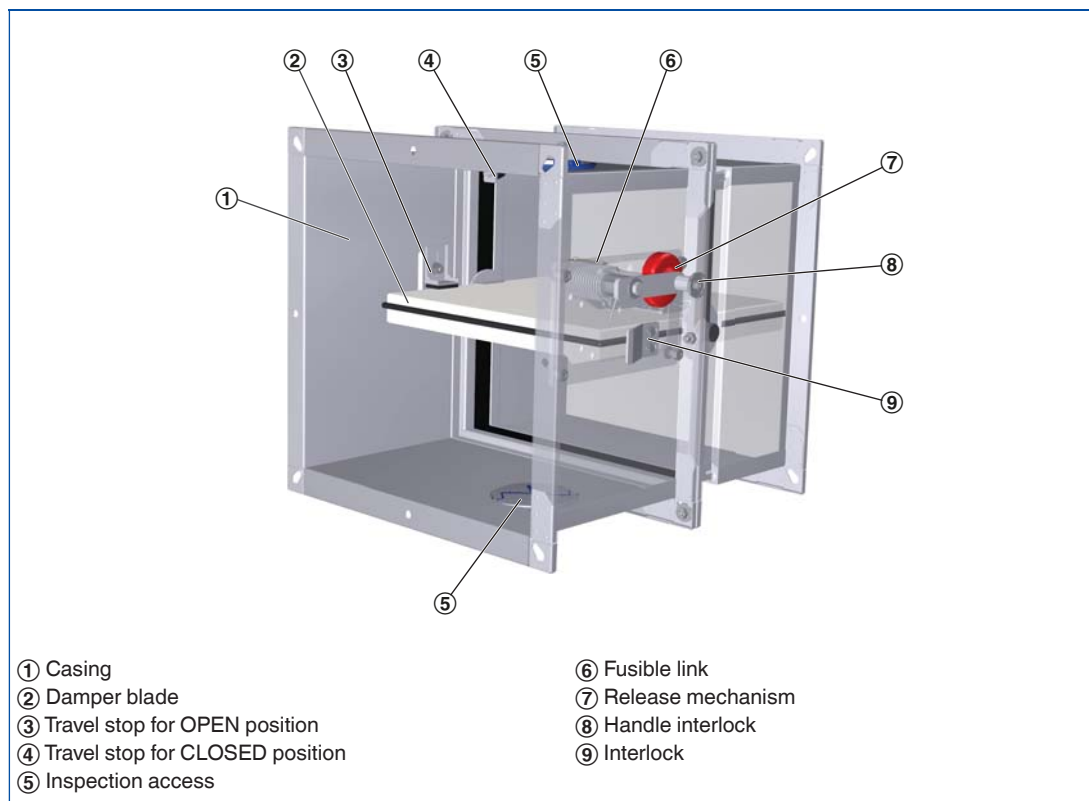
Function

Construction with fusible link

Functional description

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

Schematic illustration of FK-EU with fusible link



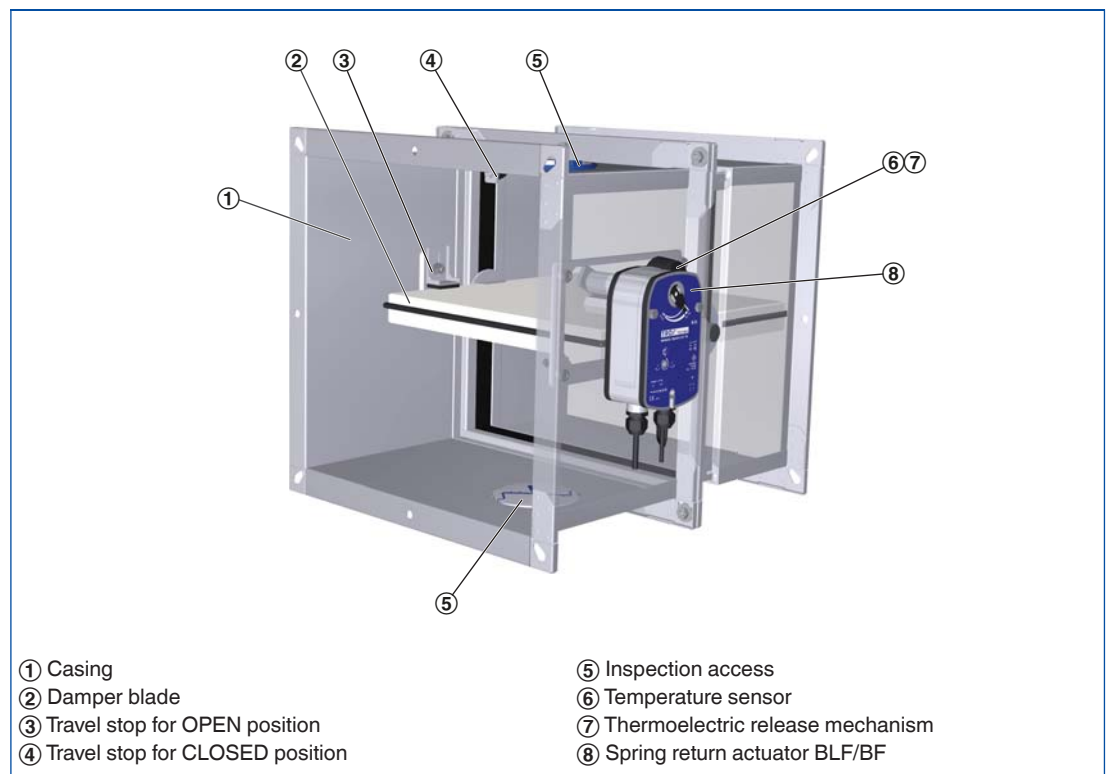
Function

Construction
with spring return actuator

Functional description

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

Schematic illustration of FK-EU with spring return actuator



Function

Construction with spring return actuator, explosion-proof

Functional description

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 the operation of the fire damper, the operating and installation manual and the technical data in the additional operating manual must be observed.

Use in areas with potentially explosive atmospheres (ATEX)

According to declaration of conformity TÜV 11 ATEX 085420 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 must be observed.

RedMax:

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

ExMax:

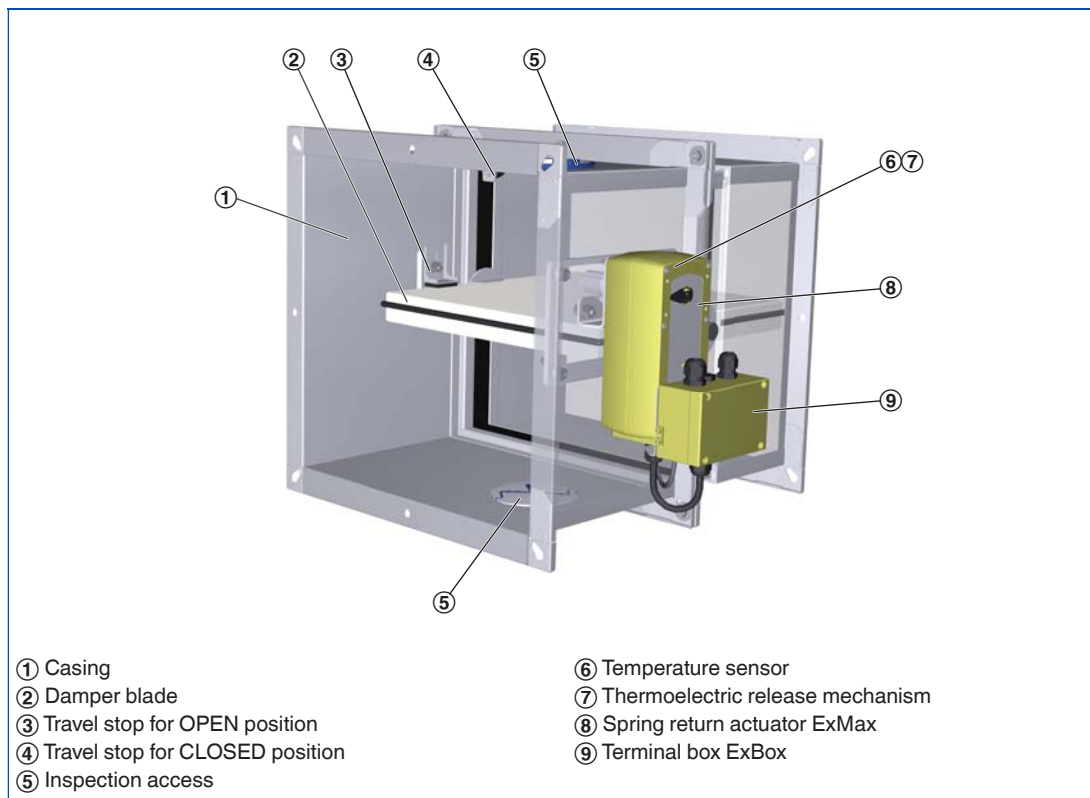
- Zones 1, 2: Gases, mists and vapours
- Zones 21, 22: Dusts



ATEX certification

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

Schematic illustration of FK-EU with spring return actuator, explosion-proof construction (e.g. ExMax-15-BF TR)



Function

Air transfer damper

Functional description

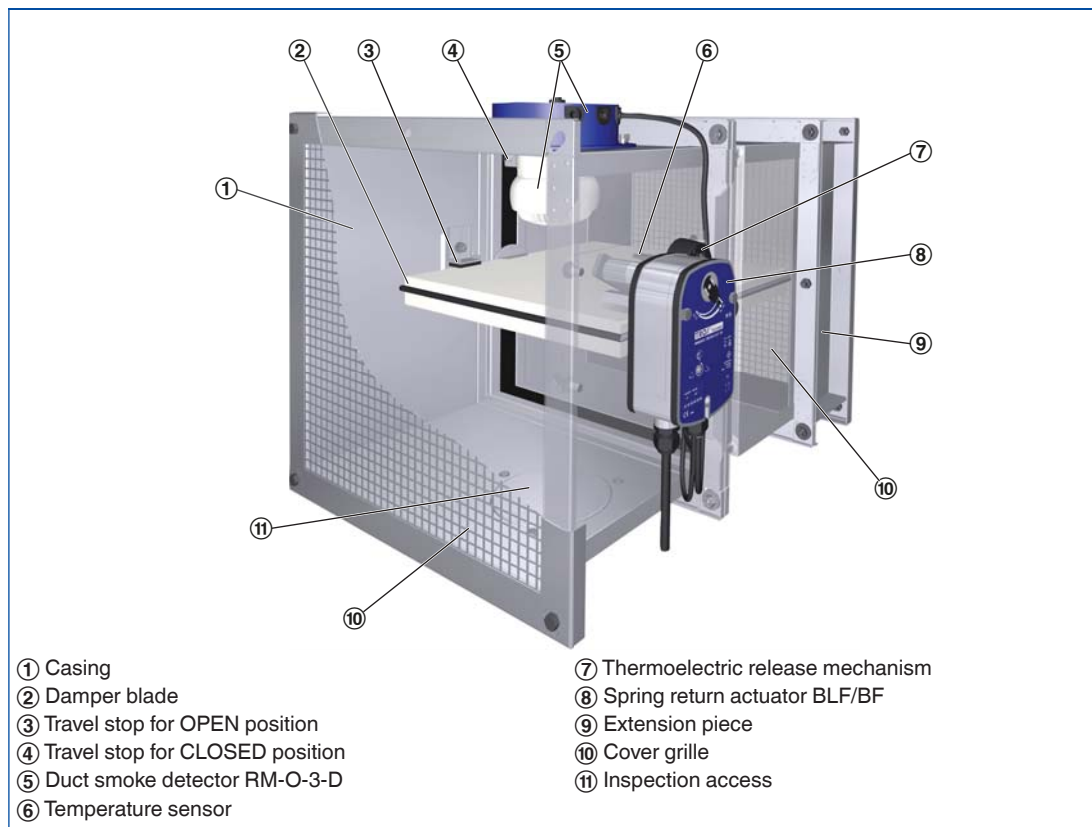
Air transfer dampers are designed to shut off openings for air transfer in fire resistant internal walls and ceiling slabs. To prevent smoke from spreading in buildings, it is extremely important that the smoke is detected at an early stage. Duct smoke detector Type RM-O-3-D is required to control and trigger the air transfer damper. The smoke detector operates on the principle of light scattering and detects the smoke regardless of its temperature so that the fire 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 spring return in the actuator causes the fire damper to close (power off to close). A second temperature sensor monitors the ambient temperature. If the supply voltage fails, the damper closes. Air transfer dampers consist of an FK-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.

Special characteristics

- Easy electrical connection
- Integration into the central BMS with TROXNETCOM
- General building inspectorate licence: Z-6.50-2031

For further and up-to-date information, including the general building inspectorate licence and the operating and installation manual, please refer to our website. For a more detailed selection and design of our fire dampers please refer to the Easy Product Finder design programme on our website.

Schematic illustration of FK-EU as air transfer damper





Design information

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

Incorrect use




- Never use the fire damper:
- 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

Correct use in solid walls

Installation location	Construction and building material	Minimum thickness	Performance class	Mortar-based installation		Dry mortarless installation	
				Casing length [mm]			
				mm	EI TT ($v_e-h_o, i \leftrightarrow o$) S	L = 375	L = 500
In solid walls	 Solid walls, gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	N	N	-	E
	Solid walls, gross density $\geq 500 \text{ kg/m}^3$	100	EI 120 S	-	-	-	W
	Solid walls, gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	-	-	W	W
In non-load-bearing solid walls with flexible ceiling joint and installation kit GM	 Solid walls, gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	-	-	-	E

N = mortar-based installation, E = installation kit, W = fire batt






Correct use on the face of, adjacent to and remote from solid walls

Installation location		Construction and building material	Minimum thickness mm	Performance class EI TT (v _e -h _o , i ↔ o) S	Mortar-based installation		Dry mortarless installation	
					Casing length [mm]			
					L = 375	L = 500	L = 375	L = 500
On the face of solid walls		Solid walls, gross density ≥ 500 kg/m ³	100	EI 90 S	-	-	-	E
Adjacent to solid walls		Solid walls, gross density ≥ 500 kg/m ³	100	EI 90 S	-	-	-	E
Remote from solid walls		Solid walls, gross density ≥ 500 kg/m ³	100	EI 90 S	-	-	-	E

E = Installation kit

Correct use in solid ceiling slabs






1

Installation location	Construction and building material	Minimum thickness	Performance class	Mortar-based installation		Dry mortarless installation		
				Casing length [mm]				
				L = 375	L = 500	L = 375	L = 500	
		mm	EI TT (v _e -h _o , i ↔ o) S					
In solid ceiling slabs ¹		Solid ceiling slabs, gross density ≥ 600 kg/m ³	125	EI 90 S	N	N	-	-
		Solid ceiling slabs, gross density ≥ 600 kg/m ³	150	EI 120 S	-	-	-	W
		Solid ceiling slabs, gross density ≥ 600 kg/m ³	125	EI 90 S	N	N	-	-
		Solid ceiling slabs, gross density ≥ 600 kg/m ³	125	EI 90 S	N	N	-	-
		Solid ceiling slabs, gross density ≥ 600 kg/m ³	125	EI 90 S	N	N	-	-
Suspended installation below the ceiling		Solid ceiling slabs, gross density ≥ 600 kg/m ³	125	EI 90 S	-	-	-	E

N = mortar-based installation, W = fire batt

¹ For FK-EU as air transfer damper only up to B × H = 500 × 500 mm

Correct use in lightweight partition walls and fire walls

Installation location	Construction and building material	Minimum thickness	Performance class	Mortar-based installation		Dry mortarless installation		
				Casing length [mm]				
				mm	EI TT (v _e -h _o , i ↔ o) S	L = 375	L = 500	L = 375
Lightweight partition walls with metal support structure and cladding on both sides		Lightweight partition walls	100	EI 90 S	N	N	–	E
		Lightweight partition walls	100	EI 120 S ²	–	–	–	W
		Lightweight partition walls	100	EI 90 S	–	–	W	W
Lightweight partition walls with metal support structure and cladding on both sides, and with flexible ceiling joint		Lightweight partition walls	100 ³	EI 90 S	–	–	–	E
Fire walls with metal support structure and cladding on both sides		Fire walls	115	EI 90 S	N	N	–	E
Lightweight partition walls with metal support structure and cladding on one side		Shaft walls	90	EI 90 S	–	–	–	E
Lightweight partition walls without metal support structure and cladding on one side		Shaft walls	40	EI 90 S	–	–	–	E

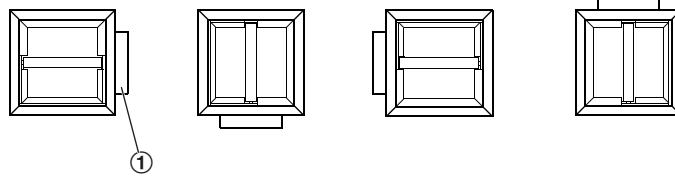
N = mortar-based installation, E = installation kit, W = fire batt

² Only with lightweight partition walls with a fire resistance ≥ F 120

³ Wall thickness ≤ 225 mm and 175 mm width of metal studs

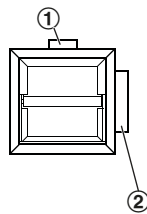
1 Installation orientation

Installation orientation with horizontal ducts



① Release mechanism (mechanical or spring return actuator)

Installation orientation when used as an air transfer damper with horizontal ducts



① Duct smoke detector

② Spring return actuator

Order code

FK-EU

FK – EU – 1 / DE / 600x400x500 / ES / SS / Z43						
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>

1 Type

FK-EU Fire damper

2 Construction

- No entry: standard construction
- 1** Casing powder-coated RAL 7001
- 2¹** Casing made of stainless steel
- 7** With coated damper blade
- 1 – 7** Casing powder-coated RAL 7001, with coated damper blade
- 2 – 7¹** Casing made of stainless steel, with coated damper blade
- W²** With fusible link 95 °C (only for use in warm air ventilation systems)

3 Country of destination

- DE** Germany
- Other destination countries upon request

4 Nominal size [mm]

B × H × L

5 Accessories 1

No entry: none

E1 – GL 100³

6 Accessories 2

No entry: none

A0 – SS

7 Attachments

Z00 – ZEX4

¹ Not for use with fire batts

² W can be combined with all constructions listed under **2**, but not with attachments listed under **7** ZEX1 – ZEX4 and Z43RM – Z45RM

³ GL 100 for wall thickness 100 mm when 50 mm sections are used. Other wall thicknesses and section widths upon request.

Order examples

FK-EU-1/600x400x500/A0/Z43

Construction	Casing powder-coated, RAL 7001, silver grey
Nominal size	600 × 400 × 500 mm
Attachment	Cover grille on operating side
Accessories	Spring return actuator 230 V AC

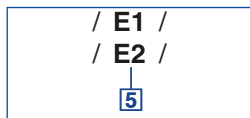
FK-EU-1/600x400x500/AA/Z43RM

Construction	Casing powder-coated, RAL 7001, silver grey
Nominal size	600 × 400 × 500 mm
Attachment	Cover grilles on both sides
Accessories	Spring return actuator 230 V AC with factory mounted and pre-wired duct smoke detector (air transfer application)

FK-EU-2/600x400x500/ZEX1

Construction	Casing made of stainless steel
Nominal size	600 × 400 × 500 mm
Accessories	Spring return actuator 24 – 230 V, explosion-proof

Description



Order code detail

Application

- Installation in solid walls without perimeter mortar infill (dry mortarless installation) requires an installation subframe and an installation kit
- Fire damper, installation subframe and installation kit are supplied unassembled
- Assembly and installation are to be performed by others
- Fire dampers with installation subframe and installation kit only with casing length L = 500 mm
- The installation subframe and the fire damper with installation kit must be installed and secured according to the operating and installation manual
- Fire dampers installed in this manner can be easily removed.

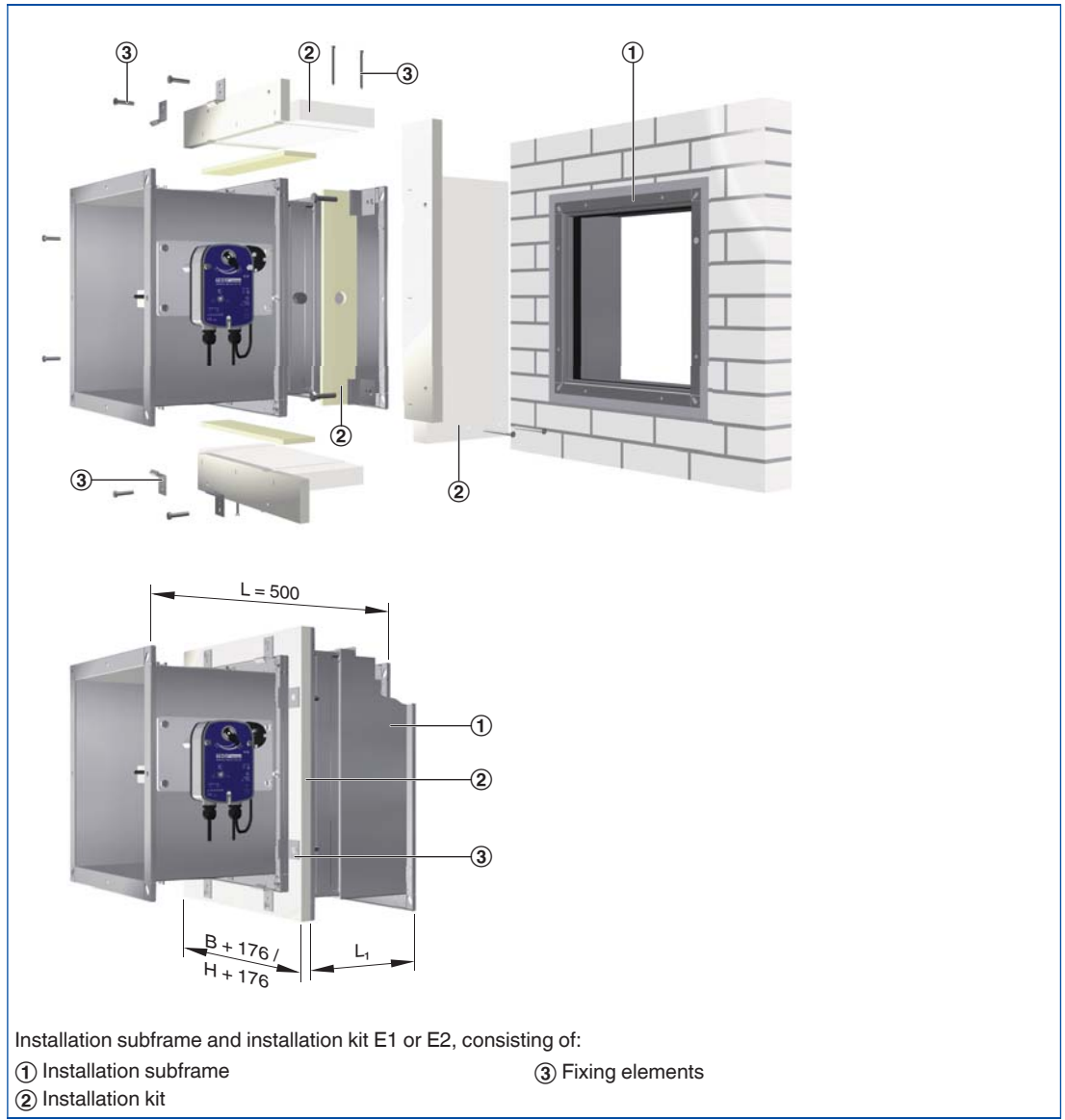
Materials and surfaces

- Installation subframe made of galvanised steel and with intumescent seal
- Installation kit made from special insulation material and mineral wool strips
- Fixing elements made of galvanised steel

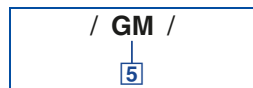
Installation kit for dry mortarless installation in solid walls

L ₁ in mm	L [mm]	Order code
115	500	E1
240	500	E2

FK-EU with installation subframe and installation kit E1 or E2



Description



Order code detail

Application

- Installation into solid non-load-bearing internal walls with flexible ceiling joint requires an installation kit
- With the installation kit the fire damper may be installed just below the movement joint; the joint is not interrupted by the installation kit
- The mineral wool used for the flexible joint can also be used above the fire damper
- The fire damper is mortared in together with the installation kit on three sides (to be performed by others)
- Fire dampers with installation kit only with casing length L = 500 mm
- The fire damper and the installation kit must be installed and secured according to the operating and installation manual

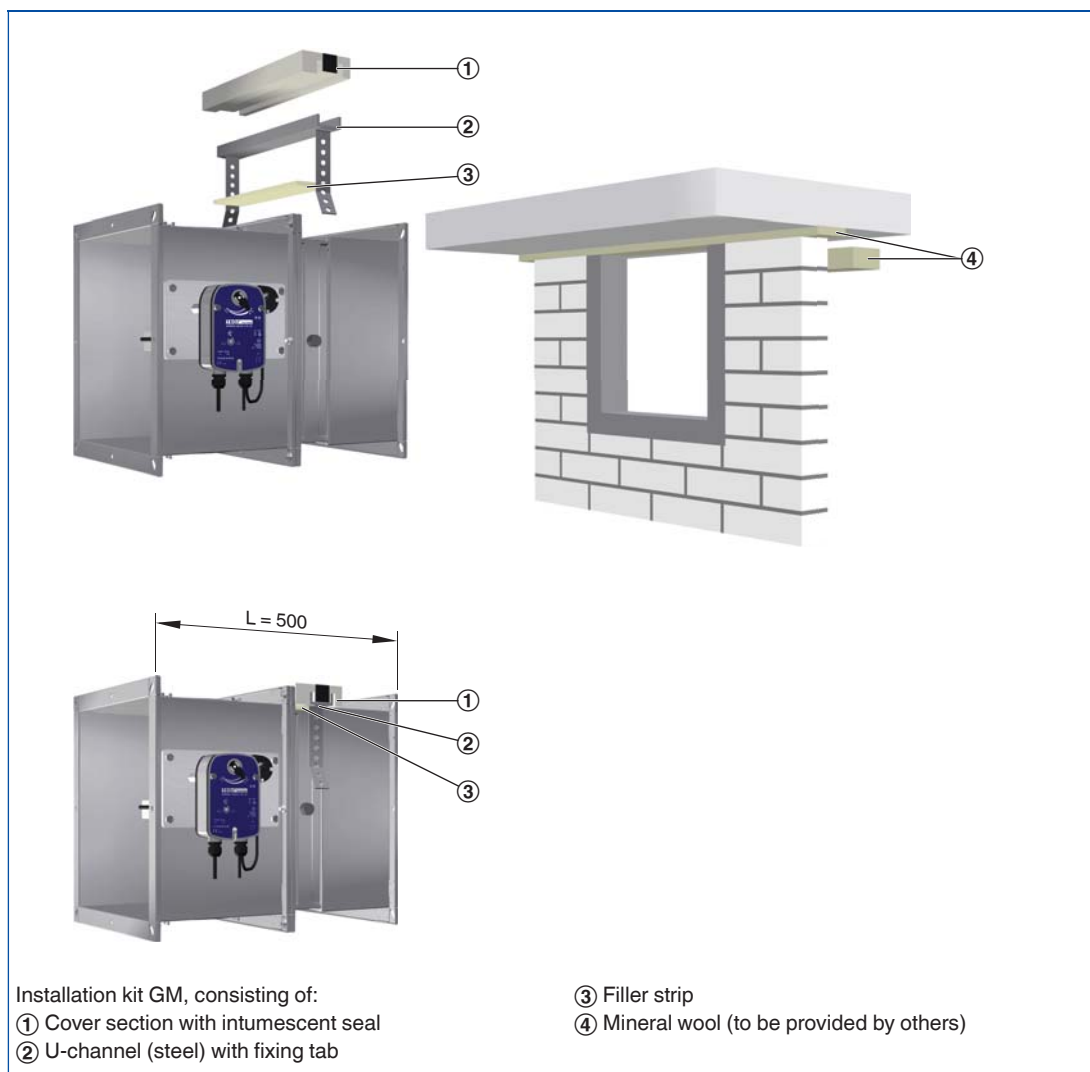
Materials and surfaces

- Cover section made of special insulation material and with intumescent seal
- U-channels made of galvanised steel
- Fixing tabs made of galvanised steel
- Filler strips made of mineral wool

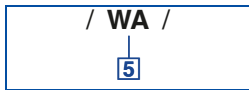
Installation kit for installation into solid non-load-bearing walls with flexible ceiling joint

L [mm]	Order code
500	GM

FK-EU with installation kit GM



Description



Order code detail

Application

- Dry mortarless installation on the face of solid walls requires an installation kit
- Fire damper and installation kit are supplied partly assembled
- Assembly and installation are to be performed by others
- The fire damper and the installation kit must be installed and secured according to the fire damper operating and installation manual and the WA installation manual
- Fire dampers with installation kit only with casing length L = 500 mm

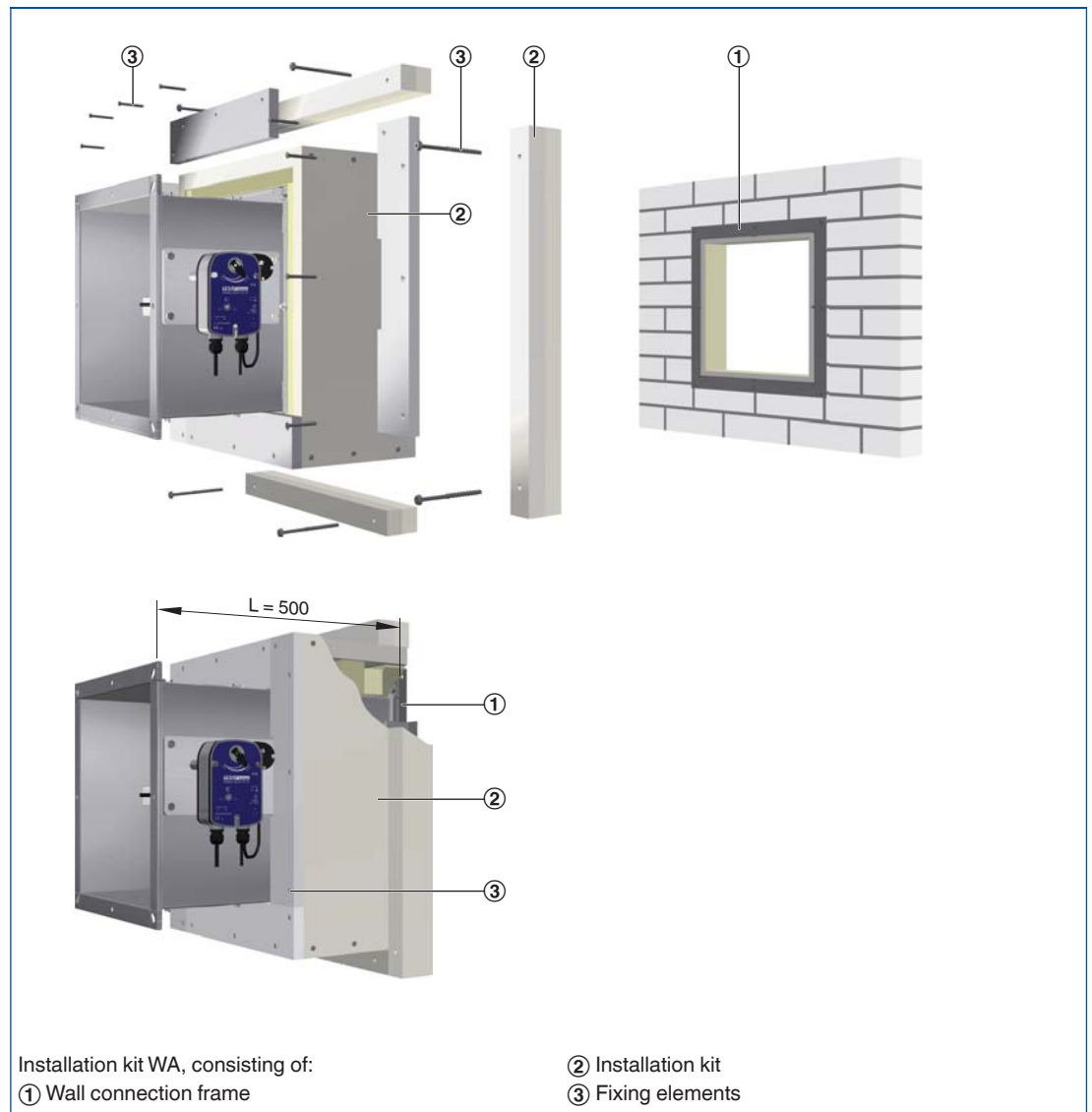
Materials and surfaces

- Wall connection frame made of galvanised steel and with seal
- Installation kit made from special insulation material and mineral wool strips
- Fixing elements made of galvanised steel

Installation kit for dry mortarless installation on the face of solid walls

L [mm]	Order code
500	WA

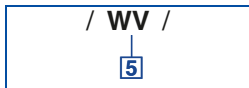
FK-EU with installation kit WA



Installation kit WA, consisting of:
 ① Wall connection frame

② Installation kit
 ③ Fixing elements

Description



Order code detail

Application

- Dry mortarless installation adjacent to solid walls requires an installation kit
- The installation kit is used for the refurbishment of old fire dampers that have been mortared in, or for the connection to a sheet steel duct that has been mortared in; with $x \leq 260$ mm
- Fire damper and installation kit are supplied partly assembled
- Assembly and installation are to be performed by others
- Fire dampers with installation kit only with casing length $L = 500$ mm
- The fire damper and the installation kit must be installed and secured according to the fire damper operating and installation manual and the WV installation manual

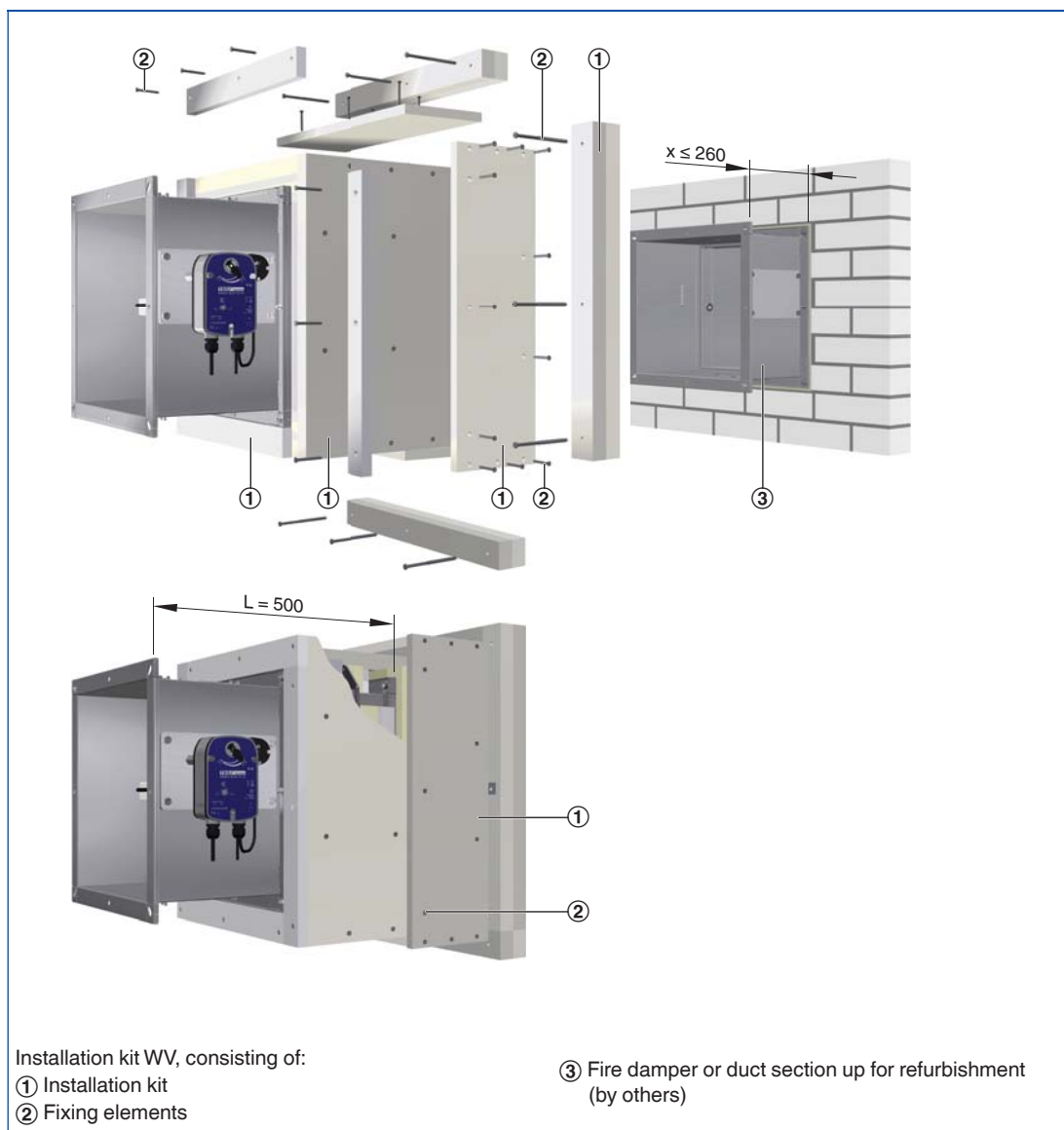
Materials and surfaces

- Installation kit made from special insulation material and mineral wool strips
- Fixing elements made of galvanised steel

Installation kit for dry mortarless installation adjacent to solid walls, with $x \leq 260$ mm

L [mm]	Order code
500	WV

FK-EU with installation kit WV



Description



Order code detail

Application

- Dry mortarless installation remote from solid walls or ceiling slabs requires an installation kit
- The installation kit contains all special parts
- Cut-to-size calcium silicate boards are to be provided by others
- Fire damper and installation kit are supplied partly assembled
- Assembly and installation are to be performed by others
- The fire damper and the installation kit must be installed and secured according to the fire damper operating and installation manual and the WE installation manual
- Fire dampers with installation kit only with casing length L = 500 mm

Materials and surfaces

- Installation kit made from special insulation material and mineral wool strips
- Fixing elements made of galvanised steel
- Existing ducts made of galvanised steel

1

Installation kit for dry mortarless installation remote from solid walls

L [mm]	Order code
500	WE

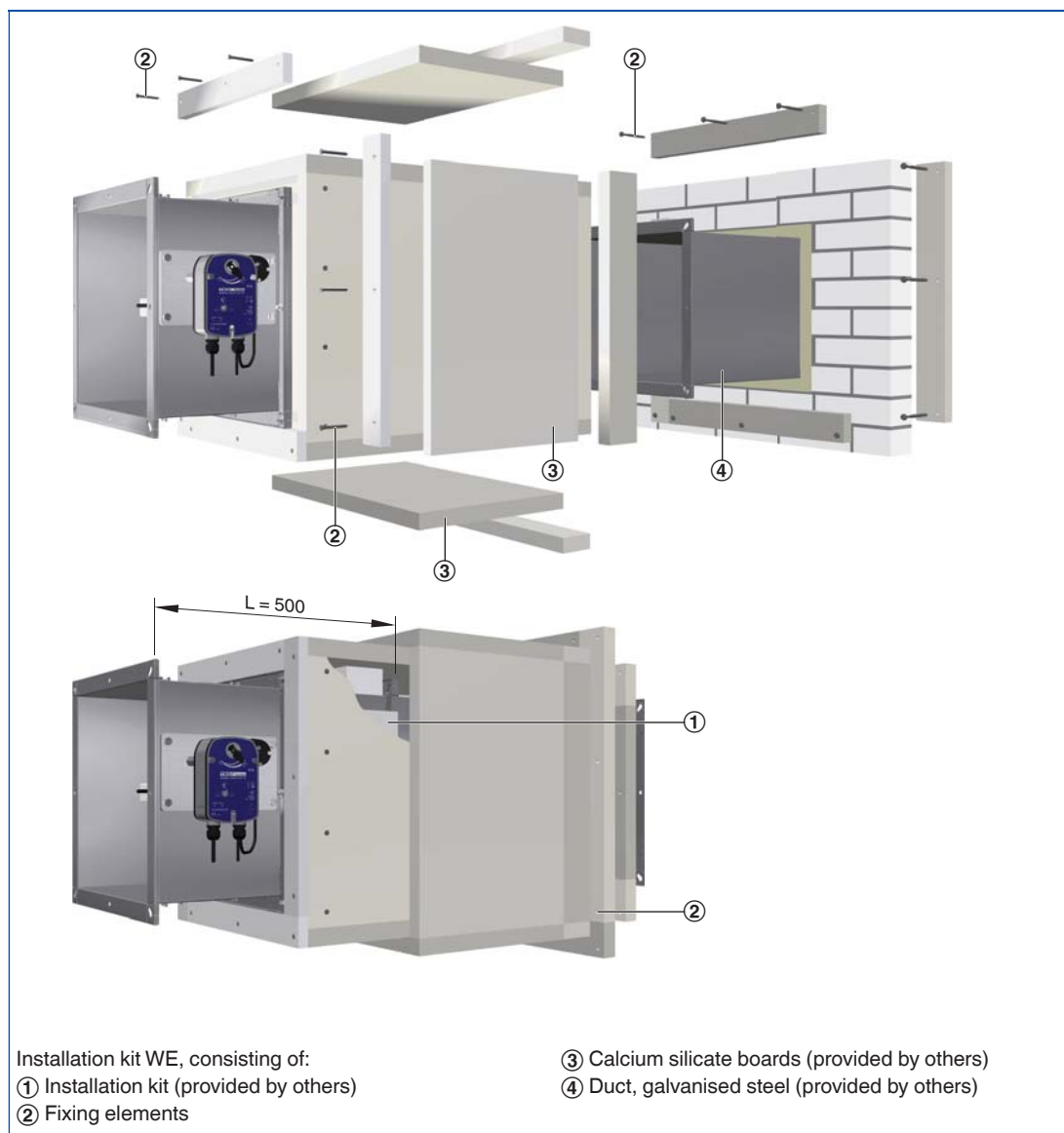
To be provided by others

Name	Property/size
Mineral wool	Gross density $\geq 80 \text{ kg/m}^3$, melting point $> 1000 \text{ }^\circ\text{C}$
Mineral wool, 80 mm thick (slab)	Gross density $\geq 80 \text{ kg/m}^3$, melting point $> 1000 \text{ }^\circ\text{C}$
Fixing tab	HUS-H 6 x 100
Washer	8.4, EN ISO 7093-1
Hexagon head screw	M8 x 16, EN ISO4017
Hexagonal nut	M8, EN 24032
Dry wall screw	$\varnothing 5 \times 50$, $\varnothing 5 \times 70$, $\varnothing 5 \times 80$
Threaded rod	M12
Hilti mounting rail	MQ 41-3 or equivalent
Hilti perforated plate	MQZ L13 or equivalent
Steel wire clip	63/11, 2/1, 53
Adhesive	Promat K84
PROMASEALMastic fire protection mastic	Paste
Promatect-LS and Promatect-H	–

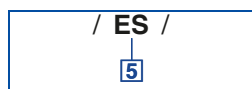
Other details according to the WE installation manual.

1

FK-EU with installation kit WE



Description



Order code detail

Application

- Installation without perimeter mortar infill (dry mortarless installation) in lightweight partition walls with metal support structure and cladding on both sides, or installation in shaft walls with or without metal support structure but with cladding on one side requires an installation kit.
- Fire damper and installation kit are supplied unassembled
- Assembly and installation are to be performed by others
- Fire dampers with installation kit only with casing length $L = 500$ mm
- The fire damper and the installation kit must be installed and secured according to the operating and installation manual

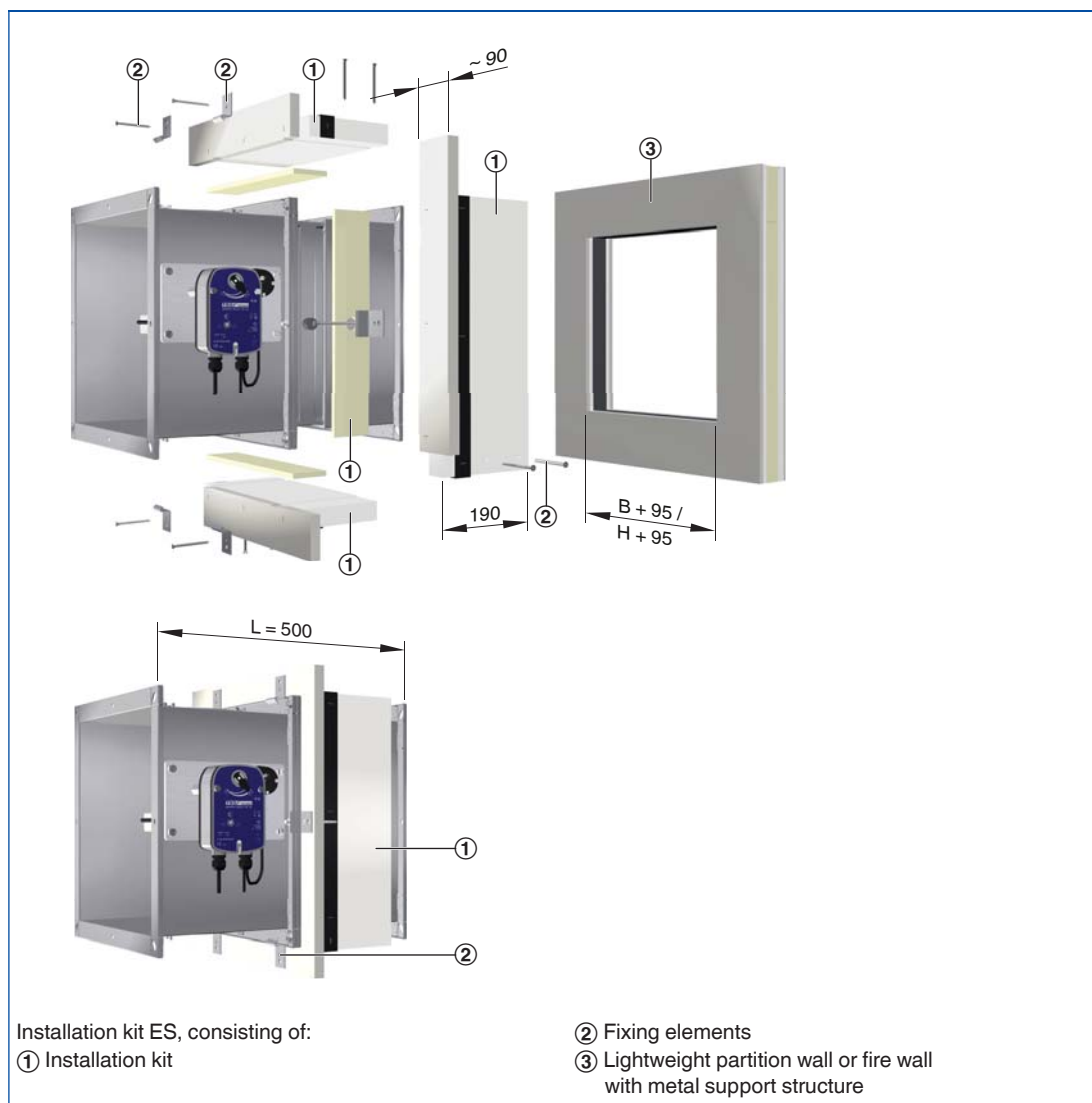
Materials and surfaces

- Installation kit made from special insulation material with intumescent seal and mineral wool strips
- Fixing elements made of galvanised steel

Installation kit for dry mortarless installation in lightweight partition walls, fire walls and shaft walls

L [mm]	Order code
500	ES

FK-EU with installation kit ES



Installation kit ES, consisting of:
 ① Installation kit

② Fixing elements
 ③ Lightweight partition wall or fire wall with metal support structure

Description



Order code detail

Application

- Dry mortarless installation in lightweight partition walls with metal support structure, cladding on both sides, and with flexible ceiling joint, directly underneath solid ceiling slabs, requires an installation kit.
- The installation kit allows for subsidence of the slab whilst maintaining sealing integrity around the fire damper
- Installation kit, extension piece and the U-channel underneath the installation kit are assembled at the factory to form a unit.
- The fire damper is fixed to the ceiling slab with the fixing elements for the installation kit (to be performed by others)
- Fire dampers with installation kit only with casing length $L = 500$ mm
- The fire damper and the installation kit must be installed and secured according to the operating and installation manual

Materials and surfaces

- Installation subframe made of special insulation material
- U-channels made of galvanised steel
- Threaded rods made of galvanised steel
- Fixing elements made of galvanised steel
- Extension piece made of galvanised steel (constructions 1, 2, 1-7 and 2-7 additionally powder coated, silver-grey, RAL 7001)

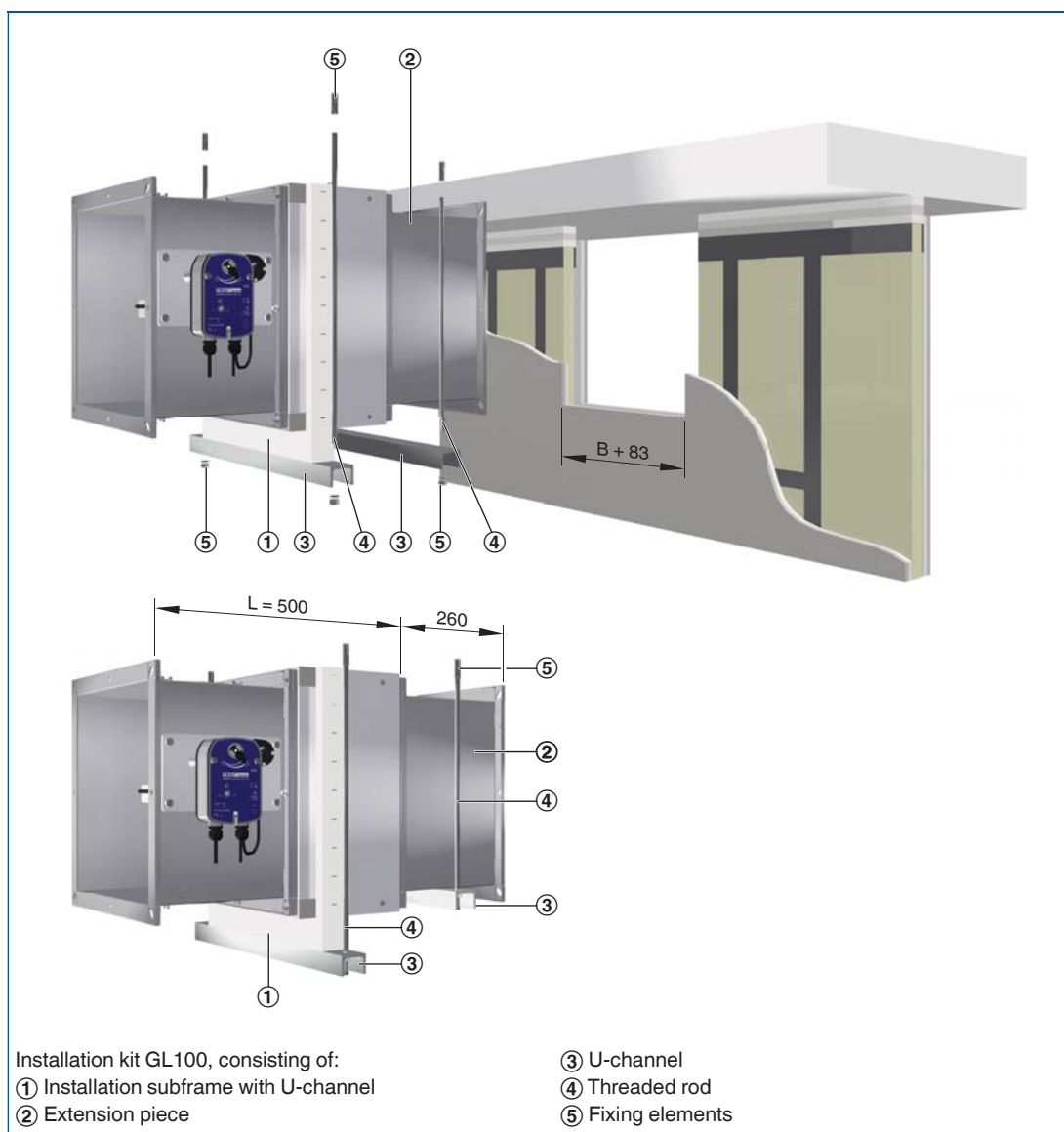
Installation kit for lightweight partition walls with flexible ceiling joint

Wall thickness [mm]	L [mm]	Order code
100	500	GL100 ¹

¹For wall thickness 100 mm when 50 mm sections are used.

Other wall thicknesses and section widths upon request.

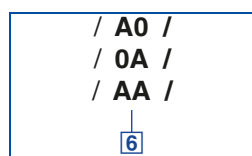
FK-EU with installation kit GL100



Description



Cover grille



Order code detail

Application

- If only one end is to be ducted on site, the other end must have a cover grille
- For certain heights an extension piece may be required, see table
- Fire damper, cover grille and, if applicable, extension piece are factory assembled to form a unit
- The free area of the cover grille is approx. 70%
- The fixing holes in the cover grilles and extension pieces match those in the fire damper flanges
- Cover grilles are also available separately
- Cover grilles both ends are approved in Germany only for Type FK fire dampers used as air transfer dampers, general building inspectorate licence Z-6.50-2031.

Materials and surfaces

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

Cover grilles for FK-EU · FK-EU-1 · FK-EU-2 · FK-EU-7

Operating side	Installation side	Order code
Cover grille	-	A0
-	Cover grille	0A
Cover grille	Cover grille	AA

Note: AA for FK-EU as air transfer damper

Technical data

Location and length of extension pieces [mm]

H	Operating side	Installation side	L	Order code
200 – 550	-	-	375/500	A0
600 – 800	120	-	375/500	A0
200 – 300	-	-	500	0A
350 – 550	-	120	500	0A
600 – 800	-	260	500	0A
200 – 300	-	-	500	AA
350 – 550	-	120	500	AA
600 – 800	120	260	500	AA

Note:

Cover grilles for both sides (AA) are available only for the construction used as an air transfer damper.

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

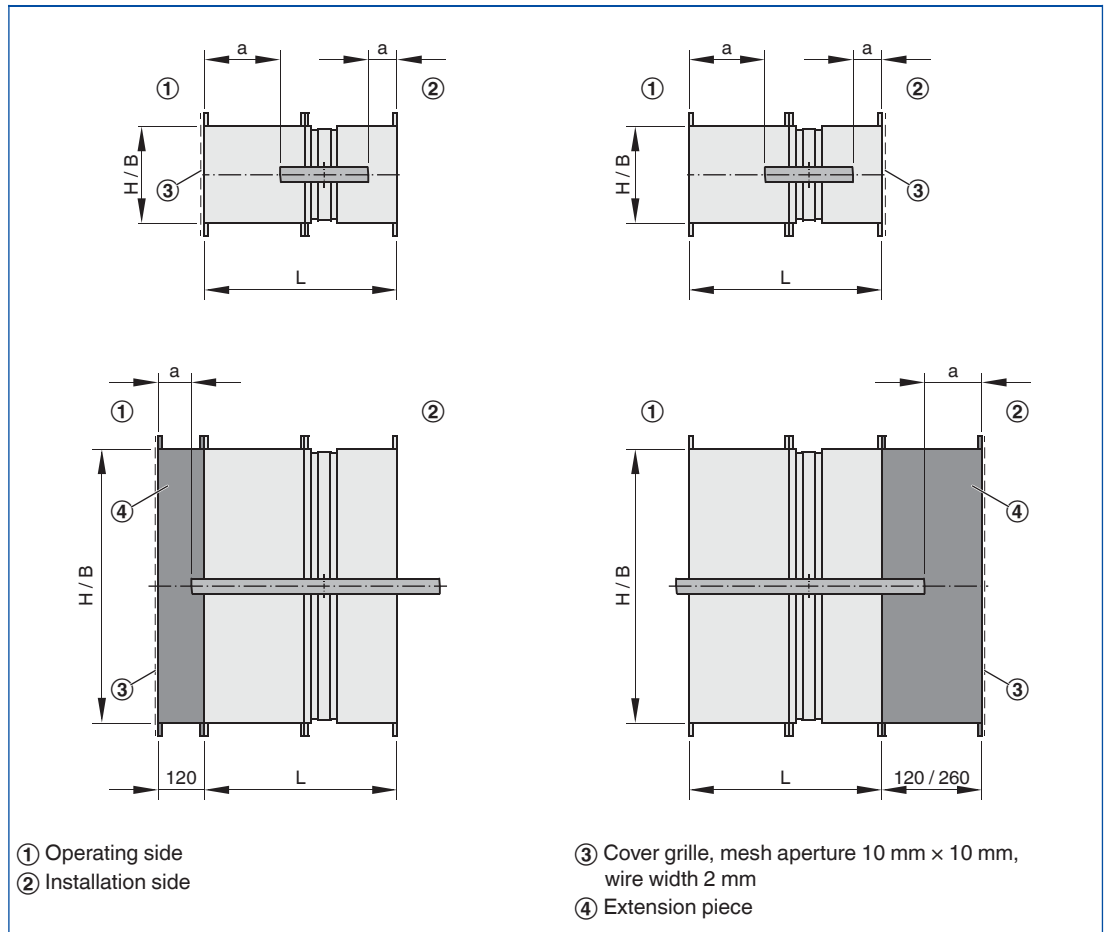
Cover grille



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

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

Cover grille



Extension piece and cover grille are supplied factory assembled.

Description

Application

- Use of circular spigots facilitates the direct connection of circular ducts
- For certain heights an extension piece may be required, see table
- Fire damper, spigot and, if applicable, extension piece are factory assembled to form a unit
- The fixing holes in the spigot plates and extension pieces match those in the fire damper flanges
- Spigot plates are also available separately.

Materials and surfaces

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

1

/ R0 /
/ OR /
/ RR /
6

Order code detail

Circular spigot plate for FK-EU · FK-EU-1 · FK-EU-2 · FK-EU-7

Operating side	Installation side	Order code
Spigot	-	R0
-	Spigot	OR
Spigot	Spigot	RR

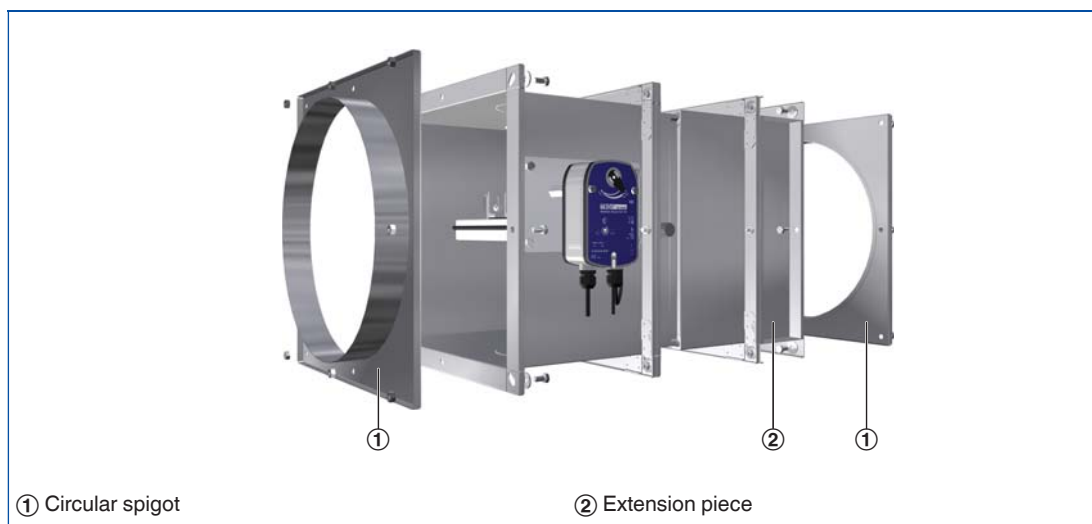
Technical data

Location and length of extension pieces [mm]

H	Operating side	Installation side	L	Order code
200 – 550	-	-	375/500	R0
600 – 800	120	-	375/500	R0
200 – 300	-	-	500	OR
350 – 550	-	120	500	OR
600 – 800	-	260	500	OR
200 – 300	-	-	500	RR
350 – 550	-	120	500	RR
600 – 800	120	260	500	RR

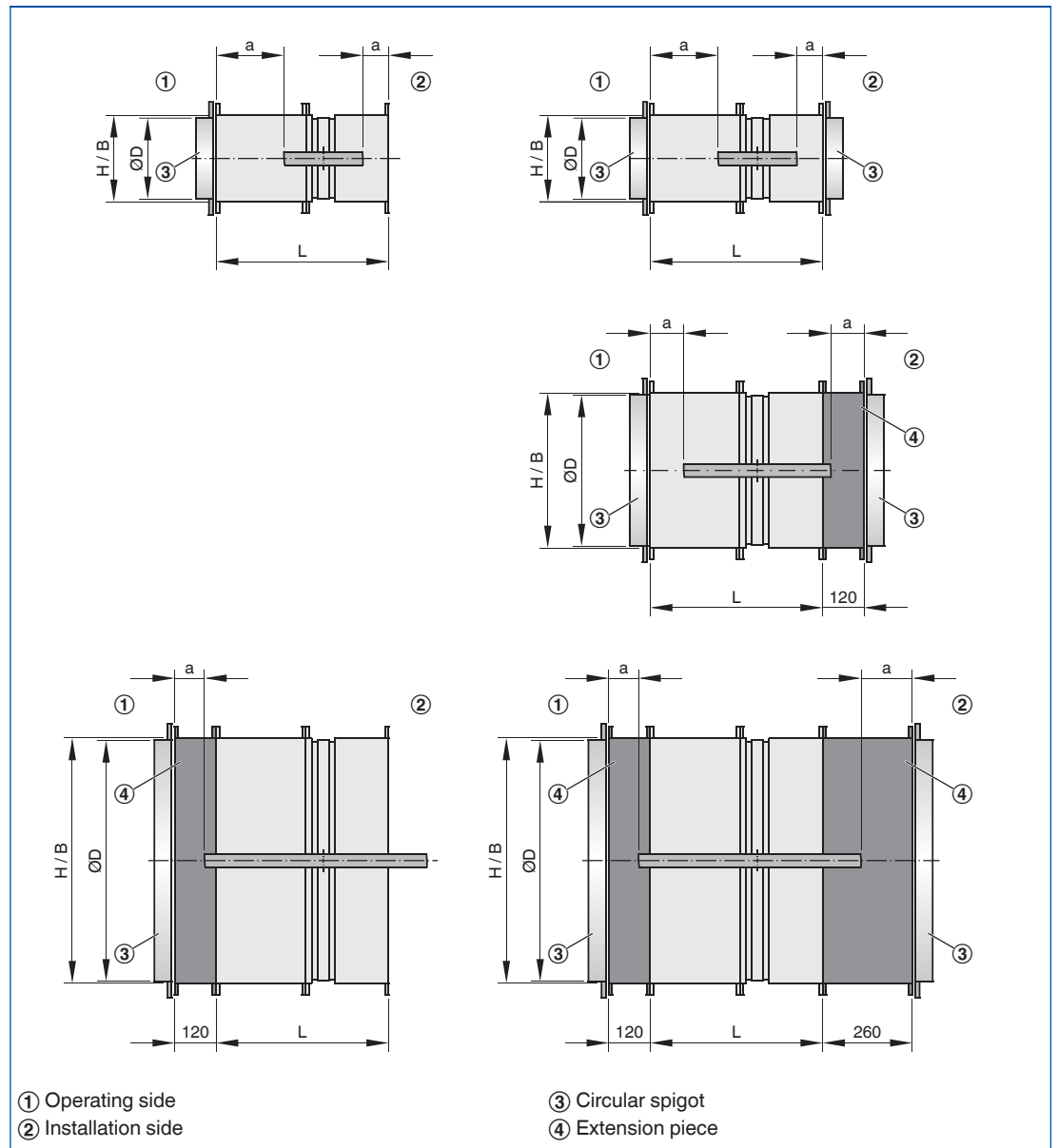
The distance »a« between the open damper blade and the spigot should be 50 mm.

Circular spigot



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

Circular spigot



Extension pieces and spigot plates are supplied factory assembled

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

Description



Flexible connector

/ S0 /
/ OS /
/ SS /
6

Order code detail

Application

- For information on how to limit such loads please refer to the guideline regarding fire protection requirements on ventilation systems (Lüftungsanlagen-Richtlinie, LüAR)
- As ducts may expand and walls may become deformed in the event of a fire, we recommend using flexible connectors for the following applications: installation in lightweight partition walls, in lightweight shaft walls, with fire batts, and in lightweight fire walls
- Flexible connectors should be installed in such a way that both ends can compensate both tension and compression
- Flexible ducts can be used as an alternative
- For certain heights an extension piece may be required, see table
- The fixing holes in the flexible connectors and extension pieces match those in the fire damper flanges
- Flexible connectors are also available separately

Materials and surfaces

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

Flexible connector for FK-EU · FK-EU-1 · FK-EU-2 · FK-EU-7

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

Technical data

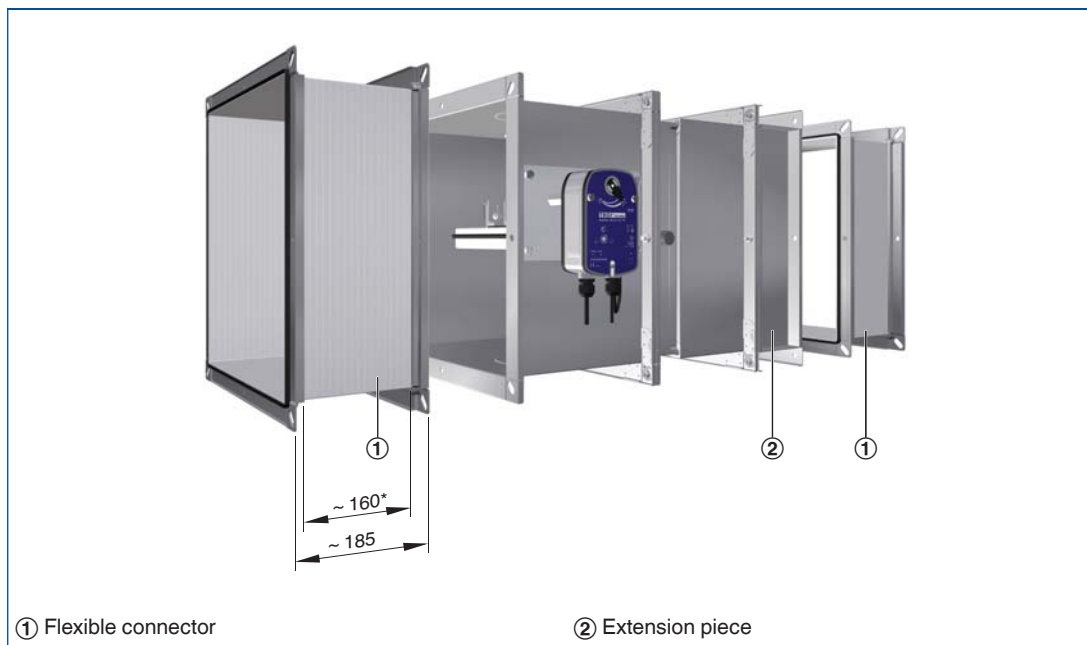
Location and length of extension pieces [mm]

H	Operating side	Installation side	L	Order code
200 – 550	–	–	375/500	S0
600 – 800	120	–	375/500	S0
200 – 300	–	–	500	OS
350 – 550	–	120	500	OS
600 – 800	–	260	500	OS
200 – 300	–	–	500	SS
350 – 550	–	120	500	SS
600 – 800	120	260	500	SS

* flexible length
≥ 100 mm when installed

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

Flexible connector

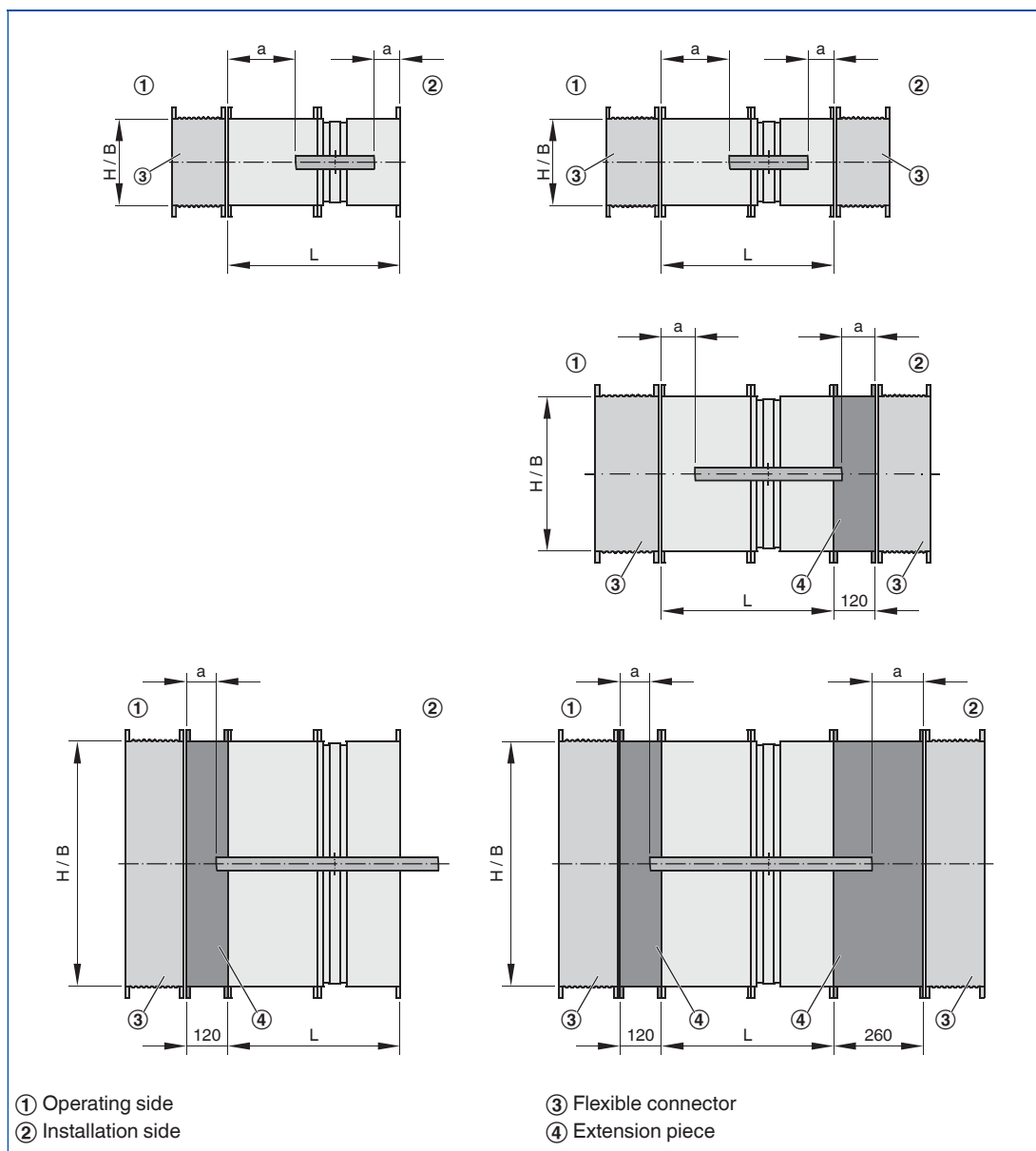


① Flexible connector

② Extension piece

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

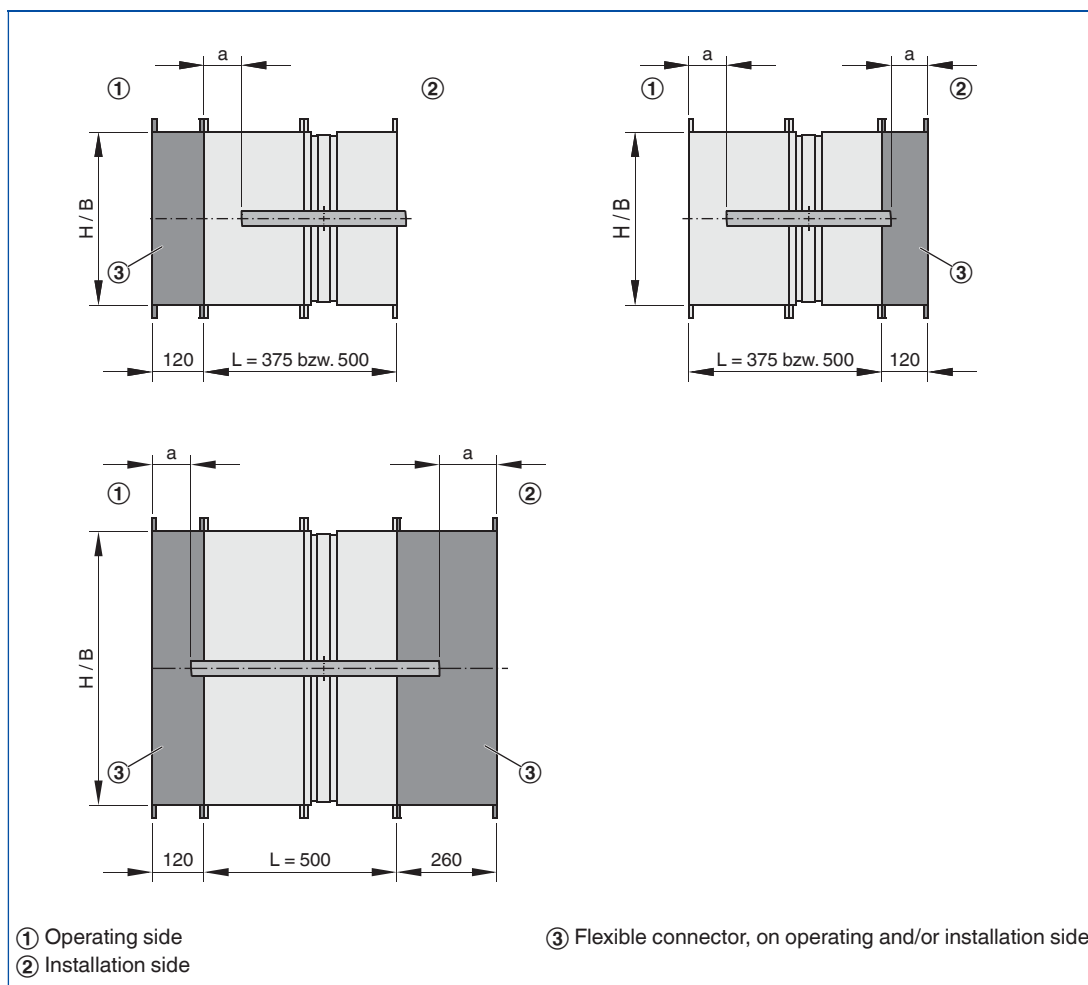
Flexible connector



Extension pieces are supplied factory assembled.
 Flexible connectors are supplied unassembled, connection material is to be provided by others.

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

Extension piece



Description



Limit switch

For detailed information on limit switches see Chapter 1.2

/ Z01
/ Z02
/ Z03
7

Order code detail

FK-EU with limit switch

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

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

Description



Limit switch (explosion-proof)

For detailed information on limit switches see Chapter 1.2

/ Z01EX
/ Z02EX
/ Z03EX
7

Order code detail

FK-EU with limit switch (explosion-proof)

- According to declaration of conformity TÜV 11 ATEX 085420 X explosion-proof 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
- 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

Attachments	Order code
Limit switch (explosion-proof) for damper blade position CLOSED	Z01EX
Limit switch (explosion-proof) for damper blade position OPEN	Z02EX
Limit switches (explosion-proof) for damper blade positions CLOSED and OPEN	Z03EX



ATEX certification

ATEX areas of application for the FK-EU

Release mechanism	Marking	Ambient temperature	Maximum airflow velocity
Fusible link	II 2D c T80 °C/II 2G c IIC T6	–40 to 40 °C	8 m/s
Fusible link and limit switch	II 2D c T80 °C/II 2G c IIC T6	–20 to 40 °C	8 m/s

Description



FK-EU with spring return actuator

For detailed information on the spring return actuator see Chapter 1.2

FK-EU with spring return actuator

- An open/close actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close)
- Fire dampers with spring return actuators can be functionally checked OPEN/CLOSED/OPEN
- Ambient temperature, normal operation -30 to 50 °C
- Two integral limit switches with volt-free contacts enable the damper blade position indication (OPEN and CLOSED)
- B(L)F24-T-ST TR: The connecting cables of the spring return actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system
- A conversion kit is available for adding an actuator to the standard construction
- In case of conventional wiring (Z45) the voltage is supplied by a safety transformer

/ Z43
/ Z45
/ Z60
/ Z61
/ Z64
/ Z65
/ Z66
7

Order code detail

Attachments	Order code
B(L)F230-T TR	Z43
B(L)F24-T-ST TR	Z45
B(L)F24-T-ST TR including power supply unit BKN230-24-1 TR	Z60
B(L)F24-T-ST TR including power supply unit BKN230-24-1 TR and control module BKS24-1 TR	Z61
Joventa SFR1.90 T (24 V)	Z64
Joventa SFR2.90 T (230 V)	Z65
Joventa SFR1.90 T SLC (24 V)	Z66

Spring return actuator BLF for FK-EU in sizes up to B × H ≤ 800 × 400 mm.

Spring return actuator BF for FK-EU in sizes from B × H ≤ 800 × 400 mm.

Description



FK-EU with spring return actuator (explosion-proof)

For detailed information on the spring return actuator see Chapter 1.2

FK-EU with explosion-proof spring return actuator

- An open/close actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- 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 enable the damper blade position indication (OPEN and CLOSED)
- The electrical connection is made in the explosion-proof terminal box
- Release temperature of the spring return actuator is 72 °C
- Declaration of conformity: TÜV 11 ATEX 085420 X

/ ZEX1
/ ZEX3
7

Order code detail

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



ATEX certification

ATEX areas of application

Release mechanism	Attachments	Marking	Ambient temperature
ExPro-TT	ExMax-15-BF TR	II 2D c T80 °C II 2G c IIC T6	-40 to 40 °C
	RedMax-15-BF TR	II 3D c T80 °C II 3G c IIC T6	-40 to 40 °C

Description



FK-EU as air transfer damper

For detailed information on the spring return actuator see Chapter 1.2

For detailed information on the duct smoke detector see Chapter 1.2

FK-EU as air transfer damper with spring return actuator BLF or BF and duct smoke detector RM-O-3-D

- An open/close actuator allows for remote control of the air transfer 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)
- Fire dampers with spring return actuators can be functionally checked OPEN/CLOSED/OPEN
- Two integral limit switches with volt-free contacts enable the damper blade position indication (OPEN and CLOSED)

Duct smoke detector Type RM-O-3-D

Just as the spring return actuator, the duct smoke detector RM-O-3-D is a permanent part of the air transfer damper.

Essential characteristics of the duct smoke detector:

- General building inspectorate licence Z-78.6-125
- For airflow velocities from 1 – 20 m/s
- Independent of the airflow direction
- Supply voltage 230 V AC, 50/60 Hz*
- Volt-free signal and alarm relays
- Integral signal lamps
- Contamination level indicator
- Automatic adjustment of alarm threshold
- Long service life
- Temperature range 0 – 60 °C

* The 24 V construction includes a voltage monitoring module

/ Z43RM / Z45RM

Order code detail

Attachments	Order code
Duct smoke detector RM-O-3-D with spring return actuator B(L)F230-T TR (cover grilles both sides required [AA])	Z43RM
Duct smoke detector RM-O-3-D with spring return actuator B(L)F24-T ST TR (cover grilles both sides required [AA])	Z45RM

Spring return actuator BLF for FK-EU in sizes up to $B \times H \leq 800 \times 400$ mm.
 Spring return actuator BF for FK-EU in sizes from $B \times H \leq 800 \times 400$ mm.

Description



FK-EU with TROXNETCOM module

For detailed information on TROXNETCOM see Chapter 1.2

FK-EU with spring return actuator and TROXNETCOM

- The fire dampers with spring return actuator BLF24-T-ST TR or BF24-T-ST TR and the modules shown here as attachments form a functional unit ready for automatic operation
- The components are factory assembled and wired
- It enables the integration of different components (modules) into a network regardless of the manufacturer
- The modules control actuators and/or receive signals from sensors

Application

LON:

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

- LON-WA17B2-AD230: Connection box with integral 230/24 V power supply unit for the connection of a second actuator-driven 24 V fire damper to LON-WA1/B2

AS-i:

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

/ ZL06
/ ZL07
/ ZL08
7

Order code detail

Attachments	Order code
LON-WA1/B2 and B(L)F24-T-ST TR	ZL06
LON-WA1/B2-AD and B(L)F24-T-ST TR	ZL07
LON-WA1/B2-AD230 and B(L)F24-T-ST TR	ZL08
AS-EM and B(L)F24-T-ST TR	ZA07
AS-RM/BD-UE, B(L)F24-T-ST TR and RM-O-3-D	ZA11

Spring return actuator BLF for FK-EU in sizes up to B × H ≤ 800 × 400 mm.

Spring return actuator BF for FK-EU in sizes from B × H ≤ 800 × 400 mm.

/ ZA07
/ ZA11
7

Order code detail

Description



ATEX certification

FK-EU with spring return actuator (explosion-proof) and TROXNETCOM

- The AS interface is a global standard bus system according to EN 50295 and IEC 62026-2
- It enables the integration of different components (modules) into a network regardless of the manufacturer
- 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 modules control actuators and/or receive signals from sensors
- The module is to be installed and wired outside of the potentially explosive atmosphere by others

Application

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

/ ZEX2
/ ZEX4
7

Order code detail

Attachments	Order code
AS-Interface module and ExMax-15-BF TR	ZEX2
AS-Interface module and RedMax-15-BF TR	ZEX4

Description



Duct smoke detector
RM-O-3-D



Duct smoke detector
RM-O-VS-D

For detailed information on the duct smoke detector see Chapter 1.2

General

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

Application

RM-O-3-D:

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

RM-O-VS-D:

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

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

Duct smoke detectors are attachments and to be ordered separately.
RM-O-3-D can also be supplied assembled and wired for standard application fire dampers.

Volume flow rate \dot{V} [m³/h] at differential pressure $\Delta p_{st} < 35$ Pa

B [mm]	L _{WA} [dB(A)]	H [mm]													
		200	250	300	350	400	450	500	550	600	650	700	750	800	
200	35	666	900	1152	1404	1620	1116	1260							
	45	936	1296	1620	1944	2268	1584	1800							
250	35	864	1188	1476	1764	2052	1476	1692							
	45	1188	1620	2052	2448	2844	2088	2376							
300	35	1044	1404	1764	2124	2448	1836	2088	2340	2592	2844	3060	3312	3564	
	45	1476	1980	2484	2952	3420	2628	2952	3312	3672	4032	4356	4716	5076	
350	35	1224	1656	2088	2484	2844	2196	2484	2808	3096	3384	3672	3960	4248	
	45	1728	2304	2880	3456	3996	3132	3564	3960	4392	4824	5220	5652	6048	
400	35	1404	1908	2376	2808	3240	2556	2916	3240	3600	3924	4284	4608	4968	
	45	1980	2664	3312	3924	4572	3636	4140	4608	5112	5580	6084	6552	7056	
450	35	1584	2124	2664	3168	3636	2916	3312	3708	4104	4500	4860	5256	5652	
	45	2232	2988	3708	4392	5112	4176	4716	5256	5832	6372	6912	7488	8028	
500	35	1764	2376	2916	3492	4032	3276	3744	4176	4608	5040	5472	5904	6336	
	45	2484	3312	4104	4860	5652	4680	5292	5904	6552	7164	7776	8388	9000	
550	35	1944	2592	3204	3816	4428	3636	4140	4608	5112	5580	6048	6552	7020	
	45	2736	3636	4500	5328	6156	5184	5868	6552	7236	7920	8604	9288	9972	
600	35	2124	2808	3492	4140	4788	3996	4536	5076	5616	6120	6660	7164	7704	
	45	2952	3924	4860	5796	6696	5688	6444	7200	7956	8712	9468	10188	10944	
650	35	2304	3024	3744	4464	5148	4356	4932	5508	6084	6660	7236	7812	8388	
	45	3204	4248	5256	6228	7200	6192	7020	7848	8676	9468	10296	11124	11916	
700	35	2448	3240	4032	4788	5508	4716	5364	5976	6588	7200	7848	8460	9072	
	45	3420	4572	5652	6696	7740	6696	7596	8496	9360	10260	11124	12024	12888	
750	35	2628	3492	4284	5112	5904	5076	5760	6444	7092	7776	8424	9072	9756	
	45	3672	4860	6012	7128	8244	7236	8172	9144	10080	11052	11988	12924	13860	
800	35	2808	3708	4572	5400	6264	5436	6156	6879	7596	8316	9000	9720	10440	
	45	3888	5148	6372	7560	8748	7740	8748	9792	10080	11808	12816	13824	14832	
900	35	1944	2808	3672	4500	5328	6156	6984	7776	8604	9396	10188	10980	11808	
	45	2772	3996	5220	6408	7596	8748	9900	11052	12204	13356	14508	15624	16776	
1000	35	2160	3132	4104	5040	5940	6876	7776	8676	9576	10476	11376	12276	13140	
	45	3096	4464	5832	7164	8460	9756	11052	12348	13608	14904	16164	17424	18720	
1100	35	2412	3456	4536	5544	6588	7596	8568	9576	10584	11556	12564	13536	14508	
	45	3744	4932	6444	7884	9324	10764	12204	13608	15048	16452	17820	19224	20700	
1200	35	2628	3816	4932	6084	7200	8280	9396	10476	11556	12636	13716	14796	15876	
	45	4068	5400	7020	8640	10224	11808	13356	14904	16452	17964	19440	21060	22500	
1300	35	2844	4140	5364	6588	7812	9000	10188	11376	12564	13716	14904	16056	17208	
	45	4392	5868	7632	9396	11124	12816	14508	16164	17856	19440	21240	22860	24480	
1400	35	3096	4464	5796	7128	8424	9720	11016	12276	135236	14796	16056	17316	18540	
	45	4716	6336	8244	10116	11988	13824	15624	17460	19260	21060	22860	24660	26460	
1500	35	3312	4788	6228	7632	9036	10440	11808	13176	14544	15876	17244	18540	19980	
	45	4716	6804	8856	10872	12852	14832	16776	1870	20700	22500	24480	26460	28260	

Sizing example

Given data	Quick sizing
Volume flow rate: 3312 m ³ /h	FK-EU / 300 × 550 × 500
Maximum width: 300 mm	
Sound power level: 45 dB(A)	

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

Volume flow rate \dot{V} [l/s] at differential pressure $\Delta p_{st} < 35$ Pa

B [mm]	L _{WA} [dB(A)]	H [mm]													
		200	250	300	350	400	450	500	550	600	650	700	750	800	
200	35	185	250	320	390	450	310	350							
	45	260	360	450	540	630	440	500							
250	35	240	330	410	490	570	410	470							
	45	330	450	570	680	790	580	660							
300	35	290	390	490	590	680	510	580	650	720	790	850	920	990	
	45	410	550	690	820	950	730	820	920	1020	1120	1210	1310	1410	
350	35	340	460	580	690	790	610	690	780	860	940	1020	1100	1180	
	45	480	640	800	960	1110	870	990	1100	1220	1340	1450	1570	1680	
400	35	390	530	660	780	900	710	810	900	1000	1090	1190	1280	1380	
	45	550	740	920	1090	1270	1010	1150	1280	1420	1550	1690	1820	1960	
450	35	440	590	740	880	1010	810	920	1030	1140	1250	1350	1460	1570	
	45	620	830	1030	1220	1420	1160	1310	1460	1620	1770	1920	2080	2230	
500	35	490	660	810	970	1120	910	1040	1160	1280	1400	1520	1640	1760	
	45	690	920	1140	1350	1570	1300	1470	1640	1820	1990	2160	2330	2500	
550	35	540	720	890	1060	1230	1010	1150	1280	1420	1550	1680	1820	1950	
	45	760	1010	1250	1480	1710	1440	1630	1820	2010	2200	2390	2580	2770	
600	35	590	780	970	1150	1330	1110	1260	1410	1560	1700	1850	1990	2140	
	45	820	1090	1350	1610	1860	1580	1790	2000	2210	2420	2630	2830	3040	
650	35	640	840	1040	1240	1430	1210	1370	1530	1690	1850	2010	2170	2330	
	45	890	1180	1460	1730	2000	1720	1950	2180	2410	2630	2860	3090	3310	
700	35	680	900	1120	1330	1530	1310	1490	1660	1830	2000	2180	2350	2520	
	45	950	1270	1570	1860	2150	1860	2110	2360	2600	2850	3090	3340	3580	
750	35	730	970	1190	1420	1640	1410	1600	1790	1970	2160	2340	2520	2710	
	45	1020	1350	1670	1980	2290	2010	2270	2540	2800	3070	3330	3590	3850	
800	35	780	1030	1270	1500	1740	1510	1710	1911	2110	2310	2500	2700	2900	
	45	1080	1430	1770	2100	2430	2150	2430	2720	2800	3280	3560	3840	4120	
900	35	540	780	1020	1250	1480	1710	1940	2160	2390	2610	2830	3050	3280	
	45	770	1110	1450	1780	2110	2430	2750	3070	3390	3710	4030	4340	4660	
1000	35	600	870	1140	1400	1650	1910	2160	2410	2660	2910	3160	3410	3650	
	45	860	1240	1620	1990	2350	2710	3070	3430	3780	4140	4490	4840	5200	
1100	35	670	960	1260	1540	1830	2110	2380	2660	2940	3210	3490	3760	4030	
	45	1040	1370	1790	2190	2590	2990	3390	3780	4180	4570	4950	5340	5750	
1200	35	730	1060	1370	1690	2000	2300	2610	2910	3210	3510	3810	4110	4410	
	45	1130	1500	1950	2400	2840	3280	3710	4140	4570	4990	5400	5850	6250	
1300	35	790	1150	1490	1830	2170	2500	2830	3160	3490	3810	4140	4460	4780	
	45	1220	1630	2120	2610	3090	3560	4030	4490	4960	5400	5900	6350	6800	
1400	35	860	1240	1610	1980	2340	2700	3060	3410	37566	4110	4460	4810	5150	
	45	1310	1760	2290	2810	3330	3840	4340	4850	5350	5850	6350	6850	7350	
1500	35	920	1330	1730	2120	2510	2900	3280	3660	4040	4410	4790	5150	5550	
	45	1310	1890	2460	3020	3570	4120	4660	519	5750	6250	6800	7350	7850	

Sizing example

Given data	Quick sizing
Volume flow rate: 1010 l/s	FK-EU / 450 × 400 × 500
Maximum width: 400 mm	
Sound power level: 35 dB(A)	

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

H [mm]	Parameter	B [mm]									
		200	250	300	350	400	450	500	550	600	650
200	A [m ²]	0.02	0.027	0.034	0.041	0.048	0.055	0.062	0.069	0.076	0.083
	Z	1.12	0.94	0.77	0.71	0.65	0.59	0.53	0.53	0.47	0.47
	K	1	1	0	0	0	0	0	0	0.5	0.5
250	A [m ²]	0.029	0.039	0.048	0.058	0.067	0.077	0.086	0.096	0.105	0.115
	Z	0.91	0.77	0.62	0.58	0.53	0.48	0.43	0.43	0.38	0.38
	K	1	1	0	0	0	0	0	0	0.5	0.5
300	A [m ²]	0.038	0.05	0.062	0.074	0.086	0.098	0.11	0.122	0.134	0.146
	Z	0.78	0.66	0.53	0.49	0.45	0.41	0.37	0.37	0.33	0.33
	K	1	1	0	0	0	0	0	0	0.5	0.5
350	A [m ²]	0.047	0.062	0.076	0.091	0.105	0.12	0.134	0.149	0.163	0.178
	Z	0.68	0.58	0.47	0.43	0.4	0.36	0.32	0.32	0.29	0.29
	K	1	1	0	0	0	0	0	0	0.5	0.5
400	A [m ²]	0.056	0.073	0.09	0.107	0.124	0.141	0.158	0.175	0.192	0.209
	Z	0.63	0.53	0.43	0.4	0.36	0.33	0.3	0.3	0.26	0.26
	K	1	1	0	0	0	0	0	0	0.5	0.5
450	A [m ²]	0.049	0.067	0.084	0.102	0.119	0.137	0.154	0.172	0.189	0.207
	Z	1.48	1.13	0.98	0.85	0.79	0.73	0.67	0.61	0.61	0.61
	K	5.5	3.5	2	2	1	1	0	0	0	0
500	A [m ²]	0.056	0.076	0.096	0.116	0.136	0.156	0.176	0.196	0.216	0.236
	ζ	1.35	1.03	0.86	0.76	0.7	0.65	0.59	0.54	0.54	0.54
	K	5.5	3.5	2	2	1	1	0	0	0	0

H [mm]	Parameter	B [mm]									
		700	750	800	900	1000	1100	1200	1300	1400	1500
200	A [m ²]	0.09	0.097	0.104	0.084	0.094	0.104	0.114	0.124	0.134	0.144
	Z	0.41	0.41	0.41	2.18	2.18	2.18	2.18	2.18	1.9	1.9
	K	1	1	1	-1	-1	-1	-1	-1	-1	-1
250	A [m ²]	0.124	0.134	0.143	0.126	0.141	0.156	0.171	0.186	0.201	0.216
	Z	0.34	0.34	0.34	1.26	1.26	1.26	1.26	1.26	1.11	1.11
	K	1	1	1	-1	-1	-1	-1	-1	-1	-1
300	A [m ²]	0.158	0.17	0.182	0.168	0.188	0.208	0.228	0.248	0.268	0.288
	Z	0.29	0.29	0.29	0.89	0.89	0.89	0.89	0.89	0.78	0.78
	K	1	1	1	-1	-1	-1	-1	-1	-1	-1
350	A [m ²]	0.192	0.207	0.221	0.21	0.235	0.26	0.285	0.31	0.335	0.36
	Z	0.25	0.25	0.25	0.69	0.69	0.69	0.69	0.69	0.6	0.6
	K	1	1	1	-1	-1	-1	-1	-1	-1	-1
400	A [m ²]	0.226	0.243	0.26	0.252	0.282	0.312	0.342	0.372	0.402	0.432
	Z	0.23	0.23	0.23	0.57	0.57	0.57	0.57	0.57	0.5	0.5
	K	1	1	1	-1	-1	-1	-1	-1	-1	-1
450	A [m ²]	0.224	0.242	0.259	0.294	0.329	0.364	0.399	0.434	0.469	0.504
	Z	0.55	0.55	0.55	0.49	0.49	0.49	0.49	0.49	0.43	0.43
	K	0	0	-1	-1	-1	-1	-1	-1	-1	-1
500	A [m ²]	0.256	0.276	0.296	0.336	0.376	0.416	0.456	0.496	0.536	0.576
	ζ	0.49	0.49	0.49	0.43	0.43	0.43	0.43	0.43	0.38	0.38
	K	0	0	-1	-1	-1	-1	-1	-1	-1	-1

H [mm]	Parameter	B [mm]								
		300	350	400	450	500	550	600	650	700
550	A [m ²]	0.108	0.131	0.153	0.176	0.198	0.221	0.243	0.266	0.288
	Z	0.78	0.69	0.64	0.59	0.54	0.49	0.49	0.49	0.44
	K	2	2	1	1	0	0	0	0	0
600	A [m ²]	0.12	0.145	0.17	0.195	0.22	0.245	0.27	0.295	0.32
	Z	0.7	0.62	0.57	0.53	0.48	0.44	0.44	0.44	0.4
	K	2	2	1	1	0	0	0	0	0
650	A [m ²]	0.132	0.16	0.187	0.215	0.242	0.27	0.297	0.325	0.352
	Z	0.66	0.57	0.53	0.49	0.45	0.41	0.41	0.41	0.37
	K	2	2	1	1	0	0	0	0	0
700	A [m ²]	0.144	0.174	0.204	0.234	0.264	0.294	0.324	0.354	0.384
	Z	0.61	0.53	0.49	0.46	0.42	0.38	0.38	0.38	0.34
	K	2	2	1	1	0	0	0	0	0
750	A [m ²]	0.156	0.189	0.221	0.254	0.286	0.319	0.351	0.384	0.416
	Z	0.58	0.5	0.47	0.43	0.4	0.36	0.36	0.36	0.32
	K	2	2	1	1	0	0	0	0	0
800	A [m ²]	0.168	0.203	0.238	0.273	0.308	0.343	0.378	0.413	0.448
	ζ	0.54	0.48	0.44	0.41	0.37	0.34	0.34	0.34	0.31
	K	2	2	1	1	0	0	0	0	0

H [mm]	Parameter	B [mm]								
		750	800	900	1000	1100	1200	1300	1400	1500
550	A [m ²]	0.311	0.333	0.378	0.423	0.468	0.513	0.558	0.603	0.648
	Z	0.44	0.44	0.39	0.39	0.39	0.39	0.39	0.34	0.34
	K	0	-1	-1	-1	-1	-1	-1	-1	-1
600	A [m ²]	0.345	0.37	0.42	0.47	0.52	0.57	0.62	0.67	0.72
	Z	0.4	0.4	0.35	0.35	0.35	0.35	0.35	0.31	0.31
	K	0	-1	-1	-1	-1	-1	-1	-1	-1
650	A [m ²]	0.38	0.407	0.462	0.517	0.572	0.627	0.682	0.737	0.792
	Z	0.37	0.37	0.33	0.33	0.33	0.33	0.33	0.29	0.29
	K	0	-1	-1	-1	-1	-1	-1	-1	-1
700	A [m ²]	0.414	0.444	0.504	0.564	0.624	0.684	0.744	0.804	0.864
	Z	0.34	0.34	0.31	0.31	0.31	0.31	0.31	0.27	0.27
	K	0	-1	-1	-1	-1	-1	-1	-1	-1
750	A [m ²]	0.449	0.481	0.546	0.611	0.676	0.741	0.806	0.871	0.936
	Z	0.32	0.32	0.29	0.29	0.29	0.29	0.29	0.25	0.25
	K	0	-1	-1	-1	-1	-1	-1	-1	-1
800	A [m ²]	0.483	0.518	0.588	0.658	0.728	0.798	0.868	0.938	1.008
	ζ	0.31	0.31	0.27	0.27	0.27	0.27	0.27	0.24	0.24
	K	0	-1	-1	-1	-1	-1	-1	-1	-1

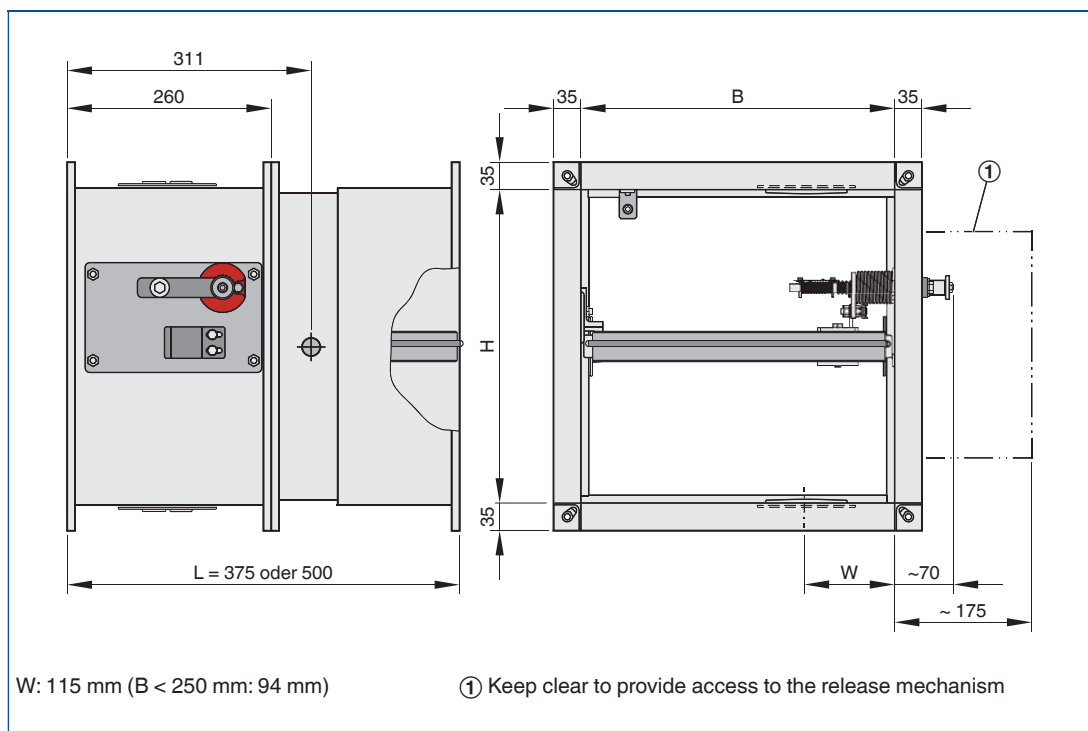
Dimensions

1



FK-EU with fusible link

FK-EU with fusible link



Weight

H	B										
	200	250	300	350	400	450	500	550	600	650	
200	10	11	12	13	15	16	17	18	19	20	
250	11	12	13	15	16	17	18	19	21	22	
300	12	13	14	16	17	18	19	21	23	24	
350	13	15	16	17	18	20	22	23	25	26	
400	15	16	17	18	20	22	24	26	27	28	
450	16	17	18	20	22	24	26	28	29	29	
500	17	18	19	22	24	26	28	29	30	31	
550			21	23	26	28	29	30	32	34	
600			23	25	27	29	30	31	34	36	
650			24	26	28	29	31	33	35	37	
700			25	27	28	31	33	35	37	40	
750			26	28	30	32	34	37	39	42	
800			27	29	32	34	36	38	42	45	

Weight

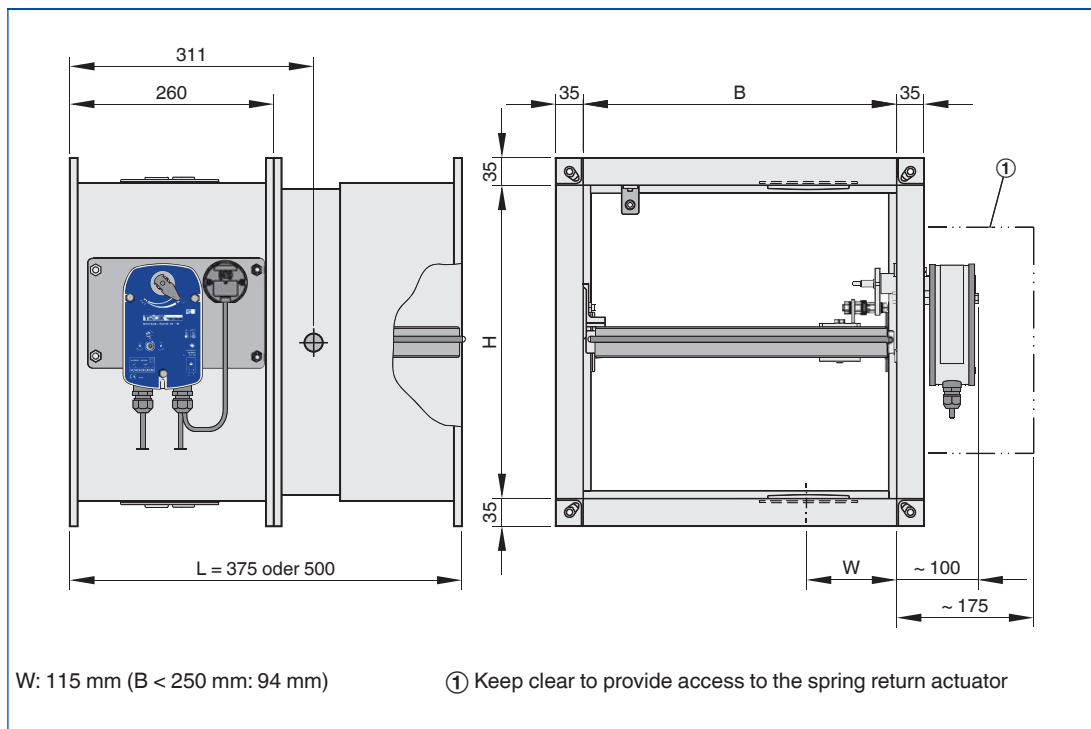
H	B									
	700	750	800	900	1000	1100	1200	1300	1400	1500
200	22	23	24	26	28	30	31	33	35	38
250	24	25	26	28	30	32	34	36	38	41
300	25	26	28	30	31	34	36	38	40	44
350	27	29	30	32	34	37	39	41	44	48
400	30	31	32	35	38	40	43	46	48	52
450	31	32	34	37	40	44	47	49	52	57
500	33	34	36	39	45	47	50	53	56	62
550	35	37	38	43	47	50	54	57	60	67
600	37	39	42	46	50	54	57	61	64	71
650	40	42	45	49	53	57	61	64	68	75
700	43	45	48	52	56	60	64	67	71	78
750	45	48	50	55	59	63	66	69	73	81
800	47	50	52	57	62	65	68	71	75	84

Dimensions

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



FK-EU
with spring return actuator



Weight

H	B										
	200	250	300	350	400	450	500	550	600	650	
200	13	14	15	16	18	19	20	21	22	23	
250	14	15	16	18	19	20	21	22	24	25	
300	15	16	17	19	20	21	22	24	26	27	
350	16	18	19	20	21	23	25	26	28	29	
400	18	19	20	21	23	25	27	29	30	31	
450	19	20	21	23	25	27	29	31	32	32	
500	20	21	22	25	27	29	31	32	33	34	
550			24	26	29	31	32	33	35	37	
600			26	28	30	32	33	34	37	39	
650			27	29	31	32	34	36	38	40	
700			28	30	31	34	36	38	40	43	
750			29	31	33	35	37	40	42	45	
800			30	32	35	37	39	41	45	48	

Weight

H	B										
	700	750	800	900	1000	1100	1200	1300	1400	1500	
200	25	26	27	29	31	33	34	36	38	41	
250	27	28	29	31	33	35	37	39	41	44	
300	28	29	31	33	34	37	39	41	43	47	
350	30	32	33	35	37	40	42	44	47	51	
400	33	34	35	38	41	43	46	49	51	55	
450	34	35	37	40	43	47	50	52	55	60	
500	36	37	39	42	48	50	53	56	59	65	
550	38	40	41	46	50	53	57	60	63	70	
600	40	42	45	49	53	57	60	64	67	74	
650	43	45	48	52	56	60	64	67	71	78	
700	46	48	51	55	59	63	67	70	74	81	
750	48	51	53	58	62	66	69	72	76	84	
800	50	53	55	60	65	68	71	74	78	87	

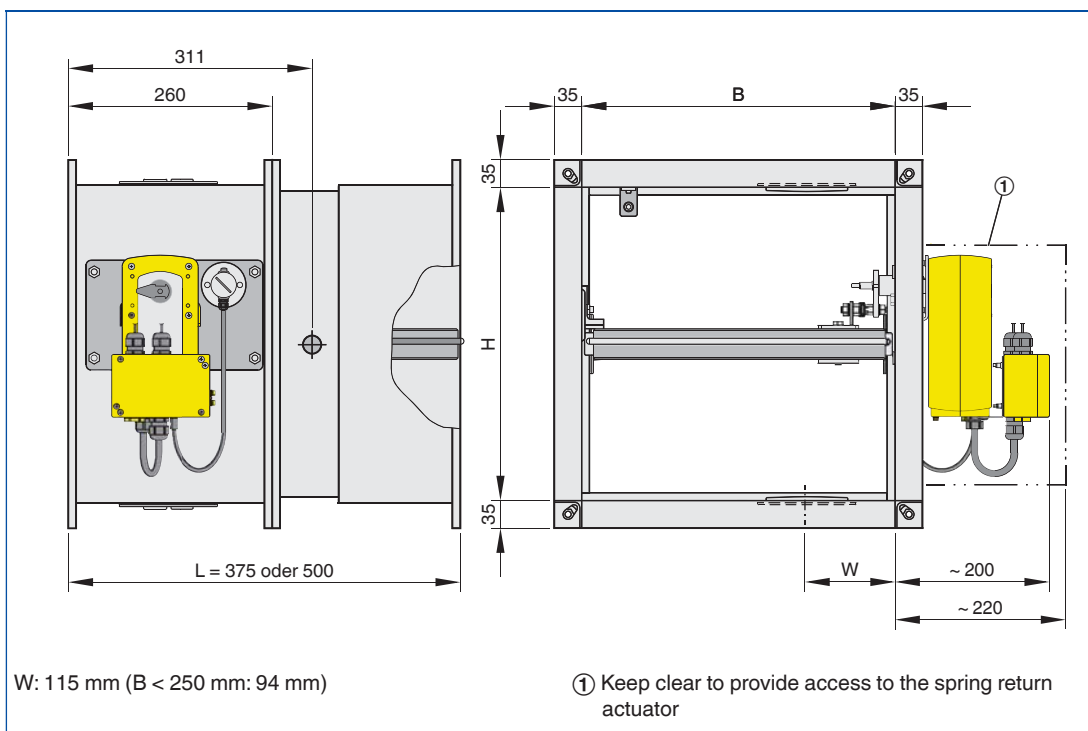
Dimensions

1



FK-EU with spring return actuator (explosion-proof)

FK-EU with explosion-proof actuator (FK-EU/.../ZEX1* and ZEX3*)



Weight

H	B									
	200	250	300	350	400	450	500	550	600	650
200	15	16	17	18	20	21	22	23	24	25
250	16	17	18	20	21	22	23	24	26	27
300	17	18	19	21	22	23	24	26	28	29
350	18	20	21	22	23	25	27	28	30	31
400	20	21	22	23	25	27	29	31	32	33
450	21	22	23	25	27	29	31	33	34	34
500	22	23	24	27	29	31	33	34	35	36
550			26	28	31	33	34	35	37	39
600			28	30	32	34	35	36	39	41
650			29	31	33	34	36	38	40	42
700			30	32	33	36	38	40	42	45
750			31	33	35	37	39	42	44	47
800			32	34	37	39	41	43	47	50

Weight

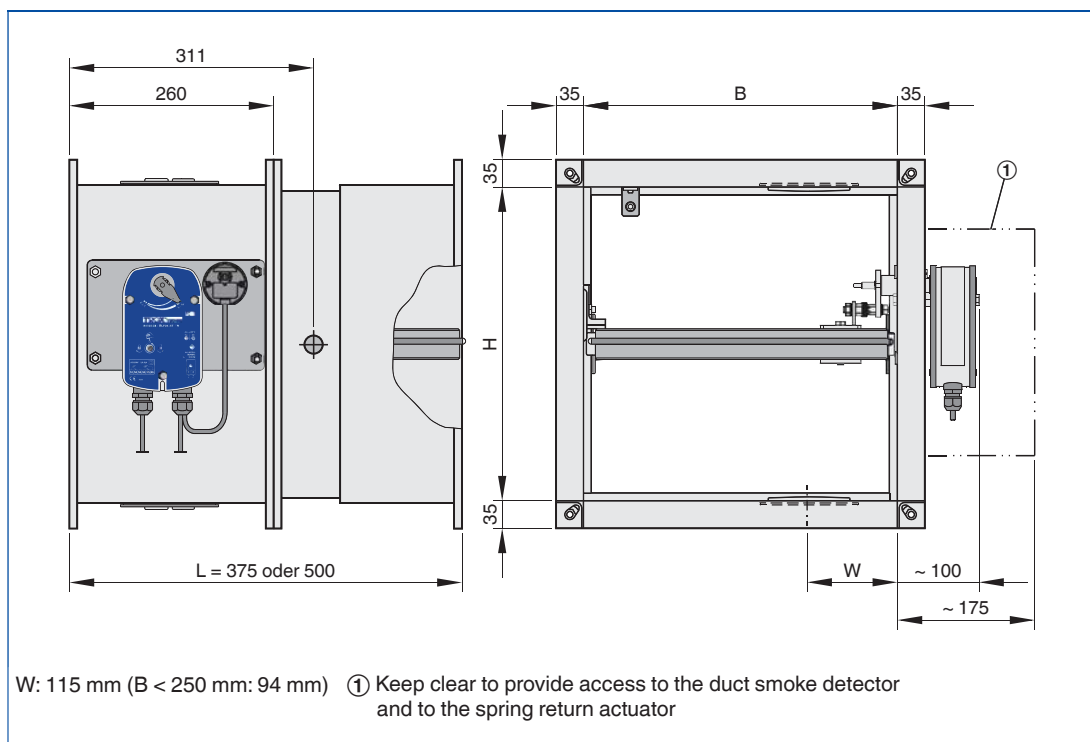
H	B									
	700	750	800	900	1000	1100	1200	1300	1400	1500
200	27	28	29	31	33	35	36	38	40	43
250	29	30	31	33	35	37	39	41	43	46
300	30	31	33	35	36	39	41	43	45	49
350	32	34	35	37	39	42	44	46	49	53
400	35	36	37	40	43	45	48	51	53	57
450	36	37	39	42	45	49	52	54	57	62
500	38	39	41	44	50	52	55	58	61	67
550	40	42	43	48	52	55	59	62	65	72
600	42	44	47	51	55	59	62	66	69	76
650	45	47	50	54	58	62	66	69	73	80
700	48	50	53	57	61	65	69	72	76	83
750	50	53	55	60	64	68	71	74	78	86
800	52	55	57	62	67	70	73	76	80	89

Dimensions



FK-EU as air transfer damper

FK-EU as air transfer damper (FK-EU/.../Z**RM)



Weight

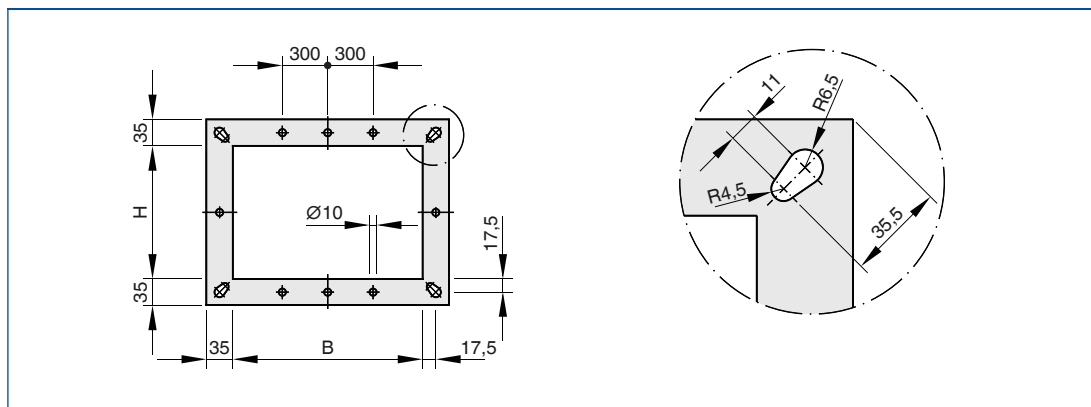
H	B									
	200	250	300	350	400	450	500	550	600	650
200	16	17	18	19	21	22	23	24	25	26
250	17	18	19	21	22	23	24	25	27	28
300	18	19	20	22	23	24	25	27	29	30
350	19	21	22	23	24	26	28	29	31	32
400	21	22	23	24	26	28	30	32	33	34
450	22	23	24	26	28	30	32	34	35	35
500	23	24	25	28	30	32	34	35	36	37
550			27	29	32	34	35	36	38	40
600			29	31	33	35	36	37	40	42
650			30	32	34	35	37	39	41	43
700			31	33	34	37	39	41	43	46
750			32	34	36	38	40	43	45	48
800			33	35	38	40	42	44	48	51

Weight

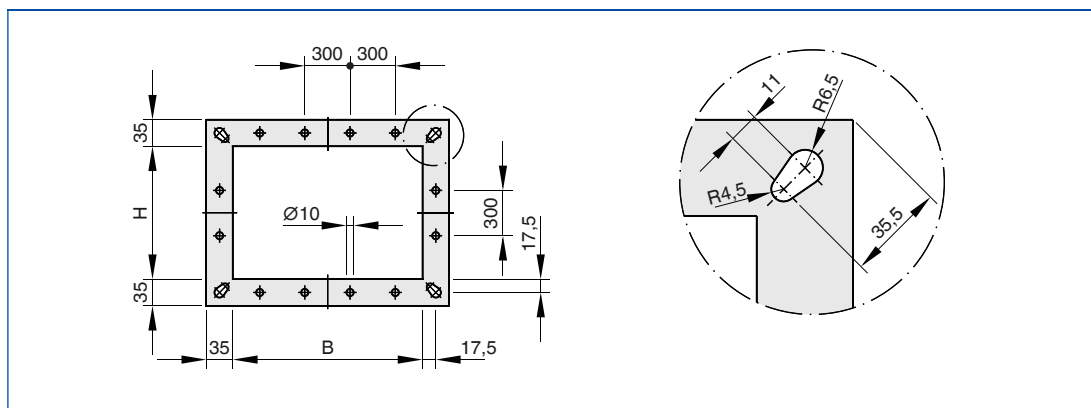
H	B									
	700	750	800	900	1000	1100	1200	1300	1400	1500
200	28	29	30	32	34	36	37	39	41	44
250	30	31	32	34	36	38	40	42	44	47
300	31	32	34	36	37	40	42	44	46	50
350	33	35	36	38	40	43	45	47	50	54
400	36	37	38	41	44	46	49	52	54	58
450	37	38	40	43	46	50	53	55	58	63
500	39	40	42	45	51	53	56	59	62	68
550	41	43	44	49	53	56	60	63	66	73
600	43	45	48	52	56	60	63	67	70	77
650	46	48	51	55	59	63	67	70	74	81
700	49	51	54	58	62	66	70	73	77	84
750	51	54	56	61	65	69	72	75	79	87
800	53	56	58	63	68	71	74	77	81	90

Dimensions

Flange – uneven number of holes



Flange – even number of holes



Dimensions [mm]

B or H	200	300	400	500	600	650	750	900	1100	1300	1500
	250	350	450	550		700	800	1000	1200	1400	
No. of holes horizontally (B)*			1	1	1	2	2	3	3	4	4
No. of holes vertically (H)*			1	1	1	2	2				

* excluding corner holes

Description

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

Rectangular or square fire dampers for the isolation of duct penetrations between fire compartments. Tested for fire resistance properties to EN 1366-2, with CE marking and declaration of performance according to the Construction Products Regulation. Ready-for-operation unit, which includes a fire-resistant damper blade and a release mechanism. For mortar-based installation and dry mortarless installation into solid walls and ceiling slabs, mortar-based installation into non-load-bearing solid walls with flexible ceiling joint, mortar-based and dry mortarless installation into lightweight partition walls, lightweight partition walls with cladding on both sides, lightweight fire walls and lightweight shaft walls. For dry mortarless installation on the face of solid walls, adjacent to solid walls, remote from solid walls and remote from solid ceiling slabs. For installation in lightweight partition walls with metal support structure and flexible ceiling joint; for dry mortarless installation in solid walls and ceiling slabs when using a fire batt; in lightweight partition walls with metal support structure and cladding on both sides. Casing length 375 mm or 500 mm, for the connection to ducts made of non-combustible or combustible materials. Thermal or thermoelectric release at 72 °C or 95 °C (warm air ventilation systems). Constructions with spring return actuator for opening and closing the fire damper independent of the nominal size and even while the ventilation system is running, e.g. for a functional test. Explosion-proof constructions for zones 1, 2, 21 and 22 with limit switch or spring return actuator. Construction as air transfer damper (general building inspectorate licence Z-6.50-2031) with duct smoke detector, spring return actuator and cover grilles on both ends. Simple construction for dry mortarless installation with installation kit: WA, WA short, WV, WE, E1, E2, ES, GL100, GM.

Technical data

- Nominal sizes: 200 × 200 to 1500 × 800 mm
- Casing lengths: 375 and 500 mm
- Volume flow rate range:
 - Up to 14400 l/s or 51840 m³/h
- Differential pressure: up to 2000 Pa
- Operating temperature: at least 0 – 50 °C **
- Upstream velocity:
 - ≤ 8 m/s with standard construction;
 - ≤ 12 m/s * with spring return actuator

Note: Upstream velocity for the explosion-proof actuator ExMax/RedMax-15-BF TR is ≤ 10 m/s

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

** Temperatures may differ for units with attachments

Special characteristics

- Declaration of performance according to Construction Products Regulation
- Classification to EN 13501-3, up to EI 180 (v_e, h_o, i ↔ o) S
- Building inspectorate licence Z-56.4212-991 for fire resistance properties
- Complies with the requirements of EN 15650
- Tested to EN 1366-2 for fire resistance properties
- Hygiene complies with VDI 6022 part 1 (07/2011), VDI 3803 (10/2002), DIN 1946 part 4 (12/2008), and EN 13779 (09/2007)
- Corrosion protection according to EN 15650 in connection with EN 60068-2-52
- Closed blade air leakage to EN 1751, class 8
- 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 BMS with TROXNETCOM
- Any airflow direction
- Integration into the central BMS with TROXNETCOM

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

- Damper blade shafts and driving linkage made of stainless steel
- Brass or stainless steel bearings
- Seals of polyurethane or elastomer

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

Detailed listing on request.

Sizing data

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

1

Order options

1 Type

FK-EU Fire damper

2 Construction

No entry: standard construction

- 1** Casing powder-coated RAL 7001
- 2¹** Casing made of stainless steel
- 7** With coated damper blade
- 1 – 7** Casing powder-coated RAL 7001, with coated damper blade
- 2 – 7¹** Casing made of stainless steel, with coated damper blade
- W²** With fusible link 95 °C (only for use in warm air ventilation systems)

3 Country of destination

- DE** Germany
Other destination countries upon request

4 Nominal size [mm]

- B × H × L

5 Accessories 1

No entry: none

- E1 – GL 100³**

6 Accessories 2

No entry: none

- A0 – SS**

7 Attachments

- Z00 – ZEX4**

¹ Not for use with fire batts

² W can be combined with all constructions listed under **2**, but not with attachments listed under **7** ZEX1 – ZEX4 and Z43RM – Z45RM

³ GL 100 for wall thickness 100 mm when 50 mm sections are used. Other wall thicknesses and section widths upon request.

Fire dampers

Type FKS-EU



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



CE compliant according to European regulations

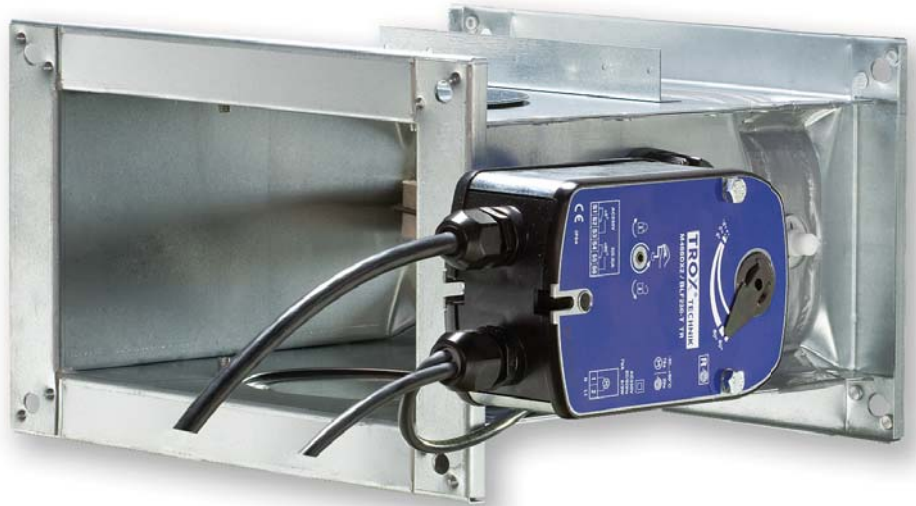


LONMARK PARTNER

With TROXNETCOM as an option



Tested to VDI 6022



Compact dimensions, ideal for restricted spaces

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

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

Optional equipment and accessories

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

1

Type		Page
FKS-EU	General information	1.1 – 50
	Correct use	1.1 – 55
	Order code	1.1 – 57
	Installation block	1.1 – 58
	Cover plate	1.1 – 60
	Cover grille	1.1 – 61
	Flexible connector	1.1 – 62
	Extension piece	1.1 – 63
	Limit switch	1.1 – 64
	Spring return actuator	1.1 – 65
	TROXNETCOM	1.1 – 66
	Duct smoke detectors	1.1 – 67
	Quick sizing	1.1 – 68
	Free area and resistance coefficient	1.1 – 69
	Dimensions and weight – FKS-EU	1.1 – 70
	Dimensions and weight – FKS-EU/.../Z4*	1.1 – 71
Specification text	1.1 – 72	
	Basic information and nomenclature	1.3 – 1

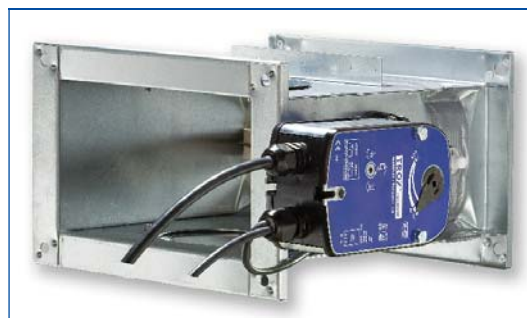
Variants

Product examples

FKS-EU with fusible link



Fire damper Type FKS-EU



Description



Fire damper Type FKS-EU

For detailed information on attachments see Chapter K4 – 1.2.

Application

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

Classification

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

Variants

- With fusible link
- With spring return actuator

Nominal sizes

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

Attachments

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

Accessories

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

Useful additions

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

Special characteristics

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

Parts and characteristics

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

Construction features

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

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

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

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

Installation and commissioning

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

Mortar-based installation:

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

Dry mortarless installation:

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

Standards and guidelines

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

Maintenance

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

Technical data

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

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

** Temperatures may differ for units with attachments

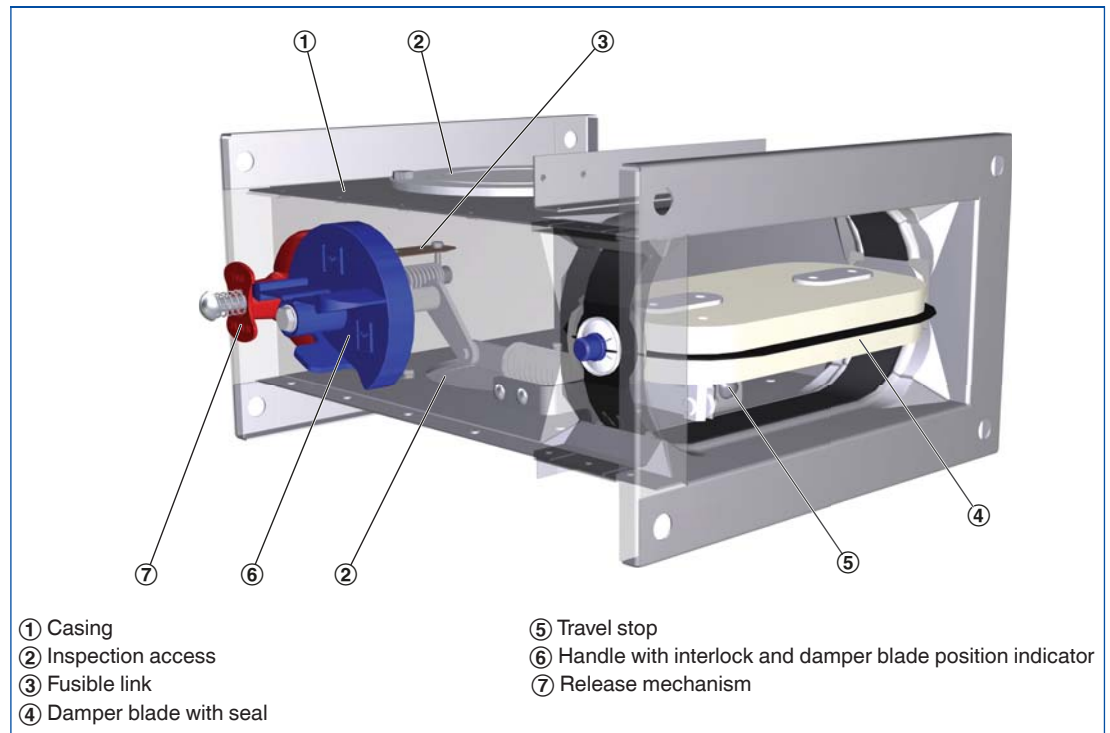
Function

Construction with fusible link

Functional description

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

Schematic illustration of FKS-EU with fusible link



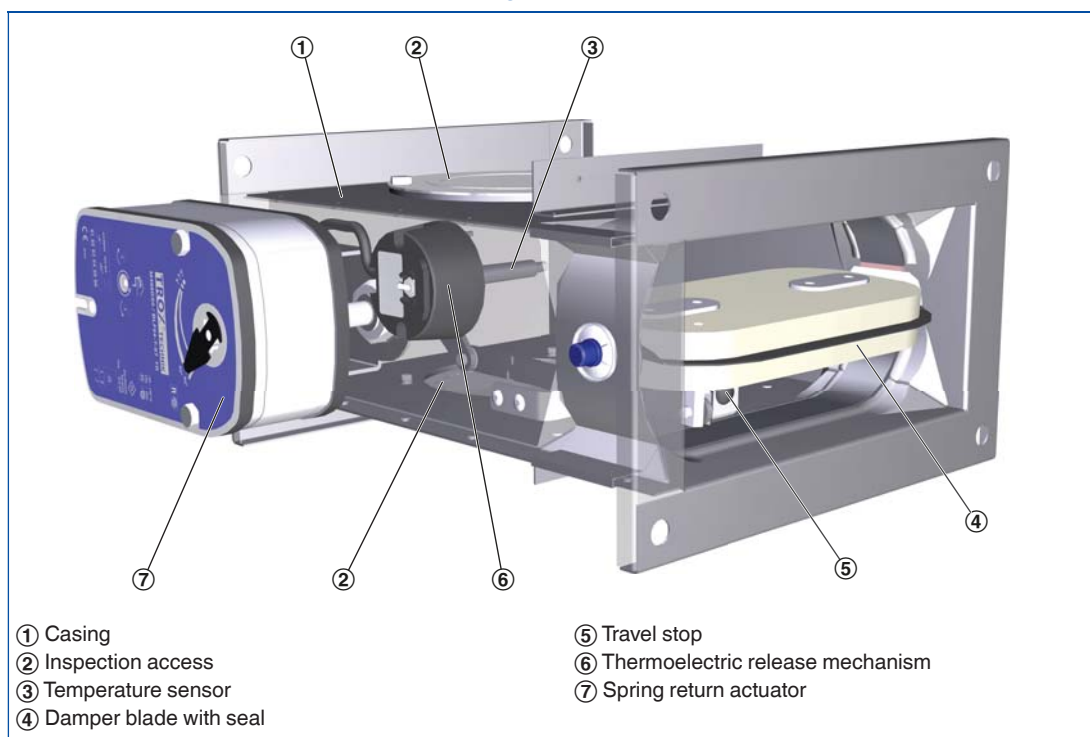
Function

Construction
with spring return actuator

Functional description

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

Schematic illustration of FKS-EU with spring return actuator


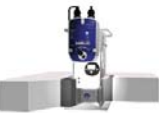



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Design information




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

Correct use in solid walls and ceiling slabs

Installation location		Construction and building material	Minimum thickness	Performance class	Mortar-based installation	Dry mortarless installation
			mm	EI TT ($v_e-h_o, i \leftrightarrow o$) S		
Solid walls		Solid walls, gross density $\geq 500 \text{ kg/m}^3$	100	EI 120 S	N	-
		Solid walls, gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	N	E
Solid ceiling slabs		Solid ceiling slabs, gross density $\geq 600 \text{ kg/m}^3$	150	EI 120 S	N	-
		Solid ceiling slabs, gross density $\geq 600 \text{ kg/m}^3$	150	EI 90 S	N	E
		Solid ceiling slabs, gross density $\geq 600 \text{ kg/m}^3$	150	EI 90 S	N	-

N = Mortar-based installation, E = Installation block

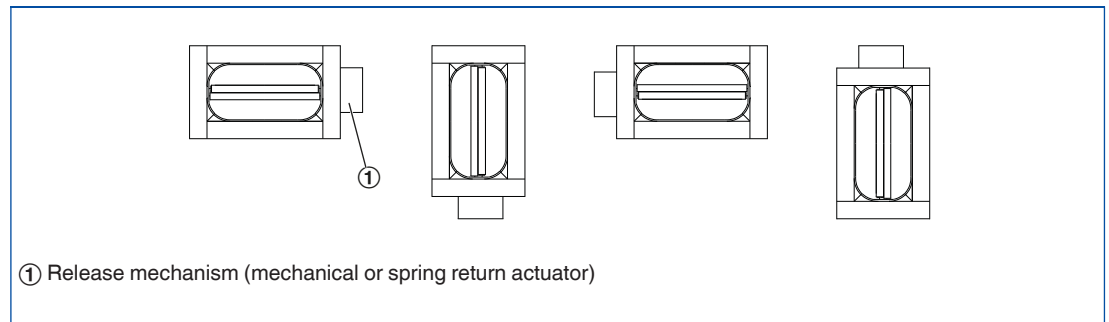
Correct use in lightweight partition walls and fire walls

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

N = Mortar-based installation, E = Installation block

Installation orientation

Installation orientation with horizontal ducts



Order code

FKS-EU

FKS – EU – 1 / DE / 800×200×300 / E / A0 / Z43

1

2

3

4

5

6

7

1 Type

FKS-EU Fire damper

2 Construction

No entry: standard construction

1 Powder-coated casing

2 Stainless steel casing

7 Coated damper blade

1 – 7 Powder-coated casing and coated damper blade

2 – 7 Stainless steel casing and coated damper blade

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

3 Country of destination

DE Germany

Other destination countries upon request

4 Nominal size [mm]

B × H × L

5 Accessories 1

No entry: none

E Installation block

B Cover plate

6 Accessories 2

No entry: none

S0 – AS

7 Attachments

Z00 – ZL08

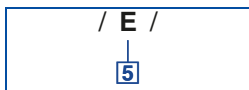
¹ W can be combined with all constructions listed under **2**

Order example

FKS-EU-1/DE/800×200×300/E/SS/Z43

Construction	Casing powder-coated, RAL 7001, silver grey
Country of destination	Germany
Nominal size	800 × 200 × 300 mm
Installation block	Installation block with cover plate
Accessories	Flexible connector on operating and installation sides
Attachment	Spring return actuator 230 V AC

Description



Order code detail

Application

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

Materials and surfaces

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

1

Installation block	Order code
Installation block with cover plate	E

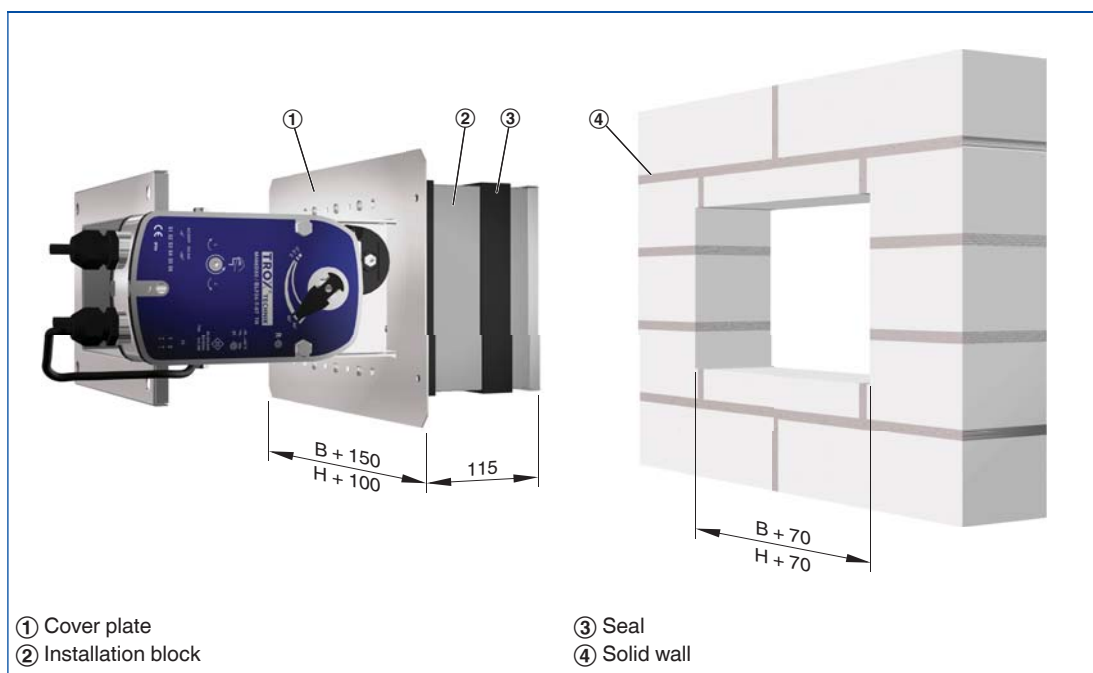
FKS-EU with fusible link, dimensions [mm] and weight [kg]

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

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

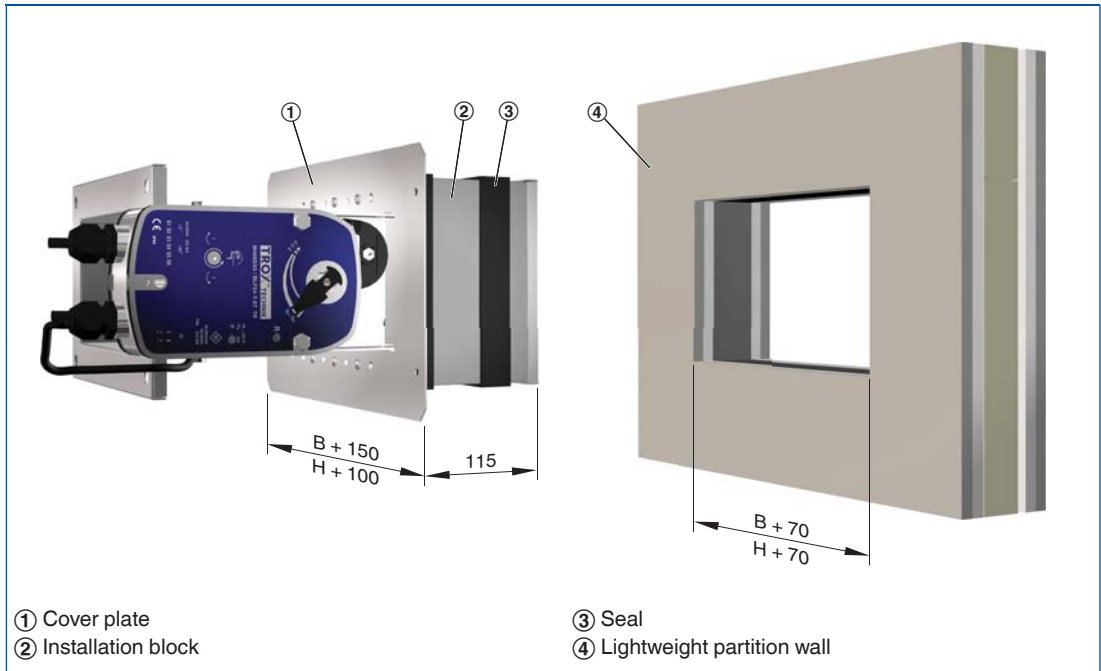
FKS-EU with spring return actuator: weight + 2 kg.

FKS-EU with installation block in a solid wall

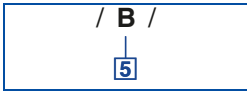


1

FKS-EU with installation block in a lightweight partition wall



Description



Order code detail

Application

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

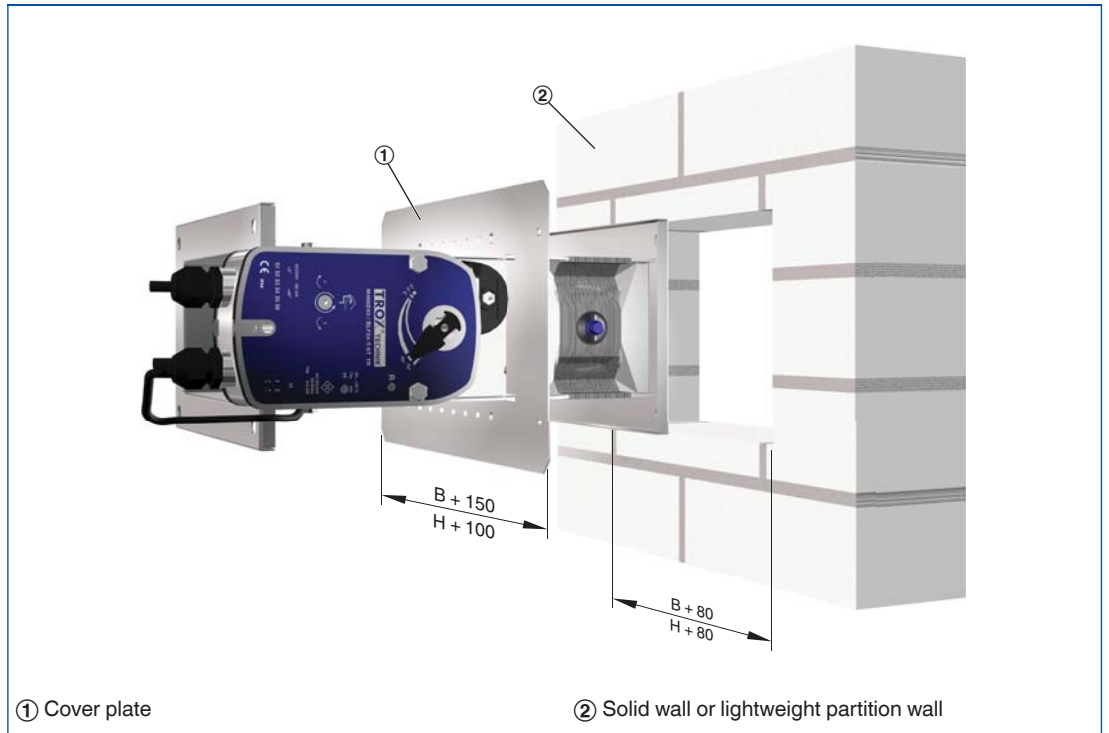
It is supplied unassembled and allows for positioning the fire damper in the installation opening and for applying the perimeter mortar infill.

Materials and surfaces

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

Cover plate	Order code
Cover plate	B

FKS-EU with cover plate



Description



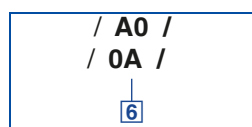
Cover grille for FKS-EU

Application

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

Materials and surfaces

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



Order code detail

Cover grille for FKS-EU

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

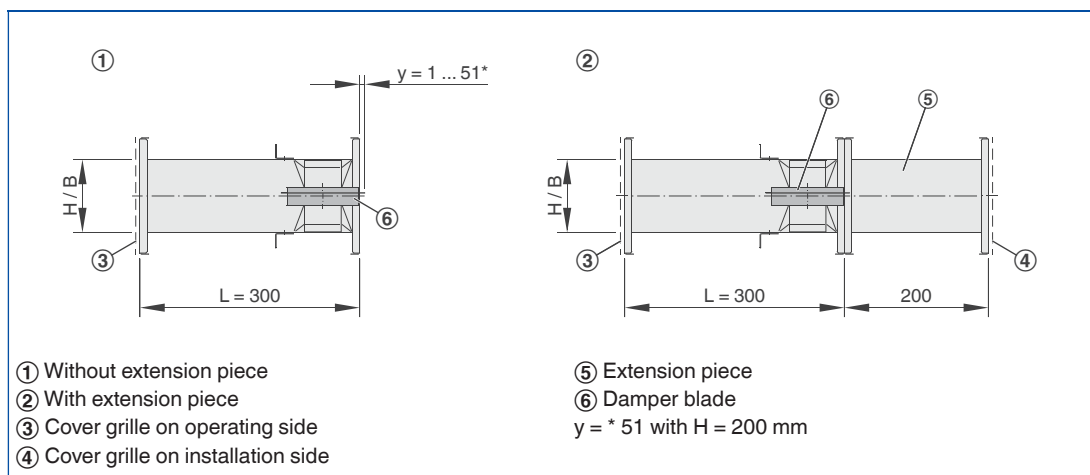
* Extension piece required

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

Cover grille



Cover grille



Description



Flexible connector with flange for FKS-EU

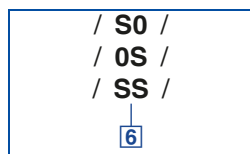
Application

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

Materials and surfaces

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

1



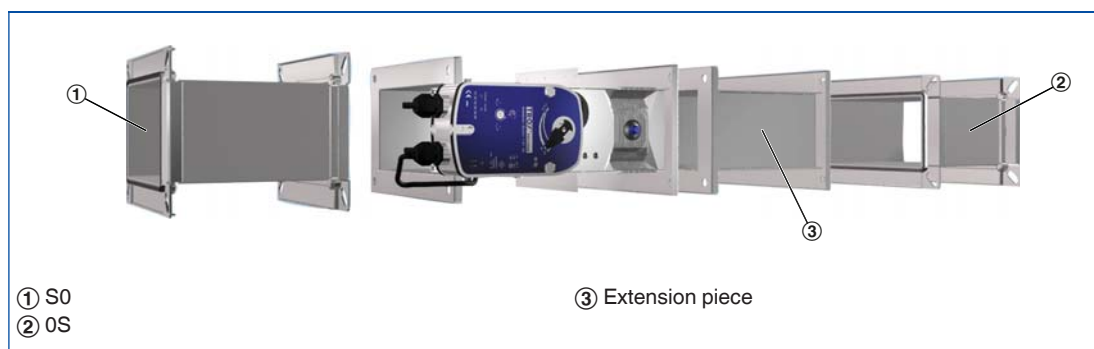
Order code detail

Flexible connector for FKS-EU

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

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

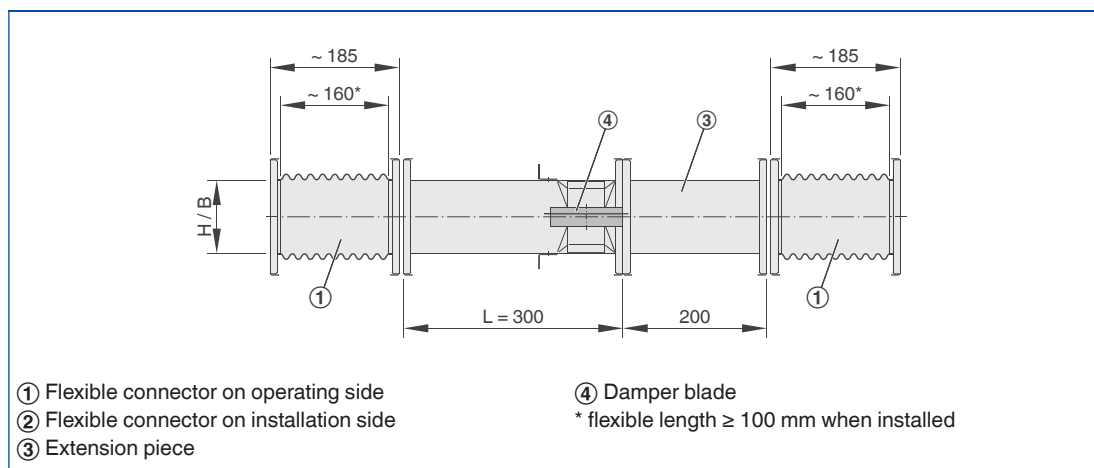
Flexible connector



- ① S0
- ② OS

③ Extension piece

Flexible connector



- ① Flexible connector on operating side
- ② Flexible connector on installation side
- ③ Extension piece

④ Damper blade
* flexible length \geq 100 mm when installed

Description



Extension piece for FKS-EU

Application

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

Materials and surfaces

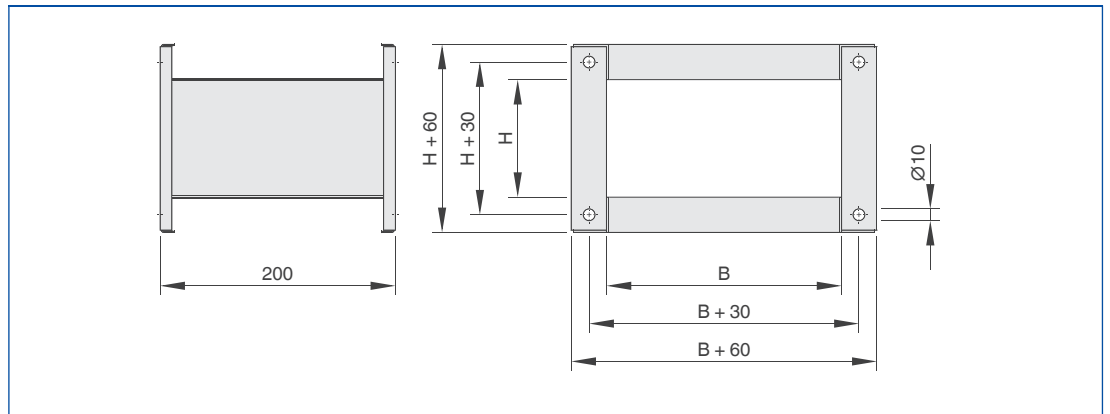
- Extension pieces made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)

Installation and commissioning

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

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

Extension piece



Description



Limit switch

For detailed information on limit switches see Chapter 1.2

FKS-EU with limit switch

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

/ Z01
/ Z02
/ Z03
7

Order code detail

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

Description



FKS-EU with spring return actuator

For detailed information on the spring return actuator see Chapter 1.2

FKS-EU with spring return actuator

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

/ Z43
/ Z45
7

Bestellschlüsseldetail

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

Description



FKS-EU with TROXNETCOM module

For detailed information on TROXNETCOM see Chapter 1.2

FKS-EU with spring return actuator and TROXNETCOM

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

Application

LON:

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

AS-i:

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

/ ZL06
/ ZL07
/ ZL08
/ ZA07

7

Order code detail

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

Description



Duct smoke detector
RM-O-3-D



Duct smoke detector
RM-O-VS-D

For detailed information on the duct smoke detector see Chapter 1.2

General

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

Application

RM-O-3-D:

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

RM-O-VS-D:

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

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

Duct smoke detectors are attachments and to be ordered separately.

1 Volume flow rate \dot{V} [m³/h] at differential pressure $\Delta p_{st} < 35$ Pa

H [mm]	L _{WA} [dB(A)]	B [mm]						
		200	300	400	500	600	700	800
100	35	300	480	660	840	1030	1230	1420
	45	420	670	920	1180	1450	1720	2000
125	35	410	650	890	1150	1400	1700	1940
	45	570	900	1250	1600	1960	2350	2700
150	35	520	830	1140	1470	1800	2140	2480
	45	730	1160	1600	2060	2520	3000	3480
160	35	570	900	1250	1600	1970	2340	2700
	45	790	1260	1750	2240	2750	3280	3800
200	35	760	1220	1690	2170	2660	3170	3680
	45	1060	1700	2360	3040	3750	4430	5150

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

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

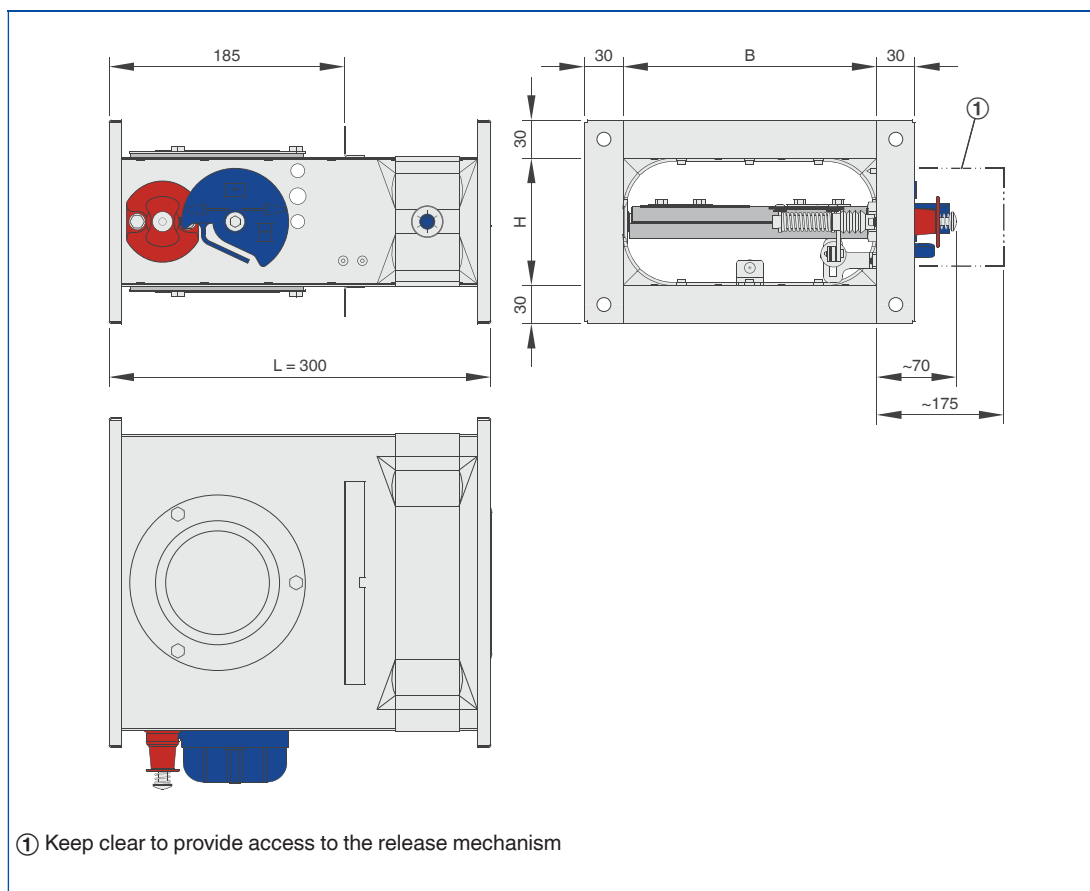
Dimensions

1



FKS-EU with fusible link

FKS-EU with fusible link



Dimensions [mm] / Weight [kg]

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

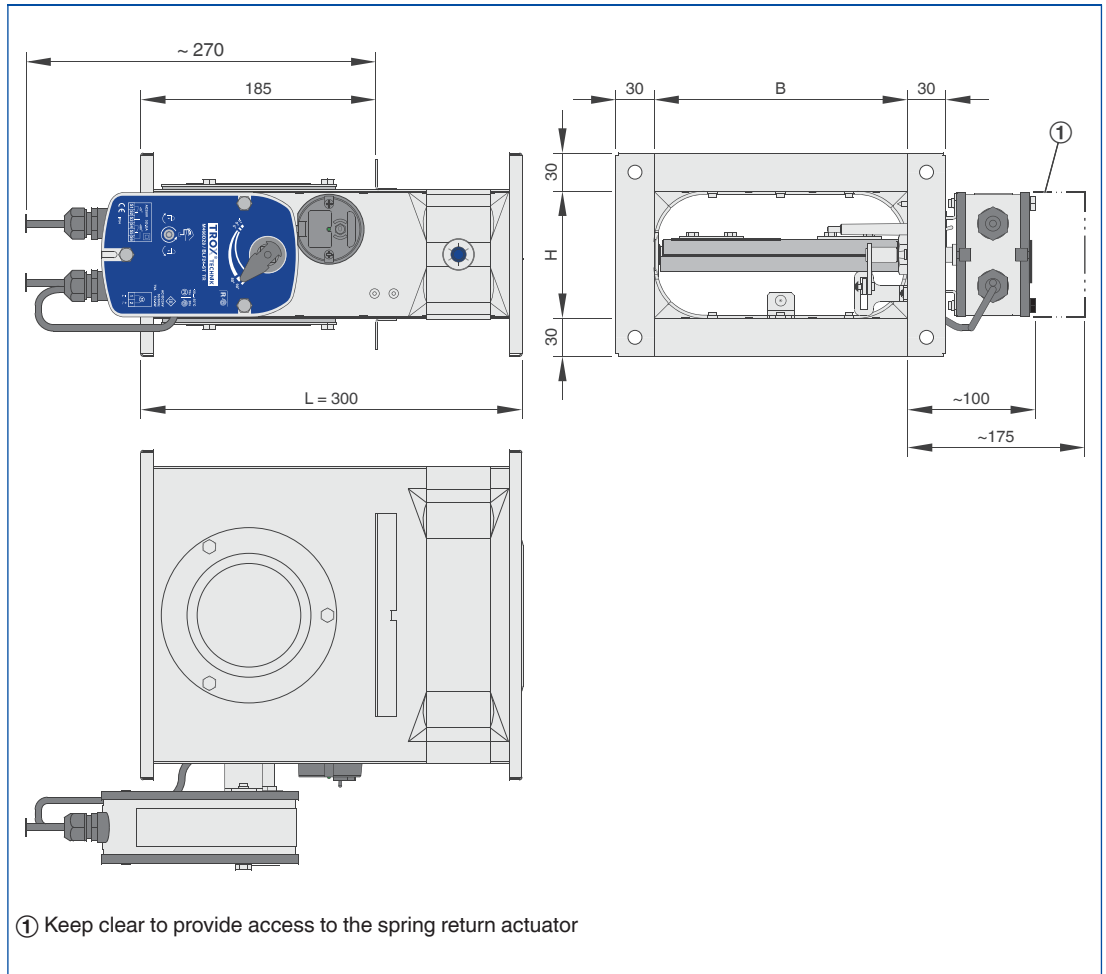
Width B: Intermediate dimensions in 50 mm increments are available.

Dimensions

FKS-EU with spring return actuator



Fire damper Type FKS-EU



Dimensions [mm] / Weight [kg]

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

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

Description

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

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

Special characteristics

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

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

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

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

Detailed listing on request.

Technical data

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

* Data applies to uniform upstream and downstream conditions for the fire damper
 ** Temperatures may differ for units with attachments

Sizing data

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

Order options

1 Type

FKS-EU Fire damper

2 Construction

No entry: standard construction

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

3 Country of destination

- DE** Germany
- Other destination countries upon request

4 Nominal size [mm]

- B × H × L

5 Accessories 1

No entry: none

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

6 Accessories 2

No entry: none

- S0 – AS**

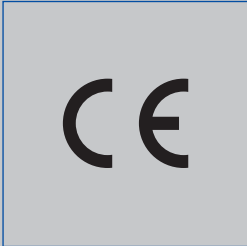
7 Attachments

- Z00 – ZL08**

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



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



CE compliant according
to European regulations



With TROXNETCOM
as an option



ATEX certification



Tested to VDI 6022

Fire dampers

Type FKR-EU



For large diameters, with or without a flange

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

- Nominal sizes: 315 – 800 mm
- For mortar-based installation in solid walls,
ceiling slabs and lightweight partition walls
- Dry mortarless installation into lightweight partition walls
- Low differential pressure and sound power level
- Flanges as an option
- Explosion-proof construction (ATEX) as an option
- Optional stainless steel casing or powder-coated casing
for increased corrosion protection
- Integration into the central BMS with TROXNETCOM

Optional equipment and accessories

- Electric actuator 24 V/230 V
- Release temperature 72/95 °C
- Duct smoke detector RM-O-3-D

1

Type		Page
FKR-EU	General information	1.1 – 75
	Correct use	1.1 – 81
	Order code	1.1 – 83
	Dry mortarless installation kit	1.1 – 84
	Cover grille	1.1 – 85
	Flexible connector	1.1 – 88
	Extension piece	1.1 – 91
	Limit switch	1.1 – 93
	Spring return actuator	1.1 – 94
	TROXNETCOM	1.1 – 95
	Duct smoke detectors	1.1 – 96
	Quick sizing	1.1 – 97
	Free area and resistance coefficient	1.1 – 98
	Dimensions and weight – FKR-EU	1.1 – 99
	Dimensions and weight – FKR-EU/.../Z4*	1.1 – 101
	Dimensions and weight – FKR-EU/.../ZEX*	1.1 – 103
	Dimensions and weight – FKR-EU-FL	1.1 – 104
	Dimensions and weight FKR-EU-FL/.../Z4*	1.1 – 106
	Specification text	1.1 – 109
	Basic information and nomenclature	1.3 – 1

Variants

Product examples

FKR-EU with fusible link



FKR-EU-FL with spring return actuator



FKR-EU with explosion-proof spring return actuator



Description



Fire damper
Type FKR-EU

For detailed information
on attachments
see Chapter K4 – 1.2.

Application

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

Classification

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

Variants

- With fusible link
- With fusible link for use in potentially explosive atmospheres
- With spring return actuator
- With spring return actuator for use in potentially explosive atmospheres

Nominal sizes

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

Attachments

- Limit switch for damper blade position indication
- Limit switch for damper blade position indication for use in potentially explosive atmospheres
- Spring return actuator for 24 V AC/DC or 230 V AC supply voltage
- 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

Accessories

- Flexible connectors
- Cover grille
- Extension piece
- Installation kit TQ

Useful additions

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

Special characteristics

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

Parts and characteristics

- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Approved installation orientation from 0° to 360°
- Single-handed operation

Construction features

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

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

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

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

Installation and commissioning

Install the fire damper according to the operating and installation manual.

Mortar-based installation:

- In solid walls and ceiling slabs
- In lightweight partition walls and fire walls with metal support structure and cladding on both sides
- In shaft walls with or without metal support structure and with cladding on one side

Dry mortarless installation:

- In lightweight partition walls with metal support structure and cladding on both sides, with installation kit TQ

Standards and guidelines

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

Maintenance

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

Technical data

Nominal sizes	315 – 800 mm
Casing lengths	495 and 550 mm
Volume flow rate range	Up to 5001 l/s or up to 18005 m ³ /h
Differential pressure range	Up to 2000 Pa
Operating temperature	At least 0 – 50 °C **
Release temperature	72 °C or 95 °C (for warm air ventilation systems)
Upstream velocity*	≤ 8 m/s with standard construction; ≤ 12 m/s with spring return actuator

Note: Upstream velocity for the explosion-proof actuator ExMax/RedMax-15-BF TR is ≤ 10 m/s

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

** Temperatures may differ for units with attachments

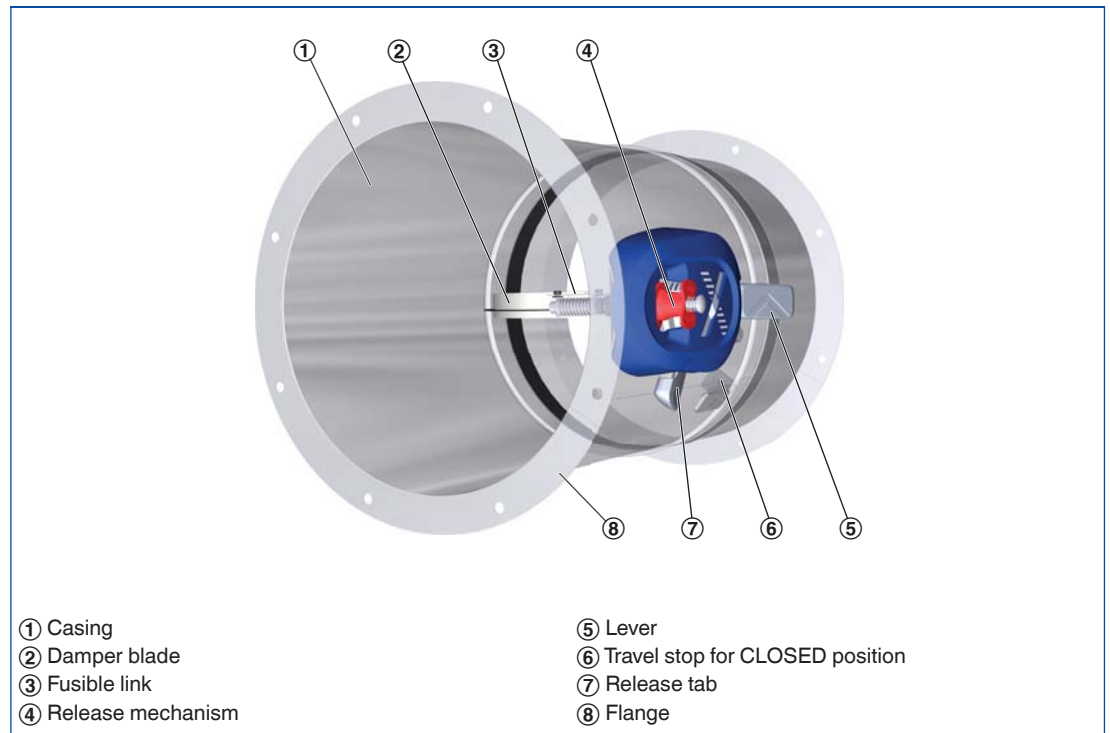
Function

Construction with fusible link

Functional description

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

Schematic illustration of FKR-EU-FL with fusible link



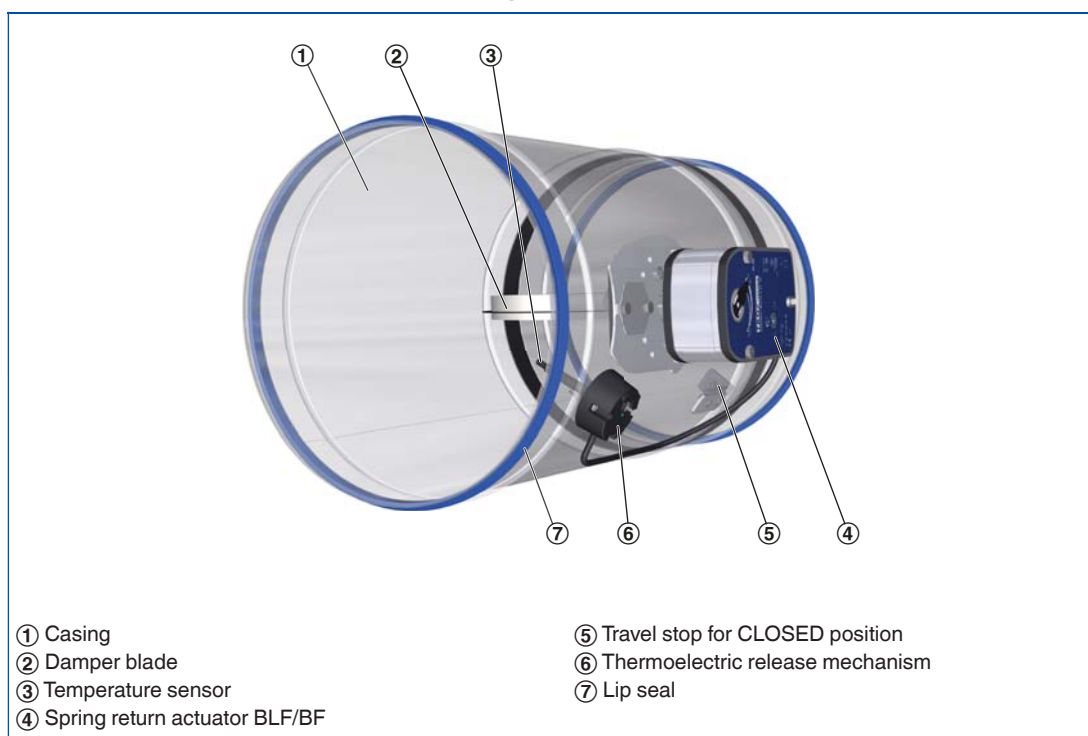
Function

Construction
with spring return actuator

Functional description

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

Schematic illustration of FKR-EU with spring return actuator



Function

Construction with spring return actuator, explosion-proof

Functional description

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 the operation of the fire damper, the operating and installation manual and the technical data in the additional operating manual (A00000038482) must be observed.

Use in areas with

potentially explosive atmospheres (ATEX)

According to declaration of conformity TÜV 13 ATEX 128437 X, the fire damper may be used in the following areas with potentially explosive atmospheres. The ambient temperatures and types of release and actuation specified in the technical data must be observed.

RedMax:

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

ExMax:

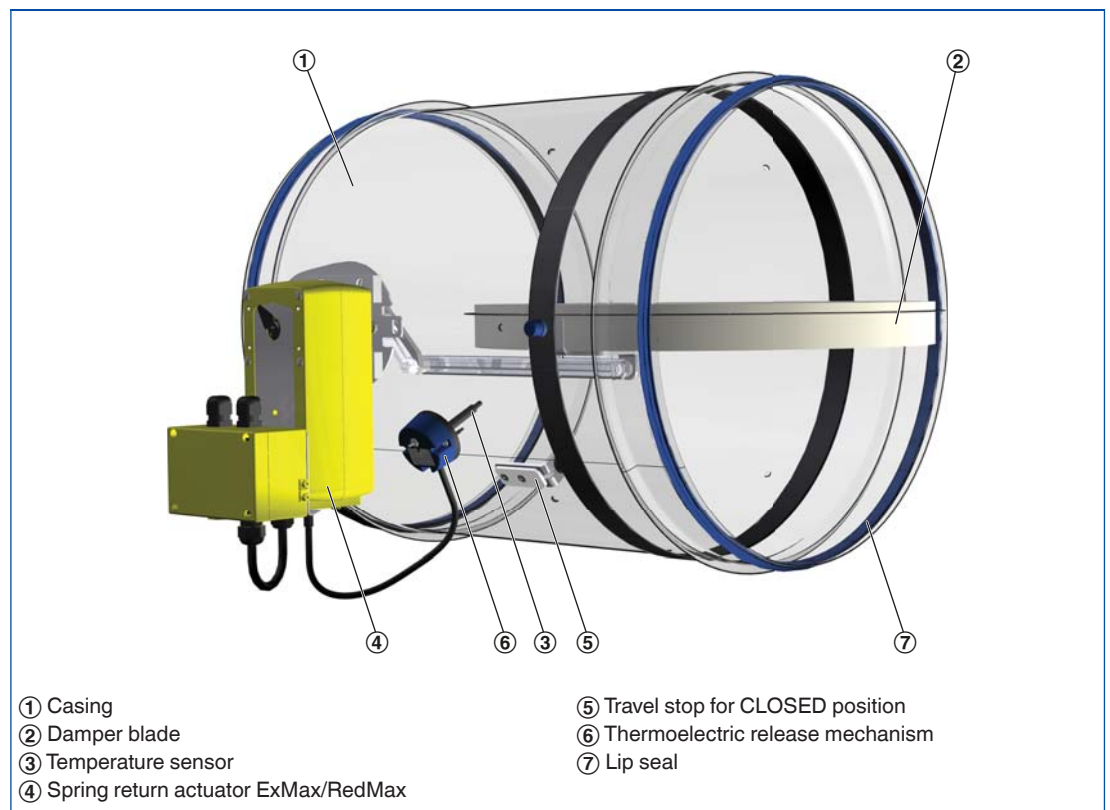
- Zones 1, 2: Gases, mists and vapours
- Zones 21, 22: Dusts



ATEX certification

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

Schematic illustration of FKR-EU with explosion-proof spring return actuator (e.g. ExMax-15-BF TR)





1

Design information





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

Correct use in solid walls and ceiling slabs

Installation location	Construction and building material	Minimum thickness	Performance class	Mortar-based installation	Dry mortarless installation
		mm	EI TT ($v_e-h_o, i \leftrightarrow o$) S		
Solid walls	 <p>Solid walls, gross density $\geq 500 \text{ kg/m}^3$</p>	100	EI 120 S	N	-
Solid ceiling slabs	 <p>Solid ceiling slabs, gross density $\geq 600 \text{ kg/m}^3$</p>	150	EI 120 S	N	-
	 <p>Solid ceiling slabs, gross density $\geq 600 \text{ kg/m}^3$</p>	150	EI 120 S	N	-

N = Mortar-based installation

Correct use in lightweight partition walls and fire walls

Installation location		Construction and building material	Minimum thickness	Performance class	Mortar-based installation	Dry mortarless installation
			mm	EI TT (v _e -h _o , i ↔ o) S		
Lightweight partition walls with metal support structure and cladding on both sides		Lightweight partition walls	100	EI 90 S	N	E
Fire walls with metal support structure and cladding on both sides		Fire walls	115	EI 90 S	N	-
Lightweight partition walls with metal support structure and cladding on one side		Shaft walls	90	EI 90 S	N	-
Lightweight partition walls without metal support structure and cladding on one side		Shaft walls	50	EI 90 S	N	-

N = mortar-based installation, E = installation kit (TQ)

Order code

FKR-EU

FKR – EU – FL – 1 / DE / 315 / TQ / A0 / Z43

1

2

3

4

5

6

7

8

1 Type

FKR-EU Fire damper

2 Flange

No entry: none (construction with spigots)

FL Flanges on both ends

3 Construction

No entry: none

1 Powder-coated casing

2 Stainless steel casing

7 Coated damper blade

1 – 7 Powder-coated casing and coated damper blade

2 – 7 Stainless steel casing and coated damper blade

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

4 Country of destination

DE Germany

Other destination countries upon request

5 Nominal size [mm]

315

355

400

450

500

560

630

710

800

6 Accessories 1

No entry: none

TQ Dry mortarless installation kit

7 Accessories 2

No entry: none

S0 – AS

8 Attachments

Z00 – ZEX4

¹ W can be combined with all constructions listed under **2** and **3**

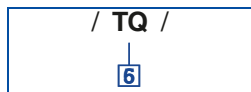
but not with attachments listed under **7** ZEX1 – ZEX4

Order example

FKR-EU-1/DE/500/SS/ZL06

Construction	Casing powder-coated, RAL 7001, silver grey
Country of destination	Germany
Nominal size	500 mm
Accessories	Flexible connector on operating and installation sides
Attachment	Spring return actuator 24 V AC/DC and LON module LON-WA1/B2

Description



Order code detail

Application

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

Materials and surfaces

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

Accessories 1	Order code
Square dry mortarless installation kit	TQ

Technical data

Weight [kg] of FKR-EU with fusible link and dry mortarless installation kit

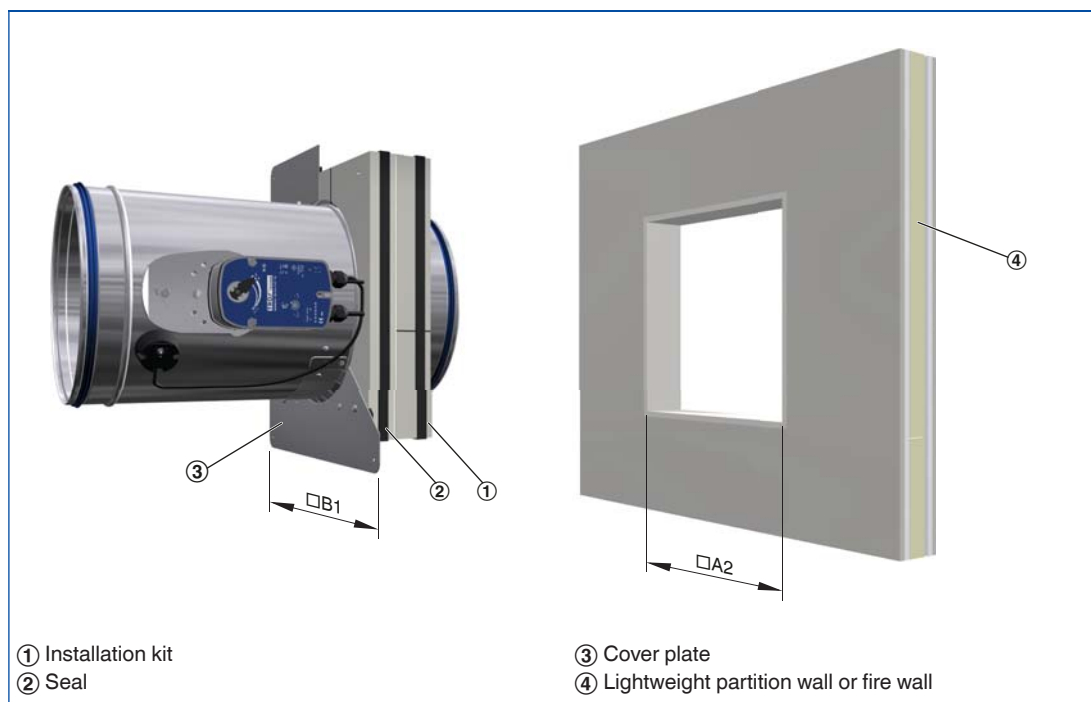
Nominal size	315	355	400	450	500	560	630	710	800
Dry mortarless installation kit TQ	19.50	21.80	25.00	33.10	37.80	42.60	49.70	58.70	57.30

FKR-EU with spring return actuator: Weight + 1.8 kg.

Installation opening/cover plate dimensions [mm]

Nominal size	315	355	400	450	500	560	630	710	800
□A2	435	475	520	570	620	680	750	830	920
□B1	515	555	600	650	700	760	830	910	1000

FKR-EU with square installation kit TQ



Description



Cover grille with extension piece for FKR-EU

/ A0 /
/ 0A /
/ AS /
/ SA /
7

Order code detail

Application

- If only one end is to be ducted on site, the other end must have a cover grille
- For certain heights an extension piece may be required, see table
- Fire damper, cover grille and, if applicable, extension piece are factory assembled to form a unit
- The free area of the cover grille is approx. 70%
- The fixing holes in the cover grilles and extension pieces match those in the fire damper flanges
- Cover grilles are also available separately
- Cover grilles both ends are approved in Germany only for Type FK-EU fire dampers used as air transfer dampers, general building inspectorate licence Z-6.50-2031

Materials and surfaces

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

Cover grille for FKR-EU

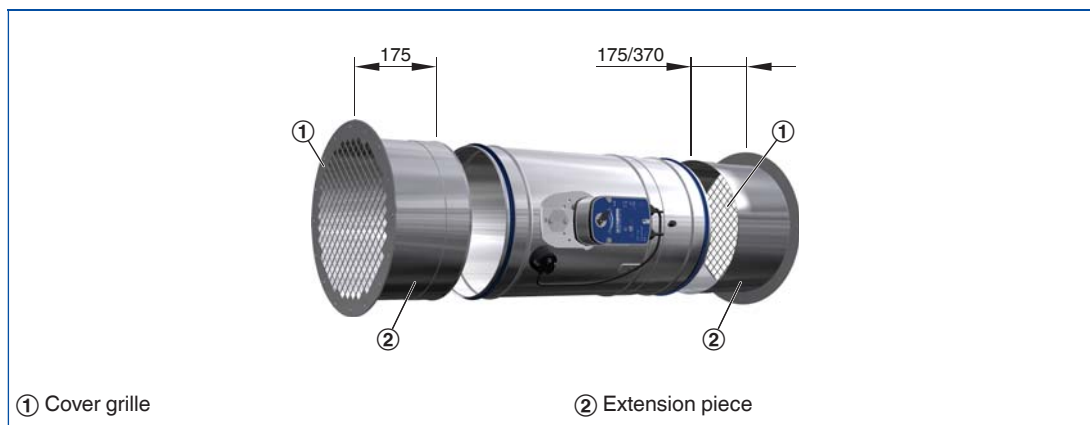
Operating side	Installation side	Order code
Cover grille	-	A0
-	Cover grille	0A
Cover grille	Flexible connector	AS
Flexible connector	Cover grille	SA

Technical data

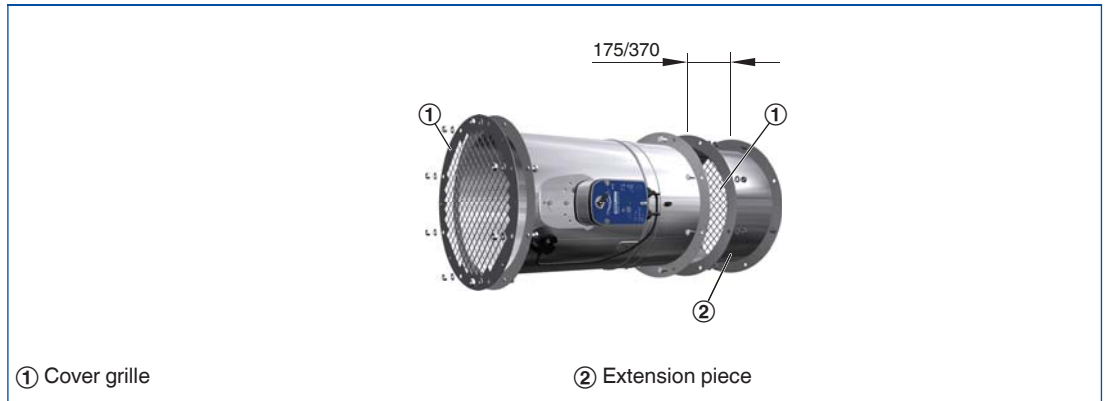
Location and length of extension pieces [mm]

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

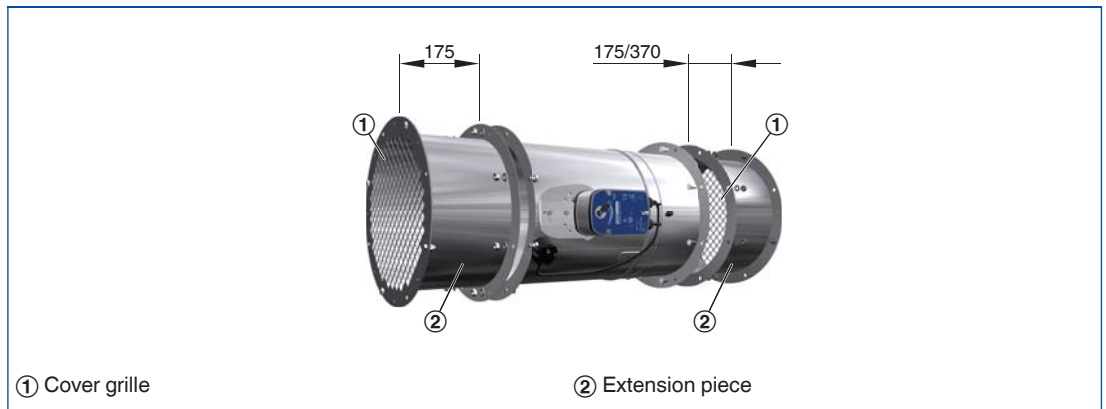
Cover grille for FKR-EU



Cover grille for FKR-EU-FL

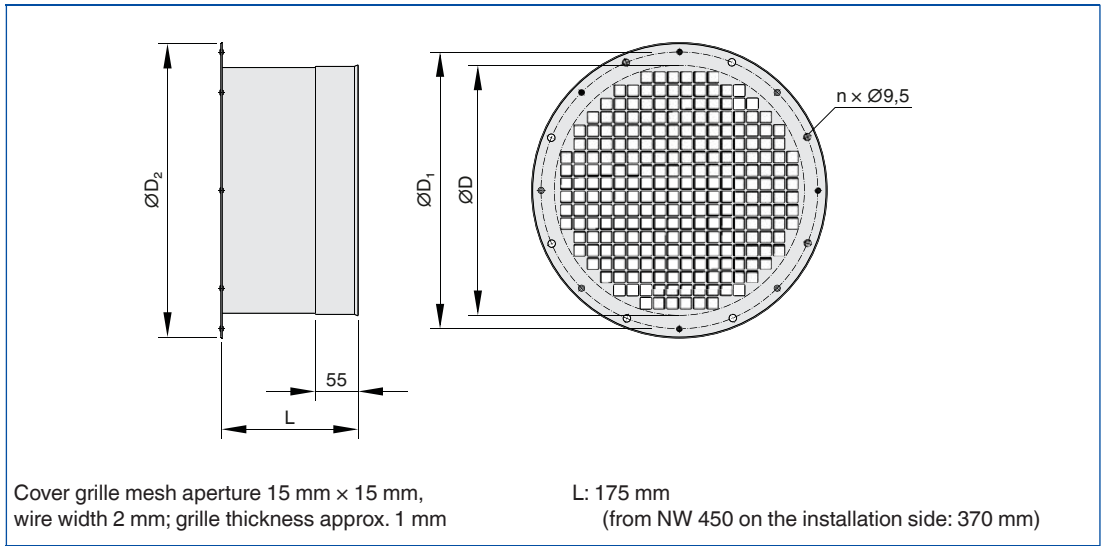


Cover grille with extension piece for FKR-EU-FL

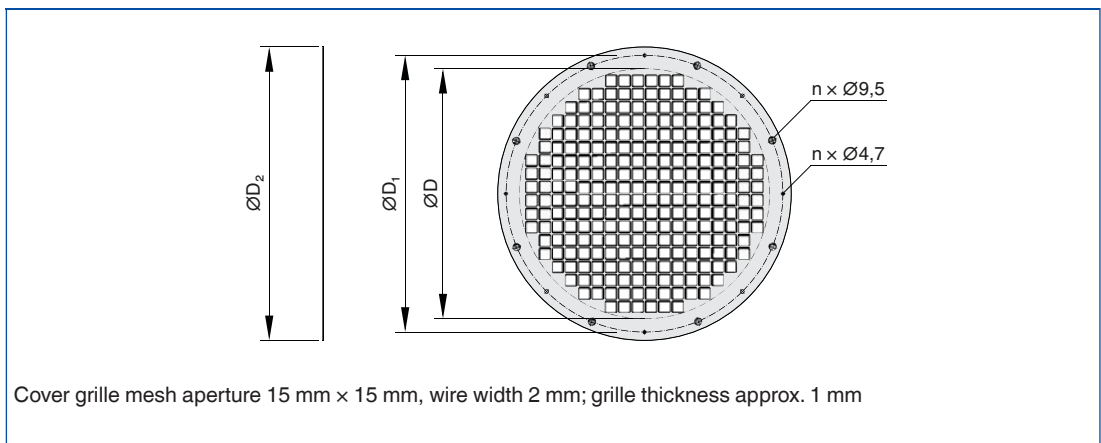


1 The distance »a« between the open damper blade and the spigot should be 50 mm.

Cover grille



Cover grille



Description



Flexible connector with flange for FKS-EU-FL

Application

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

Materials and surfaces

- Flexible connectors made of galvanised steel (FKR-EU-FL only) and fibre-reinforced plastic
- Fire resistance properties to 4102; B2
- Extension piece same as casing

/ S0 /
/ OS /
/ SS /
/ SA /
/ AS /
7

Order code detail

Flexible connector for FKR-EU

Operating side	Installation side	Order code
Flexible connector	-	S0
-	Flexible connector	OS
Flexible connector	Flexible connector	SS
Flexible connector	Cover grille	SA
Cover grille	Flexible connector	AS

Technical data

Location and length of extension pieces [mm]

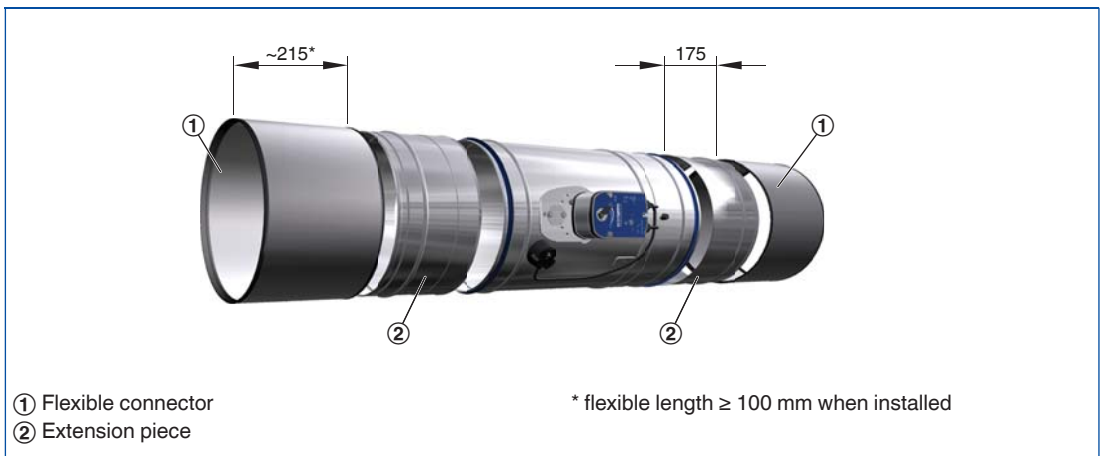
Nominal size	Operating side	Installation side
Construction	FKR-EU / FKR-EU-FL	
315	- / -	175 / 175
355	- / -	175 / 175
400	- / -	175 / 175
450	- / -	370 / 175
500	- / -	370 / 370
560	- / -	370 / 370
630	- / -	370 / 370
710	- / 175	370 / 370
800	175 / 175	370 / 370

1

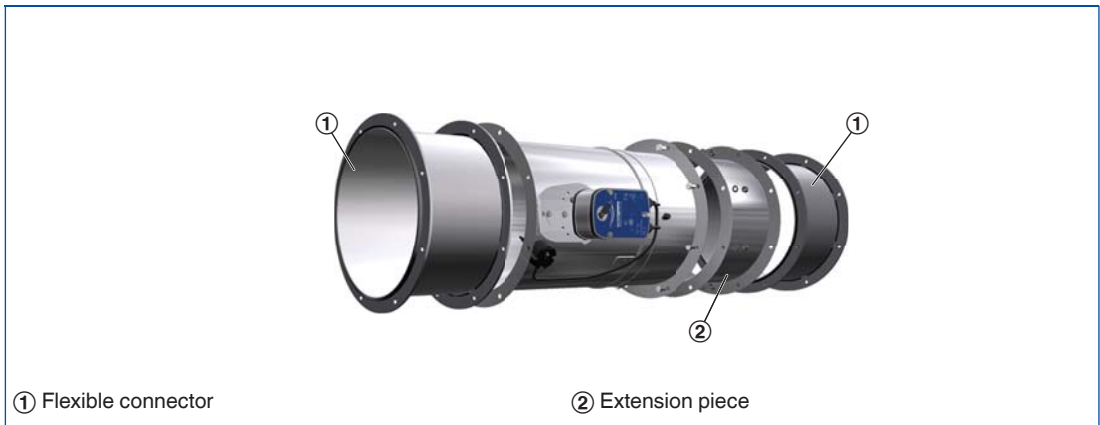
Flexible connector for FKR-EU



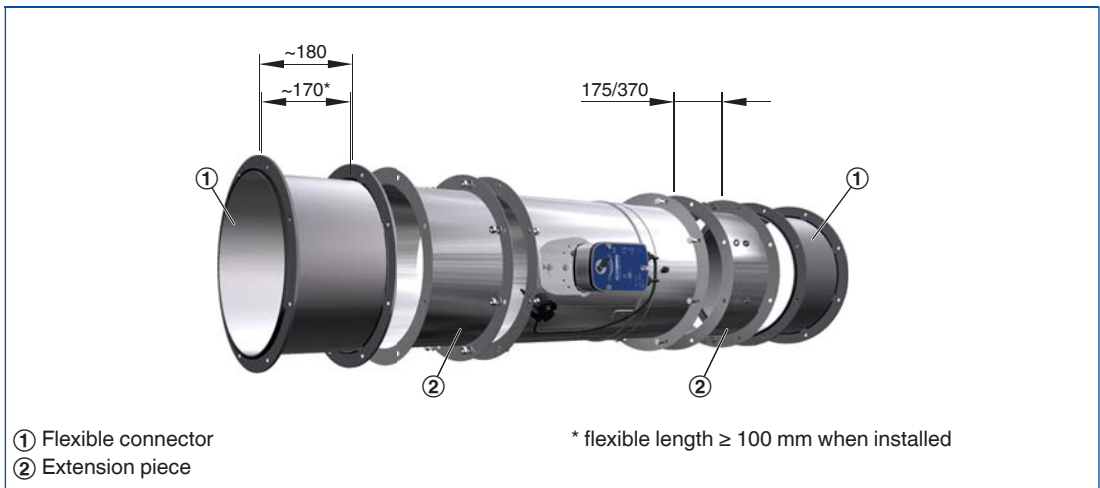
Flexible connector for FKR-EU with extension piece



Flexible connector for FKR-EU-FL

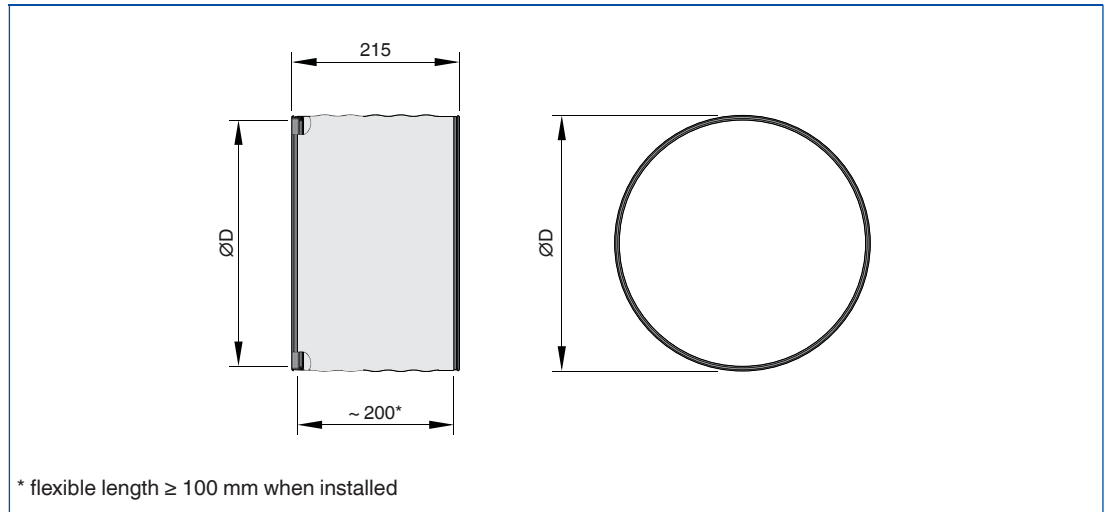


Flexible connector for FKR-EU-FL with extension piece

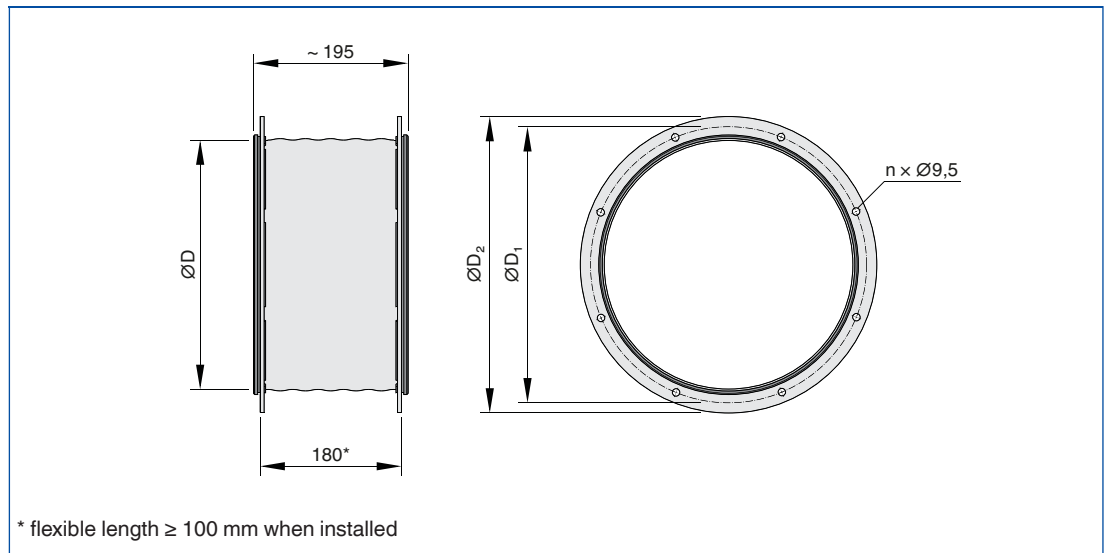


1 The distance »a« between the open damper blade and the flexible connector should be 50 mm.

Flexible connector



Flexible connector



Description



Extension piece for FKR-EU-FL, with flange

Application

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

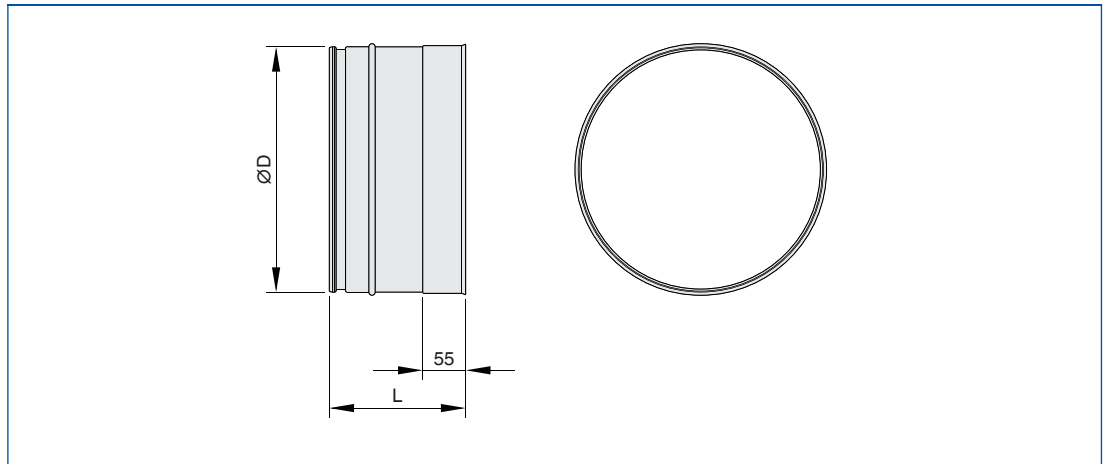
Installation and commissioning

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

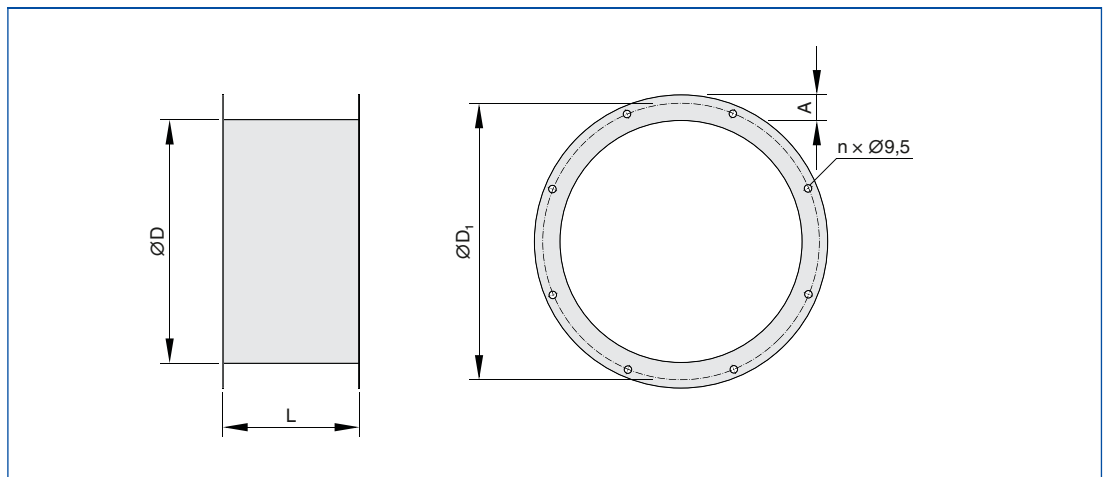
Materials and surfaces

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

Extension piece

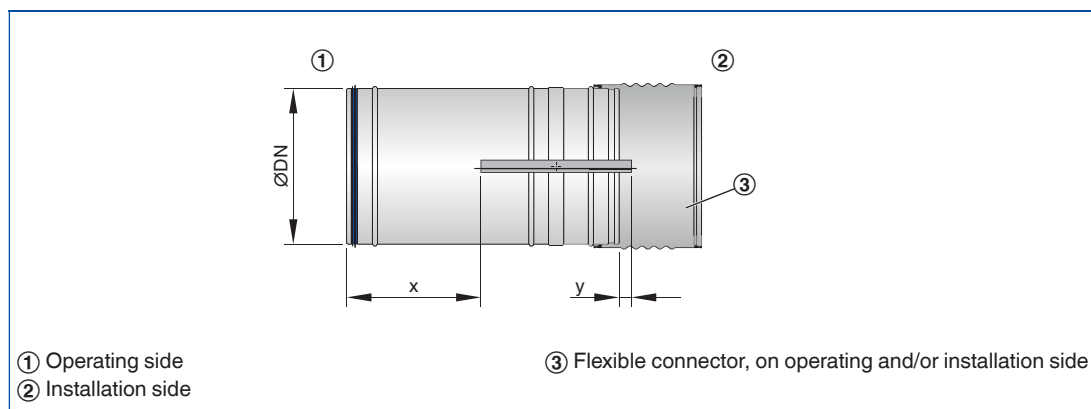


Extension piece

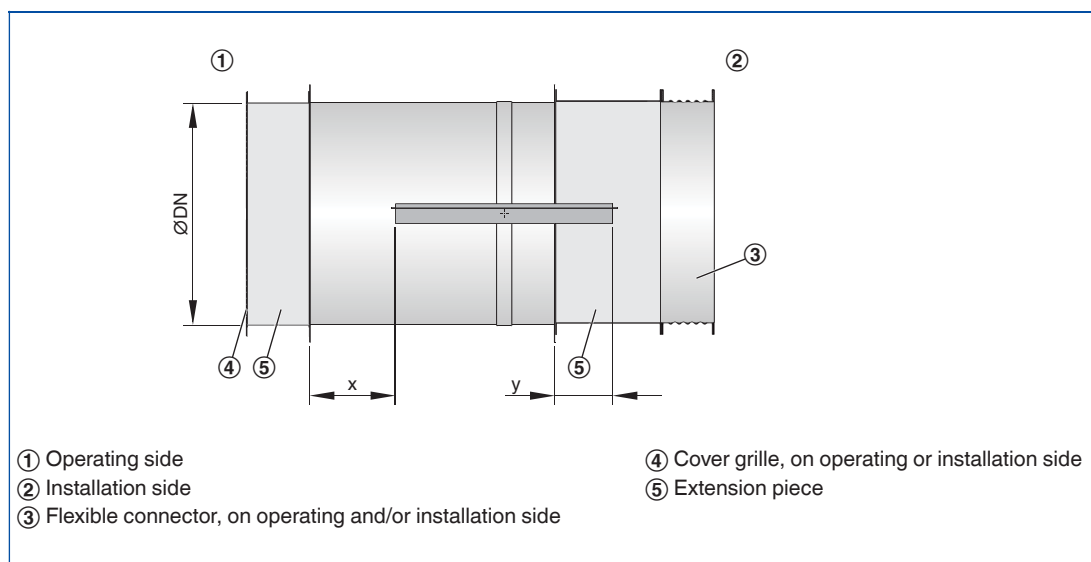


1

FKR-EU open blade protrusion



FKR-EU-FL open blade protrusion



Description



Limit switch

For detailed information on limit switches see Chapter 1.2

/ Z01
/ Z02
/ Z03
8

Order code detail

FKR-EU with limit switch

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

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

Description



Limit switch (explosion-proof)

For detailed information on limit switches see Chapter 1.2

/ Z01EX
/ Z02EX
/ Z03EX
8

Order code detail

FKR-EU with explosion-proof limit switch

- According to declaration of conformity TÜV 13 ATEX 128437 X explosion-proof 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
- 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

Attachments	Order code
Limit switch (explosion-proof) for damper blade position CLOSED	Z01EX
Limit switch (explosion-proof) for damper blade position OPEN	Z02EX
Limit switches (explosion-proof) for damper blade positions CLOSED and OPEN	Z03EX



ATEX certification

ATEX areas of application for the FKR-EU

Release mechanism	Marking	Ambient temperature	Maximum airflow velocity
Fusible link	II 2D c T80 °C/II 2G c IIC T6	–40 to 40 °C	8 m/s
Fusible link and limit switch	II 2D c T80 °C/II 2G c IIC T6	–20 to 40 °C	8 m/s

Description



FKR-EU with spring return actuator BLF



FKR-EU-FL with spring return actuator BF

For detailed information on the spring return actuator see Chapter 1.2

/ Z43
/ Z45
8

Order code detail

FKR-EU with spring return actuator

- An open/close actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close)
- Fire dampers with spring return actuators can be functionally checked OPEN/CLOSED/OPEN
- Two integral limit switches with volt-free contacts enable the damper blade position indication (OPEN and CLOSED)
- Ambient temperature, normal operation -30 to 50 °C
- BLF24-T-ST TR or BF24-T-ST-2 TR: The connecting cables of the spring return actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system
- A conversion kit is available for adding an actuator to the standard construction
- In case of conventional wiring (Z45) the voltage is supplied by a safety transformer

Attachments	Order code
BLF230-T TR / BF230-T-2 TR	Z43
BLF24-T-ST TR / BF24-T-ST-2 TR	Z45

Spring return actuator BLF for FKR-EU with a nominal size up to 400 mm.
Spring return actuator BF for FKR-EU with a nominal size up to 450 mm.

Description



FKR-EU with explosion-proof spring return actuator

For detailed information on the spring return actuator see Chapter 1.2

/ ZEX1
/ ZEX3
8

Order code detail

FKR-EU with explosion-proof spring return actuator

- An open/close actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- 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 enable the damper blade position indication (OPEN and CLOSED)
- The electrical connection is made in the explosion-proof terminal box
- Release temperature of the spring return actuator is 72 °C
- Declaration of conformity: TÜV 13 ATEX 128437 X

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

ATEX areas of application for the FKR-EU

Release mechanism	Attachments	Marking	Ambient temperature
ExPro-TT	ExMax-15-BF TR	II 2 D c T80 °C II 2 G c IIC T6	-40 to 40 °C
	RedMax-15-BF TR	II 3D c T80 °C II 3G c IIC T6	-40 to 40 °C



ATEX certification

Description



FKR-EU with TROXNETCOM module

For detailed information on TROXNETCOM see Chapter 1.2

FKR-EU with spring return actuator and TROXNETCOM

- Fire dampers with spring return actuator BLF24-T-ST TR or BF24-T-ST-2 T and the modules shown here as attachments form a functional unit ready for automatic operation.
- The components are factory assembled and wired
- It enables the integration of different components (modules) into a network regardless of the manufacturer
- The modules control actuators and/or receive signals from sensors

Application

LON:

- LON indicates a standard local operating network system with manufacturer-independent communications
- Data transmission is based on a uniform protocol
- LonMark defines standards to ensure product compatibility
- Only the bus line and the supply voltage remain to be connected by others

- LON-WA1/B2: To provide the control input signal for up to two fire dampers
- LON-WA1/B2-AD: Connection box for connecting the second fire damper with 24 V DC supply voltage to LON-WA1/B2-AD
- LON-WA1/B2-AD230: Connection box with integral 230/24 V power supply unit for the connection of a second actuator-driven 24 V fire damper to LON-WA1/B2

AS-i:

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

/ ZL06
/ ZL07
/ ZL08
/ ZA07
8

Order code detail

Attachments	Order code
LON-WA1/B2 and B(L)F24-T-ST(-2) TR	ZL06
LON-WA1/B2-AD and B(L)F24-T-ST(-2) TR	ZL07
LON-WA1/B2-AD230 and B(L)F24-T-ST(-2) TR	ZL08
AS-EM and BLF24-T-ST TR	ZA07

Description



ATEX certification

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

- The AS interface is a global standard bus system according to EN 50295 and IEC 62026-2
- It enables the integration of different components (modules) into a network regardless of the manufacturer
- 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 modules control actuators and/or receive signals from sensors
- The module is to be installed and wired outside of the potentially explosive atmosphere by others

Application

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

/ ZEX2
/ ZEX4
8

Order code detail

Attachments	Order code
AS-Interface module ExMax-15-BF TR	ZEX2
AS-Interface module RedMax-15-BF TR	ZEX4

Description



Duct smoke detector
RM-O-3-D



Duct smoke detector
RM-O-VS-D

For detailed information
on the duct smoke
detector see Chapter 1.2

General

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

Application

RM-O-3-D:

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

RM-O-VS-D:

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

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

Duct smoke detectors are attachments and to be ordered separately.
RM-O-3-D can also be supplied assembled and wired for standard application fire dampers.
The duct smoke detector can only be mounted onto an even surface, e.g. a rectangular duct

Volume flow rate at differential pressure $\Delta p_{st} < 35 \text{ Pa}$

L_{WA} [dB(A)]	35	45	35	45
Nominal size	\dot{V}			
mm	l/s		m ³ /h	
315	460	670	1660	2400
355	570	820	2040	2940
400	700	1000	2500	3610
450	820	1180	2940	4240
500	980	1410	3530	5080
560	1190	1710	4280	6160
630	1450	2090	5230	7520
710	1780	2560	6400	9210
800	2170	3130	7810	11250

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

1

Nominal size	A [m ²]	ζ
315	0.069	0.44
355	0.089	0.34
400	0.114	0.26
450	0.140	0.21
500	0.175	0.17
560	0.222	0.13
630	0.285	0.10
710	0.365	0.08
800	0.468	0.06

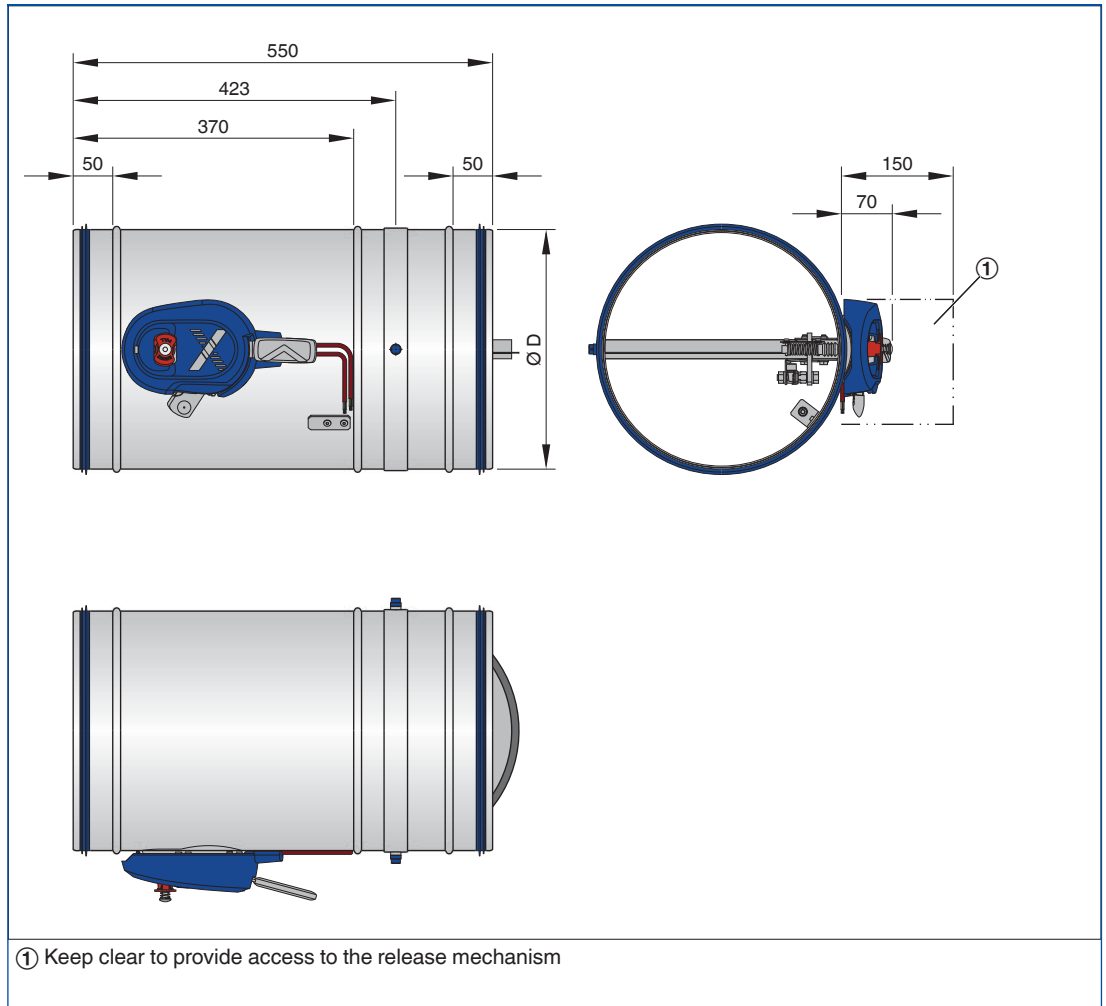
Maximum upstream velocity: ≤ 8 m/s for standard construction, ≤ 10 m/s for construction with spring return actuator.

Dimensions

FKR-EU with spigot and fusible link, nominal sizes 315 – 400



FKR-EU with fusible link



Dimensions [mm] / Weight [kg]

Nominal size	315	355	400
ØD	314	354	399
Weight	6.8	7.3	8.5

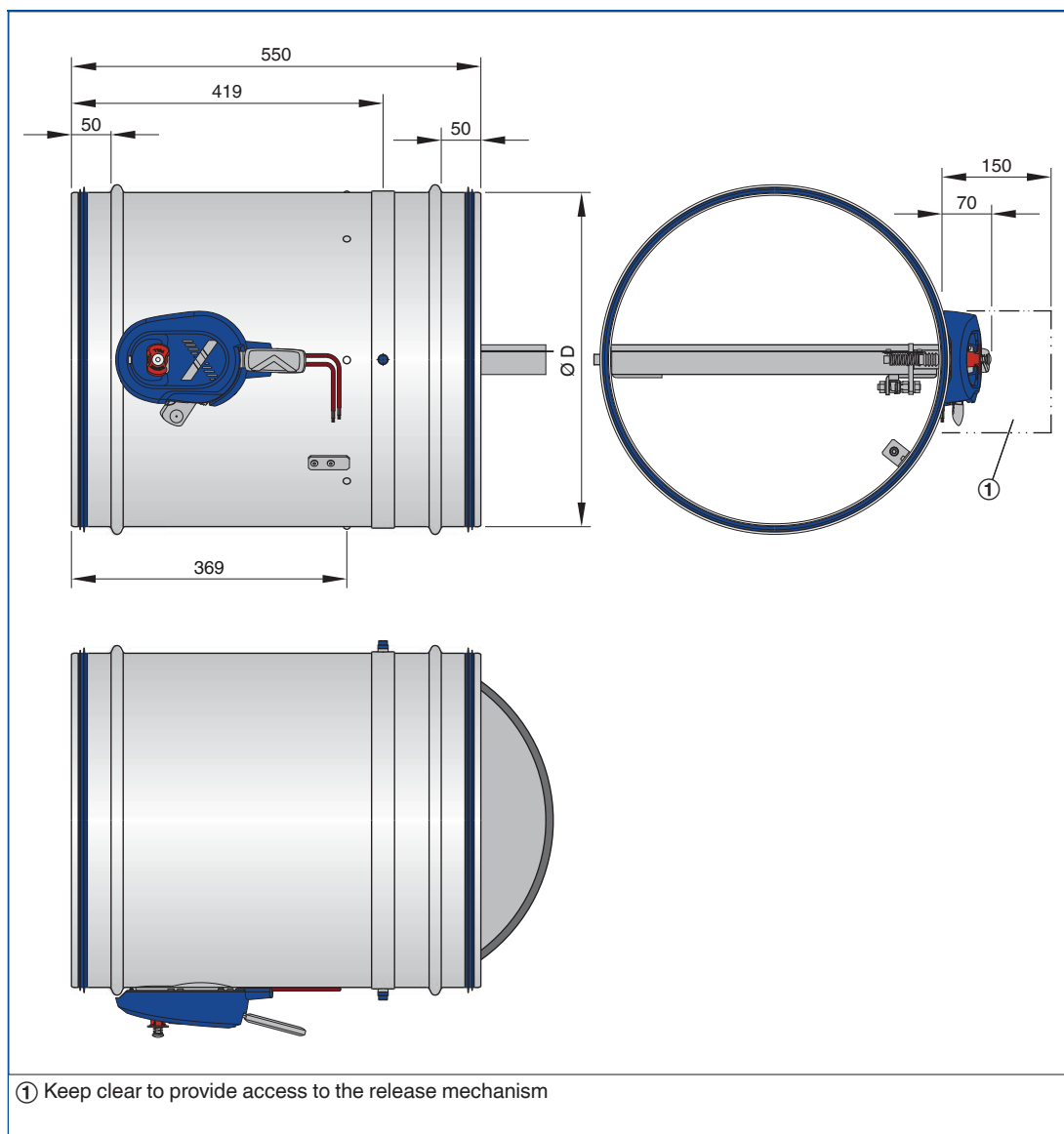
Dimensions

1



FKR-EU with fusible link

FKR-EU with spigot and fusible link, nominal sizes 450 – 800



Dimensions [mm] / Weight [kg]

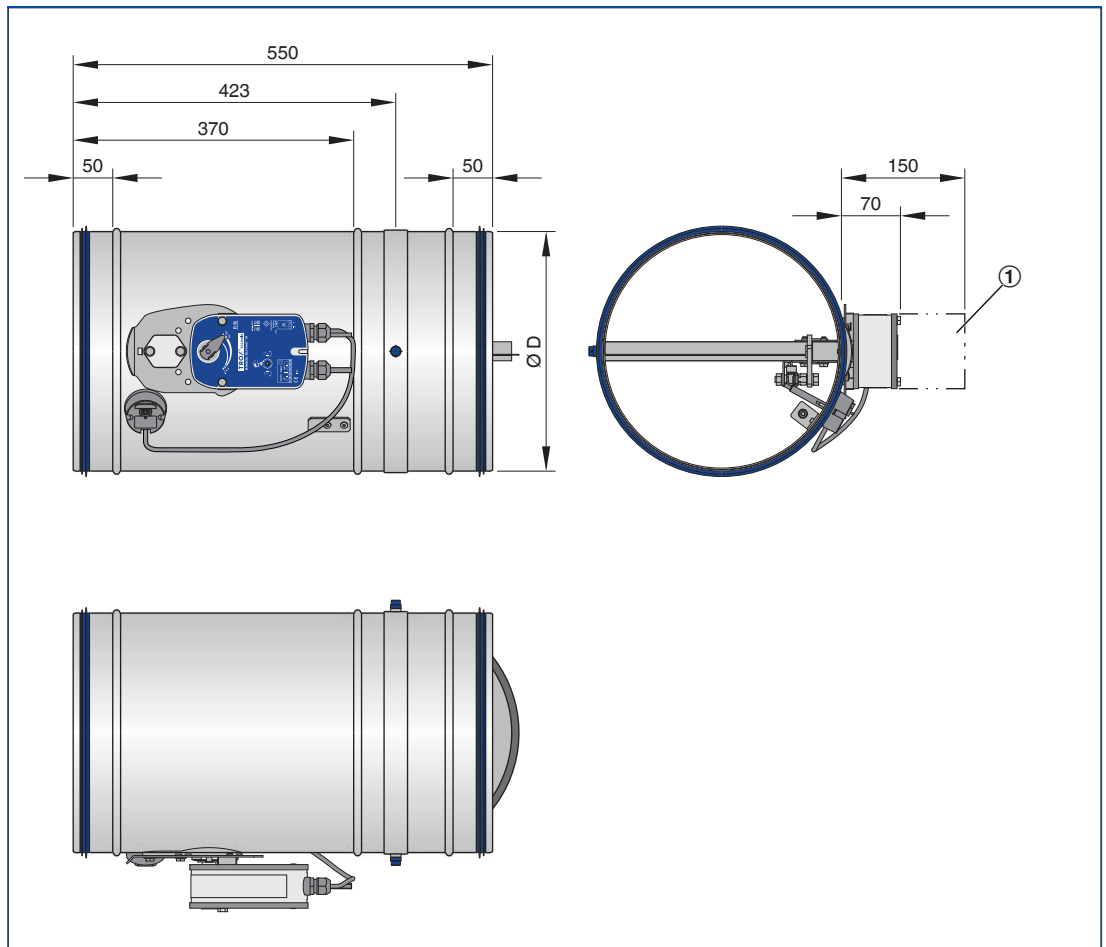
Nominal size	450	500	560	630	710	800
ØD	448	498	558	628	708	798
Weight	14.1	16.4	18	21.3	25.7	28.6

Dimensions

FKR-EU with spigot and spring return actuator, nominal sizes 315 – 400



FKR-EU with spring return actuator



① Keep clear to provide access to the spring return actuator

Dimensions [mm] / Weight [kg]

Nominal size	315	355	400
ØD	314	354	399
Weight	8.2	8.7	9.9

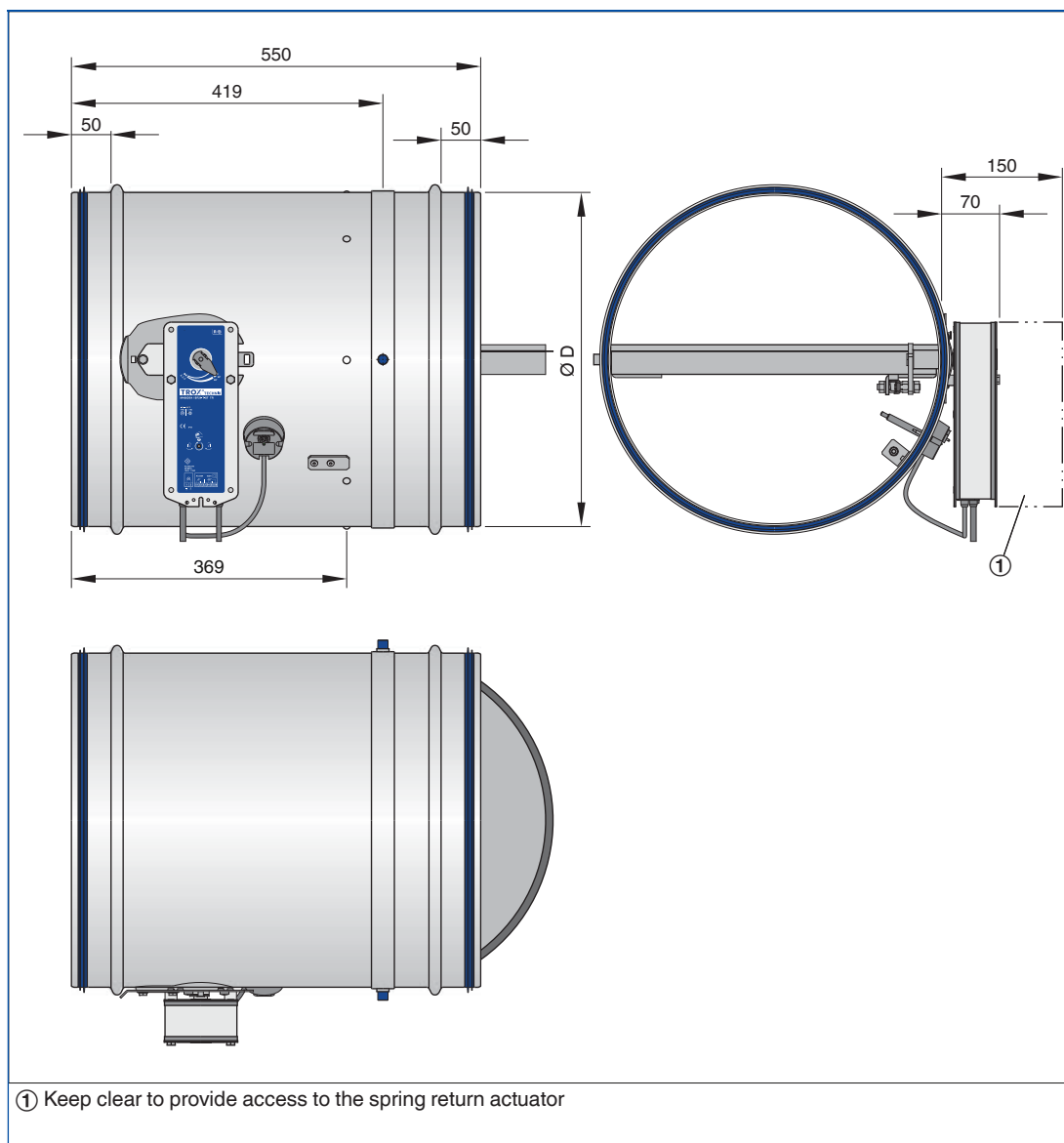
Dimensions

1



FKR-EU with spring return actuator

FKR-EU with spigot and spring return actuator, nominal sizes 450 – 800



Dimensions [mm] / Weight [kg]

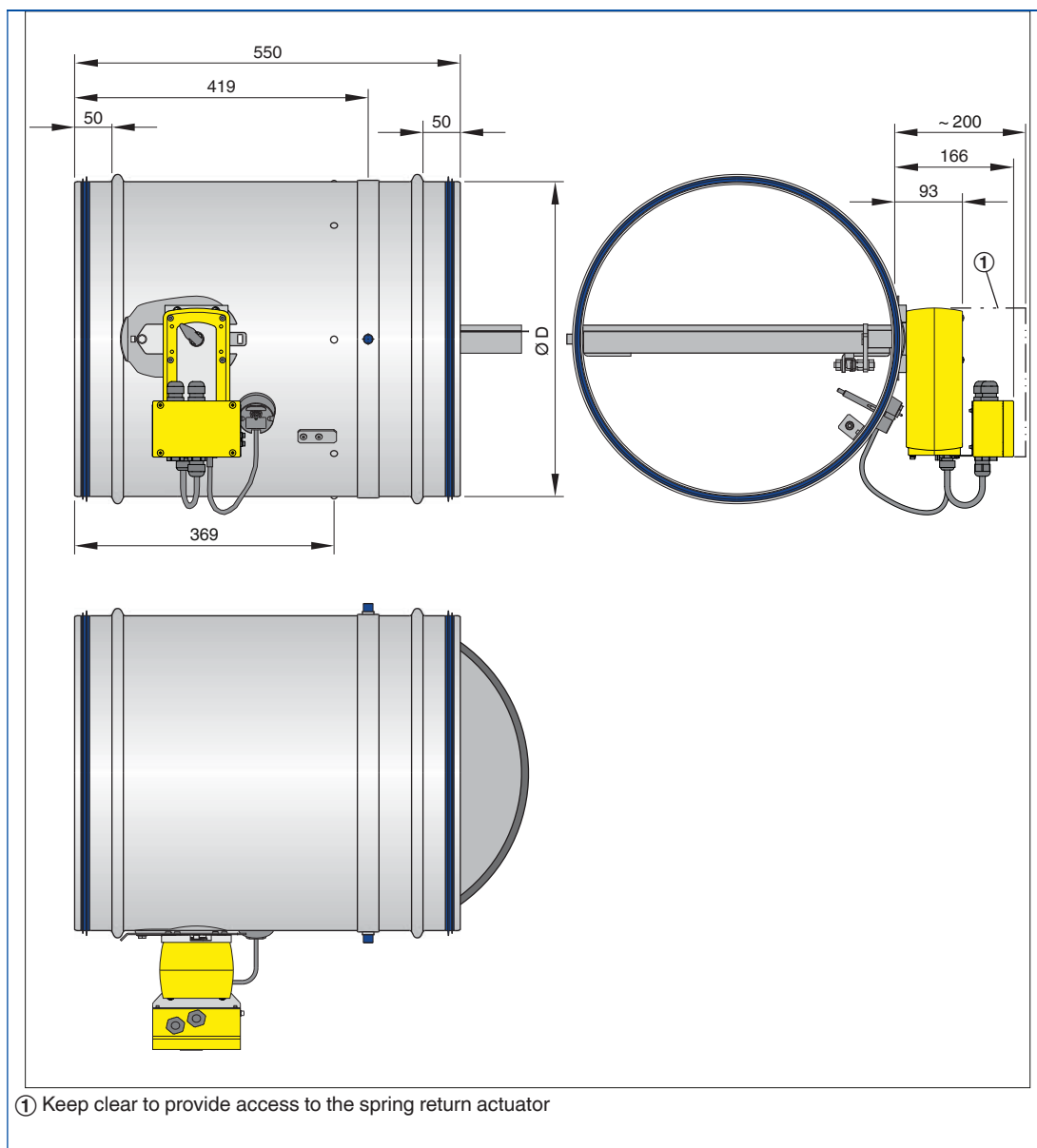
Nominal size	450	500	560	630	710	800
ØD	448	498	558	628	708	798
Weight	16.7	19	20.6	23.9	28.3	31.3

Dimensions

FKR-EU with spigot and explosion-proof spring return actuator, nominal sizes 450 – 800



FKR-EU with explosion-proof spring return actuator



Dimensions [mm] / Weight [kg]

Nominal size	315	355	400	450	500	560	630	710	800
ØD	314	354	399	448	498	558	628	708	798
Weight	12	12	14	19	21	23	26	31	34

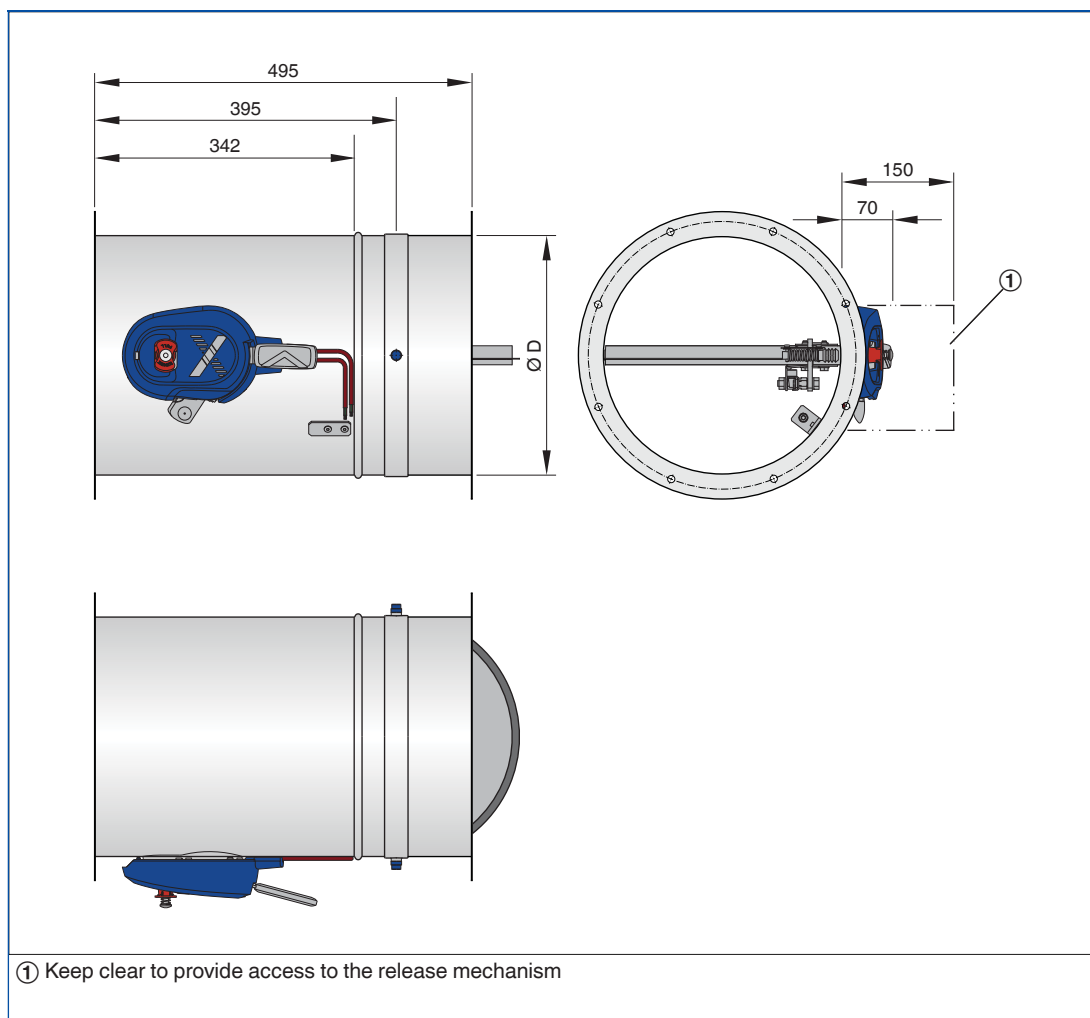
Dimensions

1



FKR-EU-FL
with fusible link

FKR-EU with flange and fusible link, nominal sizes 315 – 400



Dimensions [mm] / Weight [kg]

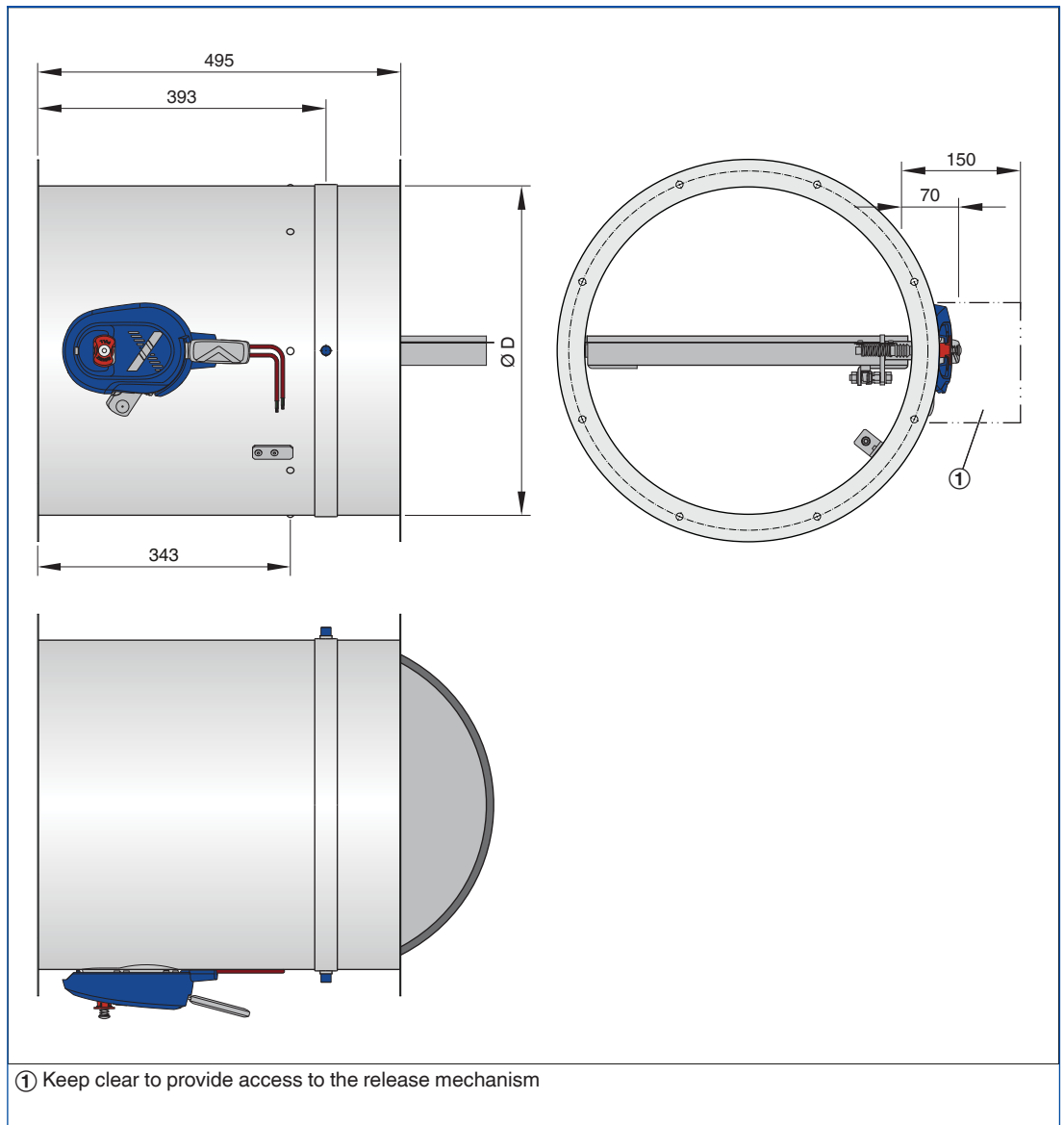
Nominal size	315	355	400
ØD	314	354	399
Weight	6.8	7.3	8.5

Dimensions

FKR-EU with flange and fusible link, nominal sizes 450 – 800



FKR-EU-FL
with fusible link



Dimensions [mm] / Weight [kg]

Nominal size	450	500	560	630	710	800
ØD	448	498	558	628	708	798
Weight	14.1	16.4	18	21.3	25.7	28.6

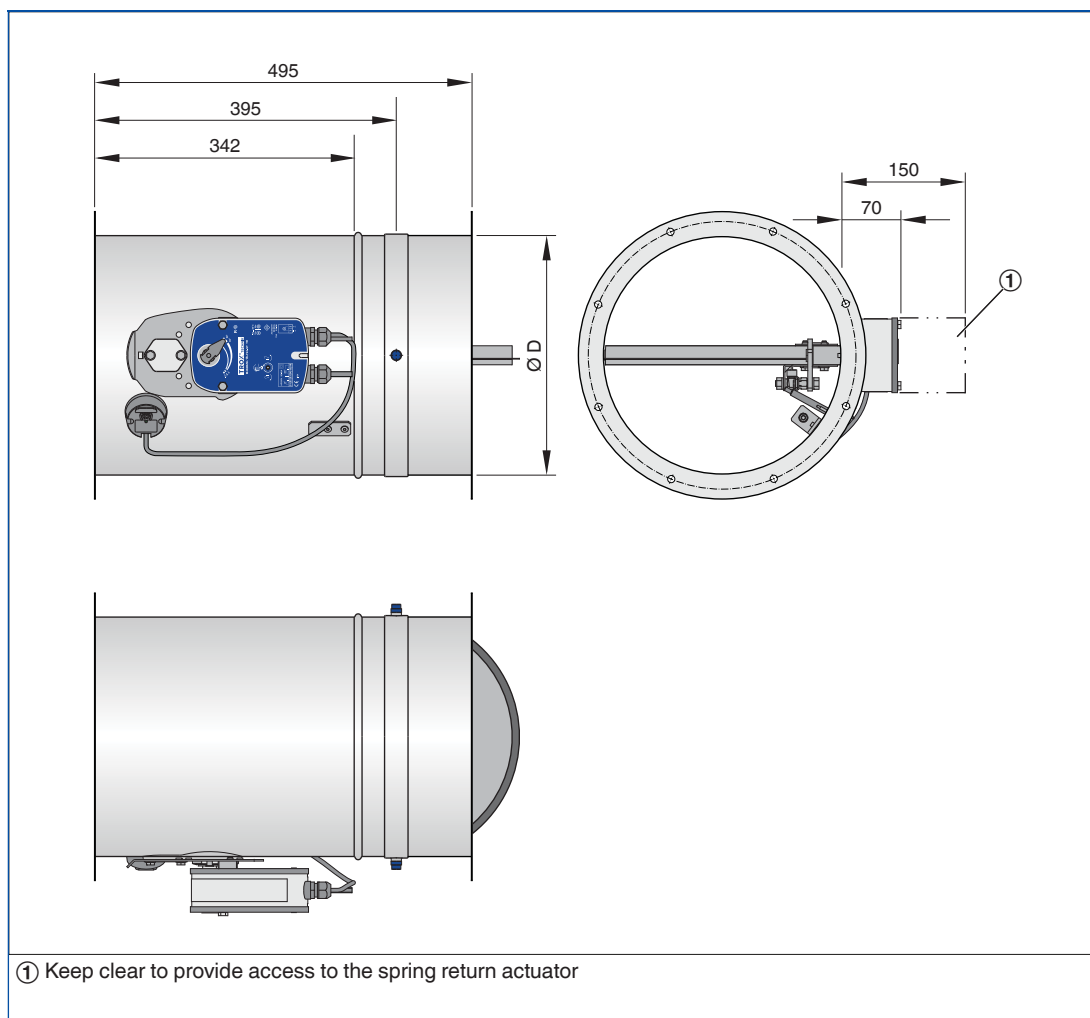
Dimensions

FKR-EU with flange and spring return actuator, nominal sizes 315 – 400

1



FKR-EU-FL with spring return actuator



Dimensions [mm] / Weight [kg]

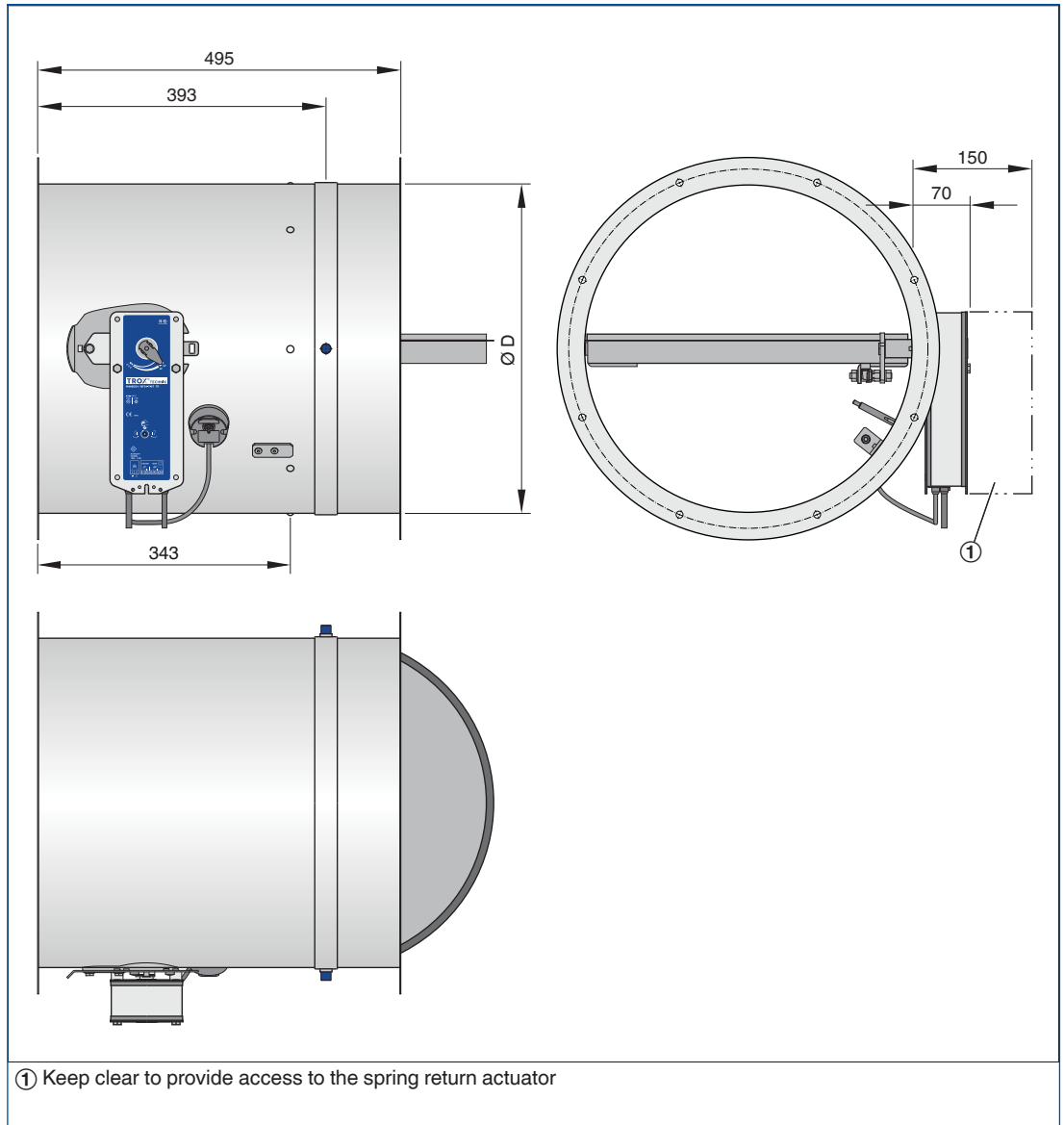
Nominal size	315	355	400
ØD	314	354	399
Weight	8.2	8.7	9.9

Dimensions

FKR-EU with flange and spring return actuator, nominal sizes 450 – 800



FKR-EU-FL with spring return actuator



Dimensions [mm] / Weight [kg]

Nominal size	450	500	560	630	710	800
ØD	448	498	558	628	708	798
Weight	16.7	19	20.6	23.9	28.3	31.3

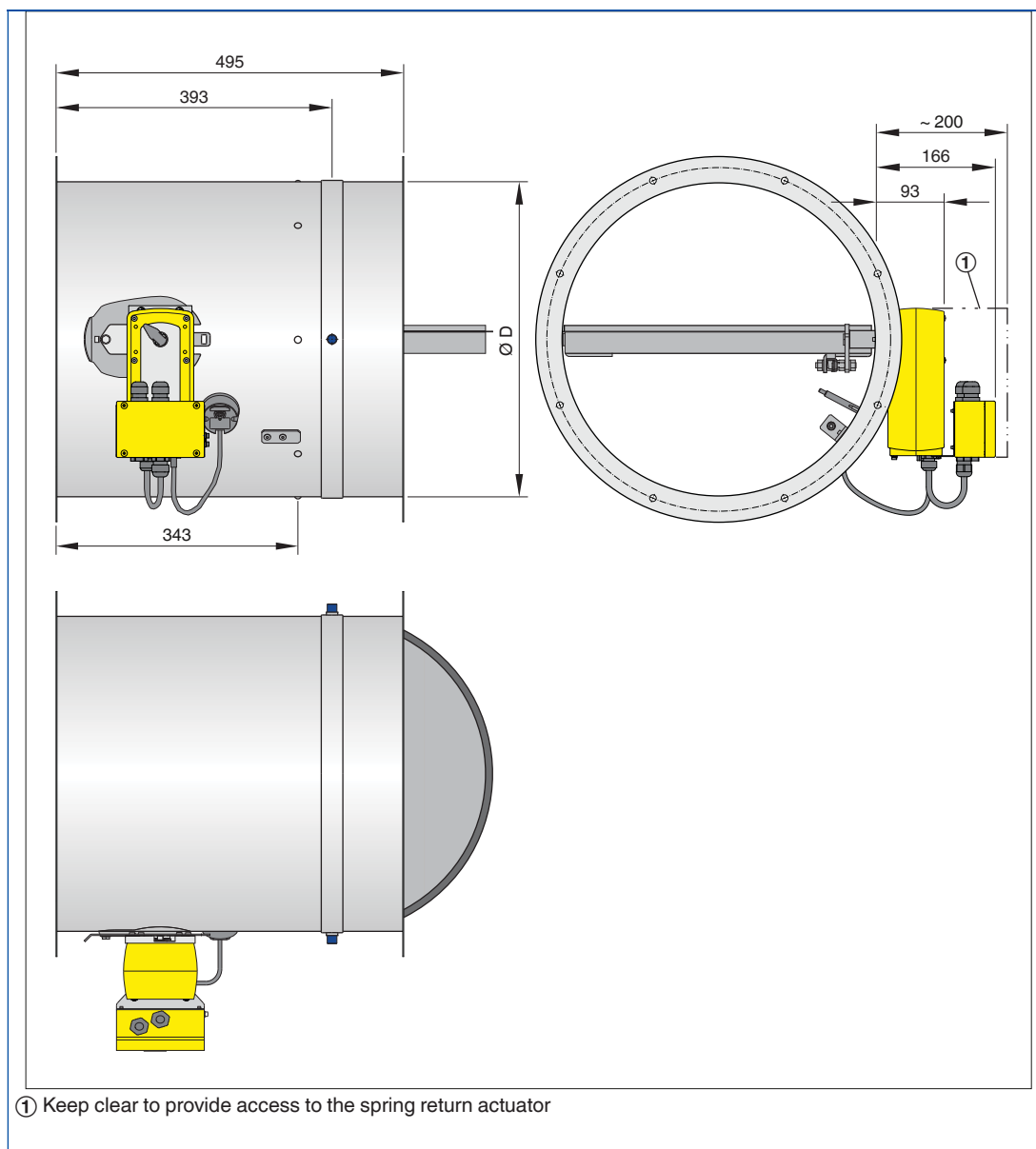
Dimensions

FKR-EU with flange and explosion-proof spring return actuator, nominal sizes 450 – 800

1



FKR-EU-FL
with explosion-proof
spring return actuator



Dimensions [mm] / Weight [kg]

Nominal size	315	355	400	450	500	560	630	710	800
ØD	314	354	399	448	498	558	628	708	798
Weight	12	12	14	19	21	23	26	31	34

Description

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

Circular fire damper with or without flanges, for the isolation of duct penetrations between fire compartments. Tested for fire resistance properties to EN 1366-2, with CE marking and declaration of performance according to the Construction Products Regulation. Ready-for-operation unit, which includes a fire-resistant damper blade and a release mechanism. For mortar-based installation into solid walls and ceiling slabs, and into lightweight partition walls and fire walls with cladding on both sides; for mortar-based installation in shaft walls with or without metal support structure and with cladding on one side; for dry mortarless installation in lightweight partition walls with cladding on both sides. Casing length 495 mm or 550 mm, for the connection to ducts made of non-combustible or combustible materials. Thermal or thermoelectric release at 72 °C or 95 °C (warm air ventilation systems). Constructions with spring return actuator for opening and closing the fire damper independent of the nominal size and even while the ventilation system is running, e.g. for a functional test.

Special characteristics

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

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

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

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

Technical data

- Nominal sizes: 315 to 800 mm
- Casing lengths: 495 and 550 mm
- Volume flow rate range: Up to 5001 l/s or 18005 m³/h
- Differential pressure: up to 2000 Pa
- Operating temperature: at least 0 – 50 °C **
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Upstream velocity: ≤ 8 m/s with standard construction; ≤ 12 m/s * with spring return actuator

Note: Upstream velocity for the explosion-proof actuator ExMax/RedMax-15-BF TR is ≤ 10 m/s

* Data applies to uniform upstream

and downstream conditions for the fire damper

** Temperatures may differ for units with attachments

Sizing data

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

Order options

1 Type

FKR-EU Fire damper

2 Flange

No entry: none
(construction with spigots)

FL Flanges on both ends

3 Construction

No entry: none

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

4 Country of destination

- DE** Germany
- Other destination countries upon request

5 Nominal size [mm]

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

6 Accessories 1

No entry: none

TQ Dry mortarless installation kit

7 Accessories 2

No entry: none

S0 – AS

8 Attachments

Z00 – ZEX4

¹ W can be combined with all constructions listed under **2** and **3**

but not with attachments listed under **7** ZEX1 – ZEX4

Fire dampers

Type FKRS-EU



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



CE compliant according to European regulations



LONMARK PARTNER

With TROXNETCOM as an option



Tested to VDI 6022



Compact dimensions, ideal for restricted spaces

Small circular fire damper for the isolation of duct penetrations# between fire compartments, available in ten nominal sizes

- Nominal sizes: 100 – 315 mm
- Low differential pressure and sound power level
- Optional stainless steel casing or powder-coated casing for increased corrosion protection
- Air transfer damper as an option
- 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
- Duct smoke detector RM-O-3-D

Type		Page
FKRS-EU	General information	1.1 – 112
	Correct use	1.1 – 118
	Order code	1.1 – 120
	Installation block ER	1.1 – 121
	Installation kit TQ	1.1 – 122
	Installation kit GL	1.1 – 123
	Wall face frame	1.1 – 124
	Cover grille	1.1 – 125
	Flexible connector	1.1 – 126
	Extension piece	1.1 – 128
	Limit switch	1.1 – 129
	Spring return actuator	1.1 – 130
	TROXNETCOM	1.1 – 131
	Duct smoke detectors	1.1 – 132
	Quick sizing	1.1 – 133
	Free area and resistance coefficient	1.1 – 134
	Dimensions and weight – FKRS-EU	1.1 – 135
Dimensions and weight – FKRS-EU/.../Z4*	1.1 – 136	
Specification text	1.1 – 137	
	Basic information and nomenclature	1.3 – 1

Variants

Product examples

FKRS-EU with fusible link



FKRS-EU with spring return actuator



Description



FKRS-EU with spring return actuator

For detailed information on attachments see Chapter K4 – 1.2.

Application

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

Classification

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

Variants

- With fusible link
- With spring return actuator
- With cover grilles both ends as air transfer damper with general building inspectorate licence: Z-19.18-2128

Nominal sizes

- 100, 125, 150, 160, 180, 200, 224, 250, 280, 315
- L: 400 mm

Attachments

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

Accessories

- Circular installation block ER
- Square installation kit TQ
- Wall face frame WA
- Installation kit GL
- Cover grille
- Flexible connectors
- Extension piece

Useful additions

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

Special characteristics

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

Parts and characteristics

- Dry mortarless installation into solid walls and ceiling slabs, lightweight partition walls, fire walls, and shaft walls using an installation block
- Installation with wall face frame on the face of solid walls
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Approved installation orientation from 0° to 360°

Construction features

- Rigid circular casing suitable for push fitting into cut circular holes without additional drilling and chiselling being required
- Spigot connections with lip seal on both ends, suitable for ventilation ducts according to EN 1506 and EN 13180 plus non-standard but commercial nominal sizes 180, 224 and 280
- Suitable for the connection of flexible connectors or cover grilles
- The release mechanism is accessible and can be tested from the outside
- One inspection access panel
- Remote control with spring return actuator

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

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

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

Installation and commissioning

Install the fire damper according to the operating and installation manual.

Mortar-based installation:

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

Dry mortarless installation:

- In solid walls and ceiling slabs with installation block ER
- In solid walls and ceiling slabs using a fire batt
- In lightweight partition walls with metal support structure and cladding on both sides using a fire batt
- On the face of solid walls with wall face frame WA
- In lightweight partition walls with metal support structure, cladding on both sides and flexible ceiling joint: with installation kit GL
- In lightweight partition walls with metal support structure and cladding on both sides with installation kit TQ
- In fire walls with metal support structure and cladding on both sides with installation kit TQ
- In shaft walls with or without metal support structure and cladding on one side with installation kit ES

Standards and guidelines

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

Maintenance

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

Technical data

Nominal sizes	100 – 315 mm
Casing length	400 mm
Volume flow rate range	Up to 770 l/s or up to 2770 m ³ /h
Differential pressure range	Up to 1500 Pa
Operating temperature	At least 0 – 50 °C **
Release temperature	72 °C or 95 °C (for warm air ventilation systems)
Upstream velocity*	≤ 8 m/s with standard construction; ≤ 10 m/s with spring return actuator

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

** Temperatures may differ for units with attachments

Function

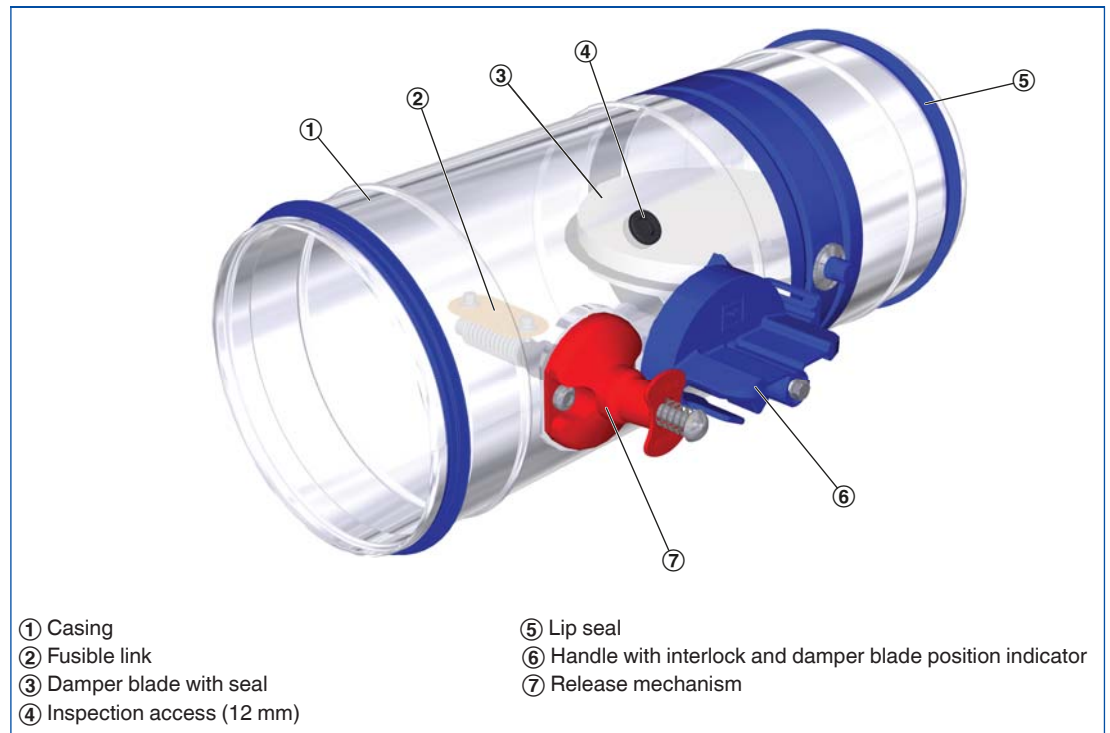
Construction with fusible link

Functional description

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

1

Schematic illustration of FKRS-EU with fusible link



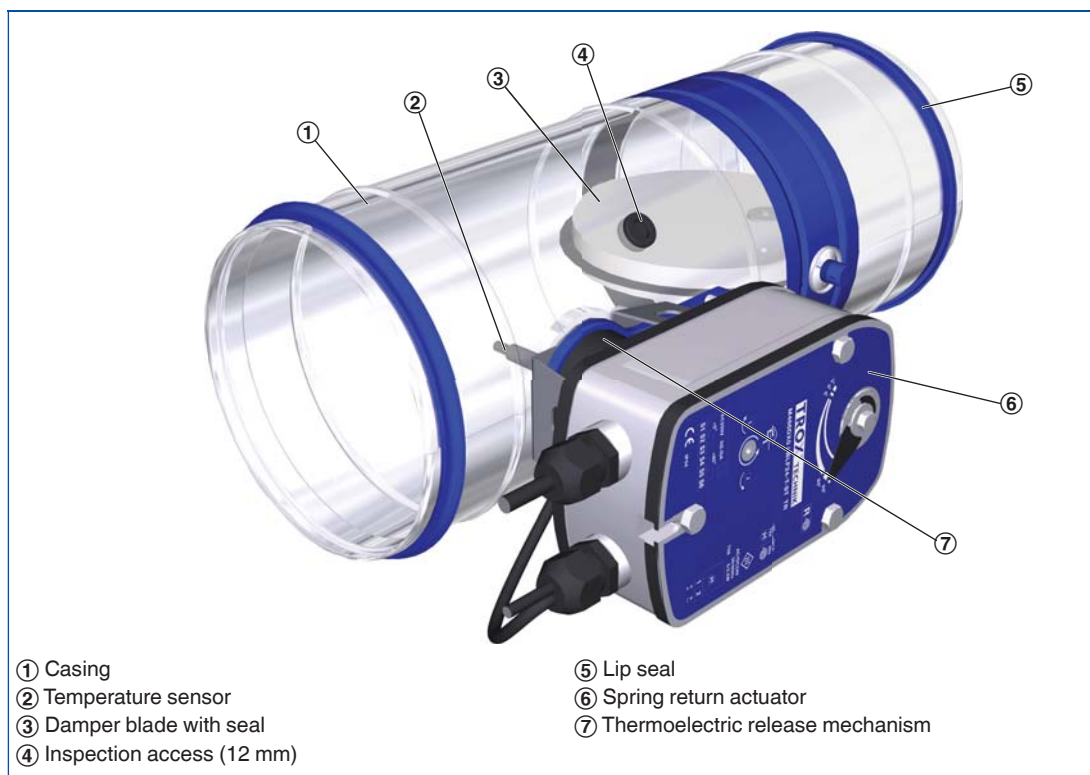
Function

Construction with
spring return actuator

Functional description

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

Schematic illustration of FKRS-EU with spring return actuator



Function

Use as an air transfer damper

Functional description

Air transfer dampers prevent fire and smoke from spreading in buildings. The thermal release mechanism closes the damper blade when the release temperature (72 °C) is reached. Smoke can, however, spread below this temperature. Air transfer dampers are installed (mortar-based installation) in places where the general building inspectorate sees no risk, for example:

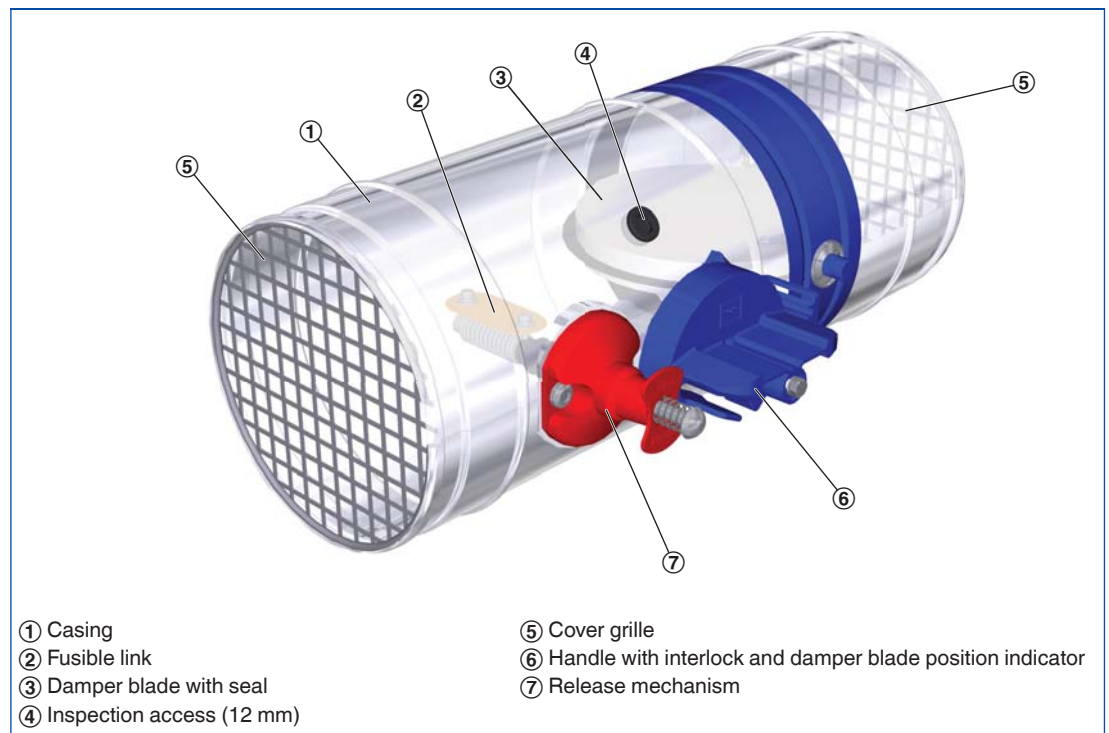
- As an inlet for additional supply air in the walls of required corridors (escape routes) if the dampers are installed near the ground (up to 500 mm above OKFF)
- In installation shafts as long as they have sufficient fire resistance where they penetrate compartment floors
- In installation ducts as long as they have sufficient fire resistance where they penetrate compartment floors or walls (except for necessary corridors or escape routes)

The air transfer damper is an FKRS-EU fire damper with 72 °C thermal release mechanism (construction with fusible link) and cover grilles both ends.

Special characteristics

- General building inspectorate licence Z-19.18-2128
- Air transfer damper without duct smoke detector

Schematic illustration of the FKRS-EU as air transfer damper, with fusible link and cover grille



Design information

- Approved only for use in ventilation and air conditioning systems
- A class of performance up to EI 120 (v_e, h_o, i ↔ o) S can only be achieved with ducts connected on both ends, or with a duct on one end and a cover grille on the other end.
- If the fire damper is installed in a solid wall, solid ceiling slab, lightweight partition wall or shaft wall with a lower fire resistance class than that of the fire damper, the fire resistance class of the wall or ceiling slab applies also to the FKRS-EU (details upon request)
- Ducting must be installed in such a manner that it does not impose any significant loads on the fire damper in the event of a fire.

- For particular applications it is recommended that flexible connectors are used to connect rigid ducting to the unit.
- Fire dampers must be installed, connected and secured according to the operating and installation manual.

Incorrect use

Never use the fire damper:





- 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

Correct use in solid walls and ceiling slabs

Installation location	Construction and building material	Minimum thickness mm	Performance class		Mortar-based installation	Dry mortarless installation
			EI TT (v _e -h _o , i ↔ o) S			
Solid walls	 Solid walls, gross density ≥ 500 kg/m ³	100	EI 120 S		N	W ¹
	Solid walls, gross density ≥ 500 kg/m ³	100	EI 90 S		N	E / W
On the face of solid walls	 Solid walls, gross density ≥ 500 kg/m ³	100	EI 90 S		-	E
Solid ceiling	 Solid ceiling slabs, gross density ≥ 600 kg/m ³	150	EI 120 S		N	-
	Solid ceiling slabs, gross density ≥ 600 kg/m ³	150	EI 90 S		-	E / W
	 Solid ceiling slabs, gross density ≥ 600 kg/m ³	150	EI 90 S		N	-

N = Mortar-based installation, E = Installation block/Wall face frame (ER, WA), W = Fire batt
¹ of Ø DN 100 to 200

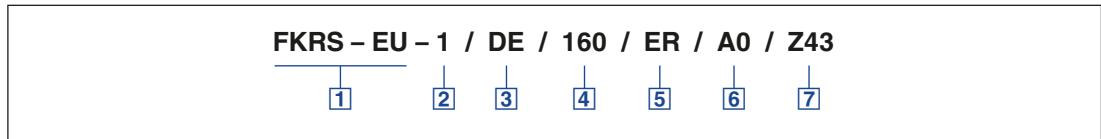
Correct use in lightweight partition walls and fire walls

Installation location	Construction and building material	Minimum thickness	Performance class	Mortar-based installation	Dry mortarless installation	
		mm	EI TT (v _e -h _o , i ↔ o) S			
Lightweight partition walls with metal support structure and cladding on both sides		Lightweight partition walls	100	EI 120 S	N ¹	E ¹ / W ¹
		Lightweight partition walls	100	EI 90 S	N	E / W
Lightweight partition walls with metal support structure and cladding on both sides, and with flexible ceiling joint		Lightweight partition walls	100	EI 90 S	–	E
Fire walls with metal support structure and cladding on both sides		Fire walls	115	EI 90 S	N	E
Lightweight partition walls with metal support structure and cladding on both sides		Shaft walls	90	EI 90 S	N	E1

N = Mortar-based installation, E = Installation block (TQ, GL), E1 = E = Installation block (EQ), W = Fire batt
¹ of Ø DN 100 to 200

Order code

FKRS-EU



1

1 Type

FKRS-EU Fire damper

2 Construction

- No entry: standard construction
- 1** Powder-coated casing
- 2¹** Stainless steel casing
- 7** Coated damper blade
- 1 – 7** Powder-coated casing and coated damper blade
- 2 – 7¹** Stainless steel casing and coated damper blade
- W²** With fusible link 95 °C (only for use in warm air ventilation systems)

3 Country of destination

- DE** Germany
- Other destination countries upon request

4 Nominal size [mm]

- 100
- 125
- 150
- 160
- 180
- 200
- 224
- 250
- 280
- 315

5 Accessories 1

- No entry: none
- ER** Circular installation block
- TQ** Square installation kit
- WA** Wall face frame
- GL** Installation kit for flexible ceiling joint

6 Accessories 2

- No entry: none
- S0 – AS**

7 Attachments

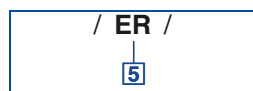
- Z00 – ZL08**
- ¹ Only up to DN 200 when a fire batt system is used
- ² W can be combined with all constructions listed under **2**

Order example

FKRS-EU-2-7/DE/200/TQ/SS/ZL06

Construction	Casing made of stainless steel, damper blade coated/with impregnating agent
Country of destination	Germany
Nominal size	200 mm
Installation kit	Square
Accessories	Flexible connector on operating and installation sides
Attachment	Spring return actuator 24 V AC/DC and LON module LON-WA1/B2

Description



Order code detail

Application

- Circular installation block ER for dry mortarless installation into solid walls and ceiling slabs
- Installation openings can be created using a commercially available core drill
- The unit is installed without a mortar mix by simply inserting it into the prepared installation opening
- The installation block is factory mounted to the fire damper
- In the event of a fire the intumescent seal closes the remaining gap.
- A cover plate conceals any gaps and is used for screw fixing

Materials and surfaces

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

Note

For more information please refer to the installation and operating manual.

Accessories 1	Order code
Circular installation block	ER

Technical data

Weight [kg] of FKRS-EU with fusible link and installation block

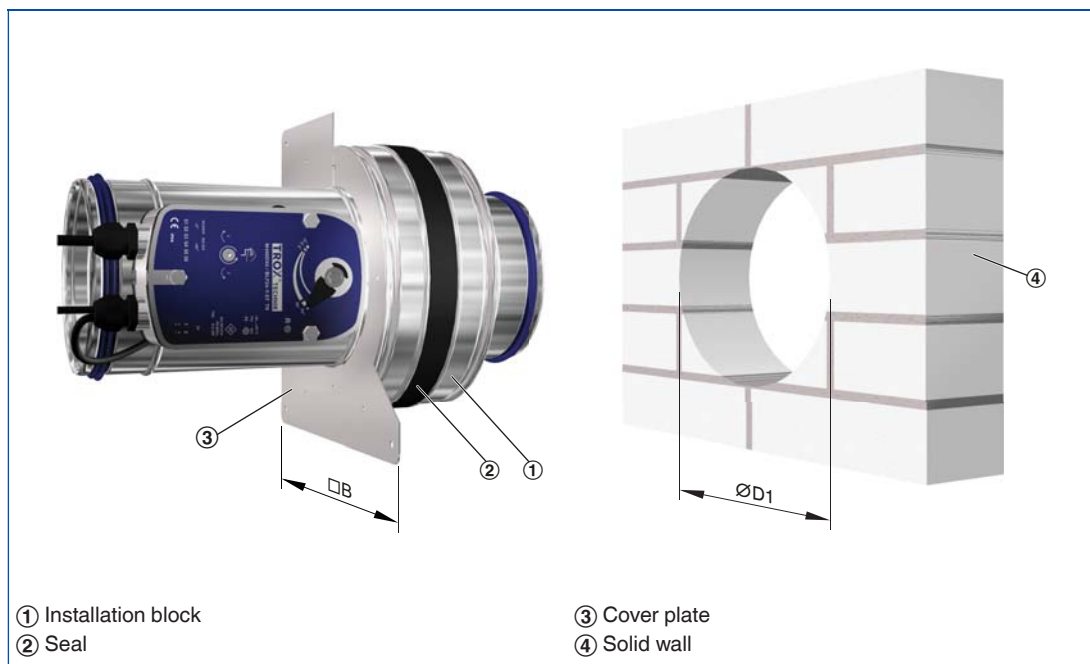
Nominal size	100	125	150	160	180	200	224	250	280	315
Installation block ER	5.7	8.6	7.6	7.3	11	9.8	13.5	12.1	16.0	15.0

FKRS-EU with spring return actuator: weight +1.8 kg.

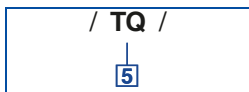
Installation opening/cover plate dimensions [mm]

Nominal size	100	125	150	160	180	200	224	250	280	315
ØD1	200	250	250	250	300	300	350	350	400	400
□B	250	300	300	300	350	350	400	400	450	450

FKRS-EU with circular installation block ER



Description



Order code detail

Application

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

Materials and surfaces

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

Note

For more information please refer to the installation and operating manual.

Accessories 1	Order code
Square installation kit	TQ

Technical data

Weight [kg] of FKRS-EU with fusible link and installation kit

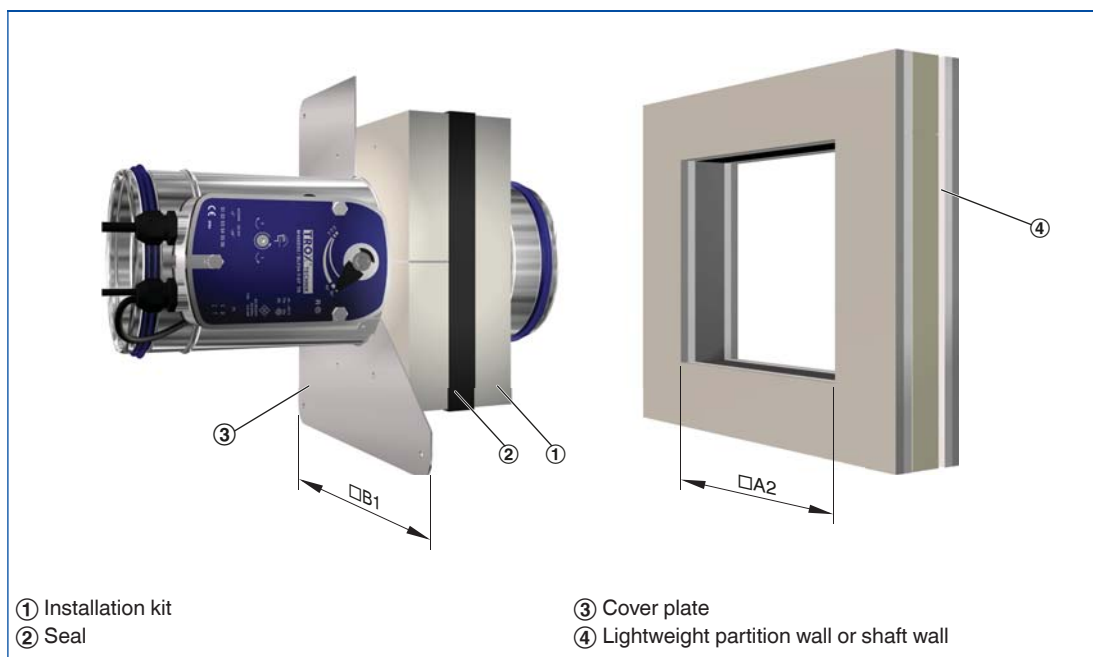
Nominal size	100	125	150	160	180	200	224	250	280	315
Installation kit TQ	5.4	6.1	7.0	7.9	8.8	9.7	10.6	12.0	13.7	15.8

FKRS-EU with spring return actuator: weight +1.8 kg.

Installation opening/cover plate dimensions [mm]

Nominal size	100	125	150	160	180	200	224	250	280	315
□A2	210	235	260	270	290	310	334	360	390	425
□B1	300	325	350	360	380	400	424	450	480	515

FKRS-EU with square installation kit TQ



Description



Order code detail

Application

- Dry mortarless installation in lightweight partition walls with metal support structure, cladding on both sides, and with flexible ceiling joint, directly underneath solid ceiling slabs, requires an installation kit.
- The installation kit allows for subsidence of the slab whilst maintaining sealing integrity around the fire damper
- Distance between ceiling and installation kit may be 0 – 180 mm (filler strips to be provided by others)
- The installation kit is factory mounted and can be fixed to the ceiling with the supplied fixing brackets
- The installation kit can be adapted to different wall thicknesses using cut-to-size fire-rated plasterboard panels

Materials and surfaces

- Installation kit made of special insulation material
- Fixing brackets made of galvanised sheet steel
- Threaded rods made of galvanised steel
- Fixing elements made of galvanised steel

Note

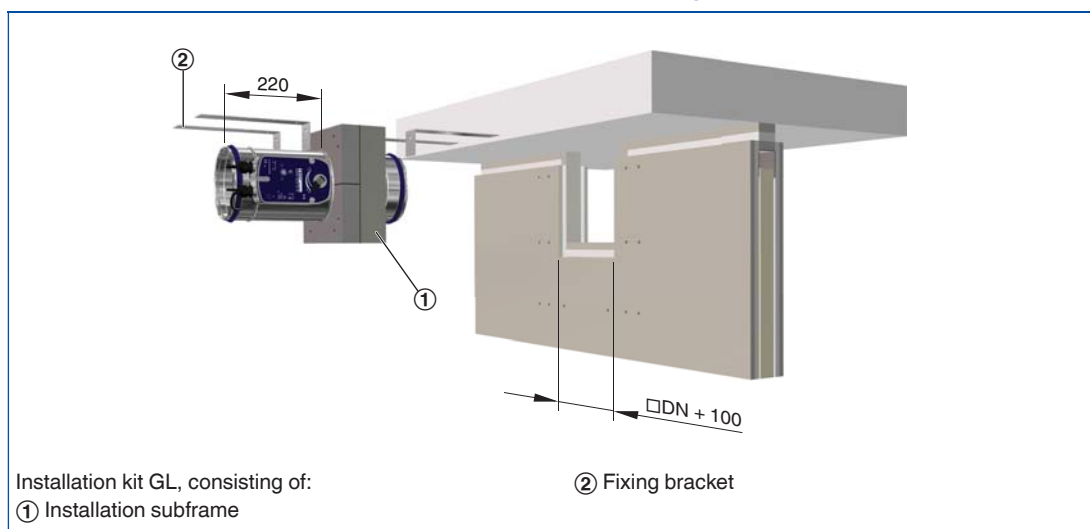
For more information please refer to the installation and operating manual.

Installation kit for lightweight partition walls with flexible ceiling joint

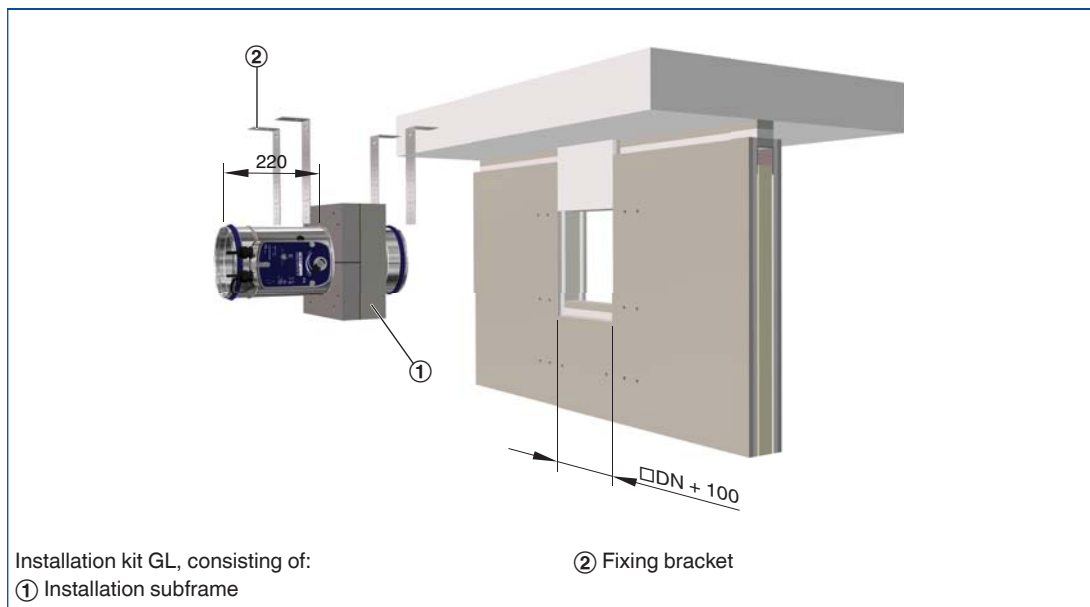
Wall thickness [mm]	Order code
≥ 100 ¹	GL

¹can be adapted to thicker walls (by others)

FKRS-EU with installation kit GL (installation near the ceiling)



FKRS-EU with installation kit GL (installation near the ceiling, 180 mm max. distance)



Description



Order code detail

Application

- Dry mortarless installation of FKRS-EU fire dampers on the face of solid walls requires a wall face frame
- The wall face frame is factory mounted to the fire damper
- The unit is installed without mortar
- The wall face frame is fixed with suitable screws and anchors (with suitability certificate for fire resistance)
- Instead of anchors, threaded rods can be used (push through installation).

Materials and surfaces

- Wall face frame made of calcium silicate

Note

For more information please refer to the installation and operating manual.

Accessories 1	Order code
Wall face frame	WA

Technical data

Weight [kg] of FKRS-EU with fusible link and wall face frame

Nominal size	100	125	150	160	180	200	224	250	280	315
Wall face frame WA	4.4	5.2	6.1	6.6	7.4	8.2	9.0	10.2	11.7	13.6

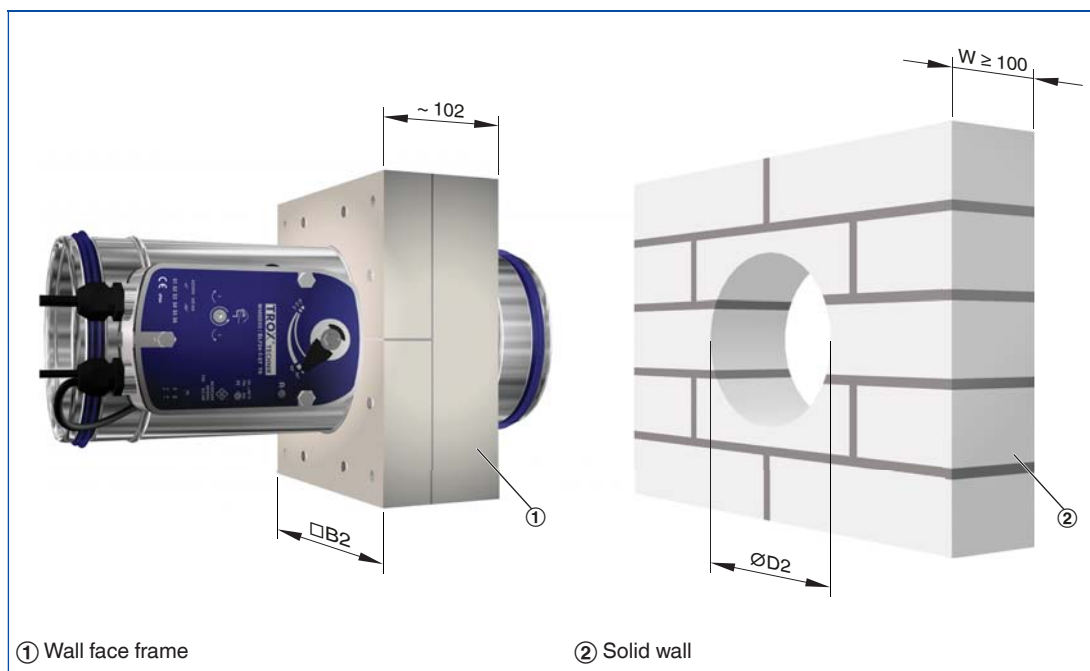
FKRS-EU with spring return actuator: weight +1.8 kg.

Dimensions [mm] of installation opening/wall face frame

Nominal size	100	125	150	160	180	200	224	250	280	315
ØD2 ¹	130	155	180	190	210	230	254	280	310	345
□B2	200	225	250	260	280	300	324	350	380	415

¹ Tolerance limits: -20 mm/+2 mm

FKRS-EU with wall face frame WA



Description



Cover grille with extension piece for FKRS-EU

Application

- If only one end is to be ducted on site, the other end must have a cover grille
- To ensure that the open damper blade is contained within the damper casing on the installation side, an extension piece is required for nominal size 224 and above
- 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%
- Fire dampers with cover grilles or flexible connectors are supplied without lip seals
- Cover grilles are also available separately
- Cover grilles both ends may be used in Germany only for air transfer dampers with general building inspectorate licence, e.g. Z-19.18-2128

Materials and surfaces

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

Note

For more information please refer to the installation and operating manual.

/ A0 /
/ 0A /
/ AS /
/ SA /
/ AA /
6

Order code detail

Cover grille for FKRS-EU

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

Note: AA for FKRS-EU as air transfer damper

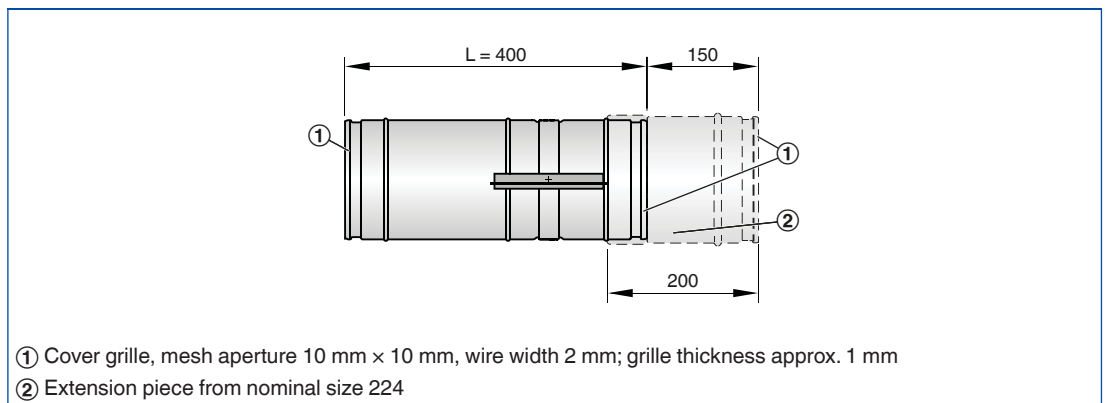
The distance »a« between the open damper blade and the spigot should be 50 mm.

Cover grille



- ① Cover grille, mesh aperture 10 mm × 10 mm, wire width 2 mm; grille thickness approx. 1 mm
- ② Extension piece

Cover grille



- ① Cover grille, mesh aperture 10 mm × 10 mm, wire width 2 mm; grille thickness approx. 1 mm
- ② Extension piece from nominal size 224

Description



Flexible connector for FKRS-EU

Application

- Ducting must be installed in such a manner that it does not impose any significant loads on the fire damper in the event of a fire.
- For information on how to limit such loads please refer to the guideline regarding fire protection requirements on ventilation systems (Lüftungsanlagen-Richtlinie, LüAR)
- As ducts may expand and walls may become deformed in the event of a fire, we recommend for the following applications using flexible connectors when connecting the fire damper to rigid ducts: installation into lightweight partition walls, into lightweight shaft walls, and installation with a fire batt
- Flexible connectors should be installed in such a way that both ends can compensate both tension and compression
- Flexible ducts can be used as an alternative
- To ensure that the open damper blade is contained within the damper casing on the installation side, an extension piece is required for nominal size 224 and above
- Flexible connectors are supplied separately and can be fixed with clamps, for example (by others)
- Flexible connectors are also available separately

Materials and surfaces

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

Note

For more information please refer to the installation and operating manual.

/ S0 /
/ OS /
/ SS /
/ SA /
/ AS /
6

Order code detail

Flexible connector for FKRS-EU

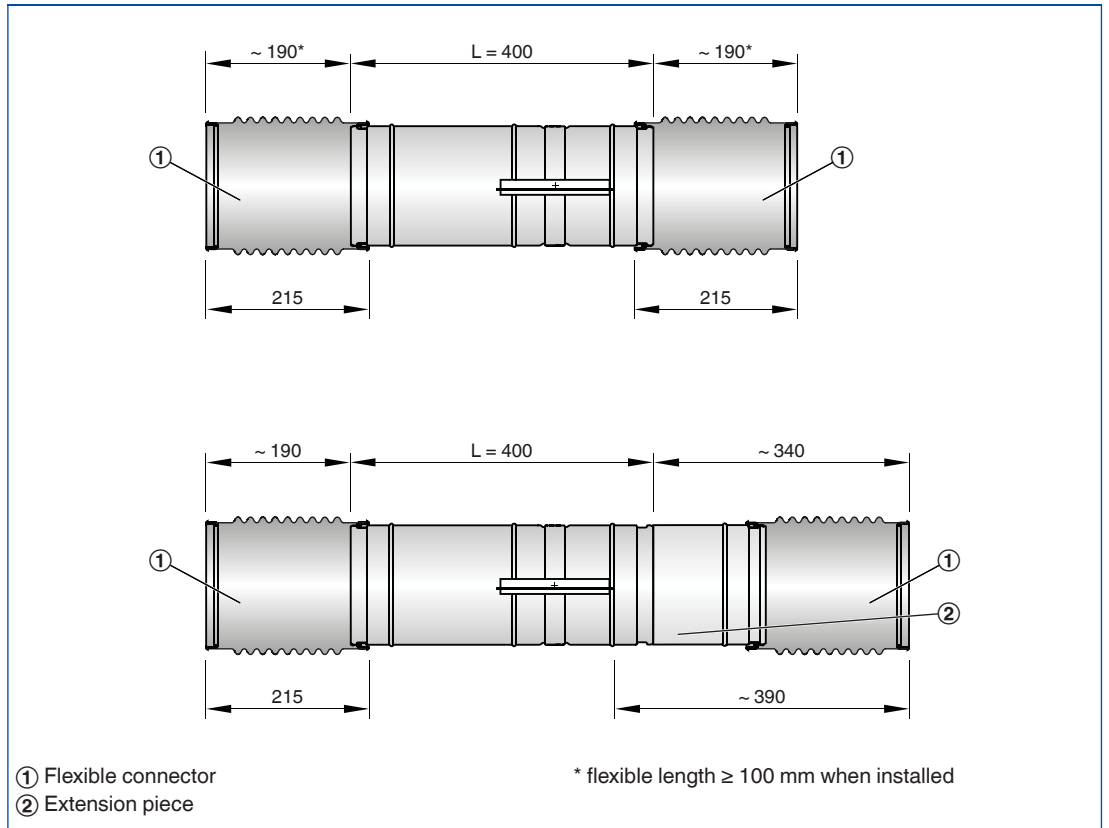
Operating side	Installation side	Order code
Flexible connector	-	S0
-	Flexible connector	OS
Flexible connector	Flexible connector	SS
Flexible connector	Cover grille	SA
Cover grille	Flexible connector	AS

Flexible connector

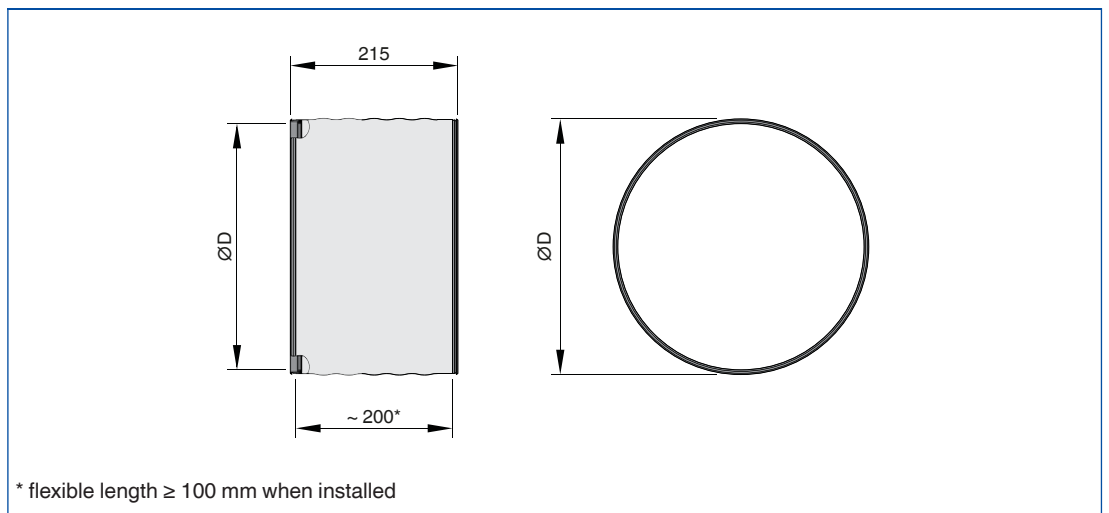


The distance »a« between the open damper blade and the flexible connector should be 50 mm.

Up to nominal size 200/from nominal size 224



Flexible connector



Description



Circular extension piece for FKRS-EU

Application

- Fire dampers from nominal size 224 ordered with flexible connector or cover grille are supplied including extension piece on the installation side
- Extension pieces are also available separately

Materials and surfaces

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

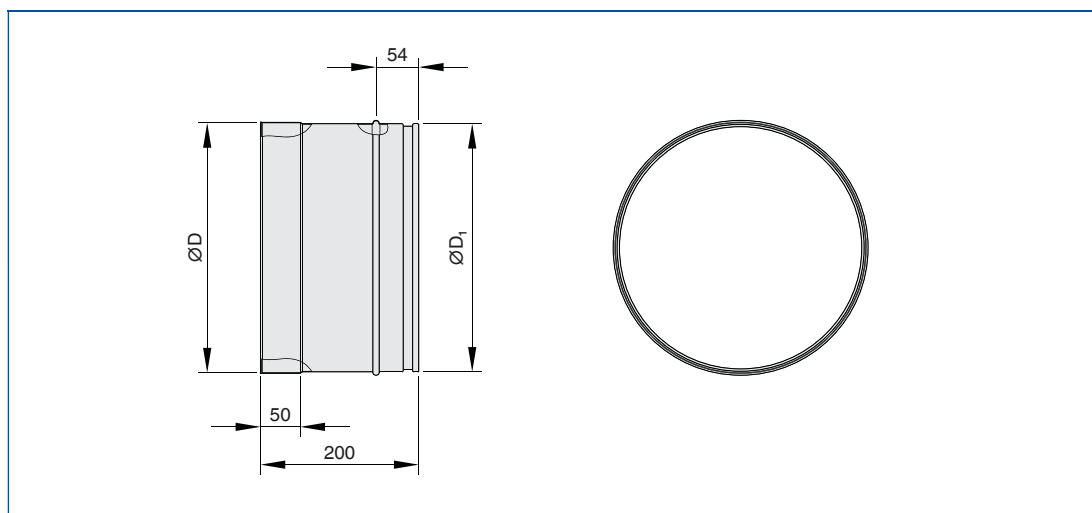
Installation and commissioning

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

Note

For more information please refer to the installation and operating manual.

Extension piece



Description



Limit switch

For detailed information on limit switches see Chapter 1.2

FKRS-EU with limit switch

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

Note

For more information please refer to the installation and operating manual.

/ Z01
/ Z02
/ Z03
7

Order code detail

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

Description



FKRS-EU with spring return actuator

For detailed information on the spring return actuator see Chapter 1.2

FKRS-EU with spring return actuator

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

Note

For more information please refer to the installation and operating manual.

/ Z43
/ Z45
7

Bestellschlüsseldetail

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

Description



FKRS-EU with TROXNETCOM module

For detailed information on TROXNETCOM see Chapter 1.2

FKRS-EU with spring return actuator and TROXNETCOM

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

Application

LON:

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

AS-i:

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

Note

For more information please refer to the installation and operating manual.

/ ZL06
/ ZL07
/ ZL08
/ ZA07
7

Order code detail

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

Description



Duct smoke detector
RM-O-3-D



Duct smoke detector
RM-O-VS-D

For detailed information
on the duct smoke
detector see Chapter 1.2

General

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

Application

RM-O-3-D:

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

RM-O-VS-D:

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

Note

For more information please refer to the installation and operating manual.

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

Duct smoke detectors are attachments and to be ordered separately.

Volume flow rate at differential pressure $\Delta p_{st} < 35 \text{ Pa}$

L_{WA} [dB(A)]	25	35	45	25	35	45
Nominal size	\dot{V}					
mm	l/s			m ³ /h		
100	22	35	50	79	126	180
125	40	65	90	144	234	324
150	70	105	150	252	378	540
160	80	125	180	288	450	648
180	105	165	235	388	587	847
200	140	210	295	504	756	1062
224	170	245	345	612	882	1242
250	215	315	445	774	1134	1602
280	280	405	570	1008	1458	2052
315	360	525	735	1296	1890	2646

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

1

Nominal size	A [m ²]	ζ
100	0.005	1.71
125	0.009	1.08
150	0.013	0.76
160	0.016	0.67
200	0.025	0.44
224	0.032	0.56
250	0.040	0.45
280	0.052	0.36
315	0.067	0.28

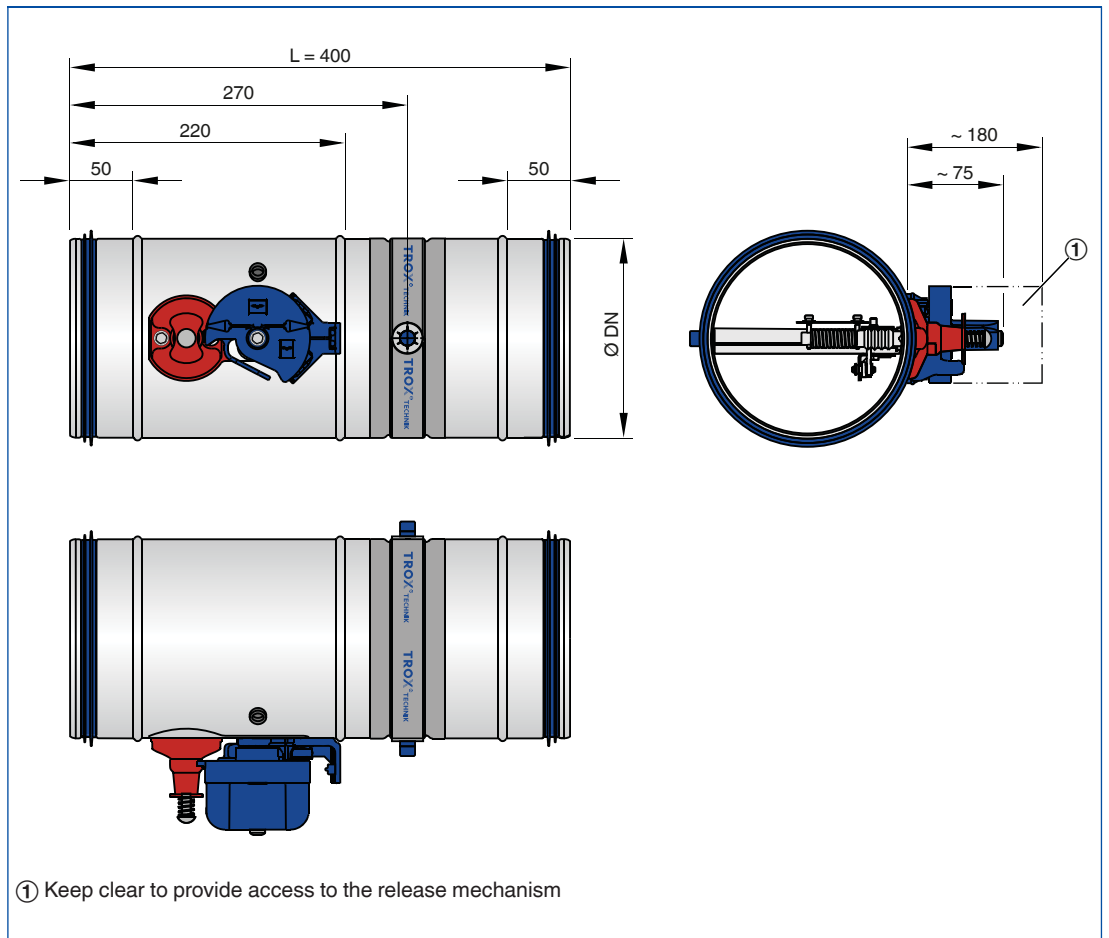
Maximum upstream velocity: ≤ 8 m/s for standard construction, ≤ 10 m/s for construction with spring return actuator.

Dimensions



FKRS-EU with fusible link

FKRS-EU with fusible link



Dimensions [mm] / Weight [kg]

Nominal size	100	125	150	160	180	200	224	250	280	315
ØD	99	124	149	159	179	199	223	249	279	314
Weight	1.3	1.6	1.8	2	2.3	2.5	2.7	3.3	3.8	4.4

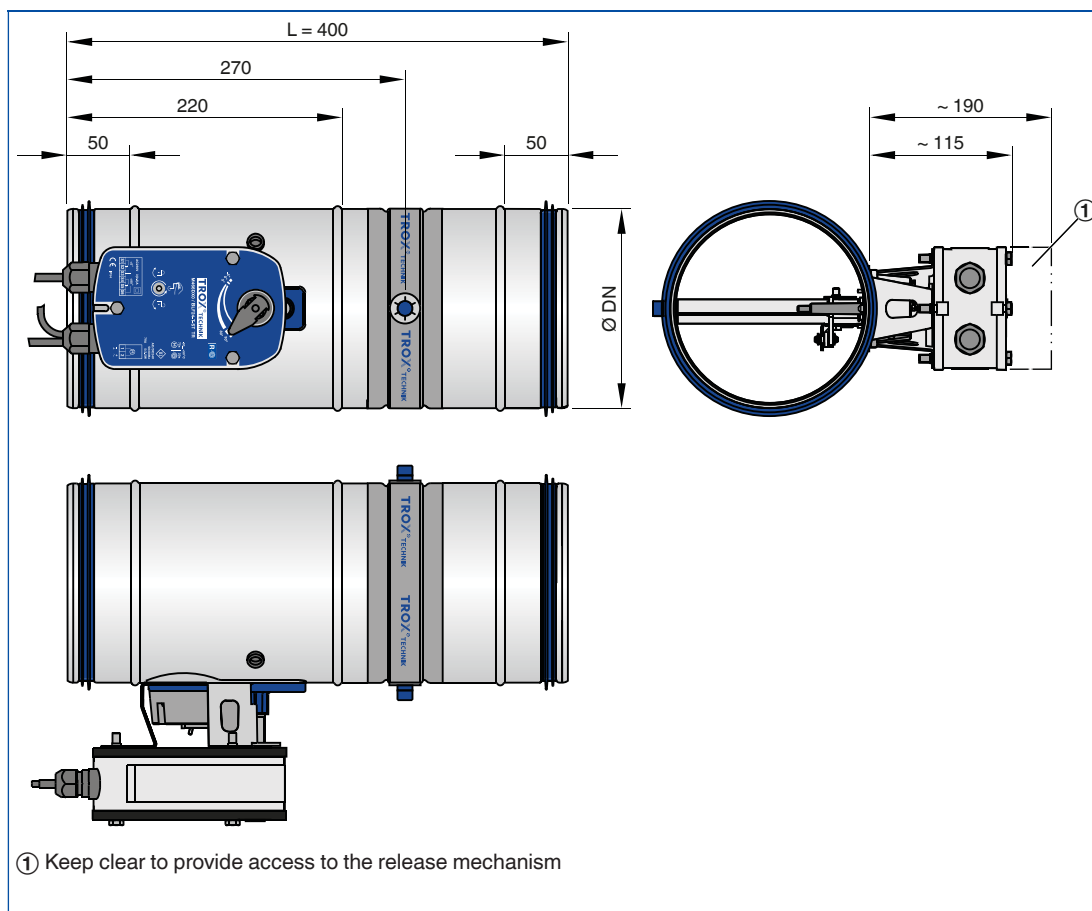
Dimensions

1



FKRS-EU with spring return actuator

FKRS-EU with spring return actuator



Dimensions [mm] / Weight [kg]

Nominal size	100	125	150	160	180	200	224	250	280	315
ØD	99	124	149	159	179	199	223	249	279	314
Weight	3.1	3.4	3.6	3.7	4.0	4.2	4.5	5	5.5	6.2

Description

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

Circular fire dampers for the isolation of duct penetrations between fire compartments. Tested for fire resistance properties to EN 1366-2, with CE marking and declaration of performance according to the Construction Products Regulation. Ready-for-operation unit, which includes a fire-resistant damper blade and a release mechanism. For mortar-based installation and dry mortarless installation into solid walls and ceiling slabs, mortar-based installation into non-load-bearing solid walls with flexible ceiling joint, mortar-based and dry mortarless installation into lightweight partition walls with cladding on both sides, lightweight fire walls and lightweight shaft walls, and dry mortarless installation on the face of solid walls. For dry mortarless installation in lightweight partition walls with metal support structure and flexible ceiling joint; for dry mortarless installation in solid walls and ceiling slabs when using a fire batt; in lightweight partition walls with metal support structure and cladding on both sides. Casing length 400 mm, for the connection to ducts made of non-combustible or combustible materials. Thermal or thermoelectric release at 72 °C or 95 °C (warm air ventilation systems). Constructions with spring return actuator for opening and closing the fire damper independent of the nominal size and even while the ventilation system is running, e.g. for a functional test. Simple construction for dry mortarless installation with installation kit: ER, TQ, GL, WA

Special characteristics

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

Materials and surfaces

Casing:

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

Damper blade:

- Special insulation material
- Special insulation material with coating

Other components:

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

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

Technical data

- Nominal sizes: 100 to 315 mm
- Casing length: 400 mm
- Volume flow rate range: Up to 770 l/s or 2770 m³/h
- Differential pressure: up to 1500 Pa
- Operating temperature: at least 0 – 50 °C **
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Upstream velocity:
 - ≤ 8 m/s with standard construction;
 - ≤ 10 m/s * with spring return actuator

Note:

- * Data applies to uniform upstream and downstream conditions for the fire damper
- ** Temperatures may differ for units with attachments

Sizing data

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

1

Order options

1 Type

FKRS-EU Fire damper

2 Construction

No entry: standard construction

1 Powder-coated casing

2¹ Stainless steel casing

7 Coated damper blade

1 – 7 Powder-coated casing
and coated damper blade

2 – 7¹ Stainless steel casing
and coated damper blade

W² With fusible link 95 °C
(only for use in warm
air ventilation systems)

3 Country of destination

DE Germany
Other destination countries
upon request

4 Nominal size [mm]

100

125

150

160

180

200

224

250

280

315

5 Accessories 1

No entry: none

ER Circular installation block

TQ Square installation kit

WA Wall face frame

GL Installation kit for flexible ceiling joint

6 Accessories 2

No entry: none

S0 – AS

7 Attachments

Z00 – ZL08

¹ Only up to DN 200 when a fire batt system
is used

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

Fire dampers

Type KU-K30



KU-K30 with
diffuser of Type DLQ



With TROXNETCOM
as an option



Tested to VDI 6022

For diffusers in suspended F30 ceilings

Square fire damper for installation in suspended fire-resistant F30 ceilings. For the isolation of duct penetrations between fire compartments, available in five nominal nominal sizes

- Nominal sizes for diffusers sized 300 × 300 – 625 × 625 mm
- Satisfies high ventilation requirements when combined with a diffuser
- Coated construction meets high hygiene requirements
- Integration into the central BMS with TROXNETCOM

Optional equipment and accessories

- Ceiling diffusers/swirl diffusers
- External fusible link, 72 °C
- Electric actuator
- Release temperature 72/95 °C

Type		Page
KU-K30	General information	1.1 – 140
	Correct use	1.1 – 144
	Order code	1.1 – 145
	Limit switch	1.1 – 146
	Spring return actuator	1.1 – 147
	TROXNETCOM	1.1 – 148
	Dimensions and weight	1.1 – 149
	Specification text	1.1 – 151
	Basic information and nomenclature	1.3 – 1

Variants

Product examples

KU-K30



L-KU-K30



Description



KU-K30

For detailed information on attachments see Chapter K4 – 1.2.

Application

- Fire dampers of Type KU-K30 for the isolation of air terminal devices in self supporting fire-resistant suspended ceilings in the event of a fire
- To prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments

Classification

- Fire resistance class K30-U to DIN 4102-6

Variants

- With fusible link
- With spring return actuator

Nominal sizes

- Fire damper: 300 × 300, 400 × 400, 500 × 500, 600 × 600, 625 × 625 mm
- Spigot Ø (depending on the nominal size): 160, 200, 250, 315 mm

Attachments

- Limit switch for damper blade position indication
- Spring return actuator for 24 V or 230 V supply voltage
- External fusible link

Useful additions

- Diffuser: FD, TDF-SilentAir, DLQ or ADLQ

Special characteristics

- Licence Z-41.3-320
- Tested to DIN 4102-6 for fire resistance properties
- Classification to DIN 4102, K30-U
- Low differential pressure and sound power level
- For use with supply air or extract air systems (for supply air systems with perforated sheet metal)
- Integration into the central BMS with TROXNETCOM

Parts and characteristics

- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)

Construction features

- Casing made of calcium silicate
- Damper blade made of special insulation material

Materials and surfaces

Plenum box:

- Special insulation material
- Special insulation material with RAL 7001 coating on the inside

Damper blade:

- Special insulation material
- Special insulation material with RAL 7001 coating
- Seal made of neoprene

Other components:

- Spigot and attachments made of galvanised sheet steel
- Fixing elements made of galvanised steel

Installation and commissioning

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

- In self supporting fire-resistant suspended ceilings that may be exposed to a fire from above or below
- Tile ceilings, screw-fixed and primed, with proven fire resistance properties
- Suspended ceilings which are self supporting Promat F30 metal ceilings, e.g. Promat construction 420.96 (in a screw-fixed and primed ceiling frieze)
- Lindner ceilings LMD F30 Types 1, 3, 4, 5 and 6 – 11

Standards and guidelines

- DIN 4102-6, standard fire resistance test
- EN 1751 Ventilation for buildings – Air terminal devices

Maintenance

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

Technical data

Nominal sizes – fire damper	300, 400, 500, 600, 625 mm
Nominal sizes – spigot	160, 200, 250, 315 mm
Differential pressure range	Depends on the spigot and diffuser
Operating temperature	At least 0 – 50 °C **
Release temperature	72 °C or 95 °C (for warm air ventilation systems)
Upstream velocity	Depends on the spigot and diffuser, usually about 3 – 5 m/s

** Temperatures may differ for units with attachments

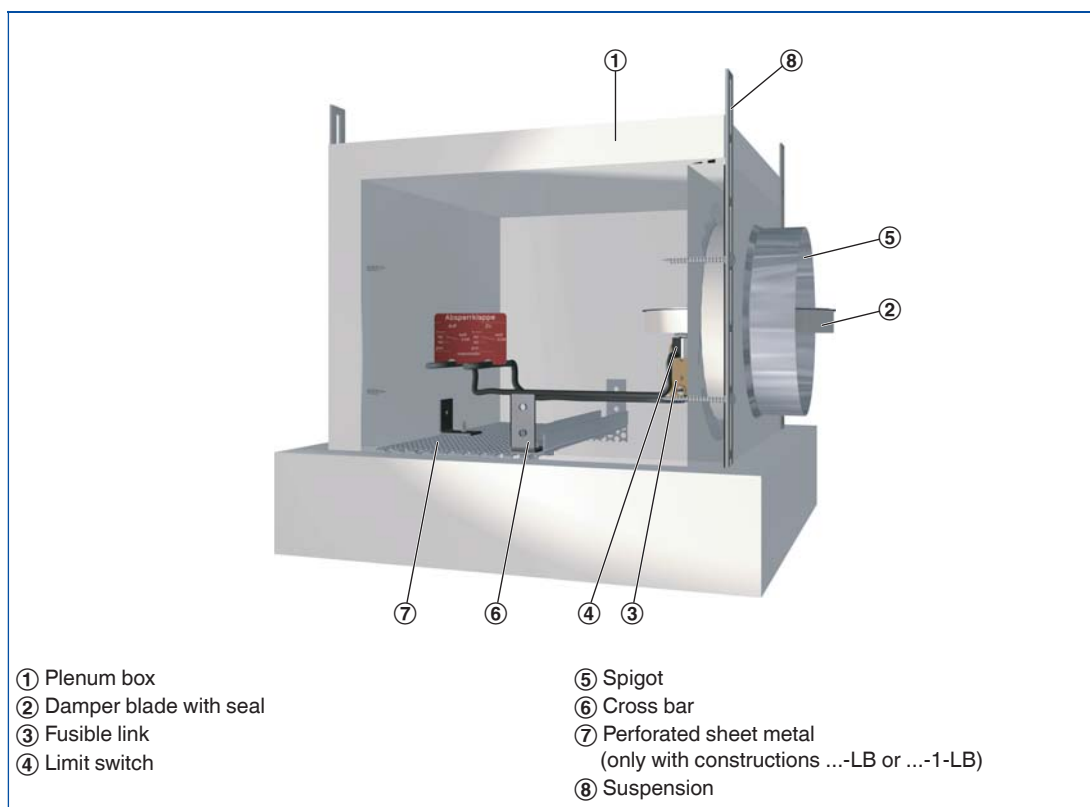
Function

Construction with fusible link

Functional description

Fire dampers for self supporting F30 suspended ceilings shut automatically in the event of a fire and 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 inside the damper. The release mechanism is accessible and can be tested from the outside (i.e. from the room).

Schematic illustration of KU-K30 with fusible link and limit switch



Function

Construction
with spring return actuator

Functional description

The spring return actuator enables the motorised opening and closing of the damper blade;

it can be activated by the central BMS. In the event of a fire, the damper is triggered thermoelectrically at 72 °C or 95 °C (use in warm air ventilation systems).

As long as power is supplied to the actuator, the damper blade remains open.

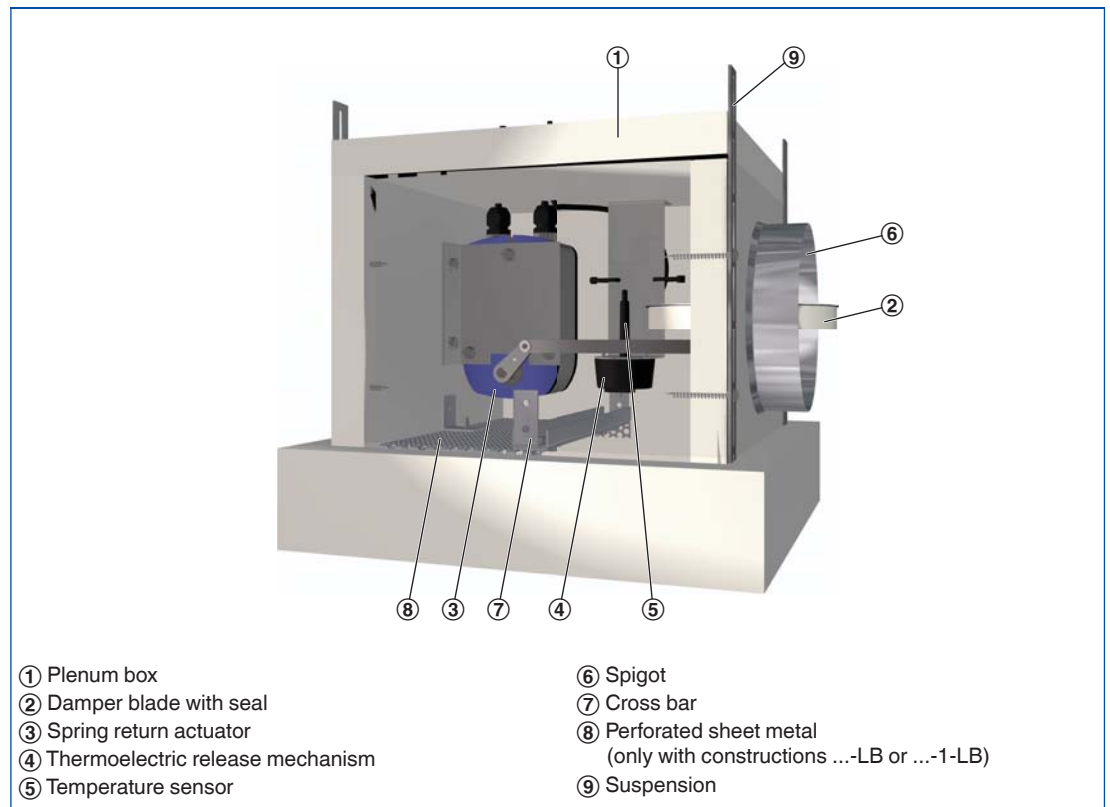
If the supply voltage fails, the damper closes (power off to close).

Motorised fire dampers can be used to shut off ducts.

The torque of each actuator is sufficient to open and close the damper blade even while the fan is running.

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


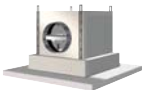
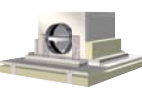
Schematic illustration of KU-K30 with spring return actuator BLF



Design information

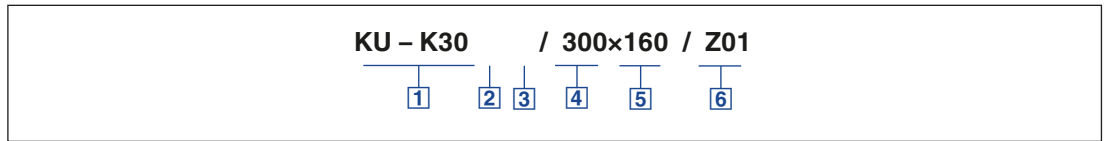
- Approved only for use in ventilation and air conditioning systems
- Fire resistance class K30-U can only be achieved with a duct connected on one end
- Ducting must be installed in such a manner that it does not impose any significant loads on the fire damper in the event of a fire.
- Connection to rigid ducts requires combustible flexible connectors or flexible aluminium ducts

Correct use when combined with suspended ceilings

Installation location		Construction	Type
Self supporting F30 fire-resistant false ceilings		Tile ceiling, screw-fixed and primed	KU-K30
Self supporting F30 fire-resistant false ceilings		Metal ceiling, Promat F30	KU-K30
Self supporting F30 fire-resistant false ceilings		Lindner metal ceiling LMD F30 Type 1, 3, 4, 5 and 6 – 11	L-KU-K30

Order code

KU-K30 / L-KU-K30



1

1 Type

KU-K30
L-KU-K30¹

2 Construction 1

No entry: standard construction
1 With RAL 7001 coating
LB With perforated sheet metal
1-LB With RAL 7001 coating and perforated sheet metal

3 Construction 2

W Release temperature 95 °C

4 Nominal size [mm] – fire damper²

300
400
500
600
625

5 Nominal size [mm] – spigot

160
200
250
315

6 Attachments

Z00 Standard construction
Z00 – ZL08

¹ Type L-KU-K30: For Lindner metal ceilings LMD F30 Type 1, 3, 4, 5 and 6 – 11, with building inspectorate licence

² Types DLQ · ADLQ can only be combined with selected nominal sizes

Diffuser types (to be ordered separately)

FD
TDF-SilentAir
DLQ
ADLQ

Order examples

KU-K30 with fusible link 72 °C and limit switch for damper blade position CLOSED

Make	TROX
Type	KU-K30 / 300 × 160 / Z01

L-KU-K30, coated RAL 7001, with spring return actuator 230 V AC

Make	TROX
Type	L-KU-K30-1 / 300 × 160 / Z08

Description



Limit switch

For detailed information on limit switches see Chapter 1.2

Application

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

/ Z01
/ Z02
/ Z03
6

Order code detail

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

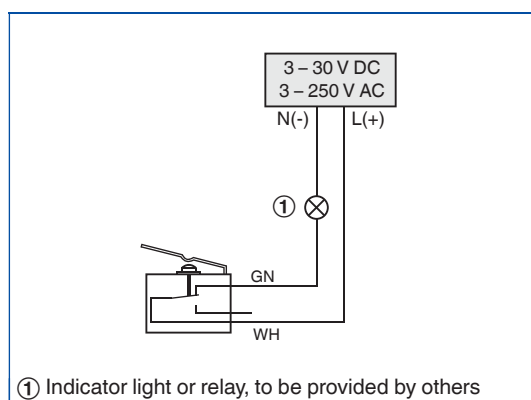
Technical data

Limit switch

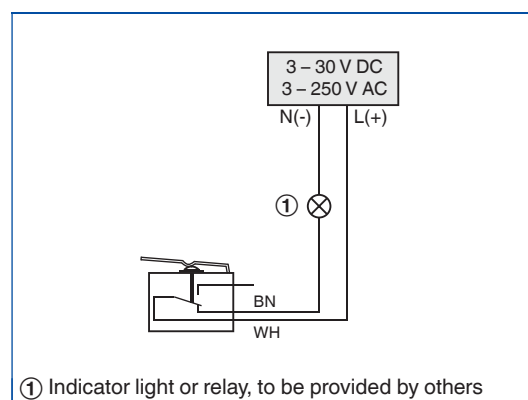
Connecting cable length/cross section	1 m/3 × 0.34 mm ²
Protection level	IP 66
Type of contact	1 changeover contact, gold-plated
Maximum switching current	0.5 A
Maximum switching voltage	30 V DC, 250 V AC
Minium switch rating	5 mA, 3 V
Contact resistance	Aprox. 30 mΩ

Wiring Examples

Limit switch not actuated



Limit switch actuated



Description

For detailed information on the spring return actuator see Chapter 1.2

KU-K30 with spring return actuator

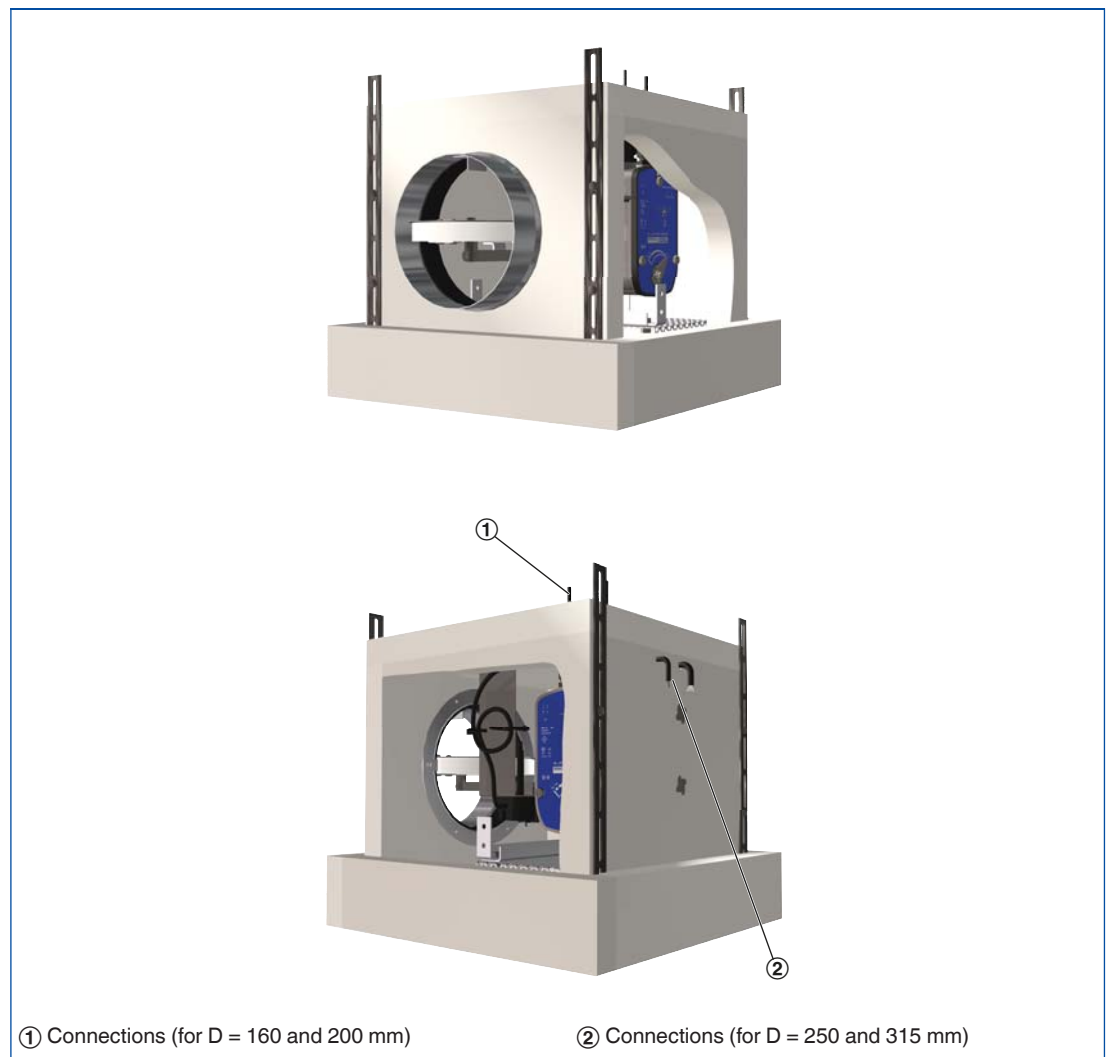
- An open/close actuator allows for the remote control of the fire damper and/or release by a suitable duct smoke detector
- If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close)
- Fire dampers with spring return actuators can be functionally checked OPEN/CLOSED/OPEN
- Ambient temperature, normal operation -30 to 50 °C
- The actuator includes two limit switches
- BLF24-T-ST TR: The connecting cables of the spring return actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system

/ Z08
/ Z09
6

Order code detail

Attachments	Order code
BLF230-T TR	Z08
BLF24-T-ST TR	Z09

Spring return actuator BLF ...



Description

For detailed information on TROXNETCOM see Chapter 1.2

KU-K30 · L-KU-K30 with spring return actuator and TROXNETCOM

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

Application

LON:

- Only the bus line and the supply voltage remain to be connected by others
- LON-WA1/B2: To provide the control input signal for up to two fire dampers
- LON-WA1/B2-AD: Connection box for connecting the second fire damper with 24 V AC supply voltage
- LON-WA1/B2-AD230: Connection box for connecting the second fire damper with 230 V AC supply voltage

AS-i:

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

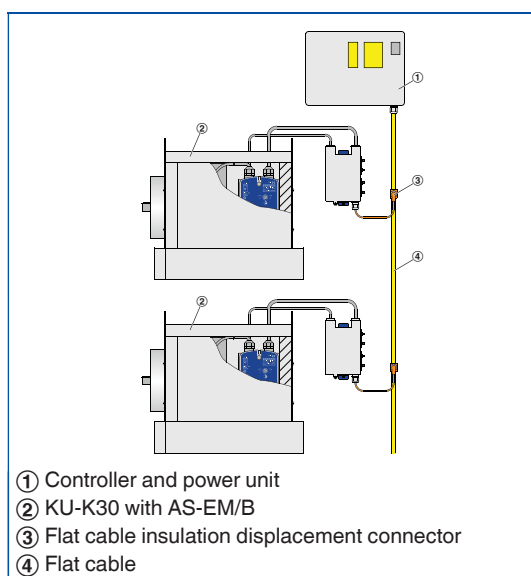
/ ZL06
/ ZL07
/ ZL08
/ ZA07

7

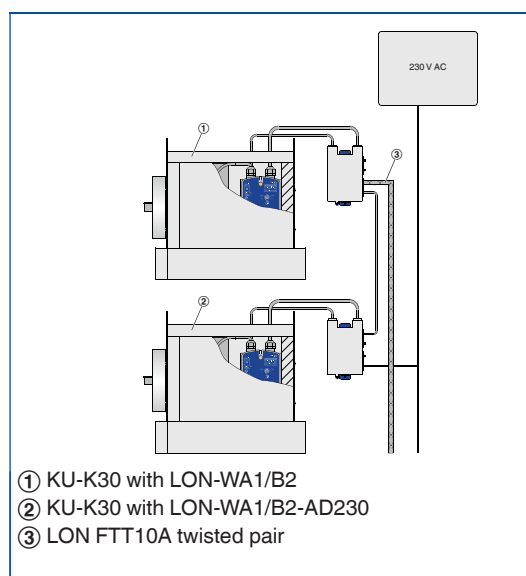
Order code detail

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

AS-EM/B module



Module LON-WA1/...

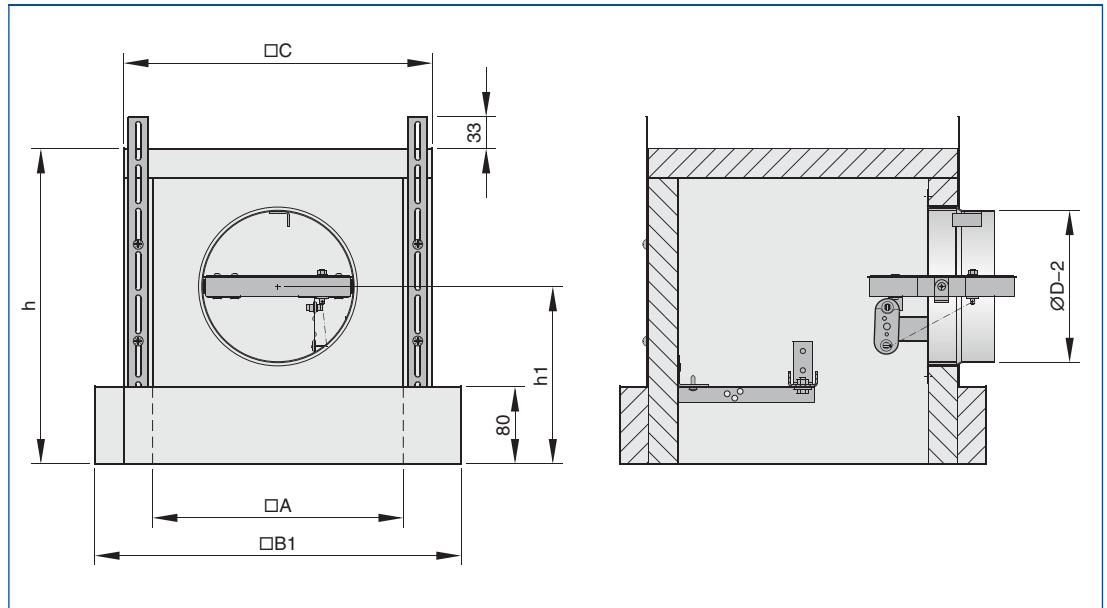


Dimensions

KU-K30 with fusible link



KU-K30 with fusible link



Dimensions [mm] and weight [kg]

Nominal size	A	B1	B2	C	D	h	h1	Weight
300	260	380	360	320	160	327	184	10
400	360	480	460	420	160 ¹	327	184	14
400	360	480	460	420	200	367	204	15
500	460	580	560	520	160 ¹	327	184	18
500	460	580	560	520	200 ¹	367	204	20
500	460	580	560	520	250	417	229	21
600	560	680	660	620	160 ¹	327	184	24
600	560	680	660	620	200 ¹	367	204	25
600	560	680	660	620	250 ¹	417	229	26
600	560	680	660	620	315	782	261	28
625	585	705	685	645	160 ¹	327	184	25
625	585	705	685	645	200 ¹	367	204	26
625	585	705	685	645	250 ¹	417	229	28
625	585	705	685	645	315	482	261	30

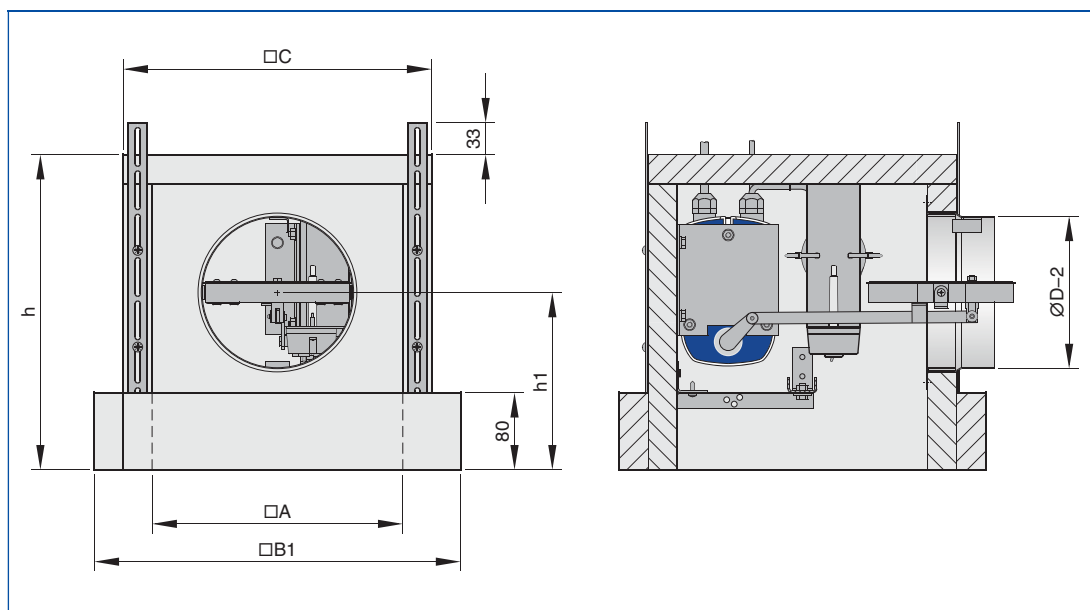
Dimensions

1



KU-K30 with spring return actuator

KU-K30 with spring return actuator



Dimensions [mm] and weight [kg]

Nominal size	A	B1	B2	C	D	h	h1	Weight
300	260	380	360	320	160	327	184	12
400	360	480	460	420	160 ¹	327	184	16
400	360	480	460	420	200	367	204	17
500	460	580	560	520	160 ¹	327	184	20
500	460	580	560	520	200 ¹	367	204	22
500	460	580	560	520	250	417	229	23
600	560	680	660	620	160 ¹	327	184	26
600	560	680	660	620	200 ¹	367	204	27
600	560	680	660	620	250 ¹	417	229	28
600	560	680	660	620	315	782	261	30
625	585	705	685	645	160 ¹	327	184	27
625	585	705	685	645	200 ¹	367	204	28
625	585	705	685	645	250 ¹	417	229	30
625	585	705	685	645	315	482	261	32

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 fire damper for the isolation of ducts in self supporting fire-resistant suspended ceilings. Satisfies high ventilation requirements when combined with a non-combustible ceiling diffuser or swirl diffuser. Suitable for supply and extract air. Ready-for-operation unit, which includes a fire-resistant damper blade and a release mechanism.
 Fire resistance class: K30-U
 For installation in self supporting F30 fire-resistant suspended ceilings: tile ceilings (screw-fixed or primed), metal ceilings, and gypsum friezes of metal ceilings.
 Thermal or thermoelectric release at 72 °C or 95 °C (warm air ventilation systems).
 Constructions with spring return actuator for opening and closing the fire damper independent of the nominal size and even while the ventilation system is running, e.g. for a functional test.

Special characteristics

- Licence Z-41.3-320
- Tested to DIN 4102-6 for fire resistance properties
- Classification to DIN 4102, K30-U
- Low differential pressure and sound power level
- For use with supply air or extract air systems (for supply air systems with perforated sheet metal)
- Integration into the central BMS with TROXNETCOM

Materials and surfaces

Plenum box:

- Special insulation material
- Special insulation material with RAL 7001 coating on the inside

Damper blade:

- Special insulation material
- Special insulation material with RAL 7001 coating
- Seal made of neoprene

Other components:

- Spigot and attachments made of galvanised sheet steel
- Fixing elements made of galvanised steel

Technical data

- Nominal sizes – fire damper: 300, 400, 500, 600, 625 mm
- Nominal sizes – spigot: 160, 200, 250, 315 mm
- Differential pressure range: Depends on the spigot and diffuser
- Operating temperature: at least 0 – 50 °C **
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Upstream velocity: Depends on the spigot and diffuser, usually about 3 – 5 m/s

** Temperatures may differ for units with attachments

Sizing data

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

Order options

1 Type

- KU-K30
- L-KU-K30¹

2 Construction 1

No entry: standard construction

- 1 With RAL 7001 coating
- LB With perforated sheet metal
- 1-LB With RAL 7001 coating and perforated sheet metal

3 Construction 2

- W Release temperature 95 °C

4 Nominal size [mm] – fire damper²

- 300
- 400
- 500
- 600
- 625

5 Nominal size [mm] – spigot

- 160
- 200
- 250
- 315

6 Attachments

- Z00 Standard construction
- Z00 – ZL08

¹ Type L-KU-K30: For Lindner metal ceilings LMD F30 Type 1, 3, 4, 5 and 6 – 11, with building inspectorate licence

² Types DLQ · ADLQ can only be combined with selected nominal sizes

Diffuser types (to be ordered separately)

- FD
- TDF-SilentAir
- DLQ
- ADLQ

Fire dampers

Type KA-EU



KA-EU with electric blade opening actuator



Capillary tube sensor



Tested to VDI 6022

For the extract air of commercial kitchens

Rectangular fire damper for use in extract air and exhaust air ducts of commercial kitchens. For the isolation of duct penetrations between fire compartments, available in 16 nominal sizes

- Nominal sizes from 250 × 225 to 1200 × 500 mm
- 100% free area ensures maximum safety
- No differential pressure, low sound power level
- Easy to clean
- Integration into the central BMS with TROXNETCOM

Optional equipment and accessories

- Electric blade opening actuator, 230 V
- Control module

1

Type		Page
KA-EU	General information	1.1 – 153
	Correct use	1.1 – 157
	Order code	1.1 – 159
	Special information – Limit switches	1.1 – 160
	Special information – Electromagnet	1.1 – 161
	Special information – Capillary tube sensor TLR-72	1.1 – 162
	Special information – Control module	1.1 – 163
	Special information – Electric blade opening actuator	1.1 – 164
	Quick sizing	1.1 – 165
	Dimensions and weight – KA-EU	1.1 – 166
	Dimensions and weight – KA-EU/.../Z0*	1.1 – 167
	Specification text	1.1 – 168
	Basic information and nomenclature	1.3 – 1

Variants

Product examples

KA-EU



KA-EU with electric blade opening actuator



Description



KA-EU fire damper

For detailed information on attachments see Chapter K4 – 1.2.

Application

- Fire dampers of Type KA-EU for shutting off extract air and exhaust air ducts of commercial kitchens, with general building inspectorate licence
- To prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments

Classification

- Fire resistance class K90 to DIN 4102-6

Variants

- With thermal release mechanism
- With thermal release mechanism and control module
- With electric blade opening actuator and control module

Nominal sizes

- 250 × 225 to 1200 × 500 mm
- L: 595 – 880 mm (depending on the selected casing height)

Attachments

- Capillary tube sensor

Special characteristics

- General building inspectorate licence Z-41.3-692
- Tested for fire resistance properties to DIN 4104-6 and EN 1366-2
- 100% free area
- Low differential pressure and sound power level
- Integration into the central BMS with TROXNETCOM

Parts and characteristics

- Installation in horizontal or vertical ducts
- Installation in horizontal ducts with the damper blade at the top and airflow in any direction
- 100% free area, hence low differential pressure
- Secure closure by means of gas struts even when there are deposits
- Release temperature 72 °C

Construction features

- Rigid rectangular casing with installation subframe
- Connecting flanges with fixing holes on both sides, suitable for duct connection
- Scrapers on the damper blade to scrape off greasy deposits etc.
- Damper blade outside of the airflow
- Remote control with electric blade opening actuator

Materials and surfaces

Casing:

- Galvanised sheet steel
- Stainless steel 1.4301

Damper blade:

- Special insulation material faced with stainless steel

Other components:

- Damper blade shafts made of galvanised steel or stainless steel

Installation and commissioning

Install the fire damper according to the original operating and installation manual.

Mortar-based installation:

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

Standards and guidelines

- EN 1366-2:1999 Fire resistance tests for service installations – Fire dampers
- DIN 4102-6, standard fire resistance test
- EN 1751 Ventilation for buildings – Air terminal devices
- VDI 2052 Ventilation equipment for kitchens

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 electric blade opening actuator this can be done via remote control
- Fire dampers must be included in the regular cleaning schedule of the ventilation system.
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data

Nominal sizes	250 × 225 – 1200 × 500 mm
Volume flow rate range	Up to 6000 l/s or 21600 m ³ /h
Operating temperature	10 – 50 °C
Release temperature	72 °C

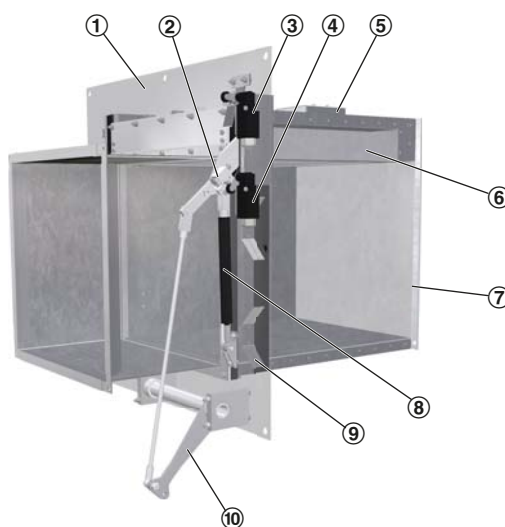
Function

Construction
for manual operation

Functional description

In the event of a fire, fire dampers shut automatically to prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments. When in the event of a fire the temperature rises to 72 °C, a capillary tube sensor interrupts the power supply to the electromagnet, and the damper blade is released. While power is being supplied to the electromagnets, the fire damper can be opened with the blade opening lever. The release mechanism is accessible and can be tested from the outside.

Schematic illustration of KA-EU



- | | |
|---|-----------------------------|
| ① Mounting plate | ⑥ Damper blade with scraper |
| ② Spring tab | ⑦ Casing |
| ③ Limit switch for damper blade position CLOSED | ⑧ Gas strut |
| ④ Limit switch for damper blade position OPEN | ⑨ Fixing tab |
| ⑤ Electromagnet | ⑩ Setting lever |

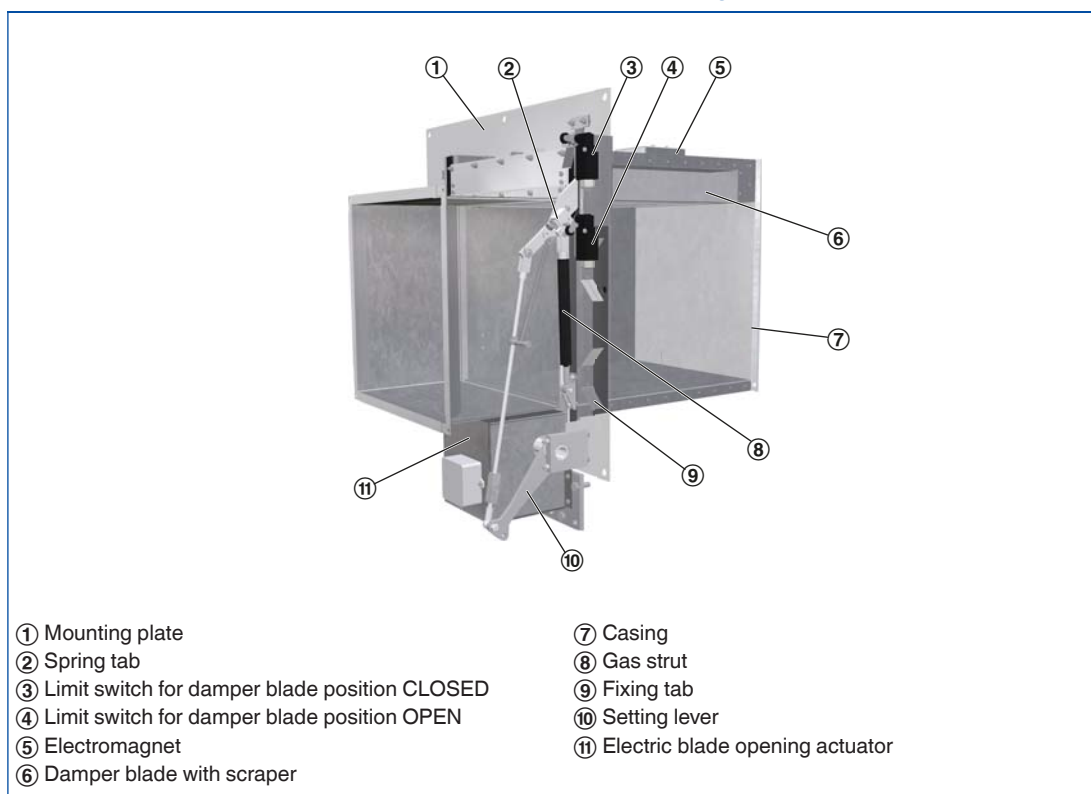
Function

Construction with electric blade opening actuator

Functional description

The blade opening actuator is used for the motorised opening of the fire damper; for maintenance and functional tests it can receive signals from the central BMS. When in the event of a fire the temperature rises to 72 °C, a capillary tube sensor interrupts the power supply to the electromagnet, and the damper blade is released. If power is supplied to the blade opening actuator and to the electromagnets, the actuator can move the damper blade into the OPEN position. If the voltage to the electromagnets is interrupted, the damper blade closes (power off to close). The supplied limit switches can be used for indicating the damper blade position and for switching off the fans.


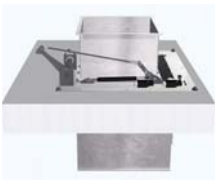

Schematic illustration of the KA-EU with electric blade opening actuator




Design information

- Only for use in extract air and exhaust air ducts of commercial kitchens
- Fire resistance class K90 can only be achieved with ducts connected on both ends
- Ducting must be installed in such a manner that it does not impose any significant loads on the fire damper in the event of a fire.

Correct use in solid walls and ceiling slabs

Installation location	Construction and building material	Minimum thickness	Fire resistance class	Direction of airflow
		mm		
Solid walls	 <p>Solid walls in concrete, aerated concrete or lightweight concrete, gross density $\geq 500 \text{ kg/m}^3$</p>	100	K90	either direction
	<p>Solid brick walls</p>	115		
Solid ceiling slabs, upright	 <p>Solid walls in concrete or aerated concrete, solid ceiling slab, gross density $\geq 600 \text{ kg/m}^3$</p>	150	K90	from below
Solid ceiling slabs, suspended	 <p>Solid walls in concrete or aerated concrete, solid ceiling slab, gross density $\geq 600 \text{ kg/m}^3$</p>	150	K90	either direction

Correct use in lightweight partition walls

Installation location		Construction and building material	Minimum thickness	Fire resistance class	Direction of airflow
			mm		
Lightweight partition walls with metal support structure and cladding on both sides		Lightweight partition walls	100	K90	either direction
Fire walls with metal support structure and cladding on both sides		Fire walls	115	K90	either direction

Order code

KA-EU

KA - EU - 2 / DE / 400x300x680 / Z01

1

2

3

4

5

1 Type

KA-EU Fire damper for the extract air of commercial kitchens

2 Material

No entry: galvanised casing
2 Stainless steel 1.4301

3 Country of destination

DE Germany
Other destination countries upon request

4 Nominal size [mm]

B × H × L

5 Attachments

Z00 Standard construction
Z01 With control module
Z02 With electric blade opening actuator and control module

Order example

KA-EU-2/DE/500x500x880/Z02

Construction	Stainless steel casing
Country of destination	Germany
Nominal size	500 × 500 × 880 mm
Attachment	With electric blade opening actuator and control module

Description

Application

- The fire damper is equipped with two limit switches.
- Limit switch for damper blade position CLOSED: This limit switch can be used to indicate the damper blade position. Up to the maximum switch rating, relays or indicator lights for fire alarm systems can be used
- Limit switch for damper blade position OPEN: This limit switch is connected with the fan and ensures that the fan runs only while the damper blade is completely open.

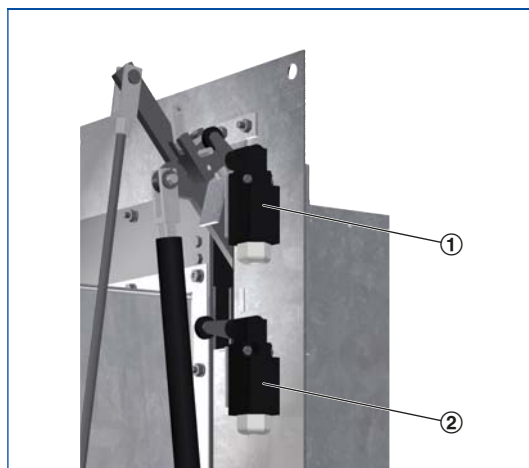
Technical data

Limit switch

Connecting cable length/cross section	1 m/3 × 1.0 mm ²
Protection level	IP 67
Type of contact	Double pole changeover contact, silver
Maximum switching current	4 A
Maximum switching voltage	24 V DC, 230 V AC

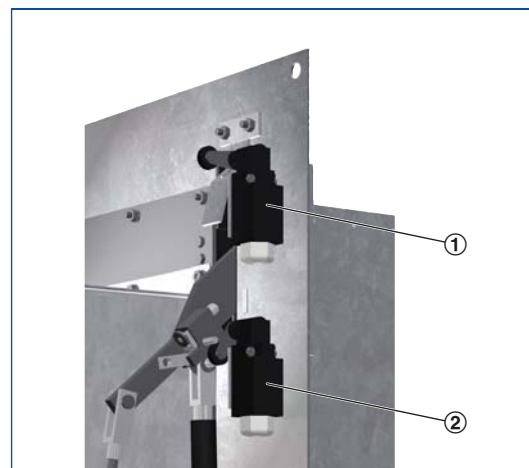
Function

KA-EU when CLOSED



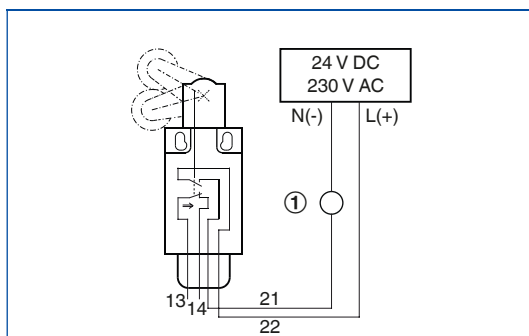
- ① Damper blade position CLOSED, limit switch not actuated
- ② Damper blade position OPEN, limit switch actuated

KA-EU when OPEN



- ① Damper blade position CLOSED, limit switch actuated
- ② Damper blade position OPEN, limit switch not actuated

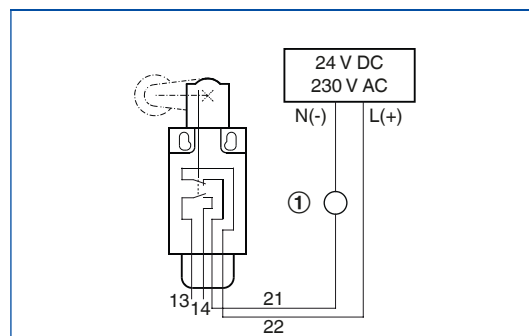
Wiring example – limit switch actuated



- ① Limit switch for damper blade position CLOSED - Indicator light or relay, to be provided by others
- Limit switch for damper blade position OPEN - Fan, to be provided by others

Contacts 21 – 22 are open

Wiring example – limit switch not actuated



- ① Limit switch for damper blade position CLOSED - Indicator light or relay, to be provided by others
- Limit switch for damper blade position OPEN - Fan, to be provided by others

Contacts 21 – 22 closed

Description

Application

- The electromagnet Type 500-15 is to be connected to a capillary tube sensor Type TLR-72.
- As long as power is supplied to the electromagnet, the magnetic force holds the damper blade open.
- If the power supply is interrupted, the magnetic force fails, and the damper blade closes.
- As standard, casing widths of $B > 600$ mm are equipped with 2 electromagnets.

Installation information

- Electromagnets should always be accessible

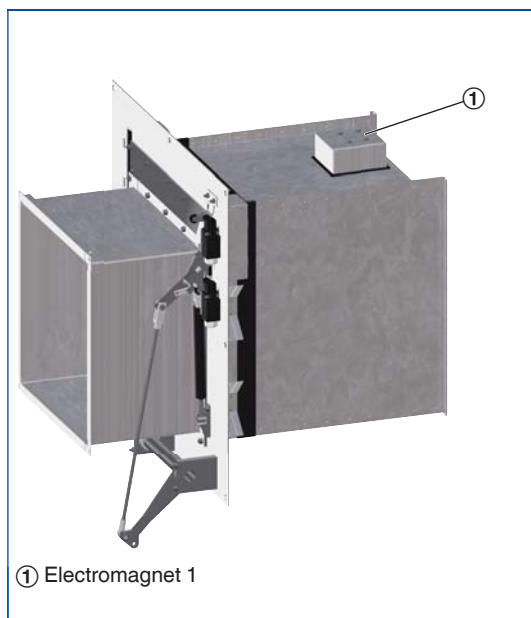
Technical data

Electromagnet

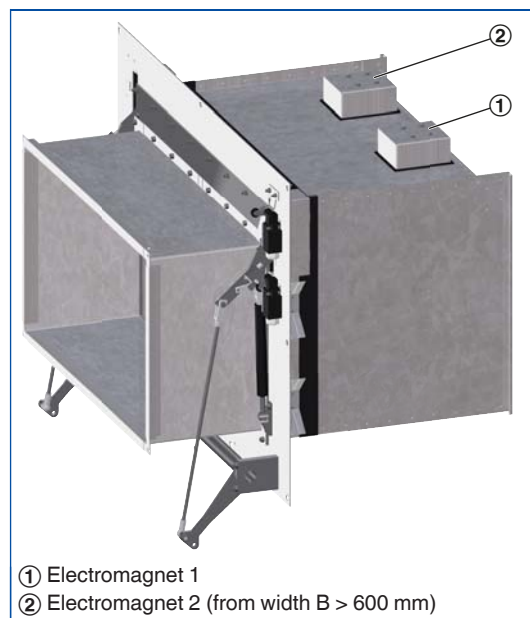
Cable type	Flexible, max. 3×1.0 mm ²
Max. duty cycle	100 %
Electromagnetic force	490 N
Type of connection	Plug-in rectifier
Supply voltage	230 V AC ± 10 %

Function

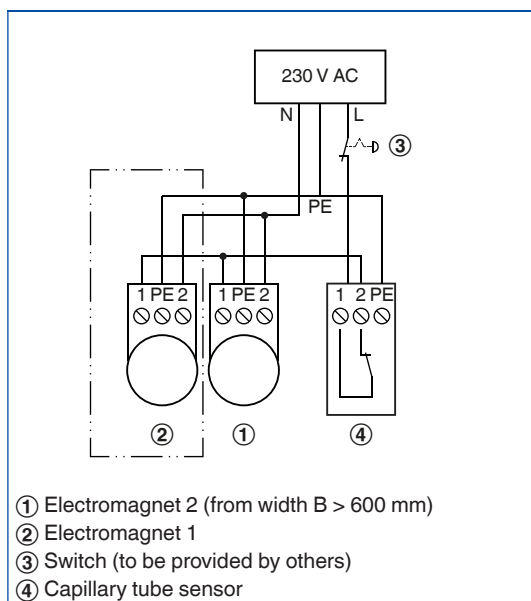
Electromagnet



Electromagnet



Wiring example – electromagnet CLOSED



Description

Application

- If in the event of a fire the temperature in the extract air duct rises to 72 °C, the capillary tube sensor interrupts the power supply to the electromagnet
- As a consequence, the damper blade is released and is closed by force of the gas strut or struts.
- The capillary tube sensor consists of a protective coil and a flange such that it can be fitted inside the duct
- Distance to the fire damper: ≥ 500 mm
- Depending on the installation location of the fire damper, several capillary tube sensors may be required
- Up to 10 capillary tube sensors can be connected in series
- Additional capillary tube sensors must be ordered separately

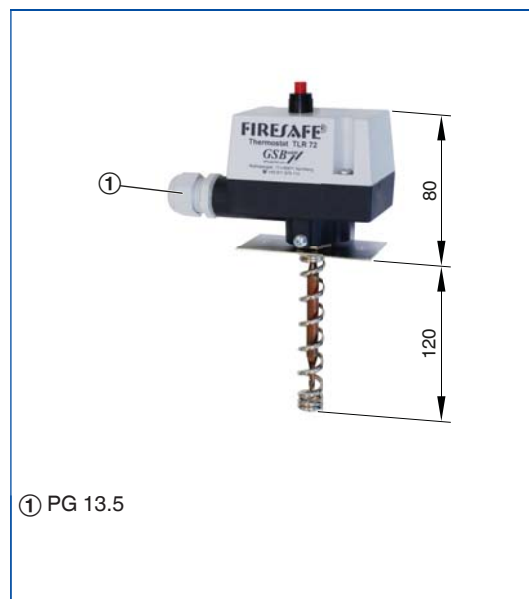
Technical data

Capillary tube sensor TLR-72

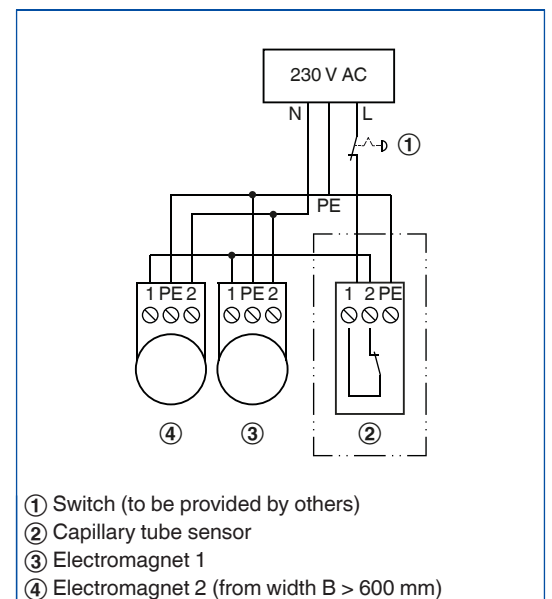
Temperature range	Set to 72 °C
Supply voltage	24 – 250 V AC/50 Hz
Breaking capacity	150 mA – 15 A at 24 V AC/150 mA – 8 A at 250 V AC
Protection level	IP 54
IEC protection class	I (protective earth)
Contact	Changeover
Bulb and capillary tube	Copper
Sensor temperature	82 °C
Ambient temperature	-15 to 80 °C

Function

Capillary tube sensor



Wiring example – capillary tube sensor CLOSED



Description

Application

- The control module facilitates operating fire dampers with or without electric blade opening actuator
- Indicator lights on the control module indicate the damper blade position as well as any faults
- The fire damper can be tested and reset using the two push buttons on the module

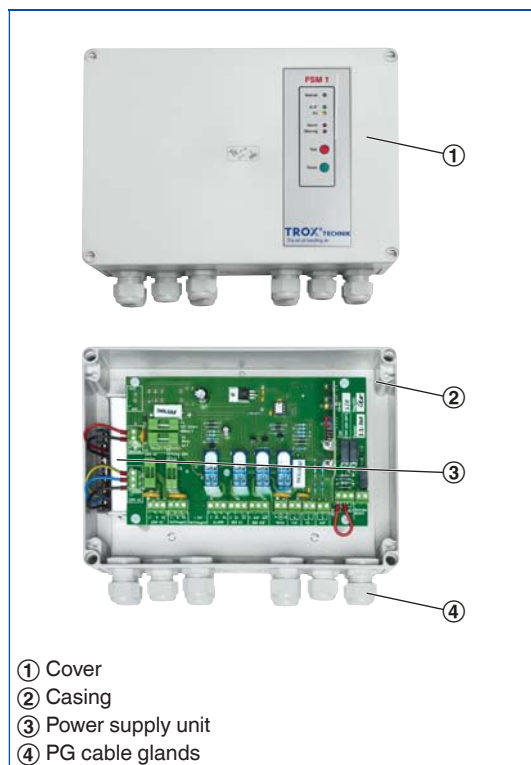
Technical data

Control module

Supply voltage	230 V AC, 50 – 60 Hz
Power consumption	200 VA max.
Switching voltage	230 V AC max.
Switching current	2 A max.
IEC protection class	I (protective earth)
Protection level	IP 54
Operating temperature	5 to 40 °C
Casing and cover	Plastic
Mounting	For surface mounting
Cable glands	10 × PG20
Dimensions B × H × T	180 × 260 × 110 mm

Function

Control module



- ① Cover
- ② Casing
- ③ Power supply unit
- ④ PG cable glands

Description



KA-EU with electric blade opening actuator

Application

- The electric blade opening actuator simplifies operation during maintenance and functional tests.
- The required control module facilitates operation of the fire damper and is used to signal the damper blade position to the central BMS.
- If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close)

Installation information

- The blade opening actuator can be mounted on the transverse bar in various positions:
- To the right of the damper, top position or bottom position
 - To the left of the damper, top position or bottom position
 - In the centre, right underneath the damper

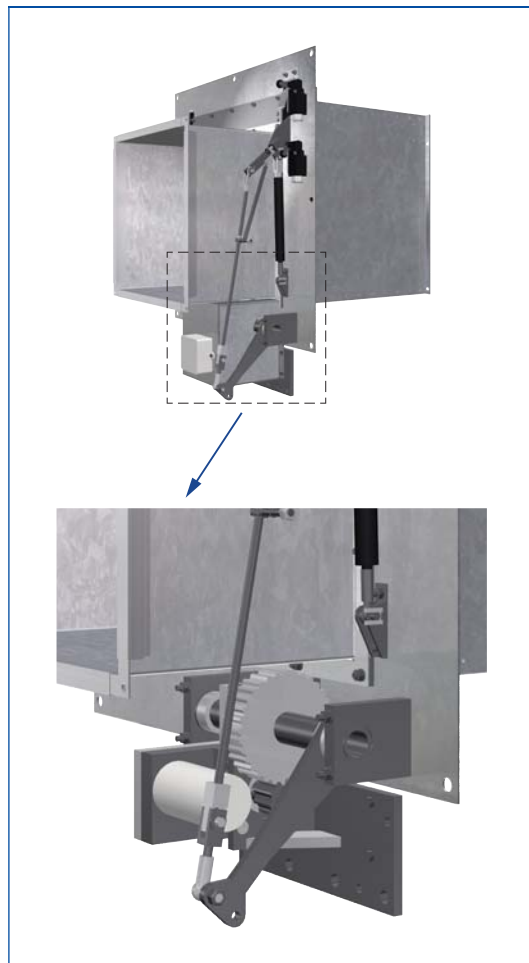
Technical data

Electric blade opening actuator

Supply voltage	From the control module
Protection level	IP 50
Insulation class	E (120 °C)
Dimensions B x H x T	270 x 225 x 200 mm

Function

Electric blade opening actuator



Quick selection

Duct dimensions B × H [mm]	Volume flow rate \dot{V} [l/s]						Volume flow rate \dot{V} [m ³ /h]					
	Airflow velocity v_A [m/s]											
	5	6	7	8	9	10	5	6	7	8	9	10
250 × 225	280	340	390	450	505	560	1008	1224	1404	1620	1818	2016
300 × 225	340	410	470	540	610	675	1224	1476	1692	1944	2196	2430
300 × 300	450	540	630	720	810	900	1620	1944	2268	2592	2916	3240
400 × 300	600	720	840	960	1080	1200	2160	2592	3024	3456	3888	4320
400 × 400	800	960	1120	1280	1440	1600	2880	3456	4032	4608	5184	5760
500 × 400	1000	1200	1400	1600	1800	2000	3600	4320	5040	5760	6480	7200
600 × 400	1200	1440	1680	1920	2160	2400	4320	5184	6048	6912	7776	8640
700 × 400	1400	1680	1960	2240	2520	2800	5040	6048	7056	8064	9072	10080
500 × 500	1250	1500	1750	2000	2250	2500	4500	5400	6300	7200	8100	9000
600 × 500	1500	1800	2100	2400	2700	3000	5400	6480	7560	8640	9720	10800
700 × 500	1750	2100	2450	2800	3150	3500	6300	7560	8820	10080	11340	12600
800 × 500	2000	2400	2800	3200	3600	4000	7200	8640	10080	11520	12960	14400
900 × 500	2250	2700	3150	3600	4050	4500	8100	9720	11340	12960	14580	16200
1000 × 500	2500	3000	3500	4000	4500	5000	9000	10800	12600	14400	16200	18000
1100 × 500	2750	3300	3850	4400	4950	5500	9900	11880	13860	15840	17820	19800
1200 × 500	3000	3600	4200	4800	5400	6000	10800	12960	15120	17280	19440	21600

Sizing example

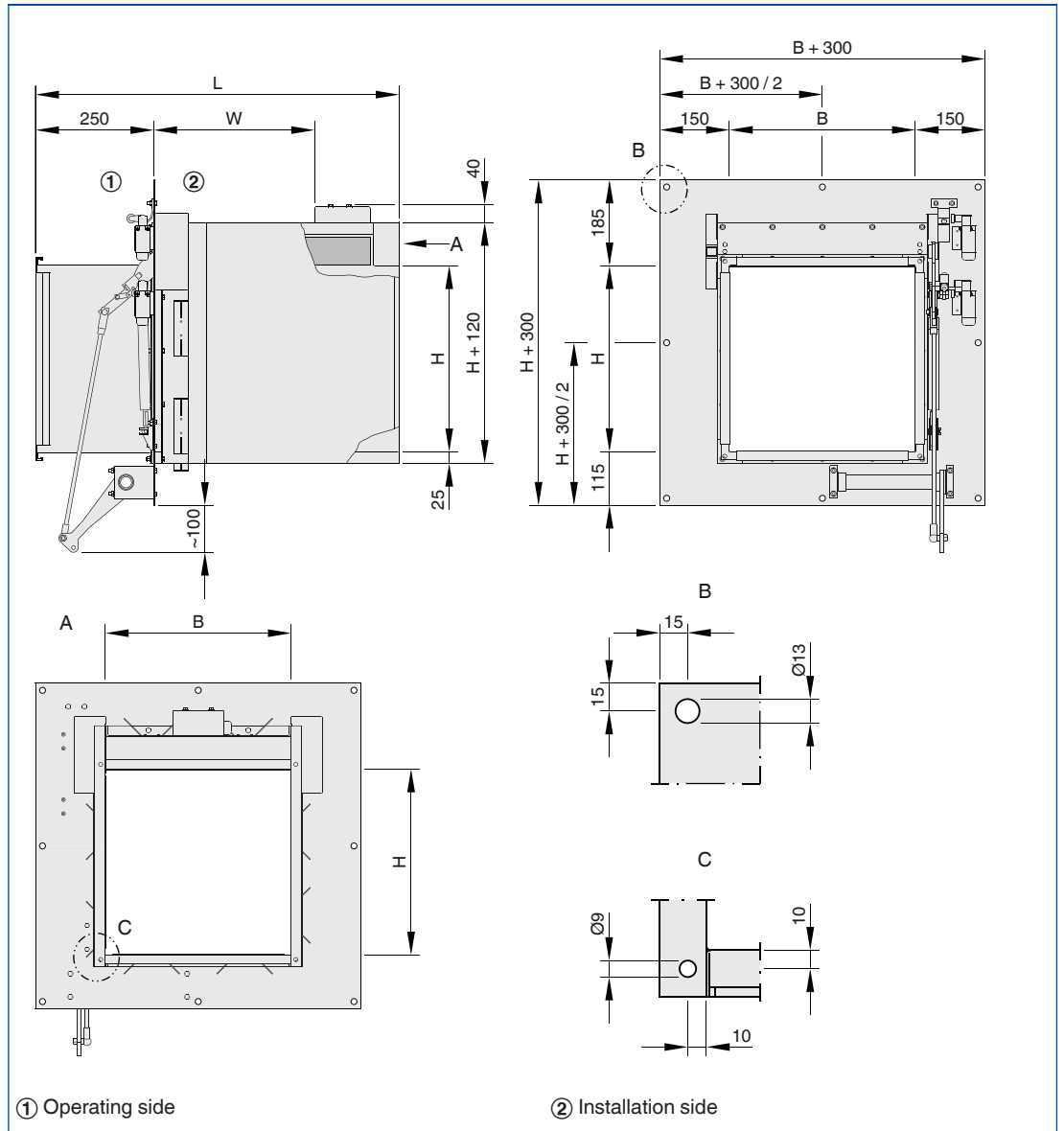
Given data	Quick sizing
Volume flow rate: 4320 m ³ /h (1200 l/s)	KA-EU / DE / 400 × 400
Permitted airflow velocity: 8 m/s	

Dimensions

KA-EU



KA-EU



Dimensions [mm] / Weight [kg]

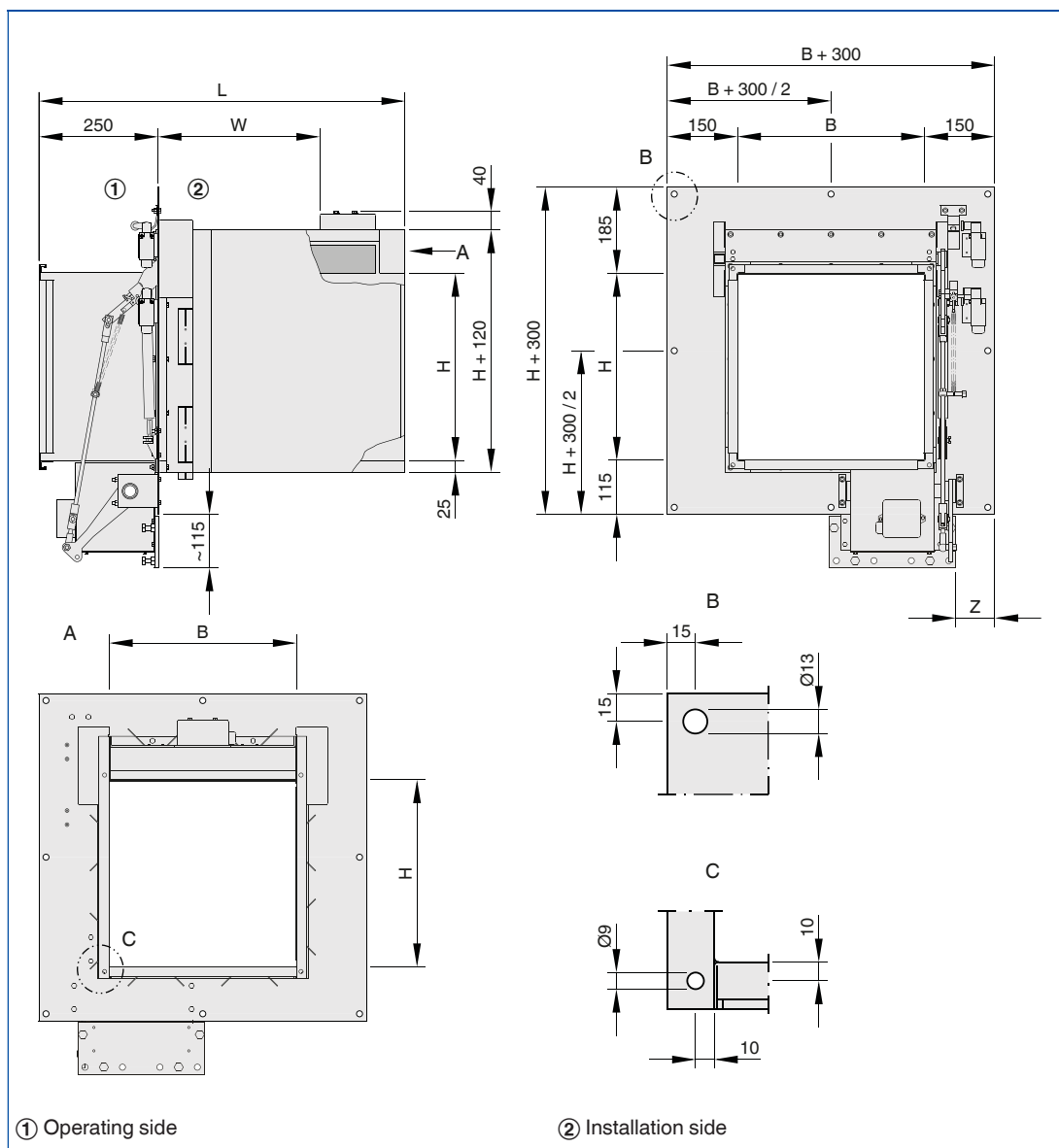
H	B	L	W	Weight
225	250	595	160	26
225	300	595	160	28
300	300	680	235	30
300	400	680	235	40
400	400	780	335	45
400	500	780	335	53
400	600	780	335	59
400	700	780	335	70
500	500	880	435	60
500	600	880	435	68
500	700	880	435	79
500	800	880	435	85
500	900	880	435	91
500	1000	880	435	99
500	1100	880	435	105
500	1200	880	435	110

1 Dimensions



KA-EU with electric blade opening actuator

KA-EU with electric blade opening actuator



Dimensions [mm] / Weight [kg]

H	B	L	W	Z	Weight
225	250	595	160	85	37
225	300	595	160	85	39
300	300	680	235	85	41
300	400	680	235	85	51
400	400	780	335	85	56
400	500	780	335	85	64
400	600	780	335	85	70
400	700	780	335	285	81
500	500	880	435	85	71
500	600	880	435	85	79
500	700	880	435	285	90
500	800	880	435	335	96
500	900	880	435	385	102
500	1000	880	435	435	110
500	1100	880	435	485	116
500	1200	880	435	535	121

Description

This specification text describes the general properties of the product.

Square or rectangular fire dampers for the isolation of extract air or exhaust air duct penetrations in commercial kitchens. With flanges for installation in horizontal or vertical ducts. Secure closure by means of gas struts even when there are deposits. Tested for fire resistance properties to DIN 4102-6 and EN 1366-2, fire resistance class K90; casing made of sheet steel, stainless steel as an option. Low-leakage damper blade made of special insulation material faced with stainless steel. Scrapers on the damper blade to scrape off greasy deposits etc. Thermal release mechanism 72 °C. Two electric limit switches for capturing damper blade positions CLOSED and OPEN as well as for switching the fan off; electric blade opening actuator and control module as options. For mortar-based installation into solid walls and ceiling slabs, and into lightweight partition walls and fire walls with metal support structure and cladding on both sides.

Special characteristics

- General building inspectorate licence Z-41.3-692
- Tested for fire resistance properties to DIN 4104-6 and EN 1366-2
- 100% free area
- Low differential pressure and sound power level
- Integration into the central BMS with TROXNETCOM

Materials and surfaces

Casing:

- Galvanised sheet steel
- Stainless steel 1.4301

Damper blade:

- Special insulation material faced with stainless steel

Other components:

- Damper blade shafts made of galvanised steel or stainless steel

Technical data

- Nominal sizes: 250 × 225 – 1200 × 500 mm
- Volume flow rate range: up to 6000 l/s or 21600 m³/h
- Operating temperature: 10 to 50 °C
- Release temperature: 72 °C

Sizing data

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

Order options

1 Type

KA-EU Fire damper for the extract air of commercial kitchens

2 Material

- No entry: galvanised casing
- 2** Stainless steel 1.4301

3 Country of destination

- DE** Germany
- Other destination countries upon request

4 Nominal size [mm]

B × H × L

5 Attachments

- Z00** Standard construction
- Z01** With control module
- Z02** With electric blade opening actuator and control module

Fire dampers

Type FV-EU



Fire protection valves for supply and extract air

Circular fire protection valve for the isolation of duct penetrations between fire compartments; suitable for supply air and extract air systems. They also satisfy ventilation requirements

- Nominal sizes Ø 100, 125, 160, 200 mm
- For installation in walls and ceilings
- Low differential pressure and sound power level
- Integration into the central BMS with TROXNETCOM

Optional equipment and accessories

- Electric limit switch
- Extension piece
- Trim ring, circular or square



CE compliant according to European regulations



LONMARK PARTNER

With TROXNETCOM as an option



Tested to VDI 6022

Type		Page
FV-EU	General information	1.1 – 170
	Correct use	1.1 – 173
	Order code	1.1 – 174
	Trim ring / Installation kit	1.1 – 175
	Flexible connector	1.1 – 176
	Limit switch	1.1 – 177
	Dimensions and weight	1.1 – 178
	Specification text	1.1 – 179
	Basic information and nomenclature	1.3 – 1

Variant

Product example

FV-EU



Description



FV-EU

For detailed information on attachments see Chapter K4 – 1.2.

Application

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

Classification

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

Variants

- With fusible link
- With fusible link and limit switch

Nominal sizes

- Ø 100, 125, 160, 200 mm
- L: 150 mm

Attachments

- Limit switch for capturing the valve position

Accessories

Mortar-based installation

- Trim ring, circular
- Trim ring, square

Special characteristics

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

Construction features

- Adjustment device for large or small air volumes
- Valve cone with bayonet fixing

Materials and surfaces

- Installation subframe, spigot and valve disc made of sheet steel
- Installation subframe and spigot with stove-enamelled finish, black
- Exposed surface of valve disc powder-coated RAL 9010
- Valve cone made of special insulation material
- Seal made of polyurethane
- Attachments made of galvanised steel
- Increased corrosion protection due to powder-coated casing

Installation and commissioning

Install the fire damper according to the operating and installation manual.

Mortar-based installation:

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

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 protection valve 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.
- Fire protection valves must be included in the regular cleaning schedule of the ventilation system
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data

Nominal sizes	Ø 100, 125, 160, 200 mm
Casing length	150 mm (320 mm with extension)
Release temperature	72 °C
Operating temperature	0 – 50 °C
Volume flow rate range	Extract air up to 350 m³/h or supply air up to 400 m³/h

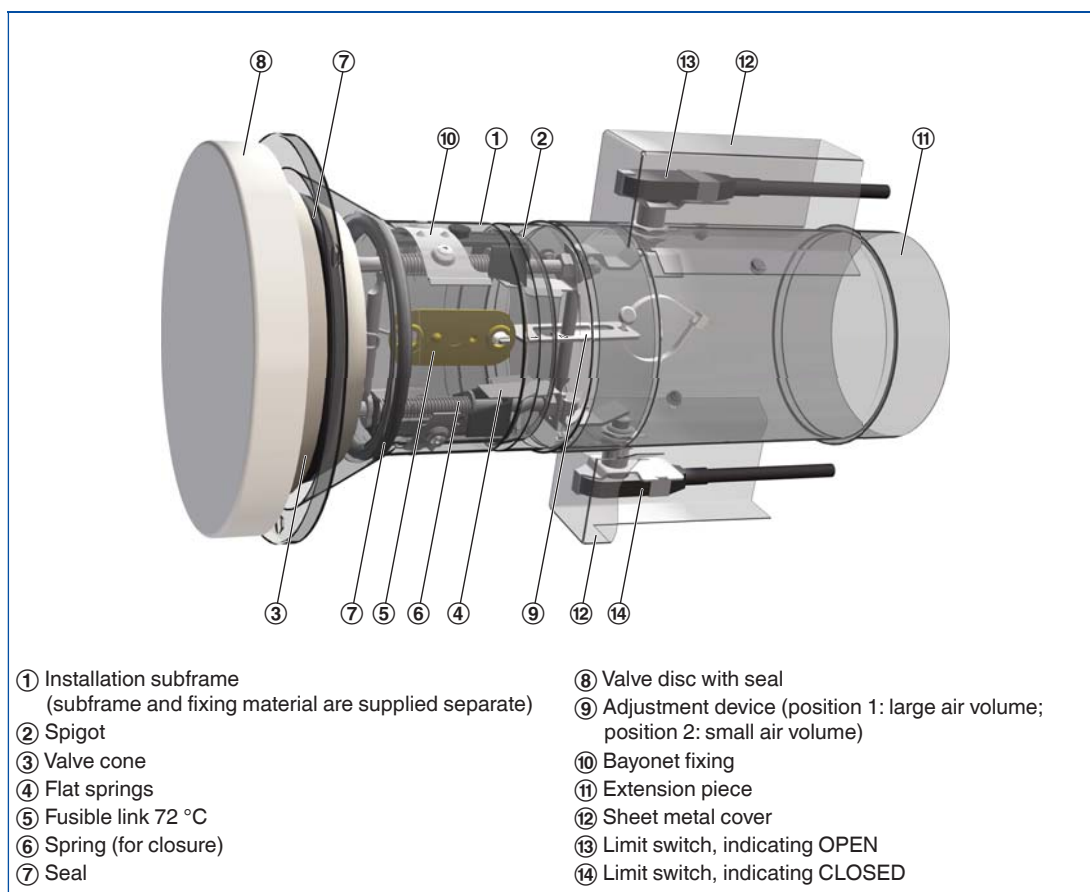
Function

Construction with fusible link

Functional description

In the event of a fire, fire protection valves shut automatically to prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments. In the event of a fire, the valve is triggered at 72 °C by a fusible link. The release mechanism is accessible and can be tested from the outside.




Schematic illustration of the FV-EU with extension piece and limit switches



Design information

- Approved only for use in ventilation and air conditioning systems
- Ducting must be installed in such a manner that it does not impose any significant loads on the fire protection valve in the event of a fire
- For particular applications it is recommended that flexible connectors are used to connect rigid ducting to the unit.

Correct use

Installation location		Construction and building material	Minimum thickness	Performance class	Mortar-based installation	Dry mortarless installation
			mm	EI TT (v _e , h _o , i ↔ o) S		
Solid walls		Solid walls, gross density ≥ 500 kg/m ³	100	EI 120 S	N	-
Solid ceiling slabs		Solid ceiling slabs, gross density ≥ 600 kg/m ³	150	EI 120 S	N	-
Lightweight partition walls with metal support structure and cladding on both sides		Lightweight partition walls	100	EI 120 S	N	-

N = Mortar-based installation

Order code

FV-EU

FV - EU / DE / 160 / R / Z05

1

2

3

4

5

1 Type

FV-EU Fire protection valve

2 Country of destination

DE Germany
Other destination countries upon request

3 Nominal size [mm]

100
125
160
200

4 Accessories

No entry: none
R Trim ring - circular
Q Trim ring - square

5 Attachments

Z04 - Z07

Order examples

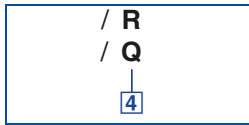
FV-EU

Make TROX
Type FV-EU / DE / 160

FV-EU with circular trim ring, extension piece and limit switch for indicating CLOSED

Make TROX
Type FV-EU / DE / 160 / R / Z05

Description



Order code detail

Application

- For mortar-based installation a trim ring may be used.

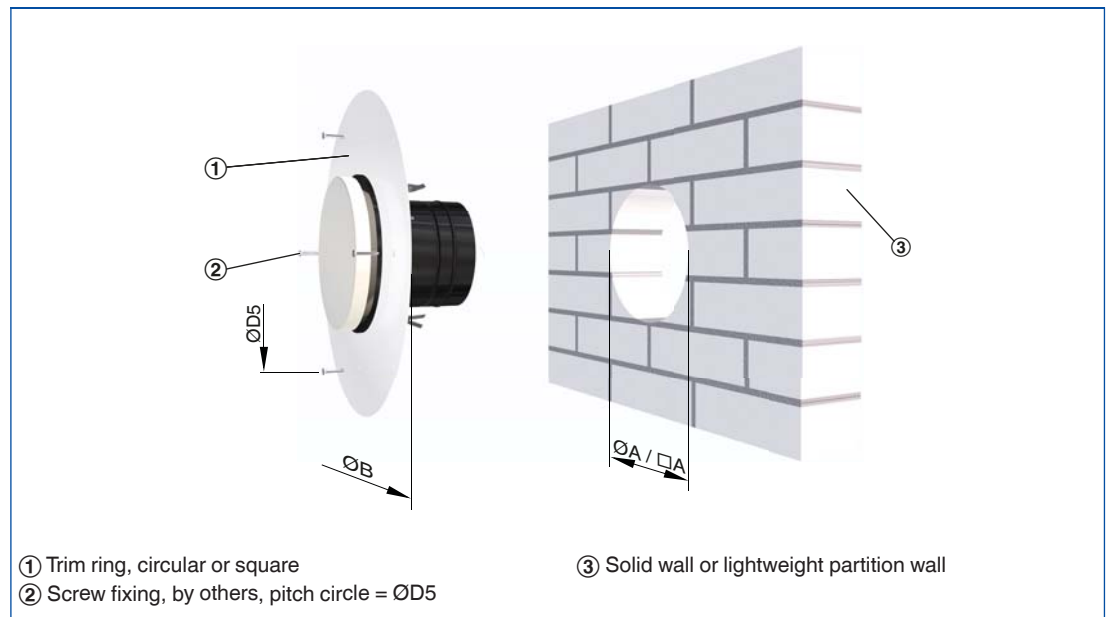
Materials and surfaces

- Trim ring, circular or square, made of galvanised sheet steel, powder-coated RAL 9010

Accessories

Mortar-based installation	Dry mortarless installation	Order code
Trim ring, circular	-	R
Trim ring, square	-	Q

FV-EU with trim ring (mortar-based installation)



Nominal size	100	125	160	200
ØA / □A	200	200	250	300
ØD5	270	295	330	370

1
Description

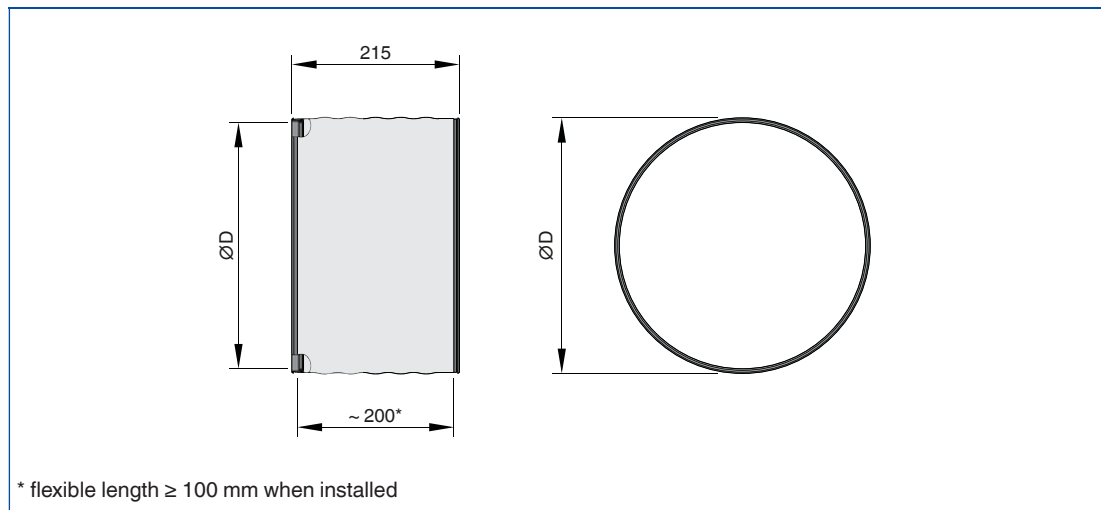
Application

- Ducting must be installed in such a manner that it does not impose any significant loads on the fire protection valve in the event of a fire
- For information on how to limit such loads please refer to the guideline regarding fire protection requirements on ventilation systems (Lüftungsanlagen-Richtlinie, LüAR)
- As ducts may expand and walls may become deformed in the event of a fire, flexible connectors should be used when connecting the unit to rigid ducting for installation into lightweight partition walls
- Flexible connectors should be installed in such a way that they can compensate both tension and compression
- Flexible ducts can be used as an alternative
- Flexible connectors are to be ordered separately

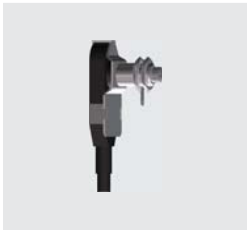
Materials and surfaces

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

Flexible connector



Description



Limit switch

For detailed information on limit switches see Chapter 1.2

Application

- Limit switches with volt-free contacts enable the valve position indication
- Up to the maximum switch rating, relays or indicator lights for fire alarm systems can be used
- One limit switch each is required for damper blade positions OPEN and CLOSED
- Fire protection valves can be supplied with one or two limit switches; the switches can also be fitted later
- Limit switches require an extension piece

/ Z04
/ Z05
/ Z06
/ Z07
6

Order code detail

Attachments	Order code
Extension piece	Z04
Extension piece Z04 and limit switch for indicating CLOSED	Z05
Extension piece Z04 and limit switch for indicating OPEN	Z06
Extension piece Z04 and limit switches for indicating CLOSED and OPEN	Z07

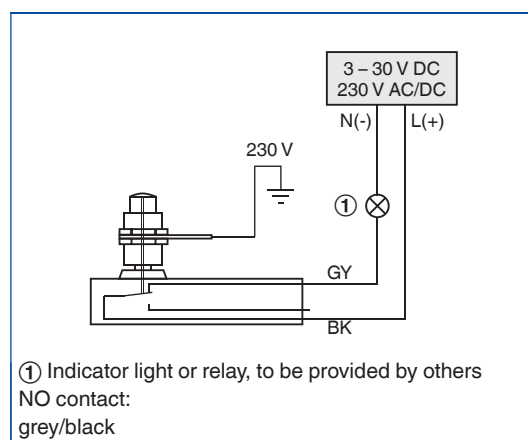
Technical data

Limit switch

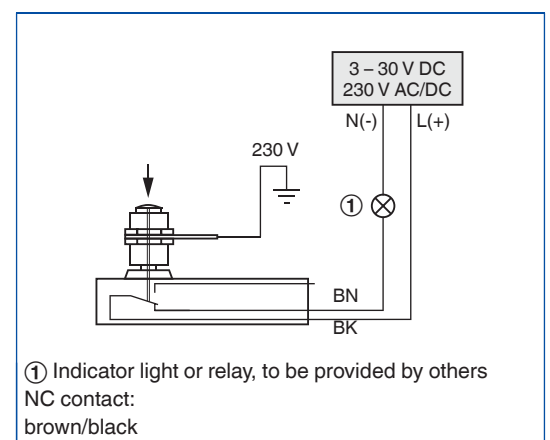
Connecting cable length/cross section	2 m/3 × 0.75 mm ²
Protection level	IP 56
IEC protection class	I with protective earth; III without protective earth
Maximum switching current	5 A
Maximum switching voltage	30 V DC, 250 V AC

Wiring Examples

CLOSED or OPEN position reached – limit switch is actuated



CLOSED or OPEN position not reached – limit switch is not actuated



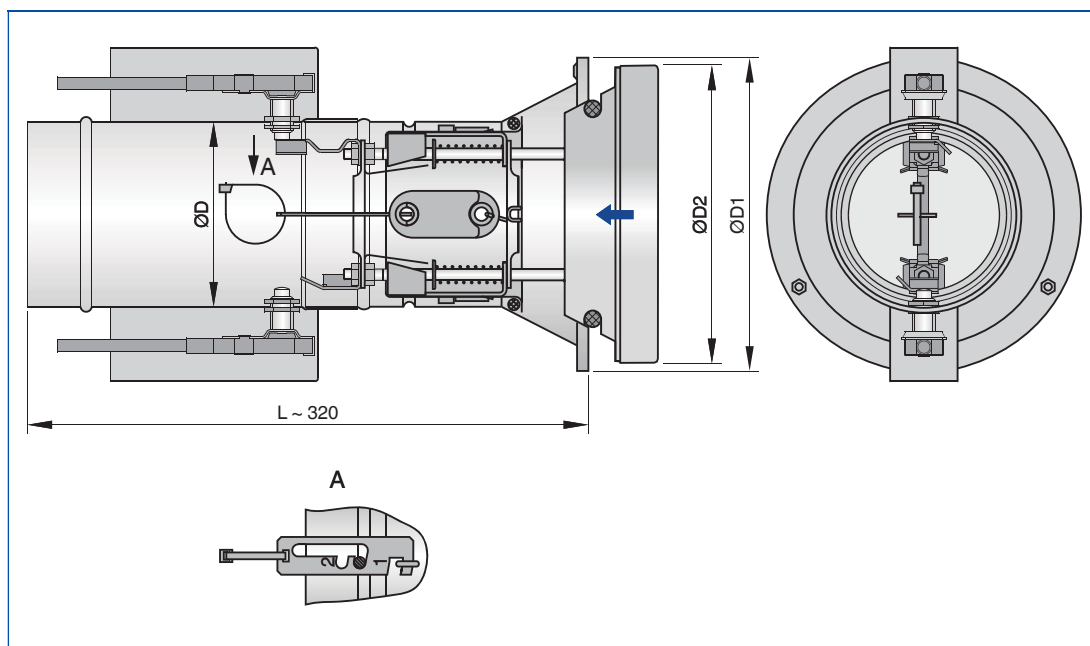
Description

1



FV-EU with fusible link

FV-EU with extension piece and limit switch



Dimensions [mm] / Weight [kg]

Nominal size	100	125	160	200
ØD	98	123	158	198
ØD1	164	189	224	264
ØD2	158	183	218	258
Weight	1.7	2.2	3.0	4.0

Description

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

Fire protection valve for the isolation of duct penetrations between fire compartments. For use in supply air and extract air systems; with two-stage adjustment device for adjusting the air volume. Ready-for-operation unit, which includes a fire-resistant valve cone and a release mechanism. Tested for fire resistance properties to EN 1366-2, with CE marking and declaration of performance according to the Construction Products Regulation. For mortar-based installation into solid walls and ceiling slabs, and into lightweight partition walls with metal support structure and cladding on both sides. Casing length of 150 mm, or 320 mm with extension piece. For the connection to ducts made of non-combustible or combustible materials. Thermal release at 72 °C.

Special characteristics

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

Materials and surfaces

- Installation subframe, spigot and valve disc made of sheet steel
- Installation subframe and spigot with stove-enamelled finish, black
- Exposed surface of valve disc powder-coated RAL 9010
- Valve cone made of special insulation material
- Seal made of polyurethane
- Attachments made of galvanised steel
- Increased corrosion protection due to powder-coated casing

Technical data

- Nominal sizes: Ø 100, 125, 160, 200 mm
- Casing length: 150 mm, or 320 mm with extension piece
- Release temperature: 72 °C
- Operating temperature: 10 to 50 °C
- Volume flow rate range: Extract air up to 350 m³/h or supply air up to 400 m³/h

Sizing data

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

Order options

1 Type

FV-EU Fire protection valve

2 Country of destination

- DE** Germany
- Other destination countries upon request

3 Nominal size [mm]

- 100**
- 125**
- 160**
- 200**

4 Accessories

- No entry: none
- R** Trim ring - circular
- Q** Trim ring - square

5 Attachments

- Z04 – Z07**



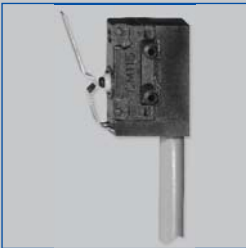
Spring return actuator
BLF230-T TR/BLF24-T-ST TR



Spring return actuator
BF230-T TR/BF24-T-ST TR



Explosion-proof actuator
ExMax-15-BF TR/
RedMax15-BF TR



Limit switch



Limit switch (explosion-proof)

Attachments for fire dampers

Limit switches/ spring return actuators



Attachments for fire dampers

- Limit switches
- Explosion-proof limit switches
- Spring return actuator BF230-T TR
- Spring return actuator BLF230-T TR
- Spring return actuator BF24-T-ST TR
- Spring return actuator BLF24-T-ST TR
- Spring return actuator BF230-T-2 TR
- Spring return actuator BF24-T-ST-2 TR
- Explosion-proof spring return actuator ExMax-15-BF TR
- Explosion-proof spring return actuator RedMax-15-BF TR

Type		Page
Attachments	General information	1.2 – 2
	Special information – Limit switches	1.2 – 3
	Special information – Explosion-proof limit switches	1.2 – 4
	Special information – Spring return actuator	1.2 – 5
	Special information – Explosion-proof spring return actuator	1.2 – 9
	Basic information and nomenclature	1.3 – 1

Description

General information

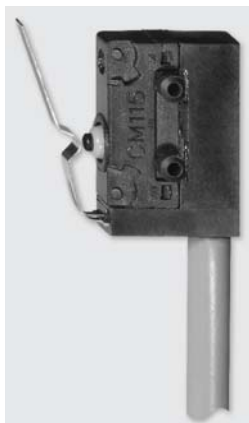
Any attachments are defined with the order code of the fire damper.

Attachments for fire dampers

Order code detail	Attachments	Type	Type of fire damper
Z01	Limit switch	Limit switch for damper blade position CLOSED	① ② ③ ④ ⑤
Z02	Limit switch	Limit switch for damper blade position OPEN	① ② ③ ④ ⑤
Z03	Limit switch	Limit switches for damper blade positions CLOSED and OPEN	① ② ③ ④ ⑤
Z01EX	Limit switch (explosion-proof)	Limit switch (explosion-proof) Damper blade CLOSED	①
Z02EX	Limit switch (explosion-proof)	Limit switch (explosion-proof) Damper blade OPEN	①
Z03EX	Limit switch (explosion-proof)	Limit switches (explosion-proof) Damper blade CLOSED and OPEN	①
Z08	Spring return actuator	BLF230-T TR	⑤
Z09	Spring return actuator	BLF24-T-ST TR	⑤
Z43	Spring return actuator	BLF230-T TR, BF230-T TR, BF230-T-2 TR ¹	① ② ③ ④
Z45	Spring return actuator	BLF24-T-ST TR, BF24-T-ST TR, BF24-T-ST-2 TR ¹	① ② ③ ④
ZEX1	Spring return actuator (explosion-proof)	ExMax-15-BF TR	① ③
ZEX3	Spring return actuator (explosion-proof)	RedMax-15-BF TR	① ③

- ① FK-EU
- ② FKS-EU
- ③ FKR-EU
- ④ FKRS-EU
- ⑤ KU-K30
- ¹ Only with FKR-EU

Description



Limit switch

Application

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

/ Z01
/ Z02
/ Z03

Order code detail

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

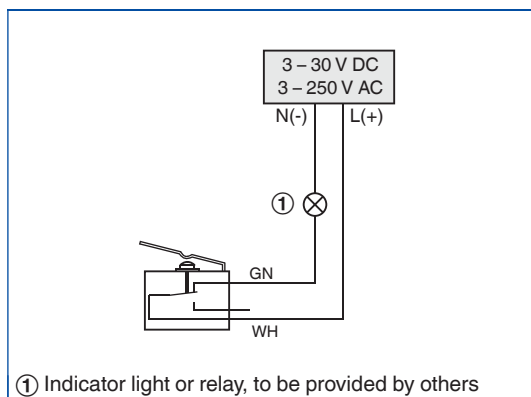
Technical data

Limit switch

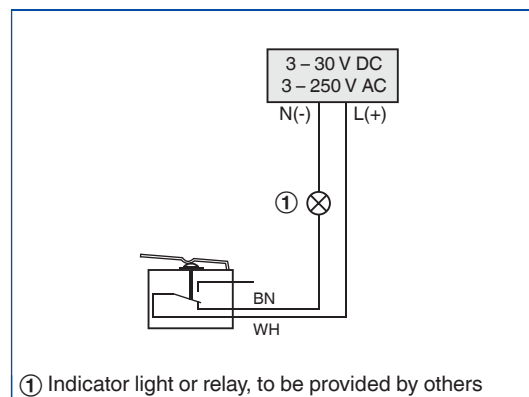
Connecting cable length/cross section	1 m/3 × 0.34 mm ²
Protection level	IP 66
Type of contact	1 changeover contact, gold-plated
Maximum switching current	0.5 A
Maximum switching voltage	30 V DC, 250 V AC
Minium switch rating	5 mA, 3 V
Contact resistance	Aprox. 30 mΩ

Wiring Examples

Limit switch not actuated



Limit switch actuated



Description

1



Limit switch (explosion-proof)

Application

- Explosion-proof 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
 - 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

/ Z01EX
/ Z02EX
/ Z03EX
7

Order code detail

Attachments	Order code
Limit switch (explosion-proof) for damper blade position CLOSED	Z01EX
Limit switch (explosion-proof) for damper blade position OPEN	Z02EX
Limit switches (explosion-proof) for damper blade positions CLOSED and OPEN	Z03EX



ATEX certification

ATEX areas of application

Release mechanism	Marking	Ambient temperature	Maximum airflow velocity
Fusible link and limit switch	II 2D c T80 °C/II 2G c IIC T6	-20 to 40 °C	8 m/s

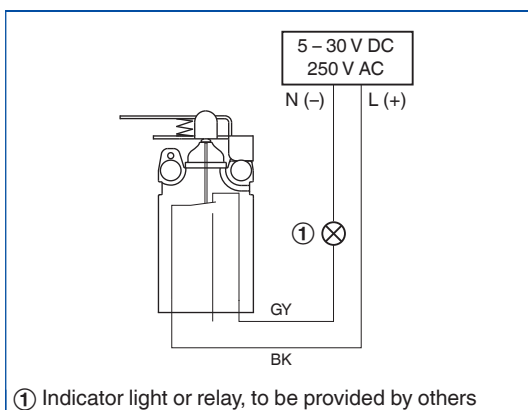
Technical data

Limit switch (explosion-proof)

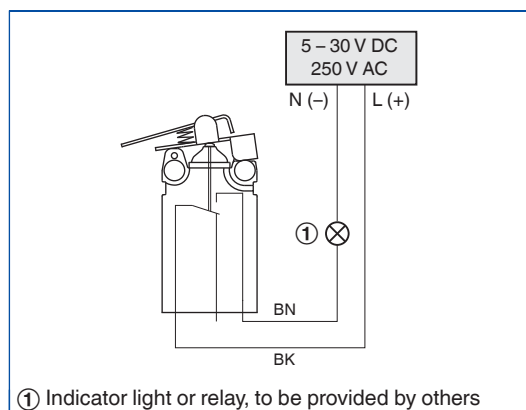
Connecting cable length/cross section	1 m/3 × 0.75 mm ²
Protection level	IP 66
Type of contact	1 changeover contacts
Switch rating, resistive load	250 V AC/5 A, 250 V DC/0,4 A 30 V AC/DC/7 A
Switch rating, inductive load	250 V AC/3 A 250 V DC/0,03 A 30 V AC/DC/5 A

Wiring Examples

Limit switch not actuated



Limit switch actuated



1 Description



Spring return actuator
BLF230-T TR



Spring return actuator
BF230-T TR

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
- The actuator includes two limit switches
- A conversion kit is available for adding an actuator to the standard construction (except for Type KU-K30)

/ Z43

Order code detail

Attachments	Order code
B(L)F230-T TR BF230-T-2 TR ¹	Z43

Spring return actuator BLF for FK-EU in sizes up to B x H = 800 x 400 mm.

Spring return actuator BF for FK-EU in sizes from B x H = 801 x 401 mm.

¹ Only with FKR-EU

Technical data

Spring return actuator BLF230-T TR

Supply voltage		230 V AC ±14 % 50/60 Hz
Power rating	Spring compression	6 W
	Hold position	3 W
	Rating	7 VA
Running time	Motor / spring return	40 – 75 s/20 s
Limit switch	Type of contact	2 changeover contacts
	Switching voltage	5 – 120 V DC/5 – 250 V AC
	Switching current	1 mA – 3 A
	Contact resistance	< 100 mΩ
IEC protection class		II (protective insulation)
Protection level		IP 54
EC conformity		EMC to 2004/108/EU, low voltage to 2006/95/EU
Connecting cable	Length / Cross section	1 m/2(6*) x 0.75 mm ²

* Limit switch

Technical data

Spring return actuator BF230-T TR / BF230-T-2 TR¹

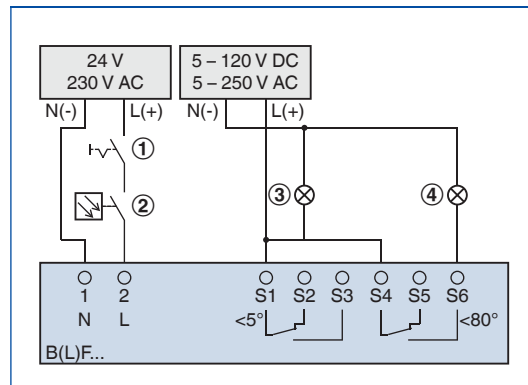
Supply voltage		230 V AC ±14 % 50/60 Hz
Power rating	Spring compression	8 W
	Hold position	3 W
	Rating	12.5 VA
Running time	Motor / spring return	Approx. 140 s/approx. 16 s
Limit switch	Type of contact	2 changeover contacts
	Switching voltage	5 – 120 V DC/5 – 250 V AC
	Switching current	1 mA – 6 A
	Contact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

* Limit switch

¹ Only with FKR-EU

Wiring example

Actuator B(L)F, CLOSED



- ① Switch for opening and closing, to be provided by others
- ② Optional duct smoke detector, e.g. RM-O-3-D or RM-O-VS-D
- ③ Indicator light for CLOSED position, to be provided by others
- ④ Indicator light for OPEN position, to be provided by others

1 Description



Spring return actuator
BLF-24-T-ST TR



Spring return actuator
BF24-T-ST TR

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
- The actuator includes two limit switches
- The connecting cables of the BLF and B(L)F24-T-ST TR spring return actuators are fitted with plugs. This ensures quick and easy connection to the TROX AS-i bus system
- A conversion kit is available for adding an actuator to the standard construction (except for Type KU-K30)

/ Z45

Order code detail

Attachments	Order code
B(L)F24-T-ST TR BF24-T-ST-2 TR ¹	Z45

Spring return actuator BLF for FK-EU in sizes up to B x H = 800 x 400 mm.

Spring return actuator BF for FK-EU in sizes from B x H = 801 x 401 mm.

¹ Only with FKR-EU

Technical data

Spring return actuator BLF24-T-ST TR

Supply voltage		24 V AC ±20 % 50/60 Hz or 24 V DC –10 %/+20 %
Power rating	Spring compression	5 W
	Hold position	2.5 W
	Rating	7 VA
Running time	Motor / spring return	40 – 75 s/20 s
Limit switch	Type of contact	2 changeover contacts
	Switching voltage	5 – 120 V DC/5 – 250 V AC
	Switching current	1 mA – 3 A
	Contact resistance	< 100 mΩ
IEC protection class		III (protective extra-low voltage)
Protection level		IP 54
EC conformity		EMC according to 2004/108/EC
Connecting cable	Length / cross section	1 m/2(6*) x 0.75 mm ²

* Limit switch

Technical data

Spring return actuator BF24-T-ST TR / BF24-T-ST-2 TR¹

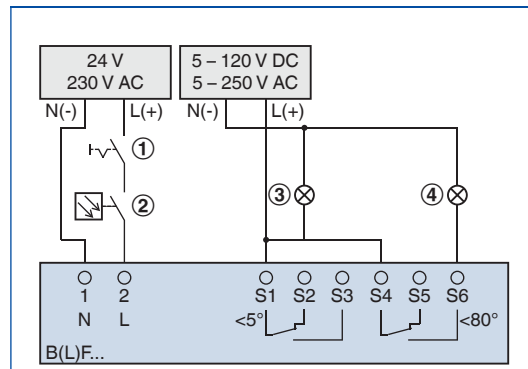
Supply voltage		24 V AC ±20 % 50/60 Hz or 24 V DC -10 %/+20 %
Power rating	Spring compression	7 W
	Hold position	2 W
	Rating	10 VA
Running time	Motor / spring return	Approx. 140 s/approx. 16 s
Limit switch	Type of contact	2 changeover contacts
	Switching voltage	5 – 120 V DC/5 – 250 V AC
	Switching current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

* Limit switch

¹ Only with FKR-EU

Wiring example

Actuator B(L)F, CLOSED



- ① Switch for opening and closing, to be provided by others
- ② Optional duct smoke detector, e.g. RM-O-3-D or RM-O-VS-D
- ③ Indicator light for CLOSED position, to be provided by others
- ④ Indicator light for OPEN position, to be provided by others

Description



Explosion-proof actuator
ExMax-15-BF TR/
RedMax-15-BF TR

Application

- In supply air and extract air systems of areas with potentially explosive atmospheres 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
- The actuator includes two limit switches

The electrical connection is made in the explosion-proof terminal box.

/ ZEX1
/ ZEX3



Order code detail

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



ATEX certification

ATEX areas of application

Release mechanism	Attachments	Marking	Ambient temperature
ExPro-TT	ExMax-15-BF TR	II 2D c T80 °C II 2G c IIC T6	-40 to 40 °C
	RedMax-15-BF TR	II 3D c T80 °C II 3G c IIC T6	-40 to 40 °C

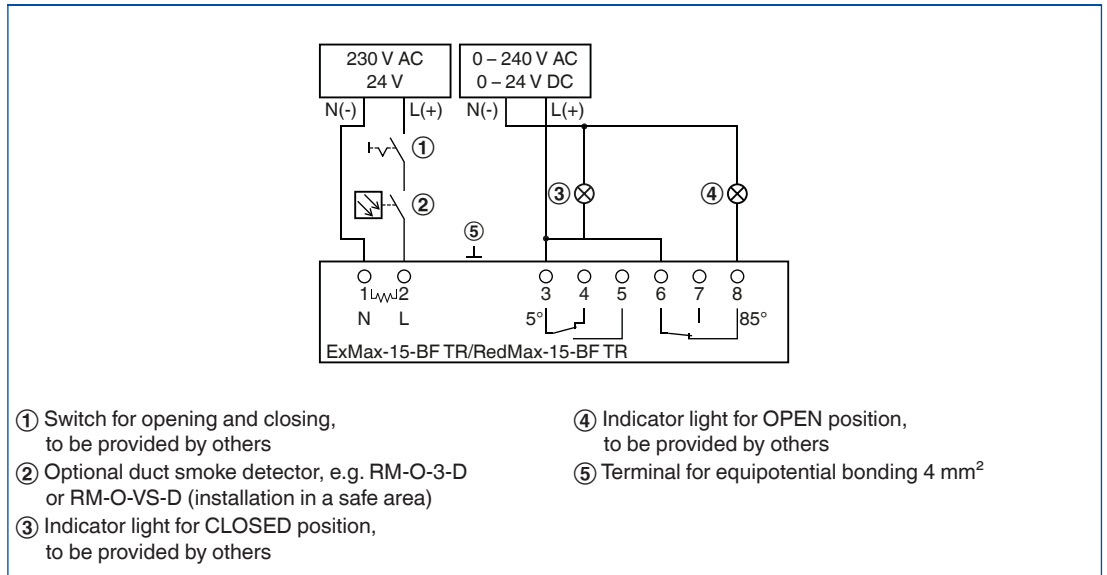
Technical data

Spring return actuator ExMax-15-BF TR/RedMax-15-BF TR

Supply voltage		24 – 240 V AC/DC, ±10 %, self-adjusting 50 – 60 Hz ±20 %
Power rating		Max. 20 W blocking, approx. 16 W heating operation
Switch-on current (< 1 s)		2 A
Running time	Motor / spring return	Approx. 30 s/approx. 10 s
Limit switch	Type of contact	2 changeover contacts
	Switching voltage	230 V AC/24 V DC
	Switching current	0.5 A/3 A
IEC protection class		I (protective earth)
Protection level		IP 66
EC conformity		EMC to 2004/108/EG, low voltage to 2006/95/EG, ATEX to 94/9/EG

Wiring example

ExMax/RedMax actuator, CLOSED



Fire dampers

Basic information and nomenclature



- Product selection
- Principal dimensions
- Nomenclature
- Colour codes according to IEC 60757
- Sizing

Fire dampers

Basic information and nomenclature

Product selection

Fire dampers

Usage			Type							
Installation location	Construction/ building material	Minimum thickness	FK-EU				FKS-EU		FKR-EU	
			Mortar-based installation		Dry mortarless installation		Mortar-based installation	Dry mortarless installation	Mortar-based installation	Dry mortarless installation
		perimeter	partially ⁵	Fire batt	Installation kit ²	perimeter	Installation kit ²	perimeter	Installation kit ²	
		mm	Fire resistance class							
In solid walls	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	EI 90 S	EI 120 S	EI 90 S	EI 120 S	EI 90 S	EI 120 S	-
In solid walls with movement joint	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	-	-	-	-	-	-	-
On the face of solid walls	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	-	-	-	EI 90 S	-	-	-	-
Adjacent to solid walls ¹	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	-	-	-	EI 90 S	-	-	-	-
Remote from solid walls ¹	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	-	-	-	EI 90 S	-	-	-	-
In solid ceiling slabs	Ceiling slabs/gross density $\geq 600 \text{ kg/m}^3$	125	EI 90 S	-	-	-	-	-	-	-
	Ceiling slabs/gross density $\geq 600 \text{ kg/m}^3$	150	EI 90 S	-	EI 120 S	-	EI 120 S	EI 90 S	EI 120 S	-
In solid ceiling slabs, with concrete base	Ceiling slabs/gross density $\geq 600 \text{ kg/m}^3$	125	EI 90 S	-	-	-	EI 90 S	-	EI 90 S	-
Lightweight partition walls with metal support structure and cladding on both sides	Lightweight partition walls	100	EI 90 S	-	EI 120 S	EI 90 S	EI 90 S	EI 90 S	EI 90 S	EI 90 S
Lightweight partition walls with metal support structure and cladding on both sides, flexible ceiling joint ¹	Lightweight partition walls	100	-	-	-	EI 90 S	-	-	-	-
Fire walls with metal support structure and cladding on both sides	Fire walls	115	EI 90 S	-	-	EI 90 S	EI 90 S	EI 90 S	EI 90 S	EI 90 S
Lightweight partition walls with metal support structure and cladding on one side	Shaft walls	90	-	-	-	EI 90 S	EI 90 S	EI 90 S	EI 90 S	EI 90 S
Lightweight partition walls without metal support structure but with cladding on one side	Shaft walls	40 or 50 ⁴	-	-	-	EI 90 S	-	-	EI 90 S	EI 90 S
In self supporting fire-resistant suspended ceilings	Tile ceilings, screw-fixed and primed	-	-	-	-	-	-	-	-	-
	Lay-in ceiling tiles made of panel materials	-	-	-	-	-	-	-	-	-
	Metal ceilings	-	-	-	-	-	-	-	-	-

¹ Not for FK-EU as air transfer damper

² Installation kit for the selected installation situation

³ For ØDN 100 to 200 in lightweight partition wall with metal support structure and mineral wool

⁴ 50 only for FKR-EU

⁵ Additional mineral wool

Fire dampers

Basic information and nomenclature

Product selection

Fire dampers

1

Usage			Type						
Installation location	Construction/building material	Minimum thickness	FKRS-EU			FV-EU	KA-EU	FVZ-K30	KU-K30
			Mortar-based installation	Dry mortarless installation		Mortar-based installation			Dry mortarless installation
				perimeter	Fire batt	Installation kit ²	perimeter	Mortar-based installation	
			mm		Fire resistance class				
In solid walls	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	EI 120 S	EI 120 S ³ , EI 90 S	EI 90 S	EI 120 S	K90	-	-
In solid walls with movement joint	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	-	-	-	-	-	-	-
On the face of solid walls	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	-	EI 90 S	-	-	-	-
Adjacent to solid walls ¹	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	-	-	-	-	-	-	-
Remote from solid walls ¹	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	-	-	-	-	-	-	-
In solid ceiling slabs	Ceiling slabs/gross density $\geq 600 \text{ kg/m}^3$	125	-	-	-	-	-	-	-
	Ceiling slabs/gross density $\geq 600 \text{ kg/m}^3$	150	EI 120 S	EI 120 S ³ , EI 90 S	EI 90 S	EI 120 S	K90	-	-
In solid ceiling slabs, with concrete base	Ceiling slabs/gross density $\geq 600 \text{ kg/m}^3$	125	-	-	-	-	-	-	-
Lightweight partition walls with metal support structure and cladding on both sides	Lightweight partition walls	100	EI 120 S ³ , EI 90 S	EI 120 S ³ , EI 90 S	EI 120 S ³ , EI 90 S	EI 120 S	K90	-	-
Lightweight partition walls with metal support structure and cladding on both sides, flexible ceiling joint ¹	Lightweight partition walls	100	-	-	EI 90 S	-	-	-	-
Fire walls with metal support structure and cladding on both sides	Fire walls	115	EI 90 S	-	EI 90 S	-	K90	-	-
Lightweight partition walls with metal support structure and cladding on one side	Shaft walls	90	EI 90 S	-	EI 90 S	-	-	-	-
Lightweight partition walls without metal support structure but with cladding on one side	Shaft walls	40 or 50 ⁴	-	-	-	-	-	-	-
In self supporting fire-resistant suspended ceilings	Tile ceilings, screw-fixed and primed	-	-	-	-	-	-	K30-U	K30-U
	Lay-in ceiling tiles made of panel materials	-	-	-	-	-	-	K30-U	K30-U
	Metal ceilings	-	-	-	-	-	-	K30-U	K30-U

¹ Not for FK-EU as air transfer damper

² Installation kit for the selected installation situation

³ For ØDN 100 to 200 in lightweight partition wall with metal support structure and mineral wool

⁴ 50 only for FKR-EU

⁵ Additional mineral wool

Fire dampers

Basic information and nomenclature

1

Principal dimensions

Rectangular fire dampers

Circular fire dampers

B [mm]
Width of the fire damper

Nominal size [mm]
Diameter of the fire damper

H [mm]
Height of the fire damper

L [mm]
Length of the fire damper

Nomenclature

\dot{V} [m³/h] and [l/s]
Volume flow rate

Δp_{st} [Pa]
Static differential pressure

L_{WA} [dB(A)]
A-weighted sound power level of air-regenerated noise for the fire damper

v [m/s]
Airflow velocity based on the upstream cross section (B × H or diameter)

A [m²]
Free area

K
Correction value

ζ
Resistance coefficient (fully ducted)

Wiring

Colour codes according to IEC 60757

Colour codes according to IEC 60757

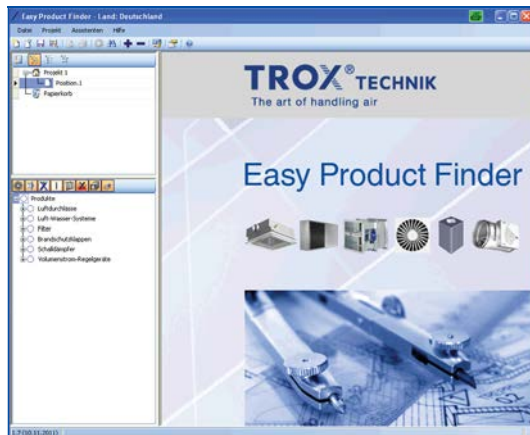
Code	Colour
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue

Code	Colour
VT	violet
GY	grey
WH	white
PK	pink
TQ	turquoise
GNYE	green-yellow

Sizing with the help of this catalogue

This catalogue provides convenient quick sizing tables for fire dampers. The volume flow rates for all available dimensions and nominal sizes are provided based on a particular differential pressure. Sizing data for other volume flow rates and differential pressures can be determined quickly and precisely using the Easy Product Finder design programme.

Easy Product Finder





The Easy Product Finder allows you to size products using your project-specific data.

You will find the Easy Product Finder on our website.



2 Smoke protection dampers

Smoke protection dampers are used in ventilation plant rooms or in ducts to prevent smoke from spreading. They are suitable for the refurbishment of systems with regard to fire safety and are activated by signals from duct smoke detectors, for example.

2.1	Smoke protection dampers	Type	Page
	To prevent the spreading of smoke	JZ-RS	2.1 – 1
2.2 Basic information and nomenclature			
	Smoke protection dampers		2.2 – 1

Smoke protection dampers

Type JZ-RS



JZ-RS with AS-i module



Smoke protection damper, Type JZ-RS, with installation subframe



JZ-RS with actuator



With TROXNETCOM as an option



To prevent the spreading of smoke

Smoke protection dampers are used in ventilation plant rooms or in ducts to prevent smoke from spreading

- Casing air leakage to EN 1751, class C
- Low differential pressure and sound power level
- Airflow direction is not critical
- Available in standard sizes and many intermediate sizes

Optional equipment and accessories

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

Type		Page
JZ-RS	General information	2.1 – 2
	Order code	2.1 – 5
	Attachments	2.1 – 6
	Installation subframe	2.1 – 11
	Installation details	2.1 – 13
	Quick sizing	2.1 – 14
	Technical data	2.1 – 15
	Dimensions and weight	2.1 – 16
	Dimensions – Duct connection	2.1 – 18
	Specification text	2.1 – 19
	Basic information and nomenclature	2.2 – 1

2

Variants

Product examples

Smoke protection damper JZ-RS-G with actuator



Smoke protection damper with actuator, flange holes on both sides

JZ-RS-G-R with installation subframe



JZ-RS with AS-i module



Description



Smoke protection damper of Type JZ-RS

Application

- Smoke protection dampers of Type JZ-RS are used in ventilation plant rooms or in ducts to prevent smoke from spreading (according to the German guideline regarding fire protection requirements on ventilation systems, LüAR)
- For the refurbishment of systems with regard to fire safety
- Can be triggered by duct smoke detectors with general building inspectorate licence
- Integration into the central BMS with TROXNETCOM

Classification

- Building inspectorate licence Z-78.4-51 from the DIBt, Berlin, Germany
- Casing air leakage to EN 1751, class C
- Closed blade air leakage at a differential pressure of 40 Pa = 200 m³/h per m²
- Long-term testing: 10,000 open/close cycles

Construction

- Galvanised sheet steel, corner holes on both sides, brass bearings
- G: Flange holes on both sides

Nominal sizes

- Standard: B = 400 – 2000 mm (in increments of 200 mm), H = 345 – 1995 mm (in increments of 165 mm)
- R20 sizes: B = 357 – 1998 mm (in R20 increments), H = 357 – 1998 mm (in R20er increments)

Attachments

- Installation subframe ER
- Smoke detector
- TROXNETCOM

Special characteristics

- Low differential pressure and sound power level
- Aerofoil blades
- Low-maintenance, robust construction
- No parts with silicone
- Available in standard sizes and many intermediate sizes
- Closed cell side seals meet increased hygiene requirements

Parts and characteristics

- Frame
- Blade
- Spring return actuator
- External linkage
- Travel stop (angle section), side B
- Side seal, side H

Construction features

- Rectangular casing, welded, material thickness 1.25 mm
- Blades, material thickness 1 mm, opposed action
- Flanges on both sides, suitable for duct connection, either flange holes or corner holes
- Spring return actuator on the 2nd blade (for all sizes)
- Control input signal from the central BMS or TROXNETCOM
- External linkage, robust and durable, consisting of the coupling rod and horizontal arms
- Blade shafts, Ø12 mm, with notch to indicate the blade position
- Construction and materials comply with the EU directive and guidelines for use in potentially explosive atmospheres (ATEX)
- Side seals between the regular blades and the frame
- Travel stop (angle section) ensures tight closure of the top and bottom blades

Materials and surfaces

- Casing, blades and travel stop (angle section) made of formed galvanised sheet steel; flanges on both sides with corner holes
- Blade shafts, drive arm and external linkage made of galvanised steel
- Side seal made of stainless steel
- Brass bearings

Installation and commissioning

- Installation position is independent of the airflow direction
- With horizontal blades
- Between ducts
- On walls and ceilings (with installation subframe)
- With or without installation subframe
- Torsion-free installation
- After installation the damper must remain accessible for inspection, cleaning and repair
- Connected ducts must have an inspection access

Standards and guidelines

- German 'Bau- und Prüfgrundsätze' [Principles of Construction and Testing], 2/84 edition
- Maintenance standards DIN 31051 and EN 13305

Maintenance

- Smoke protection dampers and duct smoke detectors must be maintained regularly and must be operational at all times
- To maintain the normal function of the unit, or to re-instate its normal function, maintenance standards DIN 31051 and EN 13305 must be complied with
- Smoke protection dampers must be maintained at least every 12 months
- A maintenance report must be created; documents must be kept for reference
- Maintenance-free as construction and materials are not subject to wear

Technical data

Nominal sizes	357 × 345 to 2000 × 1998 mm
Volume flow rate range	200 – 40,000 l/s or 720 – 143,640 m ³ /h
Maximum static differential pressure	Up to 3000 Pa
Operating temperature	–20 to 150 °C

Function

Functional description

Smoke protection dampers with external linkage have opposed action blades. An external linkage transfers the synchronous rotational movement from the drive arm to the individual blades. Even large dampers can be safely opened and closed with this type of linkage. Opposed action blades close at different speeds since the linkage includes a transverse link. This facilitates the closing process and reduces the closed blade air leakage.

Schematic illustration of JZ-RS

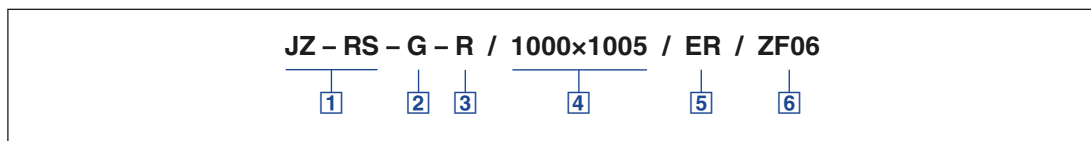


Schematic illustration of JZ-RS with installation subframe



Order code

JZ-RS



1 Type

JZ-RS Smoke protection damper

2 Construction

No entry: standard construction
G Flange holes on both sides

3 Drive side

R Right side
L Left side
(If the drive side is not specified with the order, R will be supplied.)

4 Nominal size [mm]

B × H

5 Installation subframe

No entry: none
ER With (only for construction G)

6 Attachments

Spring return actuator (power off to close), IP 54
ZF06 24 V AC / DC
ZF07 24 – 240 V AC
ZF08 24 V AC / DC, with limit switches
ZF09 24 – 240 V AC, with limit switches
Actuator without spring return (power off to close), IP 54
ZF10 24 V AC / DC

Order example

JZ-RS-G-L/600x1500/ER/ZF10

Construction	Flange holes on both sides
Drive side	Left side
Nominal size	600 × 1500 mm
Installation subframe	With
Attachments	Spring return actuator, actuator without spring return SF24A-SR, power off to close

Description

/ ZF06 / N...

Order code detail

Application

- Spring return actuator SF24A
- Opening and closing with safety function
- Safety position of the smoke protection damper: NC (power off to close)

Parts and characteristics

- Supply voltage 24 V AC/DC
- Control input signal: Supply voltage on/off
- Mechanical stops

2

Technical data



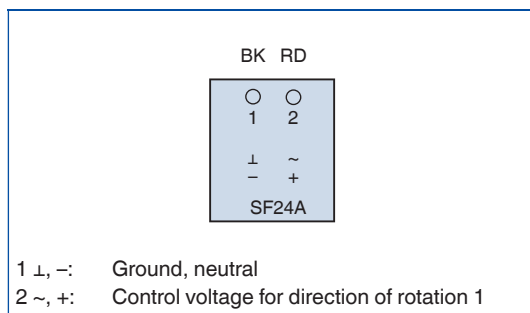
Actuator SF24A

Actuator SF24A

Supply voltage (AC)	24 V AC ± 20 %, 50/60 Hz
Supply voltage (DC)	24 V DC -10 %, +20 %
Power rating (AC)	7 VA max.
Power rating (DC)	5 W max.
Torque	20 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (for < -20 °C up to 60 s)
Control input signal	Supply voltage on/off
Connecting cable	2 × 0.75 mm ² , 1 m long
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC according to 2004/108/EC
Operating temperature	-30 to 50 °C
Weight	2.1 kg

Wiring

Connecting cable core identification



Description

/ ZF07 / N...

Order code detail

Application

- Spring return actuator SFA
- Opening and closing with safety function
- Safety position of the smoke protection damper: NC (power off to close)

Parts and characteristics

- Supply voltage 24 – 240 V AC or 24 – 125 V DC
- Control input signal: Supply voltage on/off
- Mechanical stops

Technical data



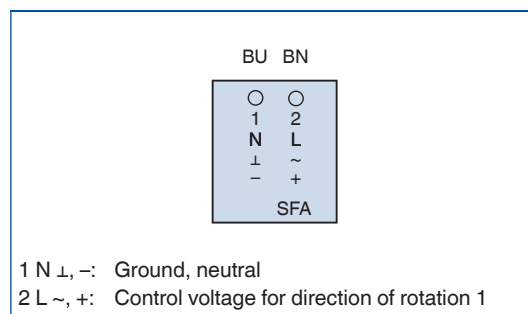
Actuator SFA

Actuator SFA

Supply voltage (AC)	19.2 – 264 V AC, 50/60 Hz
Supply voltage (DC)	21.6 – 137 V DC
Power rating (AC)	18 VA max.
Power rating (DC)	7 W max.
Torque	20 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (for < -20 °C up to 60 s)
Control input signal	Supply voltage on/off
Connecting cable	2 × 0.75 mm ² , 1 m long
IEC protection class	II (protective insulation)
Protection level	IP 54
EC conformity	EMC to 2004/108/EU, low voltage to 2006/95/EU
Operating temperature	-30 to 50 °C
Weight	2.2 kg

Wiring

Connecting cable core identification



Description

/ ZF08 / N...

Order code detail

Application

- Spring return actuator SF24A-S2 with integral auxiliary switches
- Opening and closing with safety function
- Safety position of the smoke protection damper: NC (power off to close)

Parts and characteristics

- Supply voltage 24 V AC/DC
- Control input signal: Supply voltage on/off
- Mechanical stops
- Two auxiliary switches with volt-free contacts for signalling or activating switch functions
- Fixed auxiliary switch, switching point 10 %
- Adjustable auxiliary switch, switching point 10 – 90 %

Technical data



Actuator SF24A-S2

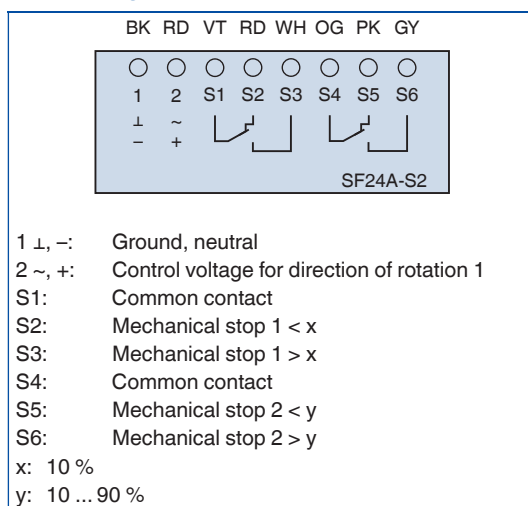
Actuator SF24A-S2

Supply voltage (AC)	24 V AC ± 20 %, 50/60 Hz
Supply voltage (DC)	24 V DC ±10 %
Power rating (AC)	7.5 VA max.
Power rating (DC)	5 W max.
Torque	20 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (< -20 °C max. 60 s)
Control input signal	Supply voltage on/off
Auxiliary switch: type of contact	2 changeover contacts ¹⁾
Max. switching voltage (AC)	250 V AC
Max. switching current (AC)	3 A (resistive load); 0.5 A (inductive load)
Max. switching voltage (DC)	110 V DC
Max. switching current (DC)	0.5 A (resistive load); 0.2 A (inductive load)
Connecting cable – actuator	2 × 0.75 mm ² , 1 m long
Connecting cable – auxiliary switch	6 × 0.75 mm ² , 1 m long
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC to 2004/108/EU, low voltage to 2006/95/EU
Operating temperature	-30 to 50 °C
Weight	2.3 kg

¹⁾ If both auxiliary switches are used the switching voltages must be the same

Wiring

Connecting cable core identification



Description

/ ZF09 / N...

Order code detail

Application

- Spring return actuator SFA-S2 with integral auxiliary switches
- Opening and closing with safety function
- Safety position of the smoke protection damper: NC (power off to close)

Parts and characteristics

- Supply voltage 24 – 240 V AC or 24 – 125 V DC
- Control input signal: Supply voltage on/off
- Mechanical stops
- Two auxiliary switches with volt-free contacts for signalling or activating switch functions
- Fixed auxiliary switch, switching point 10 %
- Adjustable auxiliary switch, switching point 10 – 90 %

Technical data



Actuator SFA-S2

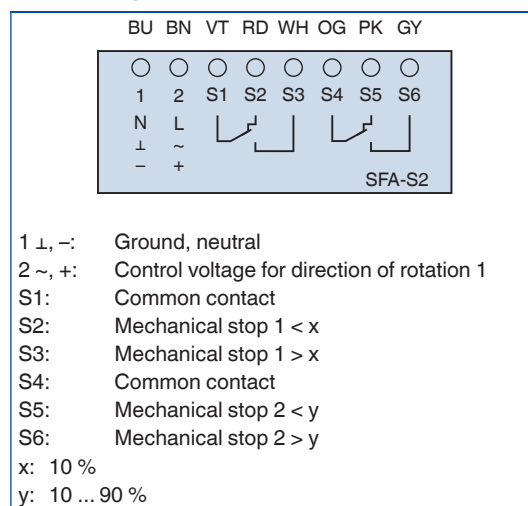
Spring return actuator SFA-S2

Supply voltage (AC)	19.2 – 264 V AC, 50/60 Hz
Supply voltage (DC)	21.6 – 137 V DC
Power rating (AC)	18 VA max.
Power rating (DC)	7 W max.
Torque	20 Nm
Motor running time for 90°	< 75 s
Spring return time	20 s (< -20 °C max. 60 s)
Control input signal	Supply voltage on/off
Auxiliary switch: type of contact	2 changeover contacts ¹⁾
Max. switching voltage (AC)	250 V AC
Max. switching current (AC)	3 A (resistive load); 0.5 A (inductive load)
Max. switching voltage (DC)	110 V DC
Max. switching current (DC)	0.5 A (resistive load); 0.2 A (inductive load)
Connecting cable – actuator	2 × 0.75 mm ² , 1 m long
Connecting cable – auxiliary switch	6 × 0.75 mm ² , 1 m long
IEC protection class	II (protective insulation)
Protection level	IP 54
EC conformity	EMC to 2004/108/EU, low voltage to 2006/95/EU
Operating temperature	-30 to 50 °C
Weight	2.4 kg

¹⁾ If both auxiliary switches are used the switching voltages must be the same

Wiring

Connecting cable core identification



Description

/ ZF10 / NC

Order code detail

Application

- Spring return actuator SF24A-SR
- Stepless adjustment as well as opening and closing of smoke protection dampers with safety function
- Safety position of the smoke protection damper: NC (power off to close)

Parts and characteristics

- Supply voltage 24 V AC/DC
- Control input signal: Setpoint value signal 2 – 10 V DC, corresponds to the total rotation range (90°), working range is limited by mechanical stops
- Output: Actual value signal 2 – 10 V
- Mechanical stops

2

Technical data



Actuator SF24A-SR

Actuator SF24A-SR

Supply voltage (AC)	24 V AC –10 %, + 20 %, 50/60 Hz
Supply voltage (DC)	24 V DC ± 20 %
Power rating (AC)	7 VA max.
Power rating (DC)	5 W max.
Torque	20 Nm
Motor running time for 90°	150 s
Spring return	20 s (for < –20 °C up to 60 s)
Control signal	2 – 10 V DC, R _a > 100 kΩ
Connecting cable	4 × 0.75 mm ² , 1 m long
IEC protection class	III (protective extra-low voltage)
Protection level	IP 54
EC conformity	EMC according to 2004/108/EC
Operating temperature	–30 to 50 °C
Weight	2.1 kg

Wiring

Connecting cable core identification

BK RD WH OG

○	○	○	○
1	2	3	5
⊥	~	Y	U
–	+		
SF24A-SR			

- 1 ⊥, –: Ground, neutral
 2 ~, +: Supply voltage
 3 Y: Setpoint value signal
 4 U: Actual value signal

Description



Smoke protection damper, Type JZ-RS, with installation subframe

... / **ER** / ...

Order code detail

Any accessories are defined with the order code of the smoke protection damper.

Application

- For the installation of smoke protection damper on walls and ceilings
- Simplified installation
- The installation subframe allows for the fast, simple and precise installation of smoke protection damper

Parts and characteristics

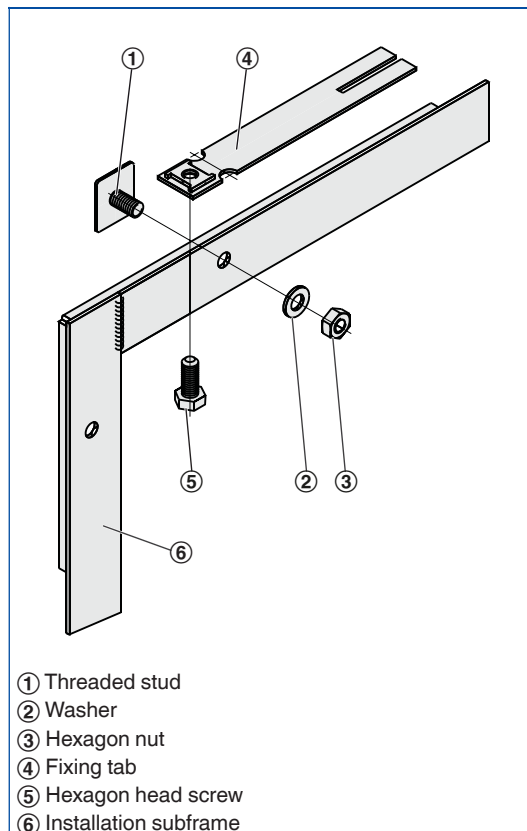
- Installation subframe consisting of angle sections
- Threaded studs
- Washers
- Hexagon nuts
- Fixing tabs

Materials and surfaces

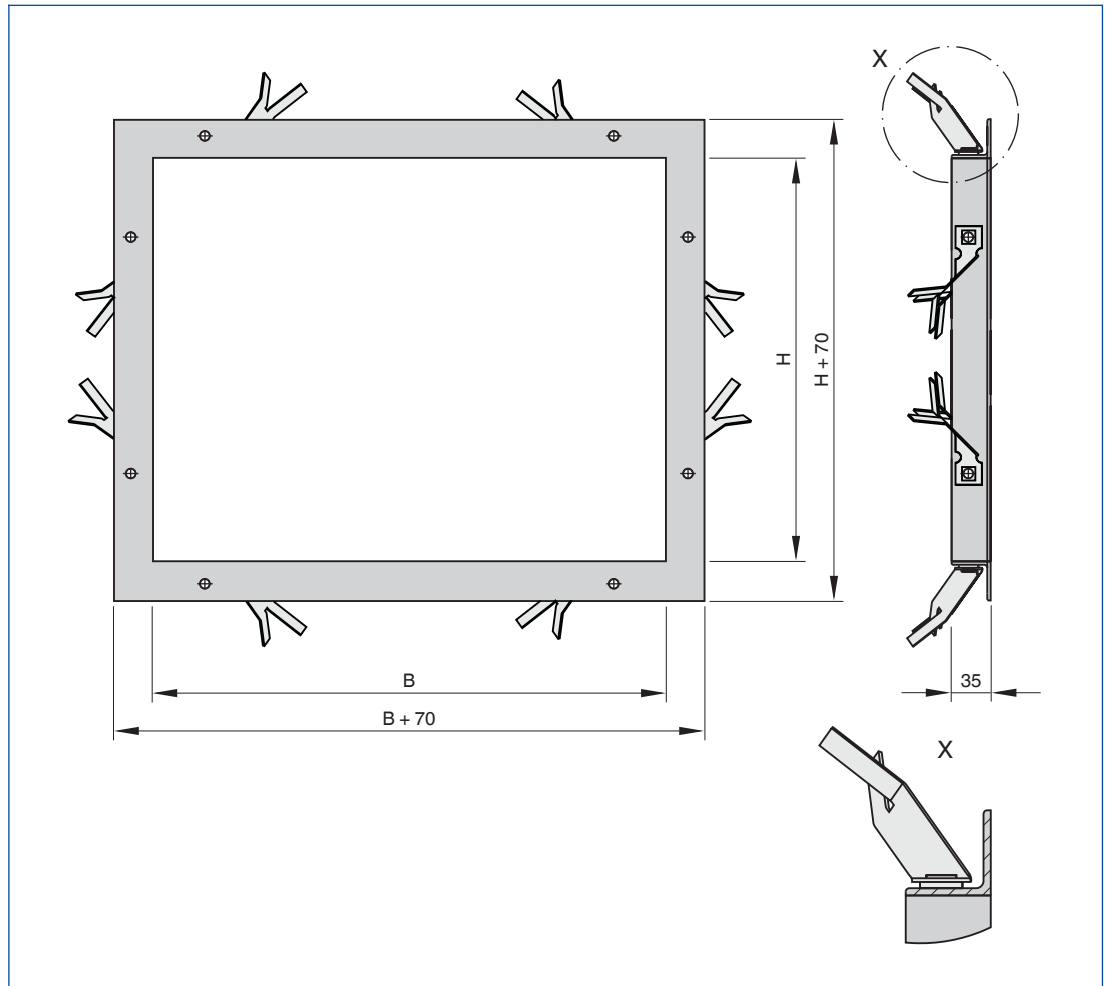
JZ-RS

- Installation subframe made of galvanised steel (angle section 35 × 35 × 3 mm)
- Screw-on fixing tabs, threaded studs, screws, nuts and washers made of galvanised steel

Installation subframe for multileaf dampers and for smoke protection dampers



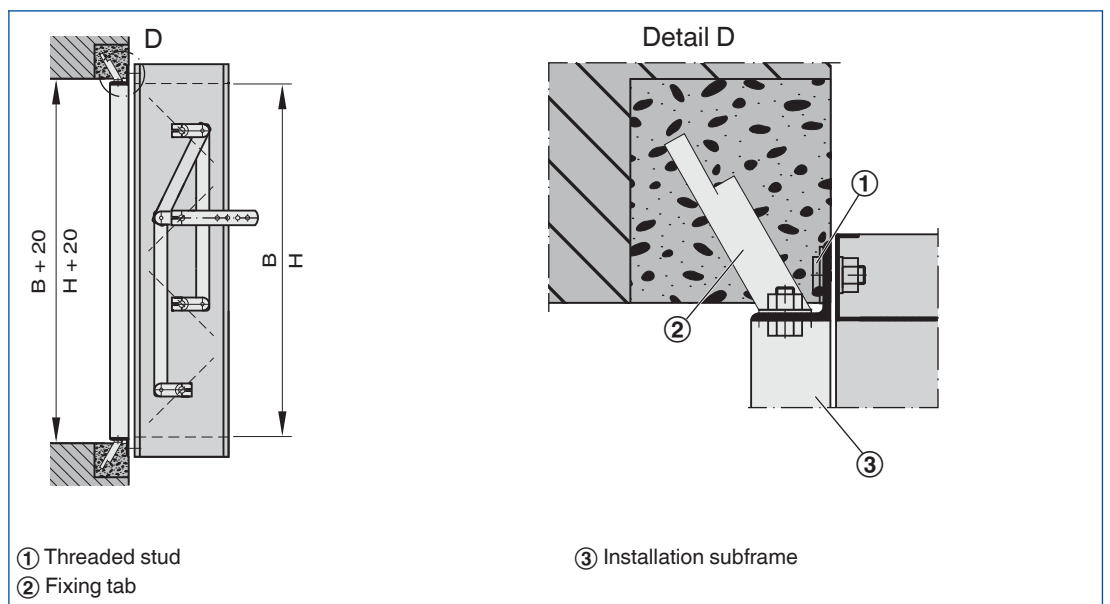
Installation subframe ready to be mortared in



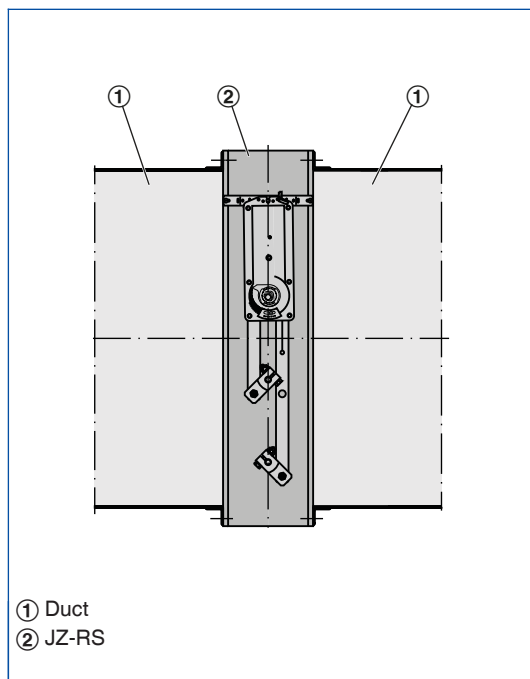
2

Before the subframe is mortared in, the fixing tabs must be bent and spread (by others).

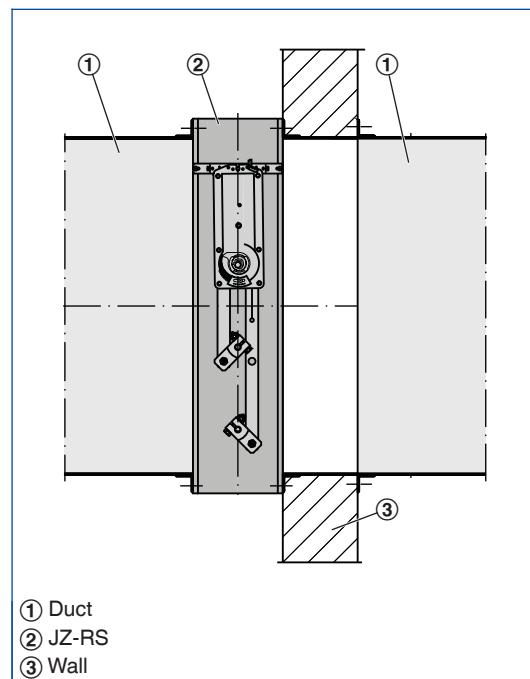
Installation subframe for JZ-RS



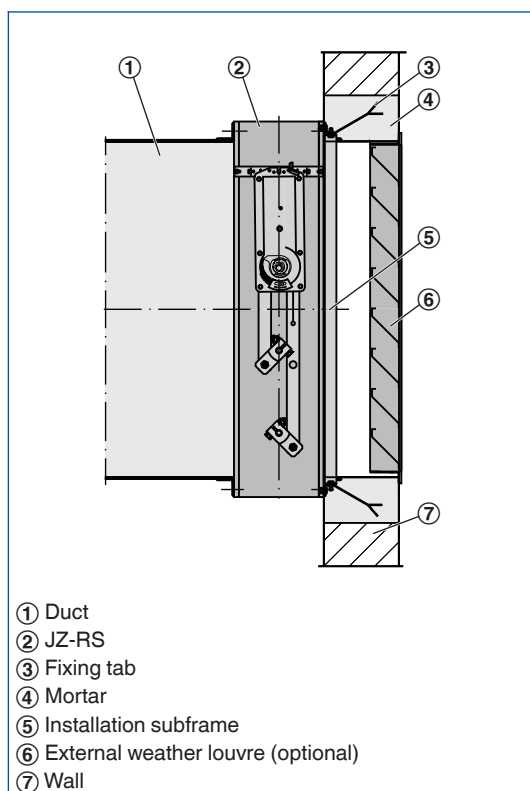
Installation in non-combustible ducts



Installation on the face of walls or ceilings



Installation on the face of walls or ceilings
with installation subframe



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.

Quick sizing – differential pressure and sound power level for JZ-RS

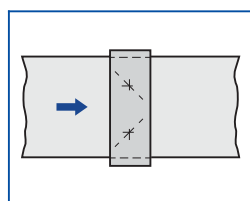
v	Damper blade position α									
	OPEN/0°		20°		40°		60°		80°	
	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}
m/s	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)
0.5	<5	<30	<5	<30	<5	<30	22	44	255	67
1	<5	<30	<5	<30	8	38	85	59	1010	82
2	<5	31	<5	35	28	53	335	74	>2000	>90
4	<5	46	10	50	110	68	1395	89	>2000	>90
6	<5	55	22	59	250	77	>2000	>90	>2000	>90
8	8	61	40	65	440	83	>2000	>90	>2000	>90
10	14	66	60	70	690	88	>2000	>90	>2000	>90

Sound power level for a closed smoke protection damper JZ-RS

Δp_{st}	Area B x H [m ²]							
	0.14	0.2	0.4	0.6	0.8	1.2	2	4
Pa	L_{WA} dB(A)							
100	57	58	61	63	64	64	68	71
200	63	65	68	69	71	71	75	78
500	71	72	76	78	79	79	85	87
1000	78	80	82	84	85	85	89	>90
1500	81	82	86	88	89	89	>90	>90
2000	84	86	89	>90	>90	>90	>90	>90

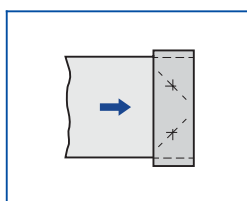
Installation types

Installation type A



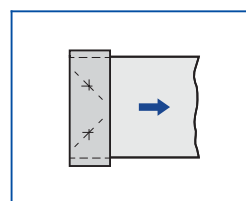
Ducts on both sides

Installation type B



Air discharge

Installation type C



Air intake

Free area

Free area, standard sizes of smoke protection damper JZ-RS

H	B [mm]							
	400	600	800	1000	1200	1400	1600	1800
mm	m ²							
345	0.11	0.17	0.23	0.28	0.34	0.40	0.45	0.51
510	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75
675	0.22	0.33	0.44	0.55	0.66	0.77	0.88	0.99
840	0.27	0.41	0.55	0.69	0.82	0.96	1.10	1.23
1005	0.33	0.49	0.66	0.82	0.98	1.15	1.31	1.47
1170	0.38	0.57	0.76	0.95	1.14	1.33	1.52	1.72
1335	0.43	0.65	0.87	1.09	1.30	1.52	1.74	1.96
1500	0.49	0.73	0.98	1.22	1.47	1.71	1.95	2.20
1665	0.54	0.81	1.08	1.36	1.63	1.90	2.17	2.44
1830	0.60	0.89	1.19	1.49	1.79	2.08	2.38	2.68
1995	0.65	0.97	1.30	1.62	1.95	2.27	2.60	2.92

Intermediate sizes: Intermediate widths can be interpolated

Maximum static differential pressure for a closed smoke protection damper

Construction	Width [mm]						
	800	1000	1200	1400	1600	1800	2000
	[Pa]						
Standard construction	3000	2500	2200	1950	1750	1600	1500

The pressures given are independent of the height of the smoke protection damper

Dimensions

JZ-RS Standard sizes



Smoke protection damper
JZ-RS-G with actuator

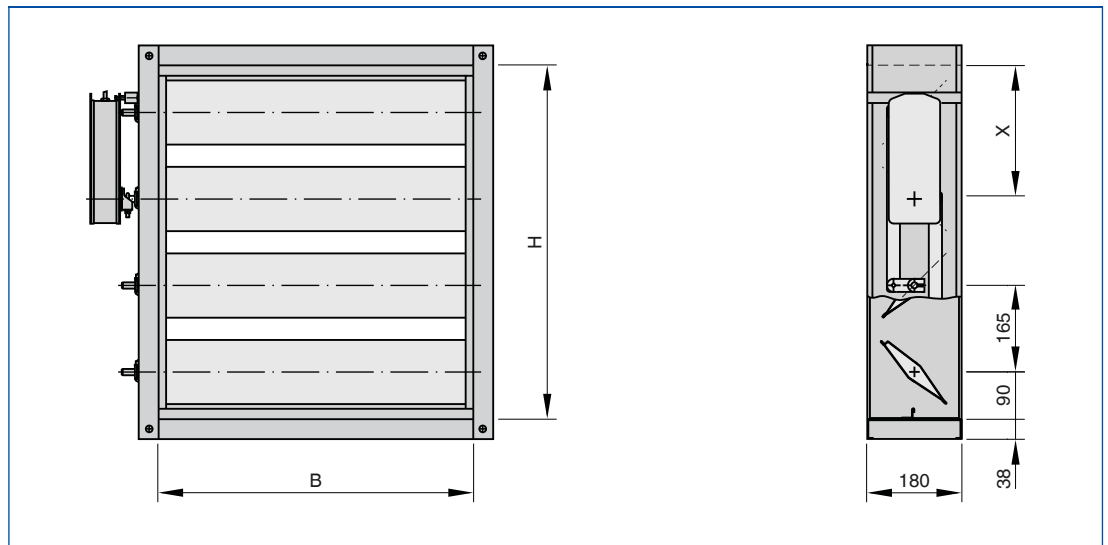


Illustration shows smoke protection damper with spring return actuator, operating side on the right

Weights (incl. actuator)

H	B [mm]								
	400	600	800	1000	1200	1400	1600	1800	2000
mm	kg								
345	13	15	17	20	22	24	26	29	31
510	15	18	21	24	27	30	32	35	38
675	18	21	25	28	32	35	38	42	45
840	20	24	28	33	37	42	46	51	55
1005	22	27	32	37	43	48	53	58	64
1170	24	30	36	42	48	54	60	66	72
1335	27	33	40	46	53	60	66	73	79
1500	28	35	42	49	56	64	71	78	85
1665	30	38	46	54	62	70	77	85	93
1830	32	40	49	57	66	74	83	91	100
1995	34	43	52	61	71	80	89	99	108

JZ-RS standard sizes

H	No. of blades	Actuator position	
		X	Blade
mm	-	mm	-
345	2	255	2
510	3	255	2
675	4	255	2
840	5	255	2
1005	6	255	2
1170	7	255	2
1335	8	255	2
1500	9	255	2
1665	10	255	2
1830	11	255	2
1995	12	255	2

Dimensions

JZ-RS intermediate sizes

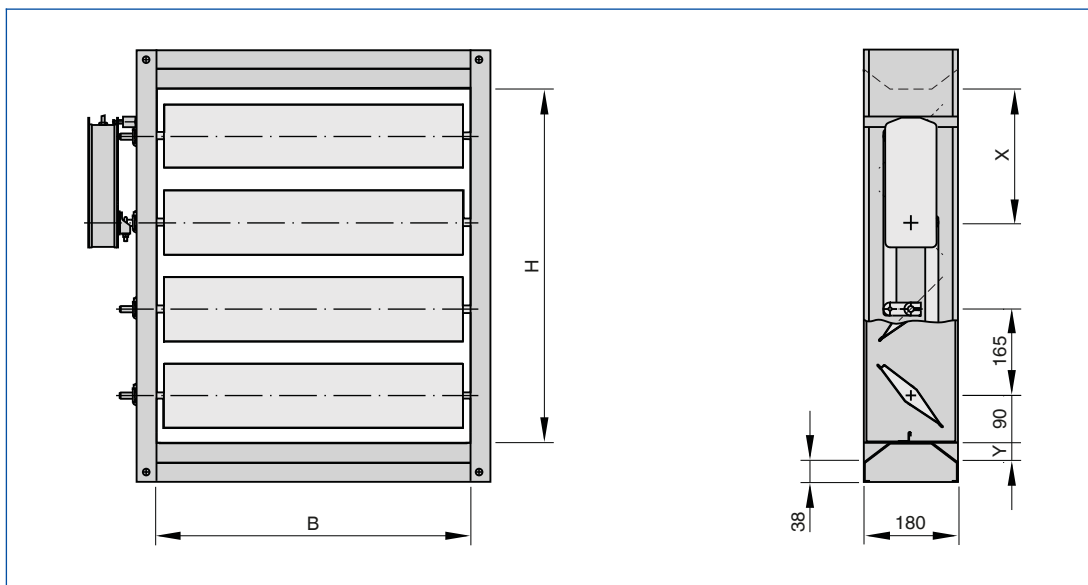


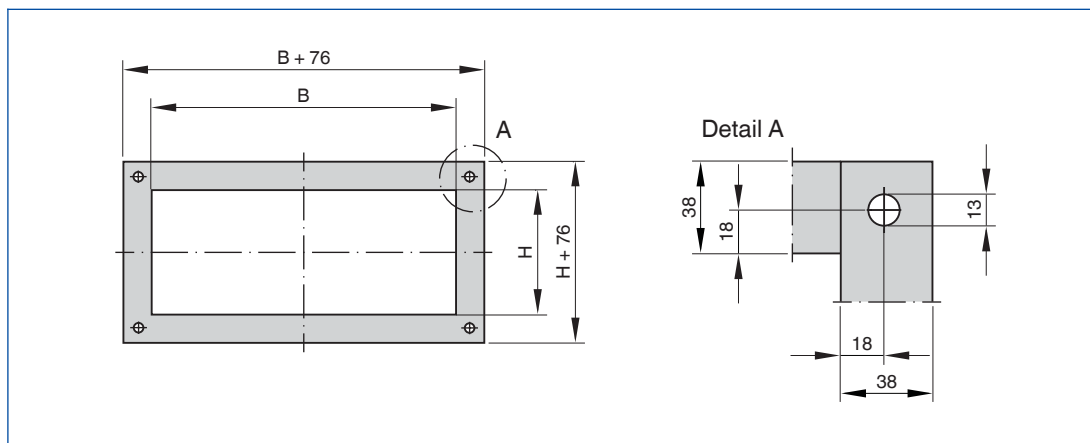
Illustration shows smoke protection damper with spring return actuator, operating side on the right

JZ-RS intermediate sizes

H	No. of blades	Actuator position		
		X	Blade	Y
mm	-	mm	-	mm
348 - 508	2	255	2	1.5 - 81.5
513 - 673	3	255	2	1.5 - 81.5
678 - 838	4	255	2	1.5 - 81.5
843 - 1003	5	255	2	1.5 - 81.5
1008 - 1168	6	255	2	1.5 - 81.5
1173 - 1333	7	255	2	1.5 - 81.5
1338 - 1498	8	255	2	1.5 - 81.5
1503 - 1663	9	255	2	1.5 - 81.5
1668 - 1828	10	255	2	1.5 - 81.5
1833 - 1993	11	255	2	1.5 - 81.5
1995	12	255	2	1.5

Corner holes

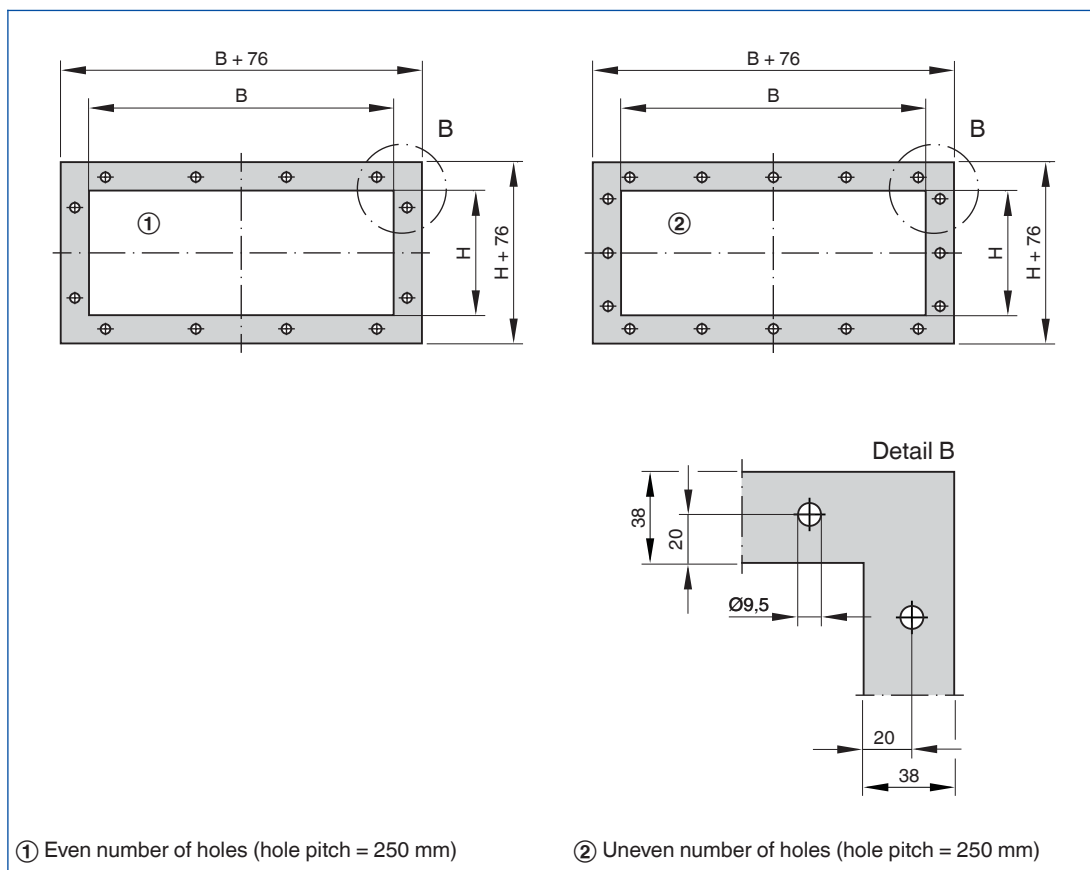
Smoke protection dampers – corner holes



Flange holes

Smoke protection dampers – flange holes

Constructions with flange holes (-G) do not have corner holes.



Dimensions

No. of holes per side

B	No. of holes	
	n	
mm	-	
400 – 537		2
538 – 787		3
788 – 1037		4
1038 – 1287		5
1288 – 1437		6
1538 – 1787		7
1788 – 2000		8

No. of holes per side

H	No. of holes	
	n	
mm	-	
345 – 461		2
462 – 711		3
712 – 961		4
962 – 1211		5
1212 – 1461		6
1462 – 1711		7
1712 – 1961		8
1962 – 1995		9

Description

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

Smoke protection dampers for use in ventilation plant rooms or in ducts to prevent smoke from spreading; frame made from C-sections, with aerodynamically profiled hollow blades and external linkage, spring return actuator, with general building inspectorate licence Z-78.4-51 from the DIBt, Berlin, Germany. Can be triggered by duct smoke detectors with general building inspectorate licence, e.g. TROX duct smoke detector RM-O-VS-D or RM-O-3-D.

Special characteristics

- Low differential pressure and sound power level
- Aerofoil blades
- Low-maintenance, robust construction
- No parts with silicone
- Available in standard sizes and many intermediate sizes
- Closed cell side seals meet increased hygiene requirements

Materials and surfaces

- Casing, blades and travel stop (angle section) made of formed galvanised sheet steel; flanges on both sides with corner holes
- Blade shafts, drive arm and external linkage made of galvanised steel
- Side seal made of stainless steel
- Brass bearings

Construction

- Galvanised sheet steel, corner holes on both sides, brass bearings
- G: Flange holes on both sides

Technical data

- Nominal sizes: 357 × 345 to 2000 × 1998 mm
- Volume flow rate range: 200 to 40,000 l/s or 720 to 143,640 m³/h
- Acceptable static differential pressure: up to 3000 Pa
- Operating temperature: -20 to 150 °C

Sizing data

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

Order options

1 Type

JZ-RS Smoke protection damper

2 Construction

- No entry: standard construction
- G** Flange holes on both sides

3 Drive side

- R** Right side
- L** Left side
- (If the drive side is not specified with the order, R will be supplied.)

4 Nominal size [mm]

B × H

5 Installation subframe

- No entry: none
- ER** With (only for construction G)

6 Attachments

Spring return actuator (power off to close), IP 54

- ZF06** 24 V AC / DC
- ZF07** 24 – 240 V AC
- ZF08** 24 V AC / DC, with limit switches
- ZF09** 24 – 240 V AC, with limit switches

Actuator without spring return (power off to close), IP 54

- ZF10** 24 V AC / DC

Smoke protection dampers

Basic information and nomenclature

2



- Product selection
- Colour codes according to IEC 60757

Smoke protection dampers

Basic information and nomenclature

Product selection

Smoke protection dampers

		Smoke protection dampers
		JZ-RS
Casing and blades		
Galvanised sheet steel		●
Rotation		
Opposed		●
Duct connection		
Corner holes		●
Flange holes		●
Bearings		
Brass		●
Dynamics		
External linkage		●
Spring return actuators		
24 V AC/DC without limit switches		●
230 V AC without limit switches		●
24 V AC/DC with limit switches		●
230 V AC with limit switches		●
Actuator without spring return		
24 V AC/DC with limit switches		●
Nominal sizes		
Width		357 – 2000 mm
Increments		1 mm
Width subdivided		●
Height		345 – 1998 mm
Increments		1 mm
Height subdivided		●
Casing		
Length		180 mm
Areas of application		
Temperature resistance		150 °C
Casing air leakage to EN 1751		Class C
Closed blade air leakage		200 m ³ /h per m ² at 40 Pa
Equipment and accessories		
Duct smoke detector RM-O-VS-D or RM-O-3-D		●
Installation subframe		●
Integration into the central BMS with TROXNETCOM		●
	●	Possible
		Not possible

Wiring

Colour codes according to IEC 60757

Code	Colour
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue

Colour codes according to IEC 60757

Code	Colour
VT	violet
GY	grey
WH	white
PK	pink
TQ	turquoise
GNYE	green-yellow



3 Duct smoke detectors

Duct smoke detectors are used to detect a fire in its development stage such that smoke is prevented from spreading through the ventilation ducting of buildings. The duct smoke detector operates on the principle of light scattering and detects the smoke regardless of its temperature so that the fire dampers can be closed before the release temperature is reached.

3.1	Duct smoke detectors	Type	Page
-----	----------------------	------	------



For smoke detection in ducts with integrated airflow monitoring

RM-O-VS-D

3.1 – 1



For smoke detection in ducts

RM-O-3-D

3.1 – 7

3.2	Basic information and nomenclature		
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Duct smoke detectors

3.2 – 1

Duct smoke detectors

Type RM-O-VS-D



3

For smoke detection in ducts with integrated airflow monitoring

Duct smoke detector with airflow monitoring function to prevent smoke from spreading through the ducts of ventilation and air conditioning systems

- To provide the control input signal for fire dampers
- To provide the control input signal for smoke protection dampers
- For airflow velocities up to 20 m/s
- For any airflow direction
- Contamination level indicator
- Automatic adjustment of the alarm threshold, hence long service life and little requirement for maintenance
- Volt-free signal and alarm relays
- Airflow monitor

Optional equipment and accessories

- Integration into the central BMS with TROXNETCOM



With TROXNETCOM
as an option



Tested to VDI 6022

Type		Page
RM-O-VS-D	General information	3.1 – 2
	Order code	3.1 – 4
	Dimensions and weight	3.1 – 5
	Specification text	3.1 – 6
	Basic information and nomenclature	3.2 – 1

Variant

Product example

Duct smoke detector RM-O-VS-D



3

Description



Duct smoke detector
RM-O-VS-D

Application

- Duct smoke detectors of Type RM-O-VS-D are used to control fire dampers and smoke protection dampers with electric or electric-pneumatic release mechanisms (power off to close)
- Control of smoke protection dampers with electric spring return actuators
- Used to prevent smoke from spreading through the ducts of ventilation and air conditioning systems
- Integration into the central BMS with TROXNETCOM

Classification

- Building inspectorate licence Z-78.6-67 from the DIBt, Berlin, Germany

Variants

- RM-O-VS-D: Duct smoke detector

Special characteristics

- Smoke detection based on the principle of light scattering
- For airflow velocities from 1 to 20 m/s
- Airflow monitoring
- With volt-free signal and alarm relays
- Integral signal lamps
- Choice of four airflow directions (every 90°)
- Easily removable sensor head (simplifies functional testing)
- Contamination level indicator and automatic adjustment of the alarm threshold, hence long service life
- Airflow monitoring unit (warning threshold < 2 m/s)
- Annual maintenance
- Can be used with products of any make or model

Parts and characteristics

- Duct smoke detectors with power supply unit, sensor electronics, sensor head and airflow monitor
- Reset/Test push button
- Signal lamp, green – operation (system monitoring)
- Signal lamp, red – release (alarm)
- Signal lamp, yellow – pollution (indicates contamination)
- Signal lamp, blue – airflow (airflow monitoring)
- Hinged cover
- 4 cover screws

Materials and surfaces

- Plastic casing

Installation and commissioning

- Installation (non-vibrating) in a duct to be monitored
- The duct smoke detector must be exposed to a uniform airflow
- Affix the drill template to the duct and drill the required holes (note the desired installation orientation)
- Screw the casing onto the duct using the supplied screws
- Unscrew the cover screws and open the cover (upper part) of the casing
- Connect the duct smoke detector to the fire damper or smoke protection damper
- Connect any external functions, e.g. remote release (optional)
- Connect the mains
- Close the cover and tighten the cover screws

Standards and guidelines

- Building inspectorate licence Z-78.6-67 from the DIBt, Berlin, Germany
- Guideline regarding fire protection requirements on ventilation systems (Lüftungsanlagen-Richtlinie, LüAR)

Maintenance

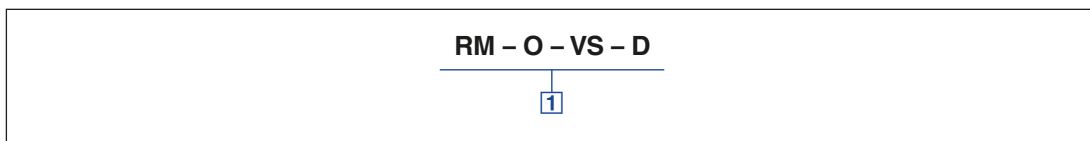
- The functional reliability of the duct smoke detector must be tested at least every 12 months; this has to be arranged by the owner of the ventilation system; functional tests must be carried out in compliance with the basic maintenance principles stated in EN 13306 and DIN 31051.
- Duct smoke detectors must be included in the regular cleaning schedule of the ventilation system
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data

EC conformity	Low voltage to 2006/95/EC, EMC to 2004/108/EC
Supply voltage	230 V AC +10/-15 %, 50/60 Hz
Power rating	6 VA max.
Micro fuse	T 100 L 250 V
IP protection level	IP 42
Ambient temperature	0 – 60 °C
Permitted airflow velocity	1 – 20 m/s
Acceptable humidity	≤ 90 % relative humidity, non-condensing
Alarm threshold for volume flow rate	< 2 m/s
Alarm threshold for increased contamination	> 70 %
System monitoring	> 90 %; no smoke detector; smoke detector data transmission error
Alarm relay contact (release, contamination)	250 V 2 A, 24 V DC 100 W
Weight	Approx. 1.5 kg

Order code

RM-O-VS-D



1 Type

RM-O-VS-D Duct smoke detector

Order example

RM-O-VS-D

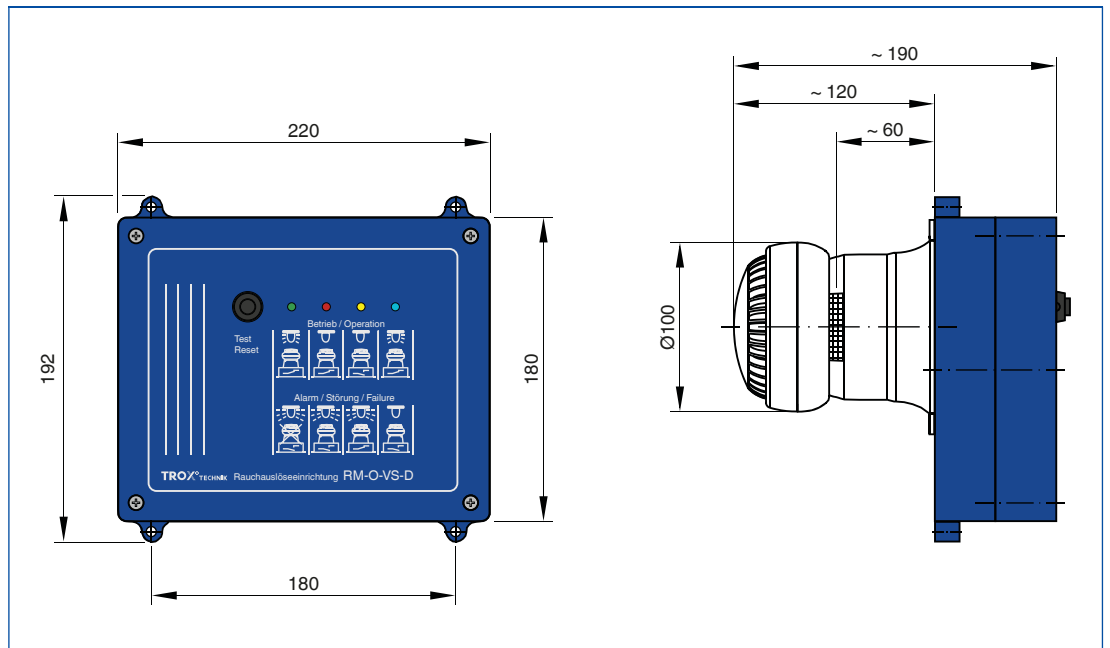
Make	TROX
Type	RM-O-VS-D
Item	5

Dimensions



Duct smoke detector
RM-O-VS-D

Dimensional drawing of RM-O-VS-D



Description

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

Duct smoke detector (smoke detection based on the principle of light scattering) to prevent smoke from spreading through the ducts of ventilation and air conditioning systems. For controlling and releasing fire dampers and smoke protection dampers with general building inspectorate licence and fitted with an electric or electric-pneumatic release mechanism (power off to close).

Special characteristics

- Smoke detection based on the principle of light scattering
- For airflow velocities from 1 to 20 m/s
- Airflow monitoring
- With volt-free signal and alarm relays
- Integral signal lamps
- Choice of four airflow directions (every 90°)
- Easily removable sensor head (simplifies functional testing)
- Contamination level indicator and automatic adjustment of the alarm threshold, hence long service life
- Airflow monitoring unit (warning threshold < 2 m/s)
- Annual maintenance
- Can be used with products of any make or model

Materials and surfaces

- Plastic casing

Technical data

- EC conformity: Low voltage to 2006/95/EC, EMC to 2004/108/EC
- Supply voltage: 230 V AC +10/-15 %, 50/60 Hz
- Power rating: max. 6 VA
- Micro fuse: T 100 L 250 V
- IP protection level: IP 42
- Ambient temperature: 0 – 60 °C
- Airflow velocity: 1 – 20 m/s
- Humidity: ≤ 90 % relative humidity, non-condensing
- Alarm threshold for volume flow rate: < 2 m/s
- Alarm threshold for increased contamination: > 70 %
- System monitoring: > 90 %; no smoke detector; smoke detector data transmission error
- Alarm relay contact (release, contamination): 250 V 2 A, 24 V DC 100 W
- Weight: approx. 1.5 kg

Sizing data

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

Order options

Type

- RM-O-VS-D** Duct smoke detector

Duct smoke detectors

Type RM-O-3-D



3

For smoke detection in ducts

Duct smoke detector used to prevent smoke from spreading through the ducts of ventilation and air conditioning systems

- To provide the control input signal for fire dampers
- To provide the control input signal for smoke protection dampers
- Can be installed into the inspection access openings of rectangular fire dampers
- For airflow velocities up to 20 m/s
- For any airflow direction
- Contamination level indicator
- Automatic adjustment of the alarm threshold, hence long service life and little requirement for maintenance
- Volt-free signal and alarm relays

Optional equipment and accessories

- Integration into the central BMS with TROXNETCOM
- Voltage monitoring module (24 V DC)



With TROXNETCOM
as an option



Tested to VDI 6022

Type		Page
RM-O-3-D	General information	3.1 – 8
	Order code	3.1 – 10
	Dimensions and weight	3.1 – 11
	Specification text	3.1 – 12
	Basic information and nomenclature	3.2 – 1

Variant

Product example

Duct smoke detector RM-O-3-D



Description



Duct smoke detector
RM-O-3-D

Application

- Duct smoke detectors of Type RM-O-3-D are used to control fire dampers with electric or electric-pneumatic release mechanisms (power off to close)
- Control of smoke protection dampers with electric spring return actuators
- Used to prevent smoke from spreading through the ducts of ventilation and air conditioning systems
- Integration into the central BMS with TROXNETCOM

Classification

- Building inspectorate licence Z-78.6-67 from the DIBt, Berlin, Germany

Variants

- RM-O-3-D: Duct smoke detector

Accessories

- Voltage monitoring module (24 V DC)

Special characteristics

- Smoke detection based on the principle of light scattering
- For airflow velocities from 1 to 20 m/s
- For any airflow direction
- Can be fitted onto the FK-EU
- With volt-free signal and alarm relays
- Integral signal lamps
- Contamination level indicator and automatic adjustment of the alarm threshold, hence long service life
- Can be used with products of any make or model
- Annual maintenance

Parts and characteristics

- Duct smoke detectors with power supply unit, sensor electronics, and sensor head
- Reset/Test push button
- Signal lamp, green – operation (system monitoring)
- Signal lamp, red – release (alarm)
- Signal lamp, yellow – pollution (indicates contamination)

Materials and surfaces

- Plastic casing

Installation and commissioning

- Installation (non-vibrating) in a duct to be monitored
- The duct smoke detector must be exposed to a uniform airflow
- Affix the drill template to the duct and drill the required holes (note the desired installation orientation)
- Screw the casing onto the duct using the supplied screws
- Unscrew the cover screws and remove the cover (upper part) of the casing
- Connect the duct smoke detector to the fire damper or smoke protection damper
- Connect any external functions, e.g. remote release (optional)
- Connect the mains
- Put the cover back on and tighten the cover screws

Standards and guidelines

- Building inspectorate licence Z-78.6-125 from the DIBt, Berlin, Germany
- Guideline regarding fire protection requirements on ventilation systems (Lüftungsanlagen-Richtlinie, LüAR)

Maintenance

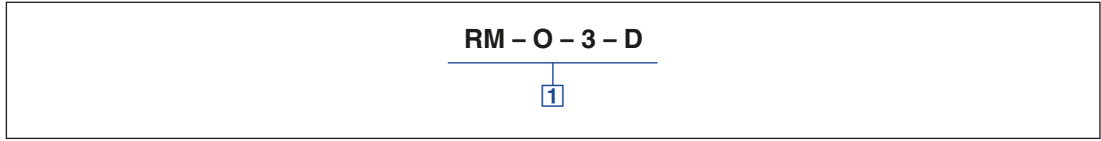
- The functional reliability of the duct smoke detector must be tested at least every 12 months; this has to be arranged by the owner of the ventilation system; functional tests must be carried out in compliance with the basic maintenance principles stated in EN 13306 and DIN 31051.
- Duct smoke detectors must be included in the regular cleaning schedule of the ventilation system
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data

EMC immunity to	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
Supply voltage	230 V AC +10/-15 %, 50/60 Hz or 24 V DC ± 6 %
Power rating	3 VA
Micro fuse	T 100 L 250 V
IP protection level	IP 42
Ambient temperature	0 – 60 °C
Permitted airflow velocity	1 – 20 m/s
Acceptable humidity	≤ 90 % relative humidity, non-condensing
Alarm threshold for increased contamination	> 70 %
System monitoring	> 90 %; no smoke detector; smoke detector data transmission error
Alarm relay contact (release, contamination)	250 V 2 A, 24 V DC 100 W
Weight	Approx. 0.7 kg

Order code

RM-O-3-D



1 Type

RM-O-3-D Duct smoke detector

Order example

RM-O-3-D

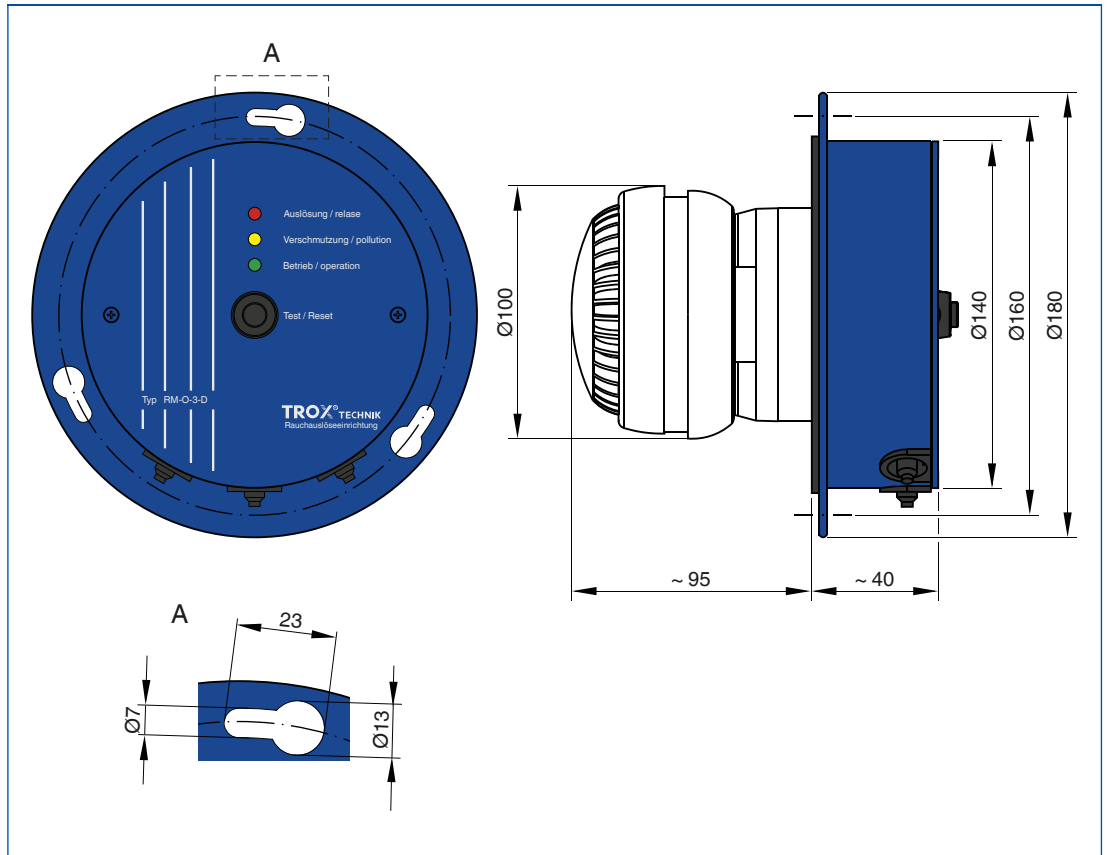
Make	TROX
Type	RM-O-3-D
Item	5

Dimensions

Dimensional drawing of RM-O-3-D



Duct smoke detector
RM-O-3-D



Description

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

Duct smoke detector (smoke detection based on the principle of light scattering) to prevent smoke from spreading through the ducts of ventilation and air conditioning systems. For controlling and releasing fire dampers and smoke protection dampers with general building inspectorate licence and fitted with an electric or electric-pneumatic release mechanism (power off to close).

Special characteristics

- Smoke detection based on the principle of light scattering
- For airflow velocities from 1 to 20 m/s
- For any airflow direction
- Can be fitted onto the FK-EU
- With volt-free signal and alarm relays
- Integral signal lamps
- Contamination level indicator and automatic adjustment of the alarm threshold, hence long service life
- Can be used with products of any make or model
- Annual maintenance

Materials and surfaces

- Plastic casing

Technical data

- EMC immunity to EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
- Supply voltage: 230 V AC +10/-15 %, 50/60 Hz or 24 V DC \pm 6 %
- Power rating: 3 VA
- Micro fuse: T 100 L 250 V
- IP protection level: IP 42
- Ambient temperature: 0 – 60 °C
- Airflow velocity: 1 – 20 m/s
- Humidity: \leq 90 % relative humidity, non-condensing
- Alarm threshold for increased contamination: > 70 %
- System monitoring: > 90 %; no smoke detector; smoke detector data transmission error
- Alarm relay contact (release, contamination): 250 V 2 A, 24 V DC 100 W
- Weight: approx. 0.7 kg

Sizing data

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

Order options

Type

- RM-O-3-D** Duct smoke detector

Duct smoke detectors

Basic information and nomenclature



- Product selection
- Colour codes according to IEC 60757

Duct smoke detectors

Basic information and nomenclature

Product selection

Duct smoke detectors

	Duct smoke detectors	
	RM-O-VS-D	RM-O-3-D
Annual inspection	●	●
Volume flow rate monitoring	●	
Supply voltage: 24 V DC		●
Installation onto FK-EU		●
Integral LON bus interface	●	
Connection to TNC-EASYCONTROL	●	●
Connection to TROXNETCOM-AS-i	●	●
●	Possible	
	Not possible	

3

Wiring

Colour codes according to IEC 60757

Code	Colour
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue



Colour codes according to IEC 60757

Code	Colour
VT	violet
GY	grey
WH	white
PK	pink
TQ	turquoise
GNYE	green-yellow



4 Smoke control dampers

Smoke control dampers with extract ventilation function are used for smoke extract with mechanical smoke extract systems or as an additional supply air inlet.

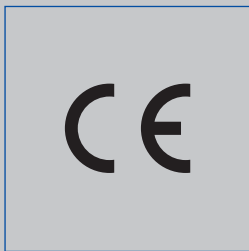
4.1	Smoke control dampers	Serie	Seite
		For mechanical smoke extract systems and as an additional supply air inlet EK-EU	4.1 – 1
4.2	Grundlagen und Definitionen		
		Smoke control dampers	4.2 – 1



EK-EU damper blade



EK-EU
with open/close actuator



CE compliant according
to European regulations



With TROXNETCOM
as an option



Tested to VDI 6022

Smoke control dampers Type EK-EU



For mechanical smoke extract systems and as an additional supply air inlet

Rectangular smoke control dampers with extract ventilation function,
for smoke extract with mechanical smoke extract systems
or as an additional supply air inlet

- Nominal sizes 200 × 200 – 1500 × 800 mm, in increments of 1 mm
- Casing, damper blade and actuator encasing made of temperature-resistant calcium silicate
- Remote control with actuator
- Pressure level 3 (operating pressure –1500 to 500 Pa)
- Manual or automatic release
- For smoke extract ducts from 35 mm wall thickness
- C_{mod} = ventilation function and intermediate positions for flow rate balancing
- Casing air leakage to EN 1751, class C

Optional equipment and accessories

- Connecting subframe
- Cover grille
- Integration into the central BMS with TROXNETCOM

Type		Page
EK-EU	General information	4.1 – 2
	Correct use	4.1 – 5
	Order code	4.1 – 7
	Connecting subframe, cover grille	4.1 – 8
	Open/Close actuator	4.1 – 9
	TROXNETCOM	4.1 – 11
	Quick sizing	4.1 – 12
	Dimensions and weight	4.1 – 16
	Specification text	4.1 – 18
	Basic information and nomenclature	4.2 – 1

Variants

Product examples

EK-EU with open/close actuator of Type BE



Screw-fixed connecting subframes on both sides (optional)

EK-EU with cover grille



Cover grille (optional)

Description

Application

- Smoke control dampers of Type EK-EU, with CE marking and declaration of performance, for smoke extract with mechanical smoke extract systems
- Provision of fresh air supply for mechanical smoke extract systems
- Extract ventilation function is possible if the mechanical smoke extract system has been approved (general building approval) for extract ventilation
- Integration into the central BMS with TROXNETCOM

Classification

- EI 90 ($v_{edw} - h_{odw}$, $i \leftrightarrow o$) S1500 C_{mod} MA multi to EN 13501-4

Nominal sizes

- Width/height 200/200 – 1500/800 mm (in increments of 1 mm)
- Casing length L = 600 mm or 800 mm, depending on casing height
- Other casing lengths upon request

Attachments

- Open/Close actuator, 24 V AC/DC or 230 V AC supply voltage
- Network module for the integration with AS-i networks

Accessories

- Connecting subframe
- Cover grille tested to EN 1366-10

Useful additions

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

X-FANS smoke exhaust fans

- Smoke exhaust fan for roof installation BVDAX/BVD
- Smoke exhaust fan for wall installation BVW/BVWAXN
- Smoke exhaust centrifugal fan BVREH/BVRA
- Smoke exhaust jet fans BVGAX/BVGAXN

All smoke exhaust fans are tested to EN 12101-3, for F200/F300/F400 and F600, depending on the type. With CE marking, declaration of performance and application approval for the German market.

Special characteristics

- Declaration of performance according to Construction Products Regulation
- Classification to EN 13501-4, EI 90 ($v_{edw} - h_{odw}$, $i \leftrightarrow o$) S1500 C_{mod} MA multi
- General building inspectorate licence Z-56.4212-990
- Complies with the requirements of EN 12101-8
- Tested for fire resistance properties to DIN 1366-10 and EN 1366-2
- Casing air leakage to EN 1751, class C
- Low sound power level and differential pressure
- Any airflow direction
- Integration into the central BMS with TROXNETCOM
- Tested to EN 1366-10 with a weight being attached to the blade, with 10,000 open/close cycles and 10,000 cycles in intermediate position (C_{mod})

Parts and characteristics

- Installation position is independent of the airflow direction or position of the damper blade shaft
- Pressure level 3 (operating pressure -1500 to 500 Pa)
- Manual or automatic release
- Smoke control damper with ventilation function and intermediate positions for flow rate balancing

Construction features

- Rectangular construction
- Reversible open/close actuator
- Remote control with actuator
- Suitable for the connection of cover grilles or connecting subframes

Materials and surfaces

- Casing, damper blade and actuator encasing made of temperature-resistant calcium silicate
- Brass bearings
- Shafts made of stainless steel

Installation and commissioning

- Installation in solid walls and ceilings slabs
- Installation in or on tested, fire-resistant vertical or horizontal smoke extract ducts to EN 1366-8 (multi)
- Installation in or on tested vertical or horizontal sheet steel smoke extract ducts to EN 1366-9 (single)
- For smoke extract ducts made of calcium silicate from 35 mm wall thickness
- After installation the damper must remain accessible for inspection, cleaning and repair
- Connected smoke extract ducts must have an inspection access
- Mechanical smoke extract systems require that the power supply is maintained even in the event of a fire

Smoke control dampers must be installed and attached according to the operating and installation manual.

Standards and guidelines

- Construction Products Regulation
- EN 12101-8:2011 Smoke and heat control systems – Smoke control dampers
- EN 1366-10:2011 Fire resistance tests for service installations – Smoke control dampers
- EN 1366-2:1999 Fire resistance tests for service installations – Fire dampers
- EN 13501-4:2009 Fire classification of construction products and building elements
- EN 1751:1999 Ventilation for buildings – Air terminal devices

Maintenance

- Mechanical smoke extract systems require that the power supply is maintained even in the event of a fire
- Smoke control dampers must be maintained regularly and must be operational at all times
- Maintenance is required at least every 6 months
- A maintenance report must be created; documents must be kept for reference
- The functional reliability of the smoke control damper must be tested at least every six months; this has to be arranged by the owner of the smoke extract 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
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data

Nominal sizes	200 × 200 mm – 1500 × 800 mm, in increments of 1 mm
Casing length	600 and 800 mm
Volume flow rate range	Up to 12000 l/s or up to 43200 m ³ /h
Differential pressure range	Pressure level 3: -1500 to 500 Pa
Operating temperature	-30 to 50 °C
Upstream velocity*	≤ 10 m/s

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

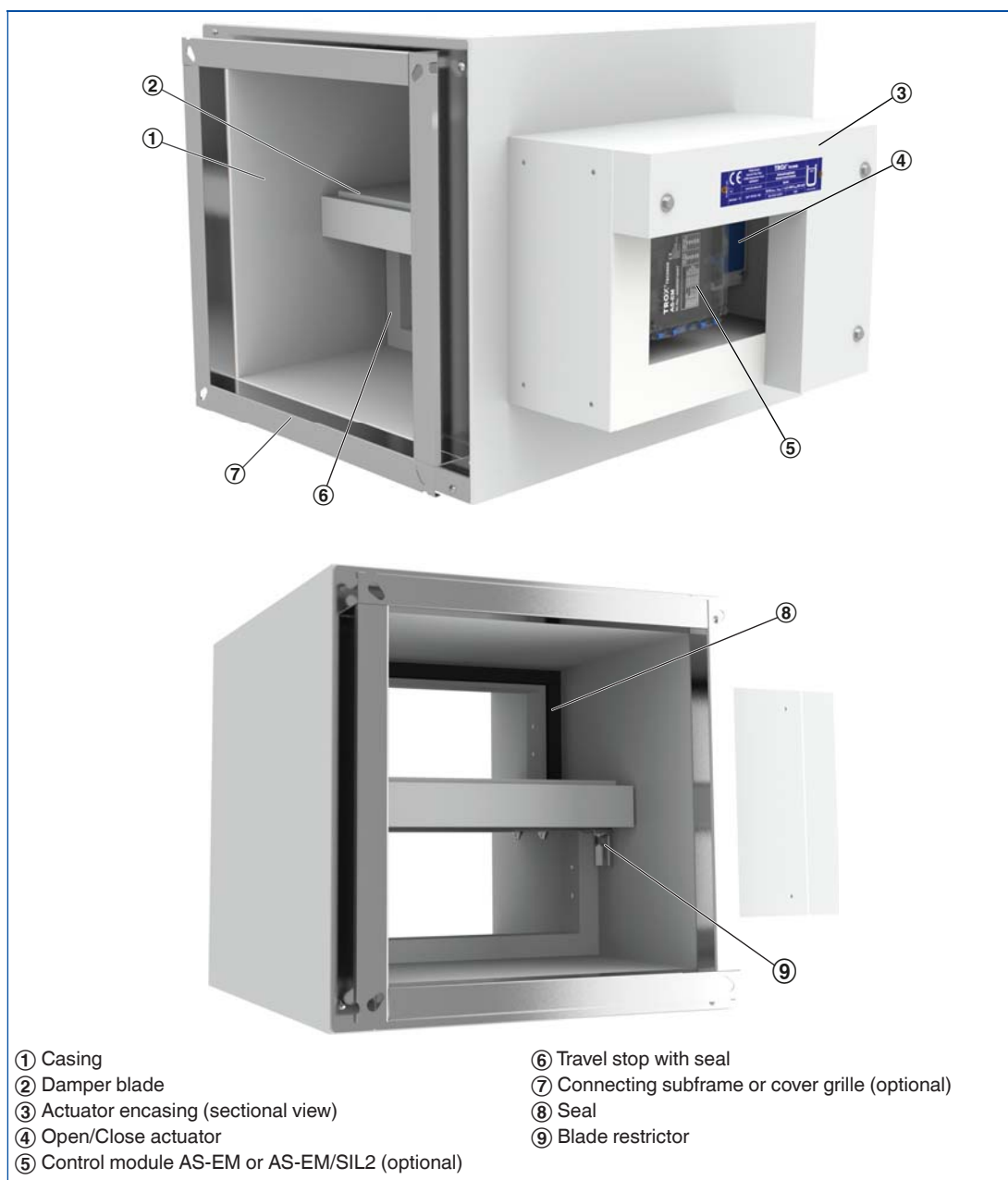
Function

Functional description

Smoke control dampers are used in mechanical smoke extract systems. They are used for extracting smoke gases and for providing additional supply air to one or more fire compartments. The dampers are made of calcium silicate panels and are opened by an encased actuator; when smoke is detected, the actuator is triggered by a signal either from a duct smoke detector or from a fire alarm system.

Smoke control dampers have two safety positions: open and closed. In the case of fire-resistant smoke control dampers for multiple compartments, the safety position is either 'open' or 'closed', depending on the fire site and the path of the smoke to be extracted. If the safety position is 'open', the free area must be maintained even in the event of a fire. According to the specified time-temperature curve, an EK-EU can still fully open or close after 25 minutes (MA, manual release). Regular maintenance of the smoke control damper is required to ensure its functional reliability.

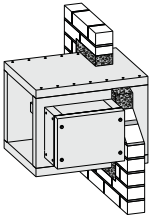
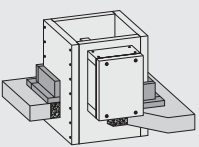
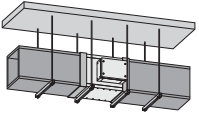
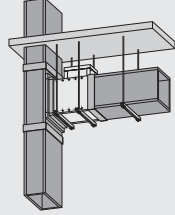
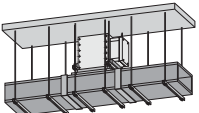
Schematic illustration of the EK-EU with open/close actuator



Design information

- Approved for use in mechanical smoke extract systems
- A cover grille may be attached directly to the damper
- If the damper is installed in a solid wall, in a solid ceiling slab, on a fire-resistant smoke extract duct or in a fire-resistant smoke extract duct with a lower fire resistance class than that of the smoke control damper, the fire resistance class of the wall or ceiling slab applies also to the EK-EU (details upon request)
- Fire-resistant smoke extract ducts must be installed in such a manner that they do not impose any significant loads on the smoke control damper in the event of a fire
- Sheet steel smoke extract ducts to EN 1366-9 must be connected with flexible connectors according to the manufacturer's instructions for the sheet steel ducts
- Smoke control dampers must be installed, connected and attached according to the operating and installation manual

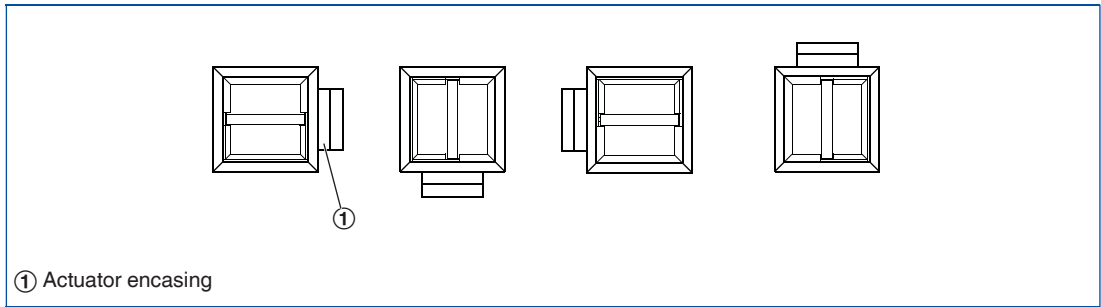
Use in solid walls or ceiling slabs, in or on fire-resistant smoke extract ducts
Classification to EN 13501-4: EI 90 ($v_{edw} - h_{odw}$, $i \rightarrow o$) S1500 C_{mod} MA multi

Installation location	Construction and building material	Minimum thickness	Mortar-based installation	Dry mortarless installation
		mm		
In solid walls	 Solid walls of concrete, aerated concrete or bricks	100	Perimeter mortar infill	-
In solid ceiling slabs	 Solid ceiling slabs of concrete or aerated concrete	150	Perimeter mortar infill	-
Fire-resistant smoke extract ducts	 In horizontal or vertical smoke extract ducts, gross density $\geq 520 \text{ kg/m}^3$, calcium silicate	≥ 35	-	* With angle sections and straight sections made of calcium silicate
	 In horizontal and on vertical smoke extract ducts, gross density $\geq 520 \text{ kg/m}^3$, calcium silicate	≥ 35	-	* With angle sections and straight sections made of calcium silicate
	 On top of horizontal smoke extract ducts, gross density $\geq 520 \text{ kg/m}^3$, calcium silicate	≥ 35	-	* With angle sections and straight sections made of calcium silicate

* Details according to installation and operating manual

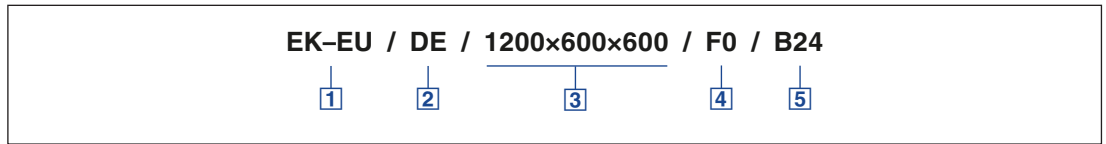
Installation orientation

Installation orientation of actuator encasing and damper blade



Order code

EK-EU



1 Type

EK-EU Smoke control damper

2 Country of destination

DE Germany
Other destination countries upon request

3 Nominal size [mm]

B × H × L

4 Accessories

- No entry: none
- F0** Connecting subframe on the operating side
- 0F** Connecting subframe on the installation side
- FF** Connecting subframes on both sides
- A0** Cover grille on the operating side
- 0A** Cover grille on the installation side
- AA** Cover grilles on both sides
- FA** Connecting subframe on the operating side and cover grille on the installation side
- AF** Connecting subframe on the installation side and cover grille on the operating side

5 Attachments

Belimo

- B24** BE 24-12, 24 V AC/DC
- B230** BE 230-12, 230 V AC/DC
- B24A** BE 24-12, with AS-EM, 24 V AC/DC
- B24AS** BE 24-12, with AS-EM/SIL2, 24 V AC/DC

Order examples

EK-EU/1200x600x600/F0/B24

Nominal size	1200 × 600 × 600 mm
Accessories	Connecting subframe on the operating side
Attachment	Open/Close actuator, Belimo, 24 V AC/DC

EK-EU/400x400x600/A0/B24A

Nominal size	400 × 400 × 600 mm
Accessories	Cover grille on the operating side
Attachment	Open/Close actuator, Belimo, 24 V AC/DC with TROXNETCOM control module AS-EM

Description



EK-EU
with connecting subframe



EK-EU with cover grille

Application

- The cover grille may be attached directly to the damper; this application has been approved based on a fire test to EN 1366-10
- A connecting subframe is required for sheet steel smoke extract ducts
- Connecting subframe and cover grille may be ordered separately
- Connecting subframe and cover grille are factory mounted to the damper
- The free area of the cover grille is approx. 70%
- Short smoke control dampers (dimension L < dimension H) cannot have a cover grille because the damper blade protrudes from the casing

Materials and surfaces

- Connecting subframe and cover grille made of galvanised sheet steel

Maintenance

- For details on maintenance and inspection, refer to the installation and operating manual

/ F0 /
/ 0F /
/ FF /
/ A0 /
/ 0A /
/ AA /
/ FA /
/ AF /
4

Order code detail

Operating side	Installation side	Order code
Connecting subframe	-	F0
-	Connecting subframe	0F
Connecting subframe	Connecting subframe	FF
Cover grille	-	A0
-	Cover grille	0A
Cover grille	Cover grille	AA
Connecting subframe	Cover grille	FA
Cover grille	Connecting subframe	AF

Description



EK-EU with open/close actuator of Type BE

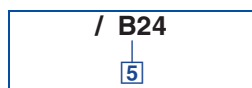
EK-EU with open/close actuator

- Open/Close actuator BE24-12-ST TR
- Opening and closing of Type EK-EU smoke control dampers
- With integral limit switches for capturing the end positions
- An open/close actuator allows for remote control of the smoke control damper and/or release by a suitable duct smoke detector
- Ambient temperature, normal operation -30 to 50 °C
- Two integral limit switches with volt-free contacts enable the damper blade position indication (OPEN and CLOSED)
- The connecting cables of the actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system

Installation information

- Leading the electric connecting cable through the actuator encasing requires a drilled hole of the exact size
- A wire clamping bracket is required
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data



Order code detail

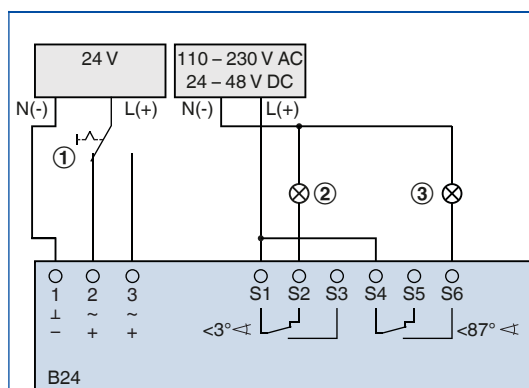
Open/Close actuator BE24-12-ST TR

Supply voltage		24 V AC ± 20 %, 50/60 Hz or 24 V DC -10 %/+20 %
Power rating	Operation	12 W
	End position	0.5 W
	Rating	18 VA
Torque		40 Nm
Running time for 90°		< 60 s
Limit switch	Type of contact	2 changeover contacts
	Switching voltage	250 V AC/5 V DC
	Switching current	1 mA...6 A
IEC protection class		III (protective extra-low voltage)
Protection level		IP 54
EC conformity		EMC to 89/336/EU, 92/31/EU, 93/68/EU
Connecting cable	Length / cross section	1 m, 3 (6*) × 0.75 mm ² (free of halogens)

* Limit switch

Wiring

B24 connecting cable core identification



- 1: Ground, neutral
 - 2: Control voltage for direction OPEN
 - 3: Control voltage for direction CLOSE
- ① Switch for opening and closing, to be provided by others
- ② Indicator light for CLOSED position, to be provided by others
- ③ Indicator light for OPEN position, to be provided by others

Description



EK-EU with open/close actuator of Type BE

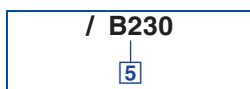
EK-EU with open/close actuator

- Open/Close actuator BE230-12 TR
- Opening and closing of Type EK-EU smoke control dampers
- With integral limit switches for capturing the end positions
- An open/close actuator allows for remote control of the smoke control damper and/or release by a suitable duct smoke detector
- Ambient temperature, normal operation -30 to 50 °C
- Two integral limit switches with volt-free contacts enable the damper blade position indication (OPEN and CLOSED)

Installation information

- Leading the electric connecting cable through the actuator encasing requires a drilled hole of the exact size
- A wire clamping bracket is required
- For details on maintenance and inspection, refer to the installation and operating manual

Technical data



Order code detail

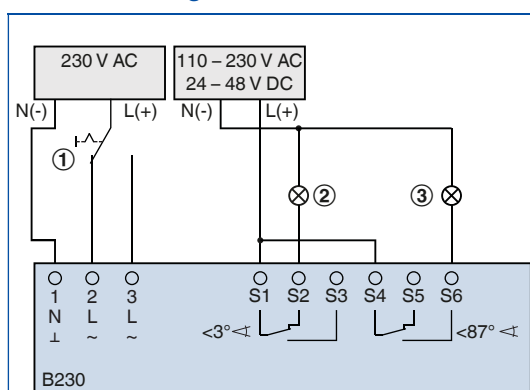
Open/Close actuator BE230-12 TR

Supply voltage		230 V AC ± 14 %, 50/60 Hz
Power rating	Operation	8 W
	End position	1.5 W
	Rating	15 VA
Torque		40 Nm
Running time for 90°		< 60 s
Limit switch	Type of contact	2 changeover contacts
	Switching voltage	250 V AC/5 V DC
	Switching current	1 mA...6 A
IEC protection class		II (protective insulation)
Protection level		IP 54
EC conformity		EMC to 2004/108/EU, low voltage to 2006/95/EU
Connecting cable	Length / cross section	1 m, 3 (6*) × 0.75 mm ² (free of halogens)

* Limit switch

Wiring

B230 connecting cable core identification



- 1 ⊥: Ground, neutral
- 2 ~: Control voltage for direction OPEN
- 3 ~: Control voltage for direction CLOSE
- ① Switch for opening and closing, to be provided by others
- ② Indicator light for CLOSED position, to be provided by others
- ③ Indicator light for OPEN position, to be provided by others

Description



EK-EU
with open/close actuator
and control module

**EK-EU with open/close actuator
and TROXNETCOM**

- Smoke control dampers with open/close actuator BE24-12-ST TR and the modules shown here as attachments form a functional unit ready for the automatic control of a smoke control damper
- The function of the control modules in the event of a fire has been verified in fire tests to EN 1366-2 and EN 1366-10
- The components are factory assembled and wired
- Allows for the integration of different components (modules) into a network independent of manufacturer or building service
- The modules control actuators and/or receive signals from sensors

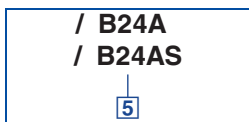
Application

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 open/close actuator and the controller and power unit
- This allows for controlling the actuator and monitoring of its running time during functional testing
- The supply voltage (24 V DC) for the module and the actuator is transmitted using the AS-i flat cable
- Function display: operation, 4 inputs, 2 outputs

Maintenance

- For details on maintenance and inspection, refer to the installation and operating manual



Order code detail

Attachments	Order code
AS-EM and BE24-12-ST TR	B24A
AS-EM/SIL2 and BE24-12-ST TR	B24AS

Description



AS-EM/EK

Application

- Module for the control of smoke control dampers
- Capturing damper blade positions OPEN and CLOSED
- Actuators can be started even without controller communication
- LEDs for OPEN and CLOSED positions; monitoring of running time errors
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators

Description



AS-EM/SIL2

Application

- Module for the control of smoke control dampers
- Capturing damper blade positions OPEN and CLOSED
- Approved up to SIL2 to IEC/EN 61508
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Connection with terminals
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators

Volume flow rate [m³/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									
		200	250	300	350	400	450	500	550	600	650
200	m ³ /h	1440	1800	2160	2520	2880	3240	3600	3960	4320	4680
	Pa	683	388	282	226	191	167	149	135	124	115
	dB(A)	79	76	75	74	74	74	74	73	73	73
250	m ³ /h	1800	2250	2700	3150	3600	4050	4500	4950	5400	5850
	Pa	304	213	168	141	123	110	100	91	85	79
	dB(A)	72	70	69	68	68	68	68	68	68	68
300	m ³ /h	2160	2700	3240	3780	4320	4860	5400	5940	6480	7020
	Pa	209	155	126	108	95	85	78	72	67	63
	dB(A)	68	67	66	65	65	65	65	65	65	65
350	m ³ /h	2520	3150	3780	4410	5040	5670	6300	6930	7560	8190
	Pa	164	125	103	89	79	71	65	60	56	53
	dB(A)	66	65	64	64	63	63	63	63	63	64
400	m ³ /h	2880	3600	4320	5040	5760	6480	7200	7920	8640	9360
	Pa	137	106	88	77	68	62	57	53	49	46
	dB(A)	65	64	63	63	62	62	62	62	62	63
450	m ³ /h	3240	4050	4860	5670	6480	7290	8100	8910	9720	10530
	Pa	119	93	78	68	61	55	51	47	44	41
	dB(A)	64	63	62	62	62	62	62	62	62	62
500	m ³ /h	3600	4500	5400	6300	7200	8100	9000	9900	10800	11700
	Pa	106	83	70	61	55	50	46	43	40	38
	dB(A)	63	62	62	61	61	61	61	61	61	61
550	m ³ /h	3960	4950	5940	6930	7920	8910	9900	10890	11880	12870
	Pa	96	76	64	56	50	46	42	39	37	35
	dB(A)	63	62	61	61	61	61	61	61	61	61
600	m ³ /h	4320	5400	6480	7560	8640	9720	10800	11880	12960	14040
	Pa	88	70	59	52	47	43	39	37	34	32
	dB(A)	63	62	61	61	61	61	61	61	61	61
650	m ³ /h	4680	5850	7020	8190	9360	10530	11700	12870	14040	15210
	Pa	81	65	55	49	44	40	37	34	32	30
	dB(A)	63	61	61	61	60	60	60	61	61	61
700	m ³ /h	5040	6300	7560	8820	10080	11340	12600	13860	15120	16380
	Pa	76	61	52	46	41	38	35	32	30	29
	dB(A)	62	61	61	60	60	60	60	60	60	61
750	m ³ /h	5400	6750	8100	9450	10800	12150	13500	14850	16200	17550
	Pa	72	58	49	43	39	36	33	31	29	27
	dB(A)	62	61	61	60	60	60	60	60	60	61
800	m ³ /h	5760	7200	8640	10080	11520	12960	14400	15840	17280	18720
	Pa	68	55	47	41	37	34	31	29	27	26
	dB(A)	62	61	61	60	60	60	60	60	60	60

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

Volume flow rate [m³/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									
		700	750	800	900	1000	1100	1200	1300	1400	1500
200	m ³ /h	5040	5400	5760	6480	7200	7920	8640	9360	10080	10800
	Pa	108	101	96	87	80	74	69	65	61	58
	dB(A)	73	73	73	74	74	74	74	74	74	75
250	m ³ /h	6300	6750	7200	8100	9000	9900	10800	11700	12600	13500
	Pa	75	71	67	61	57	53	49	47	44	42
	dB(A)	68	68	68	68	68	69	69	69	69	69
300	m ³ /h	7560	8100	8640	9720	10800	11880	12960	14040	15120	16200
	Pa	59	56	53	49	45	42	40	38	36	34
	dB(A)	65	65	65	66	66	66	66	66	67	67
350	m ³ /h	8820	9450	10080	11340	12600	13860	15120	16380	17640	18900
	Pa	50	48	45	42	39	36	34	32	31	29
	dB(A)	64	64	64	64	64	64	65	65	65	65
400	m ³ /h	10080	10800	11520	12960	14400	15840	17280	18720	20160	21600
	Pa	44	42	40	37	34	32	30	28	27	26
	dB(A)	63	63	63	63	63	63	64	64	64	64
450	m ³ /h	11340	12150	12960	14580	16200	17820	19440	21060	22680	24300
	Pa	39	37	36	33	30	29	27	25	24	23
	dB(A)	62	62	62	62	63	63	63	63	63	64
500	m ³ /h	12600	13500	14400	16200	18000	19800	21600	23400	25200	27000
	Pa	36	34	33	30	28	26	25	23	22	21
	dB(A)	61	62	62	62	62	62	63	63	63	63
550	m ³ /h	13860	14850	15840	17820	19800	21780	23760	25740	27720	29700
	Pa	33	31	30	28	26	24	23	22	21	20
	dB(A)	61	61	61	62	62	62	62	62	63	63
600	m ³ /h	15120	16200	17280	19440	21600	23760	25920	28080	30240	32400
	Pa	31	29	28	26	24	22	21	20	19	18
	dB(A)	61	61	61	61	62	62	62	62	62	63
650	m ³ /h	16380	17550	18720	21060	23400	25740	28080	30420	32760	35100
	Pa	29	27	26	24	23	21	20	19	18	17
	dB(A)	61	61	61	61	61	62	62	62	62	62
700	m ³ /h	17640	18900	20160	22680	25200	27720	30240	32760	35280	37800
	Pa	27	26	25	23	21	20	19	18	17	16
	dB(A)	61	61	61	61	61	62	62	62	62	62
750	m ³ /h	18900	20250	21600	24300	27000	29700	32400	35100	37800	40500
	Pa	26	25	24	22	20	19	18	17	16	15
	dB(A)	61	61	61	61	61	62	62	62	62	62
800	m ³ /h	20160	21600	23040	25920	28800	31680	34560	37440	40320	43200
	Pa	25	23	22	21	19	18	17	16	15	15
	dB(A)	61	61	61	61	61	61	62	62	62	62

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Volume flow rate [m³/h], pressure loss ΔP [Pa] and sound power level [dB(A)] based on damper blade dimensions, at 5 m/s upstream velocity

H	5 m/s	B									
		200	250	300	350	400	450	500	550	600	650
200	m ³ /h	720	900	1080	1260	1440	1620	1800	1980	2160	2340
	Pa	171	97	70	56	48	42	37	34	31	29
	dB(A)	57	55	55	54	54	54	54	54	54	54
250	m ³ /h	900	1125	1350	1575	1800	2025	2250	2475	2700	2925
	Pa	76	53	42	35	31	27	25	23	21	20
	dB(A)	52	50	50	49	49	49	49	49	49	49
300	m ³ /h	1080	1350	1620	1890	2160	2430	2700	2970	3240	3510
	Pa	52	39	31	27	24	21	19	18	17	16
	dB(A)	49	47	47	46	46	46	46	46	46	46
350	m ³ /h	1260	1575	1890	2205	2520	2835	3150	3465	3780	4095
	Pa	41	31	26	22	20	18	16	15	14	13
	dB(A)	47	45	45	44	44	44	44	44	44	44
400	m ³ /h	1440	1800	2160	2520	2880	3240	3600	3960	4320	4680
	Pa	34	27	22	19	17	15	14	13	12	12
	dB(A)	46	44	44	43	43	43	43	43	43	43
450	m ³ /h	1620	2025	2430	2835	3240	3645	4050	4455	4860	5265
	Pa	30	23	19	17	15	14	13	12	11	10
	dB(A)	45	43	43	42	42	42	42	42	42	42
500	m ³ /h	1800	2250	2700	3150	3600	4050	4500	4950	5400	5850
	Pa	26	21	18	15	14	12	11	11	10	9
	dB(A)	45	43	43	42	42	42	42	42	42	42
550	m ³ /h	1980	2475	2970	3465	3960	4455	4950	5445	5940	6435
	Pa	24	19	16	14	13	11	11	10	9	9
	dB(A)	45	43	43	42	42	42	42	42	42	42
600	m ³ /h	2160	2700	3240	3780	4320	4860	5400	5940	6480	7020
	Pa	22	18	15	13	12	11	10	9	9	8
	dB(A)	44	42	42	41	41	41	41	41	41	41
650	m ³ /h	2340	2925	3510	4095	4680	5265	5850	6435	7020	7605
	Pa	20	16	14	12	11	10	9	9	8	8
	dB(A)	44	42	42	41	41	41	41	41	41	41
700	m ³ /h	2520	3150	3780	4410	5040	5670	6300	6930	7560	8190
	Pa	19	15	13	11	10	9	9	8	8	7
	dB(A)	44	42	42	41	41	41	41	41	41	41
750	m ³ /h	2700	3375	4050	4725	5400	6075	6750	7425	8100	8775
	Pa	18	14	12	11	10	9	8	8	7	7
	dB(A)	44	42	42	41	41	41	41	41	41	41
800	m ³ /h	2880	3600	4320	5040	5760	6480	7200	7920	8640	9360
	Pa	17	14	12	10	9	8	8	7	7	6
	dB(A)	44	42	42	41	41	41	41	41	41	41

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

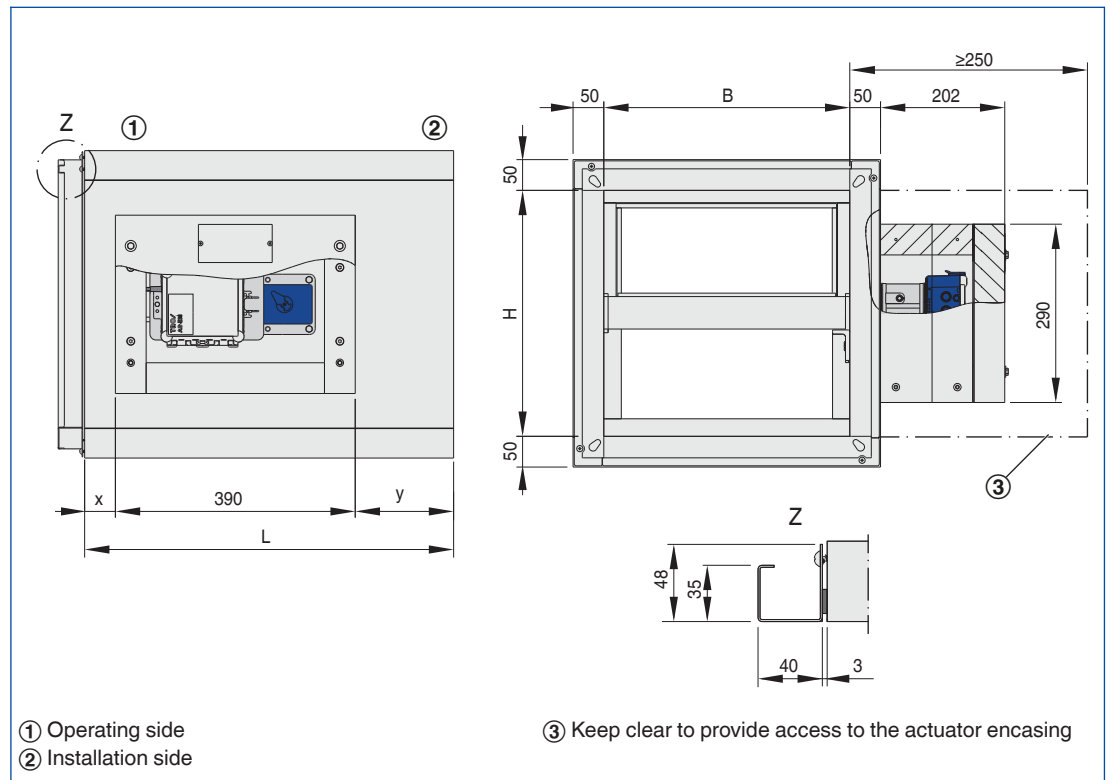
Volume flow rate [m³/h], pressure loss ΔP [Pa] and sound power level [dB(A)] based on damper blade dimensions, at 5 m/s upstream velocity

H	5 m/s	B									
		700	750	800	900	1000	1100	1200	1300	1400	1500
200	m ³ /h	2520	2700	2880	3240	3600	3960	4320	4680	5040	5400
	Pa	27	25	24	22	20	18	17	16	15	15
	dB(A)	54	54	54	55	55	55	55	55	56	56
250	m ³ /h	3150	3375	3600	4050	4500	4950	5400	5850	6300	6750
	Pa	19	18	17	15	14	13	12	12	11	11
	dB(A)	49	49	49	50	50	50	50	50	51	51
300	m ³ /h	3780	4050	4320	4860	5400	5940	6480	7020	7560	8100
	Pa	15	14	13	12	11	11	10	9	9	9
	dB(A)	46	46	46	47	47	47	47	47	48	48
350	m ³ /h	4410	4725	5040	5670	6300	6930	7560	8190	8820	9450
	Pa	13	12	11	10	10	9	8	8	8	7
	dB(A)	44	44	44	45	45	45	45	45	46	46
400	m ³ /h	5040	5400	5760	6480	7200	7920	8640	9360	10080	10800
	Pa	11	10	10	9	8	8	7	7	7	6
	dB(A)	43	43	43	44	44	44	44	44	45	45
450	m ³ /h	5670	6075	6480	7290	8100	8910	9720	10530	11340	12150
	Pa	10	9	9	8	8	7	7	6	6	6
	dB(A)	42	42	42	43	43	43	43	43	44	44
500	m ³ /h	6300	6750	7200	8100	9000	9900	10800	11700	12600	13500
	Pa	9	9	8	7	7	7	6	6	6	5
	dB(A)	42	42	42	43	43	43	43	43	44	44
550	m ³ /h	6930	7425	7920	8910	9900	10890	11880	12870	13860	14850
	Pa	8	8	8	7	6	6	6	5	5	5
	dB(A)	42	42	42	43	43	43	43	43	44	44
600	m ³ /h	7560	8100	8640	9720	10800	11880	12960	14040	15120	16200
	Pa	8	7	7	6	6	6	5	5	5	5
	dB(A)	41	41	41	42	42	42	42	42	43	43
650	m ³ /h	8190	8775	9360	10530	11700	12870	14040	15210	16380	17550
	Pa	7	7	7	6	6	5	5	5	5	4
	dB(A)	41	41	41	42	42	42	42	42	43	43
700	m ³ /h	8820	9450	10080	11340	12600	13860	15120	16380	17640	18900
	Pa	7	6	6	6	5	5	5	4	4	4
	dB(A)	41	41	41	42	42	42	42	42	43	43
750	m ³ /h	9450	10125	10800	12150	13500	14850	16200	17550	18900	20250
	Pa	6	6	6	5	5	5	4	4	4	4
	dB(A)	41	41	41	42	42	42	42	42	43	43
800	m ³ /h	10080	10800	11520	12960	14400	15840	17280	18720	20160	21600
	Pa	6	6	6	5	5	5	4	4	4	4
	dB(A)	41	41	41	42	42	42	42	42	43	43

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

Dimensions

EK-EU with open/close actuator of Type BE



Connecting subframe (optional, also for both sides)

L [mm]	x [mm]	y [mm]
600	50	160
800	125	285

Weight [kg]

L [mm]	H [mm]	B [mm]									
		200	250	300	350	400	450	500	550	600	650
600	200	39	42	45	48	50	53	56	59	62	65
	250	42	45	48	51	54	57	60	63	66	68
	300	45	48	51	54	57	60	63	66	69	72
	350	48	51	54	57	60	63	67	70	73	76
	400	50	54	57	60	64	67	70	73	77	80
	450	53	57	60	63	67	70	74	77	80	84
	500	56	60	63	67	70	74	77	81	84	88
	550	59	63	66	70	73	77	81	84	88	92
800	600	62	66	69	73	77	80	84	88	92	95
	650	79	84	88	93	97	102	107	111	116	120
	700	83	87	92	97	102	106	111	116	120	125
	750	86	91	96	101	106	110	115	120	125	130
	800	90	95	100	105	110	115	119	124	129	134

Weight [kg]

L [mm]	H [mm]	B [mm]									
		700	750	800	900	1000	1100	1200	1300	1400	1500
600	200	67	70	73	79	84	90	96	101	107	113
	250	71	74	77	83	89	95	101	107	113	118
	300	75	78	81	88	94	100	106	112	118	124
	350	79	82	86	92	98	105	111	117	124	130
	400	83	87	90	96	103	110	116	123	129	136
	450	87	91	94	101	108	114	121	128	135	141
	500	91	95	98	105	112	119	126	133	140	147
	550	95	99	102	110	117	124	131	139	146	153
800	650	125	130	134	143	153	162	171	180	189	199
	700	130	135	139	149	158	168	177	186	196	205
	750	135	139	144	154	163	173	183	192	202	212
	800	139	144	149	159	169	179	189	198	208	218

Description

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

Rectangular or square smoke control dampers to product standard EN 12101-8, tested to EN 1366-10 and EN 1366-2, for use in smoke extract systems. Smoke control dampers not only prevent the spreading of smoke and combustion products between fire compartments, they also prevent the leakage of emitted, dangerous and poisonous fire suppression gases from the affected area, and they maintain positive pressure in pressurisation systems. The EK-EU is suitable as a pressure relief damper for gas fire extinguishing systems. For extracting smoke gases and for providing additional supply air to one or more fire compartments. The EK-EU can be used in smoke extract systems which have been approved for extract ventilation. The fire-resistant smoke control damper for multiple compartments is suitable for installation in solid walls and ceiling slabs as well as in and on fire-resistant smoke extract ducts. Open/Close actuator, with fully wired and ready-to-operate control module AS-EM or AS-EM/SIL2 in a temperature resistant encasing (optional).

Materials and surfaces

- Casing, damper blade and actuator encasing made of temperature-resistant calcium silicate
- Brass bearings
- Shafts made of stainless steel

Special characteristics

- Declaration of performance according to Construction Products Regulation
- Classification to EN 13501-4, EI 90 ($v_{edw} - h_{odw}$, $i \leftrightarrow o$) S1500 C_{mod} MA multi
- General building inspectorate licence Z-56.4212-990
- Complies with the requirements of EN 12101-8
- Tested for fire resistance properties to DIN 1366-10 and EN 1366-2
- Casing air leakage to EN 1751, class C
- Low sound power level and differential pressure
- Any airflow direction
- Integration into the central BMS with TROXNETCOM
- Tested to EN 1366-10 with a weight being attached to the blade, with 10,000 open/close cycles and 10,000 cycles in intermediate position (C_{mod})

Technical data

- Nominal sizes: 200 × 200 mm – 1500 × 800 mm, in increments of 1 mm
 - Casing length: 600 and 800 mm
 - Volume flow rate range: Up to 12000 l/s or 43200 m³/h
 - Differential pressure range, pressure level 3: -1500 to 500 Pa
 - Operating temperature: -30 to 50 °C
 - Upstream velocity*: ≤ 10 m/s
- * Data applies to uniform upstream and downstream conditions for the smoke control damper

Sizing data

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

Order options

1 Type

EK-EU Smoke control damper

2 Country of destination

- DE Germany
- Other destination countries upon request

3 Nominal size [mm]

- B × H × L

4 Accessories

- No entry: none
- F0 Connecting subframe on the operating side
- 0F Connecting subframe on the installation side
- FF Connecting subframes on both sides
- A0 Cover grille on the operating side
- 0A Cover grille on the installation side
- AA Cover grilles on both sides
- FA Connecting subframe on the operating side and cover grille on the installation side
- AF Connecting subframe on the installation side and cover grille on the operating side

5 Attachments

Belimo

- B24 BE 24-12, 24 V AC/DC
- B230 BE 230-12, 230 V AC/DC
- B24A BE 24-12, with AS-EM, 24 V AC/DC
- B24AS BE 24-12, with AS-EM/SIL2, 24 V AC/DC

Smoke control dampers

Basic information and nomenclature



- Product selection
- Principal dimensions
- Nomenclature
- Colour codes according to IEC 60757
- Sizing

Smoke control dampers

Basic information and nomenclature

Product selection

Smoke control dampers

Usage			Type	
Installation location	Construction/building material	Minimum thickness	EK-EU	
			Mortar-based installation	Dry mortarless installation
		mm	Fire resistance class	
In solid walls	Walls/gross density $\geq 500 \text{ kg/m}^3$	100	EI 90 S	-
In solid ceiling slabs	Ceiling slabs/gross density $\geq 600 \text{ kg/m}^3$	150	EI 90 S	
In fire-resistant horizontal or vertical smoke extract ducts	Smoke extract ducts tested to EN 1366-8, gross density $\geq 520 \text{ kg/m}^3$	35	-	EI 90 S multi
On fire-resistant vertical or horizontal smoke extract ducts	Smoke extract ducts tested to EN 1366-8, gross density $\geq 520 \text{ kg/m}^3$	35	-	EI 90 S multi
On top of fire-resistant horizontal smoke extract ducts	Smoke extract ducts tested to EN 1366-8, gross density $\geq 520 \text{ kg/m}^3$	35	-	EI 90 S multi
In or on vertical or horizontal sheet steel smoke extract ducts	Sheet steel smoke extract ducts tested to EN 1366-9	-	-	E 90 S single

Product selection

Smoke control dampers

	Smoke control dampers
	EK-EU
Casing and blades	
Calcium silicate	●
Rotation	
Anti-clockwise to OPEN, clockwise to CLOSE	●
Duct connection	
As specified for the duct	●
Open/Close actuators	
Belimo 24 V AC/DC, with limit switches	●
Belimo 230 V AC, with limit switches	●
Belimo 24 V AC/DC, with limit switches and with AS-EM module	●
Belimo 24 V AC/DC, with limit switches and with AS-EM/SIL2 module	●
Nominal sizes	
Width	200 – 1500 mm
Increments	1 mm
Height	200 – 800 mm
Increments	1 mm
Casing	
Length depends on height	600/800 mm
Casing air leakage to EN 1751	Class C
Equipment and accessories	
Connecting subframe	●
Cover grille	●
Integration into the central BMS with TROXNETCOM	●
●	Possible
	Not possible

Smoke control dampers

Basic information and nomenclature

Principal dimensions

Rectangular smoke control dampers

B [mm]

Width of the smoke control damper

H [mm]

Height of the smoke control damper

L [mm]

Length of the smoke control damper

Nomenclature

\dot{V} [m³/h] and [l/s]

Volume flow rate

L_{WA} [dB(A)]

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

A [m²]

Free area

Δp_{st} [Pa]

Static differential pressure

v [m/s]

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

Wiring

Colour codes according to IEC 60757

Code	Colour
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue

Colour codes according to IEC 60757

Code	Colour
VT	violet
GY	grey
WH	white
PK	pink
TQ	turquoise
GNYE	green-yellow

Sizing with the help of this catalogue

This catalogue provides convenient quick sizing tables for smoke control dampers. The volume flow rates for all available dimensions and nominal sizes are provided based on a particular differential pressure. Sizing data for other volume flow rates and differential pressures can be determined quickly and precisely using the Easy Product Finder design programme.

Easy Product Finder



The Easy Product Finder allows you to size products using your project-specific data.

You will find the Easy Product Finder on our website.





5 Tunnel dampers

Tunnel dampers are used to open and close smoke extract openings. They are safety components specially designed for underground transport systems and meet the requirements of the German Guideline for the Equipping and Operation of Roadway Tunnels (Richtlinie für die Ausstattung und den Betrieb von Straßentunneln, RABT) and of the Austrian Guidelines and Provisions for Road Traffic (Richtlinien und Vorschriften für das Straßenwesen, RVS).

5.1 Tunnel dampers	Serie	Seite
--------------------	-------	-------



For the ventilation of and smoke extract from underground transport systems

JF

5.1 – 1

5.2 Basic information and nomenclature		
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Tunnel dampers

5.2 – 1

Tunnel dampers

Type JF



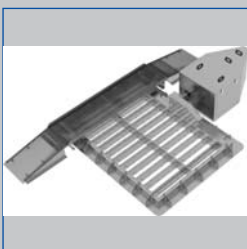
Tunnel damper with centre mullion (from B > 1000 mm)



Tunnel damper with linkage and opposed action blades



Damper for wall installation, with integral encased actuator



Damper for ceiling installation, with installation subframe, thermally insulated protective actuator enclosure, and bridge



For the ventilation of and smoke extract from underground transport systems

Tunnel dampers are safety components specially designed for underground transport systems and meet the requirements of the German Guideline for the Equipping and Operation of Roadway Tunnels (Richtlinie für die Ausstattung und den Betrieb von Straßentunneln, RABT) and of the Austrian Guidelines and Provisions for Road Traffic (Richtlinien und Vorschriften für das Straßenwesen, RVS)

- Certified construction and production according to ISO 9001
- Temperature resistance of 120 minutes at 400 °C
- Excellent low leakage performance even at high pressure
- Galvanised steel, powder-coated, or stainless steel construction
- Side seals made of sprung stainless steel compensate for the longitudinal expansion of the blades at high temperatures
- Parallel or opposed action blades
- Low pressure drop due to aerofoil blades
- With electric actuators encased in thermally insulated protective enclosures

Optional equipment and accessories

- Installation subframe for installation into intermediate concrete ceilings
- Support structure for installation of multiple dampers into walls

Type		Page
JF	General information	5.1 – 2
	Order code	5.1 – 5
	Technical data	5.1 – 6
	Dimensions and weight	5.1 – 7
	Specification text	5.1 – 9
	Basic information and nomenclature	5.2 – 1

Variants

Product examples

Tunnel damper Type JF-S



Tunnel damper Type JF-P



Description



Tunnel damper Type JF

Application

- TROX tunnel dampers of Type JF are specially designed safety components that meet the RABT and RVS requirements
- For opening and closing smoke extract ducts
- Used in ventilation and smoke extract systems in underground transport systems
- Can also be used as shut-off dampers for fans
- Installation usually either above the roadway in an intermediate concrete ceiling or in the ventilation plant room
- Bespoke solutions upon request

Classification

- Machinery Directive 2006/42/EG, Declaration of incorporation
- Test report no. 210004049 – MPA NRW (Germany)
- Stability report no. 7317/06 – Afiti Licof (Spain)
- Test report no. 2007-757.01 – MA 39 VFA (Austria)
- Test report no. 210005454 – MPA NRW (Germany)

Variants

- JF-S: Tunnel damper with opposed action blades
- JF-P: Tunnel damper with parallel action blades

Construction

- Galvanised sheet steel, flange holes on both sides, brass bearings, seals made of stainless steel
- A4: Stainless steel sheet, flange holes on both sides, stainless steel bearings, seals made of stainless steel

Nominal sizes

- B = 400 – 2,200 mm, in 100 mm increments as standard; H = 440 – 2,175 mm, in 195 mm increments as standard
- Available also in intermediate sizes (B and H) of 1 mm increments
- Sizes outside of the stated ranges are available upon request
- For larger sizes several dampers can be combined and fitted on a support structure

Optional equipment

- Installation subframe
- Baffle plates
- Walk-on grilles as bridges
- Support structure

Accessories

- Actuator
- Thermally insulated enclosure
- Quadrant stay with position indicator

Special characteristics

- Excellent low leakage performance of 0.1 m³/s per m² at a differential pressure of 3000 Pa
- For high operating pressure of up to 5000 Pa
- Low pressure drop
- Maximum corrosion and temperature resistance
- Excellent fire resistance of 120 minutes at 400 °C
- Remote control with actuator

Parts and characteristics

- Electric open/close actuator or spring return actuator including limit switches
- Thermally insulated protective enclosure for the actuator, made of galvanised sheet steel or stainless steel sheet and faced rockwool mats
- Aerofoil blades with side seals and longitudinal tip seals

Construction features

- TROX tunnel dampers of Type JF-S/P-TD consist basically of a casing, movable blades and linkage
- Casing made from four C-sections of sheet steel, welded at the joints
- From B > 1000 mm the blades are divided by a centre mullion
- The H sides are fitted with special side seals made of stainless steel
- Blades are double skin steel sections, screwed together, with longitudinal blade tip seals made of stainless steel, for opposed or parallel action
- Remote control with an actuator which may require a thermally insulated protective enclosure (depending on application)
- Enclosure can be fitted with baffle plates in order to reduce the aerodynamic drag in the smoke extract duct

Materials and surfaces

Stainless steel construction:

- KM: (only with stainless steel construction) All gaps, threads, and joints of corrosion-resistant steel are treated with a varnish for corrosion protection and preservation.
- Frame and blades: Stainless steel sheet, AISI 316Ti (1.4571)
- Shafts: Stainless steel, Ø 20 mm, AISI 316Ti (1.4571), surface treated with Kolsterising process
- Bearings: AISI 316Ti (1.4571)
- Linkage: AISI 316Ti (1.4571)
- Longitudinal blade tip seals: Stainless steel sheet, AISI 316Ti (1.4571)
- Side seals: Stainless steel sheet, AISI 316Ti (1.4571)
- Connecting elements: A4

Galvanised construction:

- Frame and blades: Galvanised sheet steel, DX51D+Z150-200NAC to EN 10327
- Shafts: Stainless steel, Ø 20 mm, AISI 303 (1.4305)
- Bearings: Brass CuZn40Pb2 (CW617N)
- Linkage: Stainless steel, AISI 304 (1.4301)
- Longitudinal blade tip seals: Stainless steel sheet, AISI 301 (1.4310)
- Side seals: Stainless steel sheet, AISI 301 (1.4310)
- Connecting elements: Galvanised

P1 Powder-coated construction:

- Frame and blades: Galvanised sheet steel, DX51D+Z150-200NAC to EN 10327
- Shafts: Stainless steel, Ø 20 mm, AISI 303 (1.4305)
- Bearings: Brass CuZn40Pb2 (CW617N)
- Linkage: Stainless steel, AISI 304 (1.4301)
- Longitudinal blade tip seals: Stainless steel sheet, AISI 316Ti (1.4571)
- Side seals: Stainless steel sheet, AISI 316Ti (1.4571)
- Powder coating: RAL (coating thickness 60 µm)

Installation and commissioning

- Tunnel dampers are installed in underground transport systems such as road tunnels or underground railway stations
- Use in ventilation and smoke extract systems in underground transport systems, installation into intermediate concrete ceilings above the roadway
- Use as fan shut-off dampers, in underground and multi-storey car parks or in ventilation plant rooms
- Simplified installation with installation subframe
- Horizontal or vertical installation
- Torsion-free installation
- Exact horizontal or vertical installation is a must
- For larger areas several dampers can be combined and fitted on a support structure

Environmental conditions, exposure to cleaning substances, etc.:

- Normal environmental conditions are harsh, with extreme temperature and humidity changes as well as pressure waves and vibrations caused by vehicles
- Exposure to large amounts of dirt and dust, e.g. by water jets with a pressure of 6 to 7 bar, sometimes with additives such as cleaning agents, rotating cleaning brushes of cleaning vehicles, exhaust fumes from gas and diesel engines, de-icing salts such as sodium chloride or calcium chloride
- In the event of a fire, the conditions are different but no less harsh: hot fire gases, high temperatures, longitudinal expansion due to high temperatures, firefighting water, and steam

Maintenance

- Low maintenance; operational reliability is ensured even after extended stand-by use; long service life
- Maintenance-free bearings
- Regular inspection is required in spite of robust construction and highly corrosion-resistant materials. Service as required, e.g. removing contamination that impairs the function or causes corrosion

Technical data

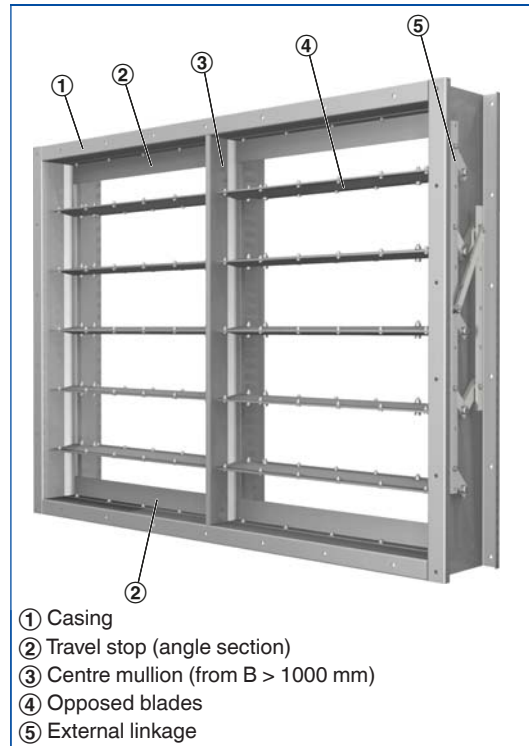
Nominal sizes	400 × 440 – 2200 × 2175 mm
Volume flow rate range	350 – 95,700 l/s or 1,260 – 344,520 m ³ /h
Differential pressure range	Bis 5000 Pa
Operating temperature	0 – 400 °C/120 mins
Leakage rate	0.1 m ³ /s per m ² at 3000 Pa

Function

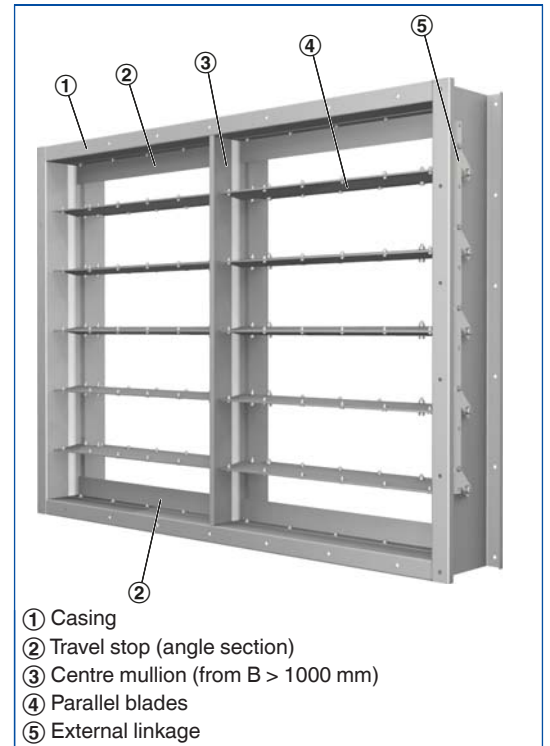
Functional description

When a fire is detected, two or three dampers near the fire site open automatically; the other dampers remain usually closed. At the same time, the exhaust fans are run at maximum speed to ensure efficient smoke exhaust. This enables people to leave the danger zone, and firefighters to fight the fire.

Schematic illustration of JF-S

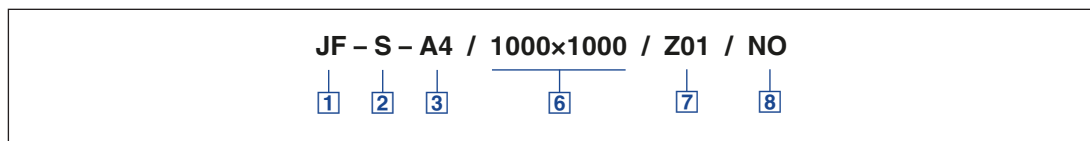


Schematic illustration of JF-P



Order code

JF



1 Type

JF Tunnel / industrial damper

2 Function

S Opposed
P Parallel

3 Material

No entry: galvanised steel
A4 Stainless steel 1.4571

4 Operating side

No entry: on the right
L Left side

5 Linkage-to-actuator connection

No entry: on the right
L Left side

6 Nominal size [mm]

B x H

7 Attachments

No entry: none
Z01 Belimo BE230-12 with Promat enclosure
Z02 Schischek InMax50-SF with Promat enclosure

8 Damper blade safety function

NO Power off to OPEN
NC Power off to CLOSE

9 Surface

No entry: standard construction
P1 Powder-coated, RAL CLASSIC colour (not with A4)
KM Anti-corrosive varnish (only with A4)
Gloss level
RAL 9010 50 %
RAL 9006 30 %
All other RAL colours 70 %

Order example

JF-P/1000x1000/Z01/NC/P1-RAL9006

Free area

H	B [mm]									
	400	600	800	1000	1200	1400	1600	1800	2000	2200
mm	m ²									
440	0.13	0.19	0.26	0.33	0.39	0.45	0.52	0.59	0.65	0.72
635	0.19	0.29	0.39	0.49	0.58	0.68	0.78	0.88	0.99	1.09
830	0.26	0.39	0.53	0.66	0.78	0.91	1.05	1.18	1.32	1.45
1025	0.32	0.49	0.66	0.83	0.98	1.14	1.31	1.48	1.67	1.82
1220	0.38	0.59	0.79	0.99	1.17	1.37	1.58	1.78	1.98	2.19
1415	0.45	0.69	0.92	1.16	1.37	1.61	1.84	2.08	2.32	2.55
1610	0.51	0.78	1.06	1.33	1.56	1.84	2.11	2.38	2.65	2.92
1805	0.58	0.88	1.19	1.49	1.76	2.07	2.37	2.68	2.98	3.29
2000	0.64	0.98	1.32	1.66	1.96	2.30	2.64	2.98	3.31	3.65

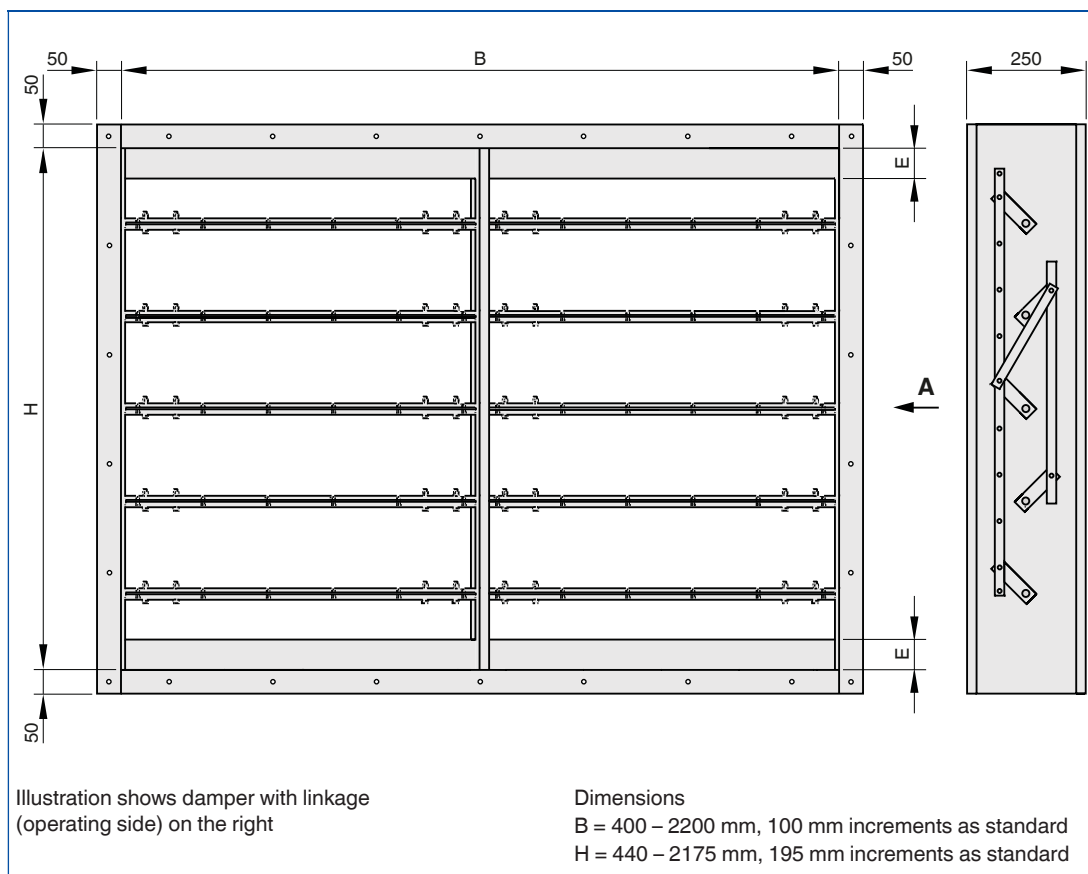
Aerodynamic data such as differential pressures and sound power levels are available upon request.

Dimensions



Tunnel damper Type JF-S

JF-S with opposed blades



Weight

H	B [mm]									
	400	600	800	1000	1200	1400	1600	1800	2000	2200
mm	kg									
440	26	31	36	40	46	51	57	62	68	73
635	32	38	44	50	59	66	72	79	86	92
830	38	46	53	61	73	81	89	97	104	112
1025	45	53	62	71	86	95	105	114	123	132
1220	51	61	71	81	100	110	121	131	142	152
1415	57	69	80	91	114	125	137	149	160	172
1610	64	76	88	101	127	140	153	166	179	192
1805	70	84	97	111	141	155	169	183	197	212
2000	77	91	106	121	154	169	185	201	216	219
2175	79	94	108	123	157	172	188	204	219	234

Standard sizes

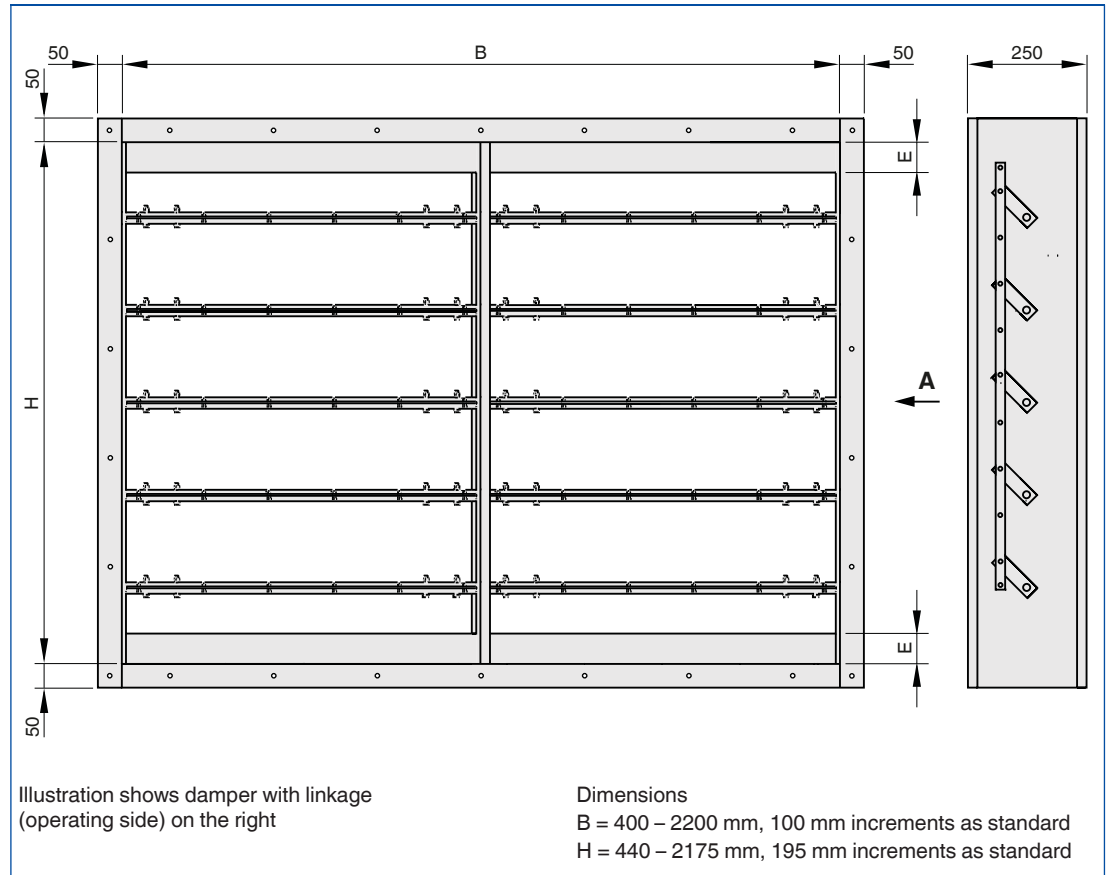
H	No. of blades	E
mm	-	mm
440	2	26.5
635	3	26.5
830	4	26.5
1025	5	26.5
1220	6	26.5
1415	7	26.5
1610	8	26.5
1805	9	26.5
2000	10	26.5

Dimensions



Tunnel damper Type JF-P

JF-P with parallel blades



Intermediate sizes

H	No. of blades	E
mm	–	mm
430 - 624	2	21.5 - 118.5
625 - 819	3	21.5 - 118.5
820 - 1014	4	21.5 - 118.5
1015 - 1209	5	21.5 - 118.5
1210 - 1404	6	21.5 - 118.5
1405 - 1599	7	21.5 - 118.5
1600 - 1794	8	21.5 - 118.5
1795 - 1989	9	21.5 - 118.5
1990 - 2175	10	21.5 - 118.5

Description

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

TROX tunnel dampers are specially designed safety components to control the volume flow rate of the extract air from tunnels; they meet the RABT and RVS requirements. Units consist basically of a casing, movable blades and linkage. Sprung steel side seals allow for the longitudinal expansion of the components at temperatures up to 400 °C for 120 minutes and ensure very low leakage rates even at high pressures.

Construction

- Galvanised sheet steel, flange holes on both sides, brass bearings, seals made of stainless steel
- A4: Stainless steel sheet, flange holes on both sides, stainless steel bearings, seals made of stainless steel

Special characteristics

- Excellent low leakage performance of 0.1 m³/s per m² at a differential pressure of 3000 Pa
- For high operating pressure of up to 5000 Pa
- Low pressure drop
- Maximum corrosion and temperature resistance
- Excellent fire resistance of 120 minutes at 400 °C
- Remote control with actuator

Technical data

- Nominal sizes: 400 × 440 – 2200 × 2175 mm
- Volume flow rate range: 350 to 95,700 l/s or 1,260 to 344,520 m³/h
- Differential pressure: up to 5000 Pa
- Operating temperature: 0 – 400 °C/120 mins
- Leakage rate: 0.1 m³/s per m² at 3000 Pa

Sizing data

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

Order options

1 Type

JF Tunnel / industrial damper

2 Function

- S** Opposed
- P** Parallel

3 Material

- No entry: galvanised steel
- A4** Stainless steel 1.4571

4 Operating side

- No entry: on the right
- L** Left side

5 Linkage-to-actuator connection

- No entry: on the right
- L** Left side

6 Nominal size [mm]

B × H

7 Attachments

- No entry: none
- Z01** Belimo BE230-12 with Promat enclosure
- Z02** Schischek InMax50-SF with Promat enclosure

8 Damper blade safety function

- NO** Power off to OPEN
- NC** Power off to CLOSE

9 Surface

- No entry: standard construction
- P1** Powder-coated, RAL CLASSIC colour (not with A4)
- KM** Anti-corrosive varnish (only with A4)
- Gloss level
 - RAL 9010 50 %
 - RAL 9006 30 %
 - All other RAL colours 70 %
-

Tunnel dampers

Basic information and nomenclature



- Product selection

Tunnel dampers

Basic information and nomenclature

Product selection

	Tunnel dampers	
	JF-S	JF-P
Casing and blades		
Galvanised sheet steel	●	●
Galvanised sheet steel, powder-coated, RAL colour	●	●
Stainless steel 1.4571	●	●
Rotation		
Parallel		●
Opposed	●	
Dynamics		
External linkage	●	●
Nominal sizes		
Width	400 – 2200 mm	400 – 2200 mm
Increments	1 mm	1 mm
Width subdivided	●	●
Height	440 – 2175 mm	440 – 2175 mm
Increments	1 mm	1 mm
Height subdivided	●	●
Casing		
Depth	250 mm	250 mm
Areas of application		
Temperature resistance	400 °C for 120 mins	400 °C for 120 mins
Closed blade air leakage	0.1 m ³ /s per m ² at 3000 Pa	0.1 m ³ /s per m ² at 3000 Pa
Equipment and accessories		
Installation subframe for installation into intermediate concrete ceilings	●	●
Support structure for wall installation of subdivided construction	●	●
	Possible	
	Not possible	



6 TROXNETCOM

TROXNETCOM is used for the automatic control of various types of products in fire protection and smoke extract systems. This includes TROX components that can be integrated with central building management systems via LON, BACnet or Modbus. In addition, TROX offers complete fire protection and smoke extract systems based on the AS-Interface and PROFIBUS DP industry standards. They offer standard interfaces to central building management systems and allow for the automatic testing of the system.

6.1 TROXNETCOM LON	Type	Page
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Communication interface for exchanging variables via LonWork

Module

6.1 – 1

6.2 TROXNETCOM AS-i	Type	Page
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Controllers for the data acquisition and control of the field modules, repeaters for a maximum expansion of the network

Controllers and repeaters

6.2 – 1



For the control and operation of a system with several controller and power units, and for the display of its functions

Master and display units

6.2 – 21



Switching power supply unit for a 24 V supply voltage

Switching power supply units

6.2 – 28



AS-i system voltage for master, sensors, actuators, and module

Power supply units 6.2 – 38



For the control of fire and smoke protection systems

Pre-configured switch boxes

6.2 – 44



Communication interface between a component and the controller

Modules

6.2 – 52



Accessories for easy and safe installation

AS-i Installation

6.2 – 72



For the addressing of field modules (slaves)

Adjustment and addressing devices

6.2 – 78

6.3 Decentralised operating and monitoring systems **Type** **Page**



System for controlling and monitoring motorised fire dampers

TNC-EASYCONTROL

6.3 – 1



Communication interface for exchanging variables via BACnet or Modbus

MB-BAC-WA 1/4

6.3 – 11

6.4 Basic information and nomenclature

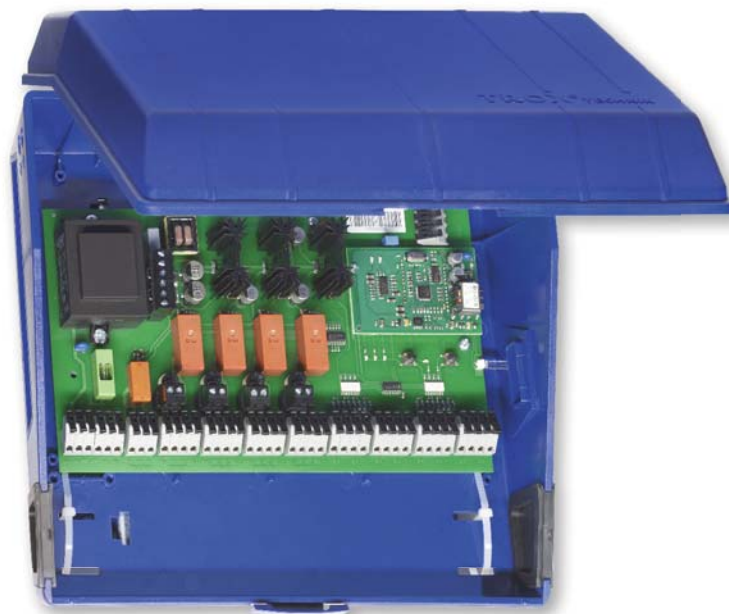


TROXNETCOM

6.4 – 1

TROXNETCOM LON

Type Modules



Communication interface for exchanging variables via LonWorks

Functional modules designed for the monitoring of motorised fire dampers

- Easy integration into higher level systems due to standard network variables (SNVT)
- Programming is based on LonMark functional profile 110.01, 'Fire and Smoke Damper Actuator'
- Direct communication between modules (decentralised intelligence)
- High transmission reliability and data integrity
- Network can easily be expanded (free topology)



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LonMark Partner

Description



LON-WA1/B2

Application

- LON-WA1/B2 is a functional module designed for the monitoring of fire dampers that are equipped with a plug-in 24 V actuator (e.g. Belimo); this simplifies installation
- The module is installed on a fire damper and connected to the 24 V actuator by a plug connection
- Two motorised fire dampers can be controlled with a LON-WA1/B2
- Easy integration into higher level systems due to standard network variables (SNVT)
- Based on LonMark functional profile 110.01, Fire and Smoke Damper Actuator
- The module is certified by LonMark

Technical data

Supply voltage	20 – 28 V AC/DC, 50/60 Hz; double terminals for looping through
Power consumption	3.12 VA or 1.32 W (without actuators)
Inputs	4 digital inputs for volt-free switches
Outputs	3 digital relay outputs; changeover relay for damper 1 (fire damper): max. switch rating at V AC: 120 VA (5 A resistive load); NO relay for damper 2 (second fire damper): max. switch rating at 24 V AC: 144 VA (6 A resistive load); NO relay for Fire Chain: max. switch rating AC: 1500 V A (250 V AC; 6 A resistive load)
LON interface	4 terminals, LON; FTT10 free topology
IP protection level	IP 54
Operating temperature	10 – 60 °C
Relative humidity	20 – 95 % (non-condensing)
Connection terminals	Actuator control: 3-pole AMP MATE-N_LOK socket
Connection terminals	Actuators for position indication: 6-pole AMP MATE-N_LOK socket
Supply voltage for terminals	Clamp terminals, 90°, for 0.08 – 2.5 mm ²
FireChainSignal	Clamp terminals, 90°, for 0.08 – 1.5 mm ²
Software application	xif/apb-files under www.trox.de
Dimensions (B x H x T)	≈ 90 x 160 x 54 mm
Material	Plastic

Function**Functional description**

LON-WA1/B2 can be used to control two fire dampers. A second fire damper is connected with LON-WA1/B2-AD or LON-WA1/B2-AD230. If only one fire damper is connected, the 8-pole terminal block for the connection of the second fire damper must have a wire link between terminals 5 and 6 (end position OPEN). This is to prevent an alarm for the second, missing fire damper. Input variable ActuDrive is used to control the fire damper. Output variable ActuPosn is used to signal the current damper blade position.

The following applies:

- Normal = Fire damper is OPEN
- Fire = Fire damper is CLOSED

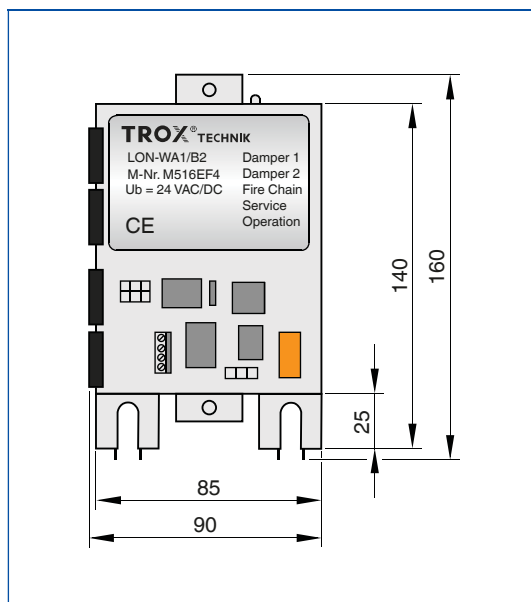
When LON-WA1/B2 is supplied with voltage, the connected dampers move into their respective normal position. Pressing the Test button moves the dampers to the Fire position, and after the OffTime + 10 s back into the Normal position.. In case of an error, VDMA sheet 24200-1 (Automated fire protection and smoke extract systems) applies:

Safe positions

- Fire damper = CLOSED

If LON-WA1/B2 is used, the heartbeat function should be activated (for safety reasons). Setting parameter MaxRcvTime for variable ActuDrive, and parameter MaxSendTime for variable ActuPosn, ensures that all LON-WA1/B2 modules regularly send and receive information. This ensures that the transmission path is being monitored. In case of an error, the damper moves to a safe position, and an alarm is emitted. Input variable FT_Test can be used to initiate a functional test of the damper. The dampers are then moved to the 'Fire Position'. The output variable FT_Test indicates whether a test is being carried out.

The module remains in the text condition for the entire TestHoldTime. The damper remains in the 'Fire Position' until a new command is issued using ActuDrive. If ActuDrive switches to 'Fire' during a test, the test is automatically aborted. If there is a chain of modules (and hence fire dampers), the FireChain variables can transmit a signal from the first to the last but will not release a damper. The FireChain relay in the LON-WA1/B2 module receives a signal and can be used for consolidated alarms or to switch off systems. The Pulse variables are used to check a LON network. If the input variable is set, the LON-WA1/B2 module will change the output variable after 1 second. If there is a chain of modules, a trigger pulse is generated which can be read out at the end of the chain after $N \times 1$ seconds (N = number of LON-WA1/B2 modules).

6**Dimensions****LON module LON-WA1/B2**

Specification text

Standard description (characteristics)

LON module for the control of up to two motorised fire dampers (24 V) The actuators for the dampers are connected with AMP Mate-N-LOK plugs. Can be attached to the fire damper with a mounting bracket. For controlling the dampers and capturing end positions OPEN and CLOSED. Transmission of all signals to higher level systems and control of motorised fire dampers via LON field bus and using standard network variables; transmission of system status; watchdog and heartbeat functions: compliance with LonMark specification 110.01, 'Fire and Smoke Damper Actuator', LonMark certificate.

The second motorised fire damper should be connected using LON-WA1/B2-AD or LON-WA1/B2-AD230 (accessories).

The following parameters can be defined:

- Maximum interval for sending data
- Minimum interval for receiving data
- Maximum interval for sending status
- Zone number
- Designation of the damper
- Installation date and time
- Date and time of the last inspection; maximum time required to CLOSE the damper
- Maximum time required to OPEN the damper – maximum time for test run

Connections

- 4 digital inputs including 2 with AMP Mate-N-LOK socket
- 3 digital relay outputs including 1 changeover contact via AMP Mate-N-LOK socket
- 8-pole terminal strip for the connection to LON-WA1/B2-AD or LON-WA1/B2-AD230
- 3-pole AMP-Mate-N-LOK socket
- 6-pole AMP-Mate-N-LOK socket
- 24 V AC/DC supply voltage
- Connection to LON bus via FTT10A transceiver
- IP protection level IP 54

Description



LON-WA1/B2-AD

Application

- Connection box LON-WA1/B2-AD is used to connect a second fire damper, that is fitted with a 24 V plug-in actuator, to the LON-WA1/B2 module
- The connection box is connected to the LON-WA1/B2 module with a 6-pole cable
- The terminals have numbers to facilitate wiring.

Technical data

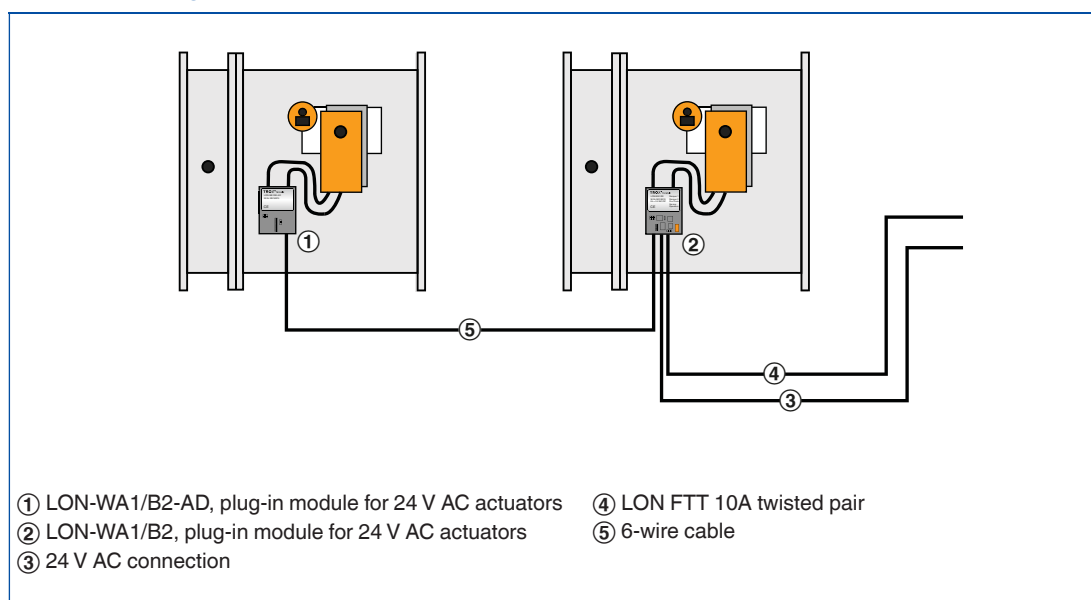
Connection terminals	Actuator control: 3-pole AMP MATE-N_LOK socket
Connection terminals	Actuators for position indication: 6-pole AMP MATE-N_LOK socket
Connection LON-WA1/B2	Clamp terminals, 90°, for 0.08 – 2.5 mm ²
Dimensions (B × H × T)	≈ 90 × 160 × 54 mm
Material	Plastic

Function

Functional description

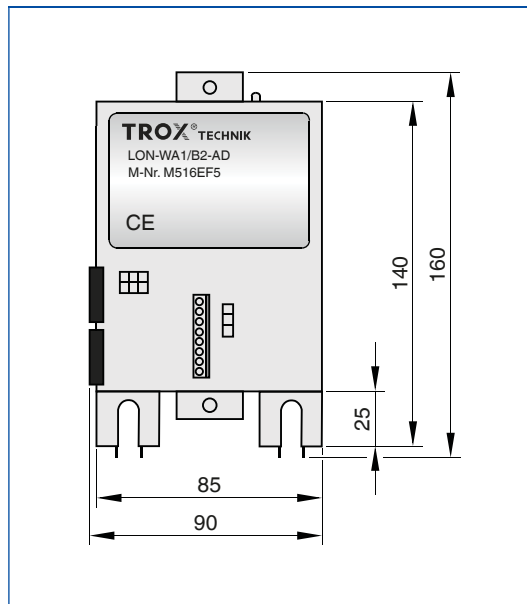
Connection box LON-WA1/B2-AD is used to connect a second fire damper, that is fitted with a 24 V plug-in actuator, to the LON-WA1/B2 module. A 6-pole cable is used to transmit information on the end positions between the components and to transmit the control input signal for the actuator. The second fire damper does not require a separate power supply. The LON-WA1/B2 software allows for each damper to be integrated independently with the LON network.

Control input signal LON-WA1/B2



Dimensions

Module LON-WA1/B2-AD



Specification text

Standard description (characteristics)

Connection box for the connection of a second motorised fire damper (24 V) to the LON-WA1/B2 module. The damper actuator is connected with an AMP Mate-N-LOK plug. Can be attached to the fire damper with a mounting bracket. A 6-pole cable (by others) is required to connect LON-WA1/B2-AD with LON-WA1/B2. The 24 V supply voltage for the actuator is provided by the LON-WA1/B2.

Connections:

- 8-pole terminal strip for the connection to LON-WA1/B2
- 3-pole AMP-Mate-N-LOK socket
 - 6-pole AMP-Mate-N-LOK socket
- IP protection level IP 54

Description



LON-WA1/B2-AD230

Application

- Connection box LON-WA1/B2-AD230, with an integral power supply unit, is used to connect a second fire damper, that is fitted with a 24 V plug-in actuator, to the LON-WA1/B2 module; the connection box is supplied with 230 V 50/60 Hz voltage from the mains.
- The connection box is connected to the LON-WA1/B2 module with an 8-pole cable.
- The terminals have numbers to facilitate wiring.

Technical data

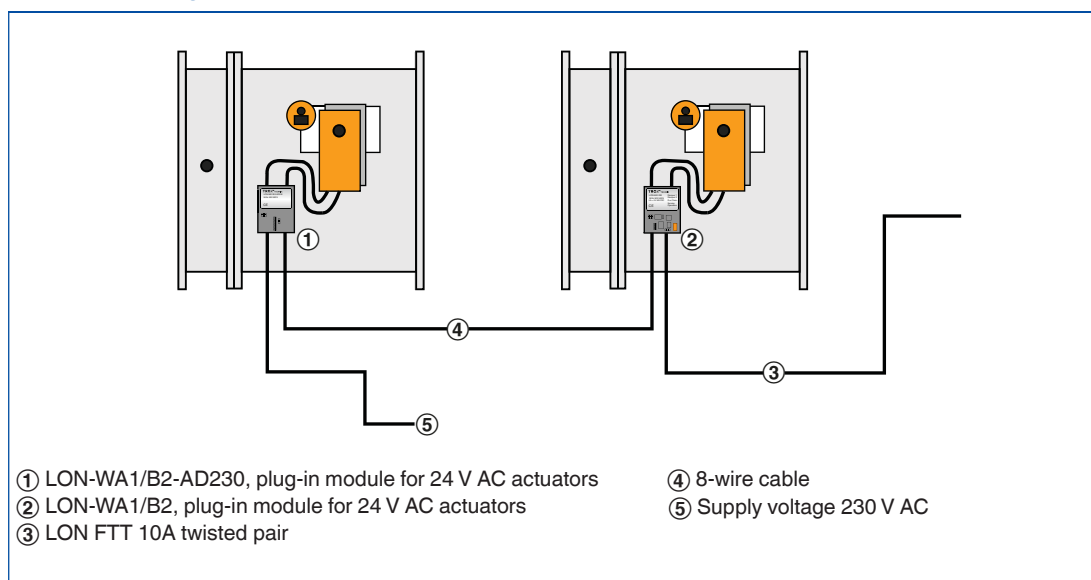
Input voltage	200 – 240 V AC, 50/60 Hz; double terminals for looping through
Output voltage	24 V AC
Output current	750 mA
IP protection level	IP 54
Operating temperature	–10 to 60 °C
Connection terminals	Actuator control: 3-pole AMP MATE-N_LOK socket; actuators for position indication: 6-pole AMP MATE-N_LOK socket
Connection LON-WA1/B2	Clamp terminals, 90°, for 0.08 – 2.5 mm ²
Dimensions (B × H × T)	≈ 90 × 160 × 54 mm
Material	Plastic

Function

Functional description

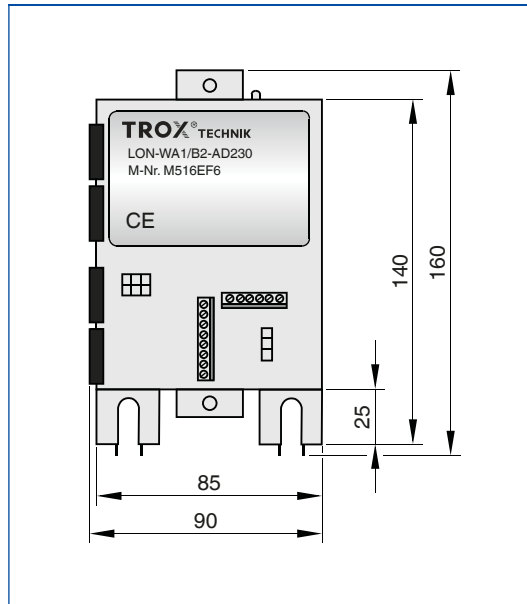
Connection box LON-WA1/B2-AD230 is used to connect a second fire damper, that is fitted with a 24 V plug-in actuator, to the LON-WA1/B2 module. Connection box LON-WA1/B2-AD230 is supplied with 230 V 50/60 Hz voltage from the mains. The integral power supply unit provides the 24 V supply voltage for the actuators and for the LON-WA1/B2 module. An 8-pole cable is used to transmit information on the end positions between the components, to transmit the control input signal for the actuator, and to provide 24 V. The LON-WA1/B2 software allows for each damper to be integrated independently with the LON network.

Control input signal LON-WA1/B2-AD230



Dimensions

Module LON-WA1/B2-AD230



Specification text

Standard description (characteristics)

Connection box with integral 230 V/24 V AC/DC power supply unit for connecting a second motorised fire damper (24 V) to the LON-WA1/B2; the 24 V voltage for the actuators and the LON-WA1/B2 is provided by the integral power supply unit. The damper actuator is connected with an AMP Mate-N-LOK plug. Can be attached to the fire damper with a mounting bracket. An 8-pole cable (by others) is required to connect LON-WA1/B2-AD230 with LON-WA1/B2.

Connections:

- 8-pole terminal strip for the connection to LON-WA1/B2
- 3-pole AMP-Mate-N-LOK socket
- 6-pole AMP-Mate-N-LOK socket
- 6-pole plug connector for the mains (230 V)
- Supply voltage 230 V AC
- IP protection level IP 54

Description



LON-WA1/FT3

Application

- LON-WA1/FT3 is a functional module that has been specially developed for the monitoring of motorised fire dampers
 - Up to four motorised fire dampers can be controlled with a LON-WA1/FT3
 - Supply voltage: 230 V AC, 24 V AC/DC
 - The connections for the damper actuators are either designed for the respective supply voltage of volt-free
 - LON interface with FT5000 transceiver
- A separate LON standard bus is used as a communication line
 - Standard network variables (SNTV) have been used for all functions such that LON-WA1/FT3 can be integrated flexibly and easily with higher level systems
 - Based on the LonMark specification 'Fire and Smoke Damper Actuator'
 - LonMark functional profile 110.01, 'Fire and Smoke Damper Actuator', has been used

Technical data

Supply voltage	230 V AC $\pm 10\%$, 50/60 Hz, 24 V AC or 24 V DC $\pm 10\%$ as an option; double terminals for looping through
Power consumption	Approx. 12 VA without actuators (4.8 VA or W)
Inputs	8 digital inputs for volt-free switches
Outputs	5 digital outputs, each with changeover relay
LON interface	4-pole spring-loaded terminals for 0.08 – 2.5 mm ² ; FT5000 free topology
IP protection level	IP 20
Operating temperature	10 – 60 °C
Relative humidity	20 – 95 % (non-condensing)
Connection terminals	Actuator control: 4-pole spring-loaded terminals for 0.08 – 2.5 mm ² ; actuators for position indication: 4-pole spring-loaded terminals for 0.08 – 2.5 mm ²
Supply voltage for terminals	2 x 3-pole for 0.08 – 2.5 mm ²
FireChainSignal	3-pole spring-loaded terminals for 0.08 – 2.5 mm ²
Software application	xif/apb-files under www.trox.de
Dimensions (B x H x T)	285 x 270 x 150 mm
Material	ABS plastic, blue (RAL 5002)

Function**Functional description**

LON-WA1/FT3 can be used to control up to four fire dampers. If less than four dampers are connected, the 4-pole terminal blocks must have a wire link between the respective 'OPEN position' terminals (E1, E3, E5, E7). This is to prevent an alarm for non-existing dampers. Input variable ActuDrive is used to control the fire damper. Output variable ActuPosn is used to signal the current damper blade position.

The following applies:

- Normal = Fire damper is OPEN
- Fire = Fire damper is CLOSED

When LON-WA1/FT3 is supplied with voltage, the connected dampers move into their respective normal position. In case of an error, VDMA sheet 24200-1 (Automated fire protection and smoke extract systems) applies:

Safe positions

- Fire damper = CLOSED

If LON-WA1/FT3 is used, the heartbeat function should be activated (for safety reasons). Setting parameter MaxRcvTime for variable ActuDrive, and parameter MaxSendTime for variable ActuPosn, ensures that all LON-WA1/FT3 modules regularly send and receive information. This ensures that the transmission path is being monitored. In case of an error, the damper moves to a safe position, and an alarm is emitted. Input variable FT_Test or the test push button of the modul can be used to initiate a functional test of the damper.

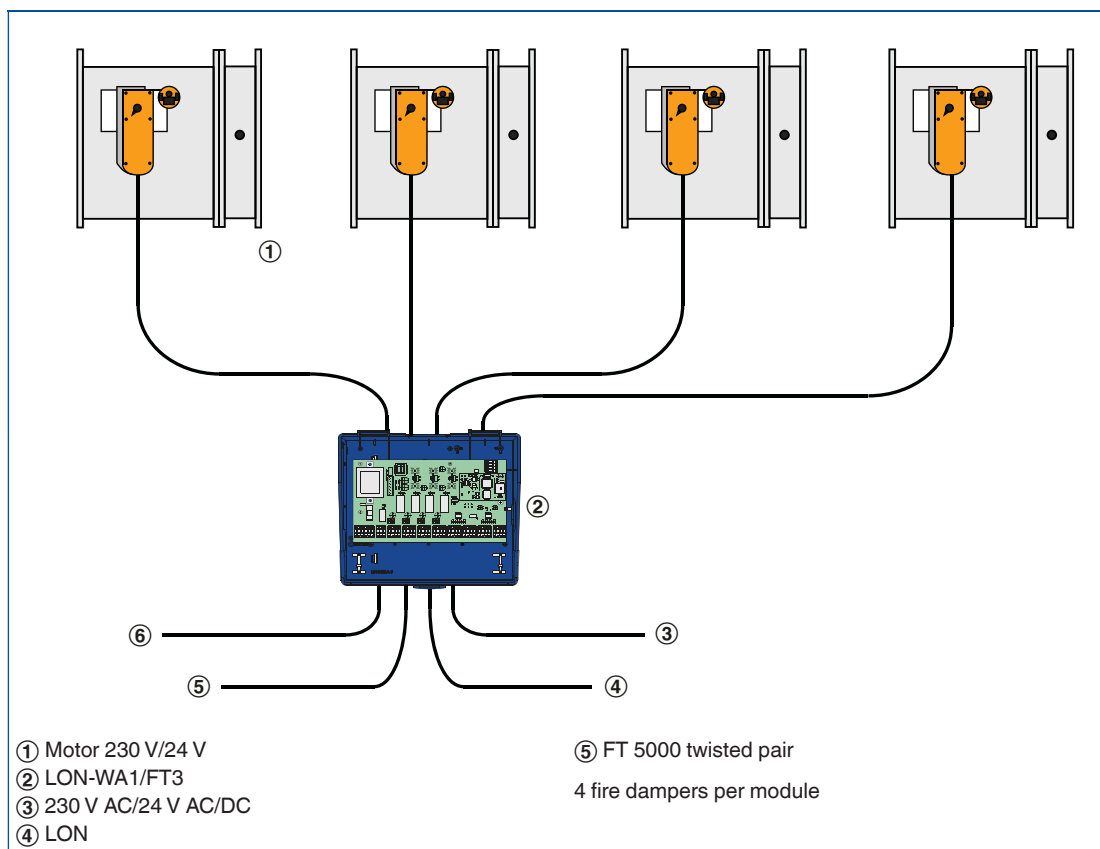
This moves the dampers to the 'Fire Position' and back to the 'Normal' position (OPEN).

The output variable FT_Test indicates whether a test is being carried out.

The module remains in the text condition for the entire TestHoldTime.

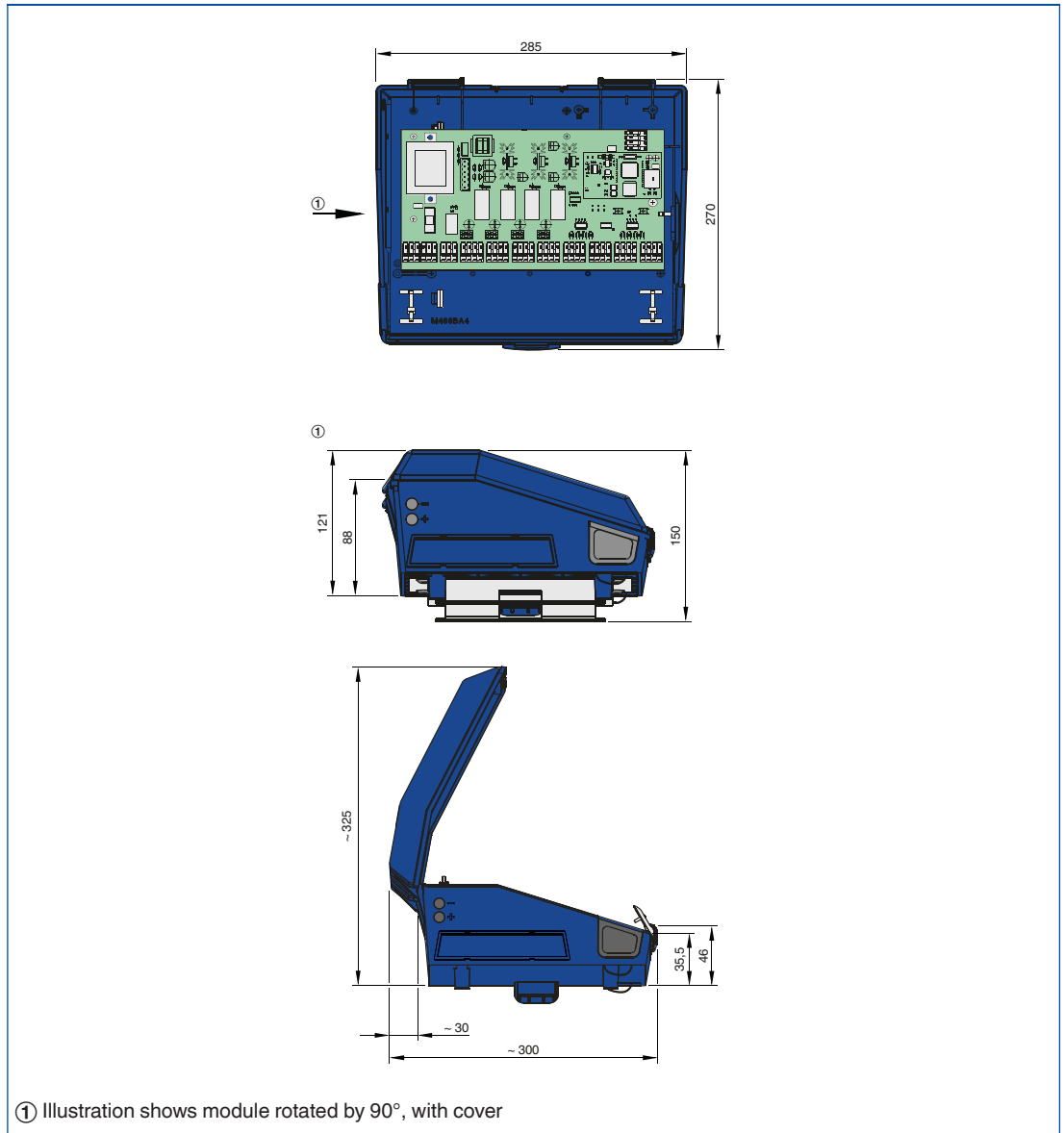
If ActuDrive switches to 'Fire' during a test, the test is automatically aborted.

If there is a chain of modules (and hence fire dampers), the FireChain variables can transmit a signal from the first to the last but will not release a damper. The FireChain relay in the LON-WA1/FT3 module receives a signal and can be used for consolidated alarms or to switch off systems. The Pulse variables are used to check a LON network. If the input variable is set, the LON-WA1/FT3 module will change the output variable after 1 second. If there is a chain of modules, a trigger pulse is generated which can be read out at the end of the chain after $N \times 1$ seconds (N = number of LON-WA1/FT3 modules).

Control input signal LON-WA1/FT3

Dimensions

Module LON-WA1/FT3



Specification text**Standard description (characteristics)**

LON module for the control of up to four motorised fire dampers (230 V or 24 V AC/DC).

For controlling the dampers and capturing end positions OPEN and CLOSED. Transmission of all signals to higher level systems and control of motorised fire dampers via LON field bus FT5000 and using standard network variables; transmission of system status; watchdog and heartbeat functions: compliance with LonMark specification 110.01, 'Fire and Smoke Damper Actuator', LonMark certificate.

The following parameters can be defined:

- Maximum interval for sending data
- Minimum interval for receiving data
- Maximum interval for sending status
- Zone number
- Designation of the damper
- Installation date and time
- Date and time of the last inspection;
maximum time required to CLOSE the damper
- Maximum time required to OPEN the damper –
maximum time for test run

Connections

- 8 digital inputs
- 5 digital relay outputs, changeover contact
250 V/5 A
- Supply voltage 24 V AC/DC or 230 V AC
- Outputs either with supply voltage or volt-free
- Connection to LON bus via FT5000 transceiver

Description



LON-WA4/B

Application

- IO module with 4 digital inputs, used to capture the status of volt-free switches
- Due to additional link options and alarm signalling particularly suitable for monitoring fire dampers with electric limit switches

Technical data

Supply voltage	20 – 28 V AC/DC ± 10 %, 50/60 Hz
Power consumption	Approx. 45 mA/24 V DC
Inputs	4 digital inputs for volt-free switches or voltage inputs; input voltage depends on jumper setting (J), either A1 (24 V AC/DC) or A2 (GND)
Outputs	LON interface, standard network variables (SNVT)
LON interface	FT5000 free topology
Neuron	3120, 3 K EEPROM download-enabled
IP protection level	IP 65
Operating temperature	-5 to 55 °C
Connection terminals	Spring-loaded terminals for nominal diameter; 1.5 mm ² , one wire; 1.0 mm ² ultra-fine wire; AWG 16
Cable glands	8 × M12 or M16 cable glands
Software application	xif/apb-files under www.trox.de
Dimensions (B × H × T)	159 × 120 × 41.5 mm
Material	ASA (LURAN S KR 2867 C WU)

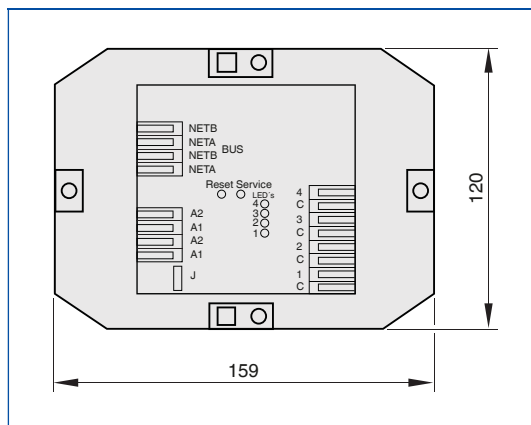
Function

Functional description

LON-WA4/B is used to control up to four fire dampers with one limit switch or two fire dampers with two limit switches each. The output variables of type SNVT_switch and SNVT_hvac_emerg signal the current damper blade position. They are sent after the input condition has changed, at the end of the heartbeat time (nciDiHeartbeat), and after a module reset (1s + node number [ms]). If LON-WA4/B is used, the heartbeat function should be activated (for safety reasons). If input variable nviDoHeartbeat has been set (100.1 1), then the output variables nvoDiValue[0...3] and nvoDiAllValues are updated and sent in intervals set with configuration parameter nciDiHeartbeat. This ensures that the transmission path is being monitored. If there is a chain of modules (and hence fire dampers), the FireChain variables can transmit a signal from the first to the last. Variable nciInvertDiValue is used as a configuration parameter to invert the output values. The debounce time for digital inputs can be configured with the nciDiDebounce variable.

Dimensions

LON-WA4/B



Specification text

Standard description (characteristics)

LON module with 4 digital inputs, used to capture the status of volt-free switches, provides additional link options and alarm signalling for monitoring fire dampers with electric limit switches.

- Input: 4 digital inputs, maximum load 5 mA/10 V or volt-free
- Output: SNVT_switch and SNVT_hvac_emerg; transceiver: FT5000
- IP protection level: IP 65
- Supply voltage: 20 – 28 V AC/DC

TROXNETCOM AS-i Controllers and repeaters



Controllers for the data acquisition and control of the field modules, repeaters for a maximum expansion of the network

Controller for controlling actuators and for monitoring the damper blade position and duct smoke detectors

- Controller with TROXNETCOM Basic User Software
- Easy and safe commissioning without programming
- Controller with master function for stand-alone operation
- System monitoring
- Automatic recognition of components and their status
- Menu-driven user interface (controller display) for system configuration
- Peripheral equipment can be tested without additional auxiliary equipment



Type		Page
Controllers and repeaters	General information	6.2 – 2
	Special information – TNC-A1305	6.2 – 3
	Special information – TNC-A1306	6.2 – 5
	Special information – TNC-A1353	6.2 – 7
	Special information – TNC-A1354	6.2 – 9
	Special information – TNC-A1375	6.2 – 11
	Special information – TNC-A2225	6.2 – 13
	Special information – TNC-A003S	6.2 – 15
	Special information – TNC-ZB0252	6.2 – 17
	Special information – TNC-Z0119	6.2 – 19
	Basic information and nomenclature	6.4 – 1

Description



TROXNETCOM AS-i
Controllers and repeaters

Application

Controller

- Controllers (AS-i masters) are basically used for management functions.
- They initialise the AS-Interface network, recognise all slaves on a bus, perform error diagnosis, and send signals.
- They also control the data transfer on the bus and request status information from all slaves in regular intervals.
- The data for all slaves is stored in the controller
- A single controller can manage 31 slaves, a dual controller can manage 62 slaves
- Controllers provide interfaces (gateway functions) to higher-level central units or controls, e.g. PROFIBUS DP and Ethernet
- Controllers can be linked through these interfaces and hence allow for building independent systems without a central unit
- The programming effort for the central unit is fairly low since the data in the controller have already been pre-processed
- The AS-Interface controller is treated as a slave of the higher-level system
- AS-Interface does not incur the cost for programming the gateway function, which is usually required for other systemsurface
- This is handled by the dedicated TNC Basic User Software
- Each controller with master function is equipped with this software

Repeater

- AS-i repeaters are used to extend the usual length of AS-i networks by another 100 m
- An existing 100 m segment can be extended by another 100 m
- Two repeaters can be used on one AS-i segment, i.e. one segment can be up to 300 m long
- The total number of 31 slaves per controller cannot be exceeded
- A repeater acts also as galvanic isolation of the two AS-i segments, hence providing safety against short circuits
- Active slaves can be positioned before and after the repeater
- Each repeater requires an AS-i power supply unit

Order code

TNC – A1305

1

1 Type

TNC-A1305	Controller with PROFIBUS DP interface; 1 master
TNC-A1306	Controller with PROFIBUS DP interface; 2 masters
TNC-A1353	Controller with Modbus/TCP interface; 1 master
TNC-A1354	Controller with Modbus/TCP interface; 2 masters
TNC-A1375	Gateway with PROFIBUS DP interface; 1 master
TNC-A2225	Repeater
TNC-ZB0252	AS-i safety gateway
TNC-Z0119	Passive bus termination
TNC-A1146	AS-i tuner (diagnosis module)

Description



TNC-A1305

Application

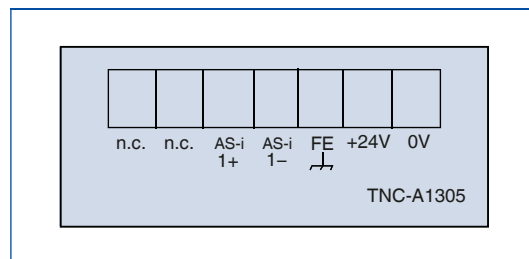
- AS-i controller TNC-A1305 with 1 master for 31 AS-i slaves
- Decentralised operating and monitoring system with signal preprocessing and gateway
- With TNC Basic User Software
- Recognition of all slaves on a bus
- For initialising the AS interface network
- Error diagnosis and signalling
- LC display, 43 × 28 mm, also for operation
- PROFIBUS DP interface

Technical data

Description	TNC-A1305
Supply voltage	24 V DC
Current consumption	< 500 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated
Data interface	PROFIBUS DP (EN 50170); max. 12 MBd slave
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	2 × red; 2 × green; 2 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	-20 to 70 °C
IP protection level	IP 20
MTTF	5 years
AS-i profile	M3
AS-i certificate	61103
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

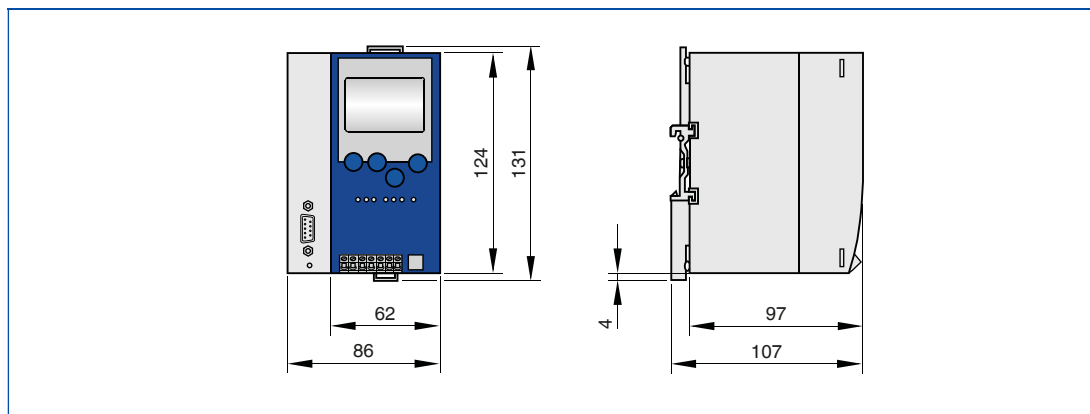
Wiring

**Connecting cable core identification
TNC-A1305**



Dimensions

AS-i controller TNC-A1305



Specification text

Standard description (characteristics)

AS-i controller TNC-A1305 (1 master) is a compact AS-i master system with integral text/graphic display and PROFIBUS DP interface.

- Control of components as part of fire damper control

Integral TNC Basic User Software with the following functions:

- Automatic recognition of TROX modules and their functions
- Automatic grouping
- Network control
- Automatic function test
- Manual control of dampers
- Integral display, also for operation
- Simple, menu-driven configuration and adjustment
- Supply voltage: 24 V DC
- Total current consumption from AS-i: < 10 mA
- Casing materials: Aluminium, galvanised sheet steel
- Ambient temperature: 0 – 60 C°
- IP protection level: IP 20
- Status display: LEDs, 2 x red, 2 x green, 2 x yellow
- Make: TROX GmbH or equivalent
- Type: TNC-A1305

Description



TNC-A1306

Application

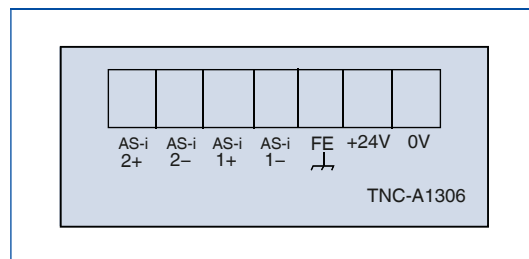
- AS-i c TNC-A1306
with 2 masters for 62 AS-i slaves
- Decentralised operating and monitoring system
with signal preprocessing and gateway
- With TNC Basic User Software
- Recognition of all slaves on a bus
- For initialising the AS interface network
- Error diagnosis and signalling
- LC display, 43 × 28 mm, also for operation
- PROFIBUS DP interface

Technical data

Description	TNC-A1306
Supply voltage	24 V DC
Current consumption	< 500 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated
Data interface	PROFIBUS DP (EN 50170); max. 12 MBd slave
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	3 × red; 3 × green; 3 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	-20 to 70 °C
IP protection level	IP 20
MTTF	5.19 years
AS-i profile	M3
AS-i certificate	61104
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

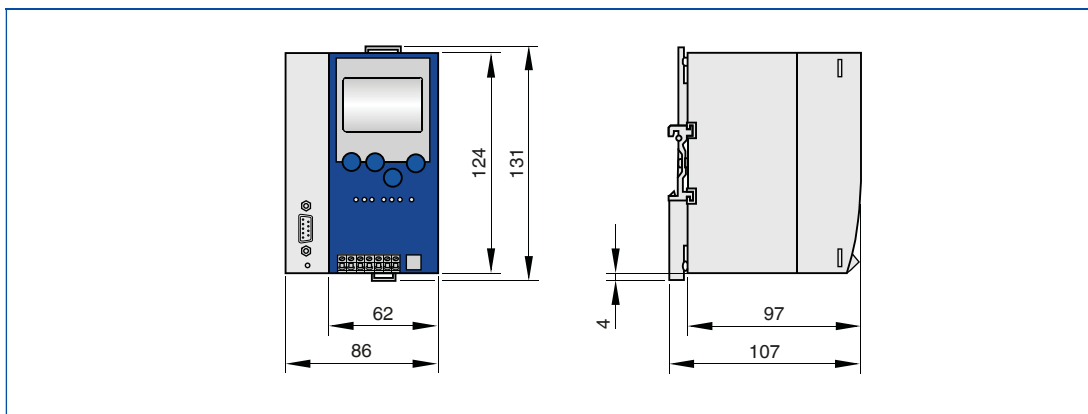
Wiring

**Connecting cable core identification
TNC-A1306**



Dimensions

AS-i controller TNC-A1306



Specification text

Standard description (characteristics)

AS-i controller TNC-A1306 (2 masters) is a compact AS-i master system with integral text/graphic display and PROFIBUS DP interface.

- Control of components as part of fire damper control

Integral TNC Basic User Software with the following functions:

- Automatic recognition of TROX modules and their functions
- Automatic grouping
- Network control
- Automatic function test
- Manual control of dampers
- Integral display, also for operation
- Simple, menu-driven configuration and adjustment
- Supply voltage: 24 V DC
- Total current consumption from AS-i: < 10 mA
- Casing materials: Aluminium, galvanised sheet steel
- Ambient temperature: 0 – 60 C°
- IP protection level: IP 20
- Status display: LEDs, 3 x red, 3 x green, 3 x yellow
- Make: TROX GmbH or equivalent
- Type: TNC-A1306

Description



TNC-A1353

Application

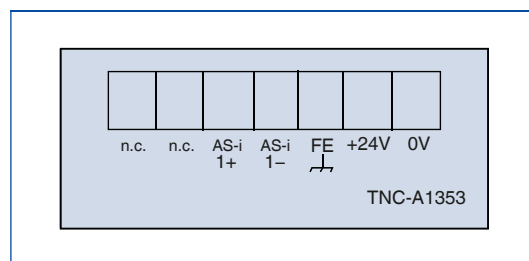
- AS-i c TNC-A1353
with 1 master for 31 AS-i slaves
- Decentralised operating and monitoring system with signal preprocessing and gateway
- With TNC Basic User Software
- Recognition of all slaves on a bus
- For initialising the AS interface network
- Error diagnosis and signalling
- LC display, 43 × 28 mm, also for operation
- Ethernet
- Modbus/TCP interface

Technical data

Description	TNC-A1353
Supply voltage	24 V DC
Current consumption	< 400 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated Ethernet CAA, RJ45; 10/100 MBd
Data interface	Modbus/TCP
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 × 64 pixels, 43 × 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	1 × red; 2 × green; 3 × yellow
Ambient temperature	0 – 60 °C
Storage temperature	-20 to 70 °C
IP protection level	IP 20
MTTF	5.2 years
AS-i profile	M3
AS-i certificate	In preparation
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 × 97 × 86 mm
Fixing	On DIN mounting rail

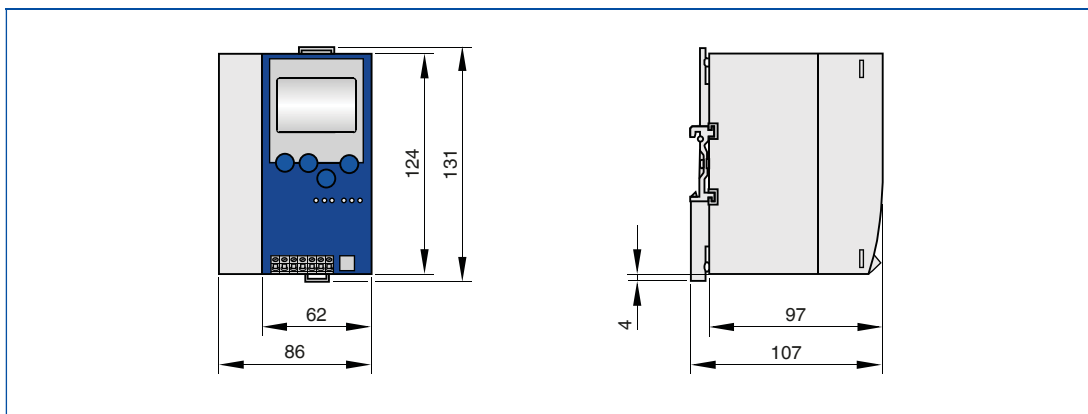
Wiring

**Connecting cable core identification
TNC-A1353**



Dimensions

AS-i controller TNC-A1353



Specification text

Standard description (characteristics)

AS-i controller TNC-A1353 (1 master) is a compact AS-i master system with integral text/graphic display and Ethernet interface. (Modbus TCP)

- Control of components as part of fire damper control

Integral TNC Basic User Software with the following functions:

- Automatic recognition of TROX modules and their functions
- Automatic grouping
- Network control
- Automatic function test
- Manual control of dampers
- Integral display, also for operation
- Simple, menu-driven configuration and adjustment
- Supply voltage: 24 V DC
- Total current consumption from AS-i: < 10 mA
- Casing materials: Aluminium, galvanised sheet steel
- Ambient temperature: 0 – 60 C°
- IP protection level: IP 20
- Status display: LEDs, 1 x red, 2 x green, 3 x yellow
- Make: TROX GmbH or equivalent
- Type: TNC-A1353

Description



TNC-A1354

Application

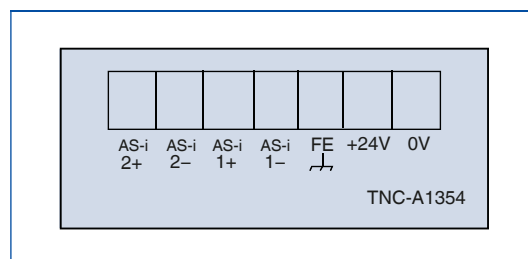
- AS-i controller TNC-A1354 with 2 masters for 62 AS-i slaves
- Decentralised operating and monitoring system with signal preprocessing and gateway
- With TNC Basic User Software
- Recognition of all slaves on a bus
- For initialising the AS interface network
- Error diagnosis and signalling
- LC display, 43 x 28 mm, also for operation
- Ethernet
- Modbus/TCP interface

Technical data

Description	TNC-A1354
Supply voltage	24 V DC
Current consumption	< 400 mA
Power consumption	< 10 VA
Programming interface	RS232C: RJ11; 9600 – 115200 Bd, galvanically isolated Ethernet CAA, RJ45; 10/100 MBd
Data interface	Modbus/TCP
Diagnosis via PROFIBUS DP	Yes
PLC memory for user program	128 Kwords
Display	Graphic LC display 128 x 64 pixels, 43 x 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	2 x red; 3 x green; 4 x yellow
Ambient temperature	0 – 60 °C
Storage temperature	-20 to 70 °C
IP protection level	IP 20
MTTF	5 years
AS-i profile	M3
AS-i certificate	In preparation
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 x 97 x 86 mm
Fixing	On DIN mounting rail

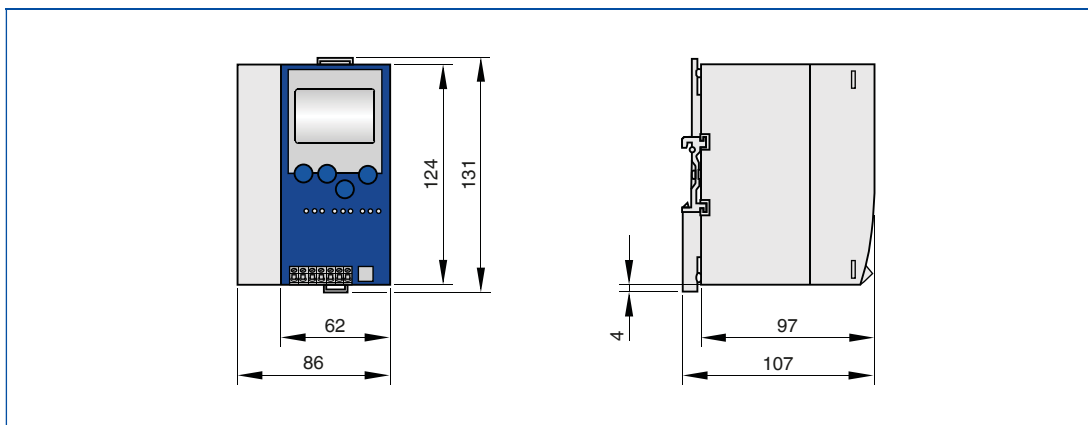
Wiring

**Connecting cable core identification
TNC-A1354**



Dimensions

AS-i controller TNC-A1354



Specification text

Standard description (characteristics)

AS-i controller TNC-A1354 (2 master) is a compact AS-i master system with integral text/graphic display and Ethernet interface. (Modbus TCP)

- Control of components as part of fire damper control
- Integral TNC Basic User Software with the following functions:
- Automatic recognition of TROX modules and their functions
 - Automatic grouping
 - Network control
 - Automatic function test
 - Manual control of dampers
 - Integral display, also for operation
 - Simple, menu-driven configuration and adjustment
 - Supply voltage: 24 V DC
 - Total current consumption from AS-i: < 10 mA
 - Casing materials: Aluminium, galvanised sheet steel
 - Ambient temperature: 0 – 60 C°
 - IP protection level: IP 20
 - Status display: LEDs, 2 x red, 3 x green, 4 x yellow
 - Make: TROX GmbH or equivalent
 - Type: TNC-A1354

Description



TNC-A1375

Application

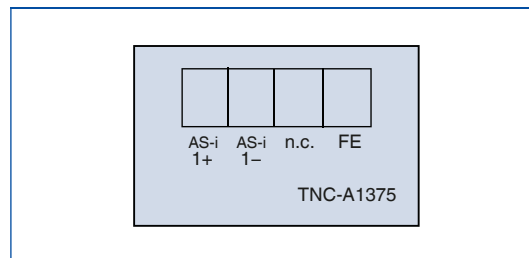
- AS-i gateway TNC-A1375 with 1 master for 31 AS-i slaves
- Recognition of all slaves on a bus
- Error diagnosis and signalling
- LC display, 43 x 28 mm, also for operation
- PROFIBUS DP interface

Technical data

Description	TNC-A1375
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 200 mA
Power consumption	< 4 VA
Data interface	PROFIBUS-DP; max. 12 MBd; EN 50170
Diagnosis via PROFIBUS DP	Yes
Display	Graphic LC display 128 x 64 pixels, 43 x 28 mm
Max. acceptable rel. humidity	< 95 %
Status LED	2 x red; 1 x green; 1 x yellow
Ambient temperature	0 – 60 °C
Storage temperature	-20 – 70 °C
IP protection level	IP 20
MTTF	5 years
AS-i profile	M4
AS-i certificate	In preparation
Casing materials	Aluminium, galvanised sheet steel
Casing dimensions	124 x 97 x 86 mm
Fixing	On DIN mounting rail

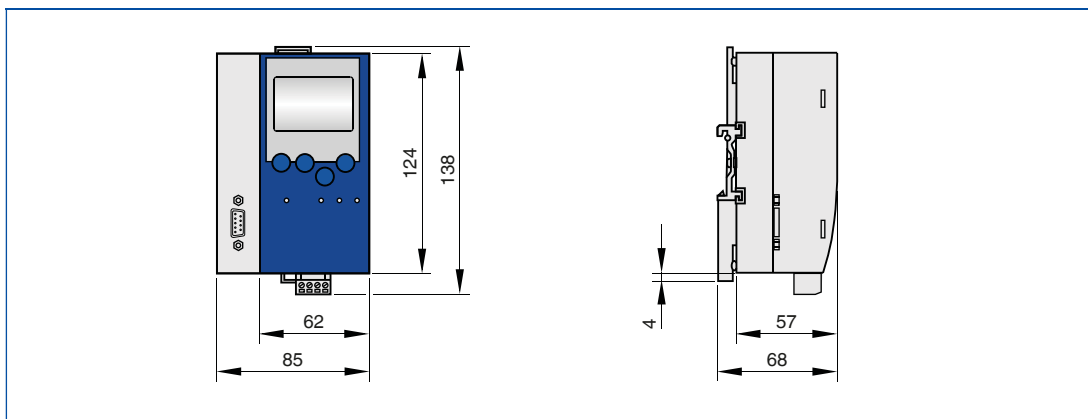
Wiring

**Connecting cable core identification
TNC-A1375**



Dimensions

AS-i gateway TNC-A1375



Specification text

Standard description (characteristics)

AS-i gateway TNC-A1375 is a compact gateway with PROFIBUS DP interface and without data processing.

- Supply voltage: 26.5 – 31.6 V DC (AS-i)
- Electrical design: SmartLink DP with 1 AS-i master
- Total current consumption from AS-i: < 200 mA
- Casing materials: Aluminium, galvanised sheet steel
- Ambient temperature: 0 – 60 C°
- IP protection level: IP 20
- Status display:
LEDs, 2 x red, 1 x green, 1 x yellow
- Make: TROX GmbH or equivalent
- Type: TNC-A1375

Description



TNC-A2225

Application

- AS-i repeater TNC-A2225 allows for cable extension by 100 m
- Modules are installed before and after the repeater
- Galvanic isolation of two AS-i branches

Technical data

Description	TNC-A2225
Supply voltage	26.5 – 31.6 V DC
Current consumption	60 mA per AS-i segment
AS-i interfaces	2
No. of additionally required AS-i power supply units	1
No. of repeaters/controllers/parallel operation	Any number if according to AS-i specification
No. of repeaters/controllers/series operation	up to 2
Galvanically isolated	Yes
Power LED	2 x green
Error LED	2 x red
Ambient temperature	0 – 55 °C
IP protection level	IP 20
EMC	EN 50295
MTTF	180 years
Casing materials	PA 6.6
Note	The AS-i repeater has no slave address; total no. of AS-i slaves per master segment (31 or 62) remains unchanged, no parameter setting required

Wiring

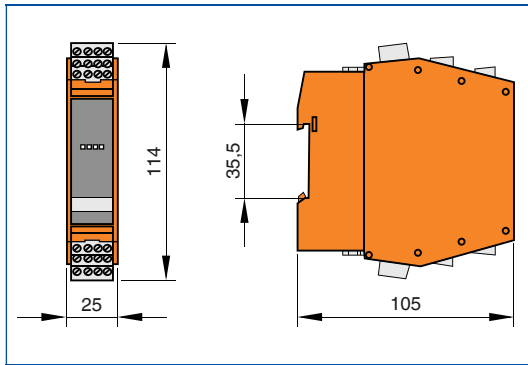
Connecting cable core identification

Outgoing AS-i cable	
A-:	AS-i – line 2
A+:	AS-i + line 2
A-:	AS-i – line 2
A+:	AS-i + line 2

Incoming AS-i cable	
A+:	AS-i + line 1
A-:	AS-i – line 1
A+:	AS-i + line 1
A-:	AS-i – line 1

Dimensions

AS-i repeater TNC-A2225



Specification text

Standard description (characteristics)

AS-i repeater allows for a cable extension by 100 m.

- Total current consumption from AS-i: 2 x 60 mA
- Output/connection: Combicon connector
- Casing materials: PA 6.6
- Ambient temperature: 0 – 55 C°
- IP protection level: IP 20
- Operation: LED, 2 x green
- Error: LED, 2 x red
- Make: TROX GmbH or equivalent
- Type: TNC-A2225

Description



TNC-A003S

Application

- AS-i safety monitor TNC-A003S
- Safety monitor for monitoring data transmission and the AS-i controller, for safety related applications up to SIL 3 to IEC/EN 61508, e.g. for the control of smoke control dampers

Technical data

Description	TNC-A003S
Supply voltage	24 V DC ± 15 %
Residual ripple	< 15 %
Rated operating current	150 mA
Peak switch-on current ¹⁾	600 mA
Response time (safety related)	< 40 ms
Power ON delay time	< 10 s
AS-i profile	Monitor 7.F
AS-i voltage range	18.5 – 31.6 V
AS-i current consumption	< 45 mA
Interface RS 232	9600 Bd, no parity, 1 start bit, 1 stop bit, 8 data bits
Start input	Optocoupler input (high active), input current approx. 10 mA (24 V DC)
Contact control input	Optocoupler input (high active), input current approx. 10 mA (24 V DC)
Safety ON message output ²⁾	PNP transistor output, 200 mA, short circuit and reverse voltage protection
Safety output	Volt-free NO contacts, max. contact load: 1 A DC-13 at 24 V DC, 3 A AC-15 at 230 V AC
Fuse	Externally, with 4 A MT max.
Overvoltage category	3, for rated operating voltage 300 V AC to VDE 0110 part 1
Operating temperature	-20 to 60 °C
Storage temperature	-30 to 70 °C
IP protection level	IP 20 (only for use in rooms where electric systems operate/switch cabinet with minimum IP 54)
MTTFd	57 years
Distance between 2 AS-i safety monitors	10 mm
Casing dimensions	45 × 105 × 120 mm
Casing material	Polyamide PA66, black
Fixing	On DIN mounting rail

¹⁾ When all relays are switched on simultaneously; current for message outputs not taken into consideration
²⁾ The Safety ON message output is not safety related

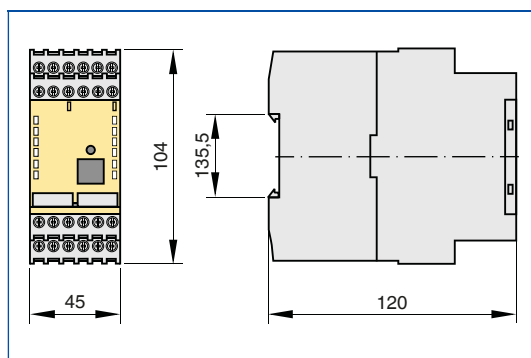
Wiring

Terminal connections of the AS-i safety monitor of TNC-A003S

Terminal	Signal/description
AS-i ±	Connection to the AS-i bus
L+	+24 V DC supply voltage
M	GND reference earth
FE	Functional earth
1.Y1	EDM 1/input feedback circuit, output circuit 1
1.Y2	Start 1/Start input, output circuit 1
1.13	Output switching element 1, output circuit 1
1.14	Output switching element 1, output circuit 1
1.23	Output switching element 2, output circuit 1
1.24	Output switching element 2, output circuit 1
1.32	Safety ON/message output 1, output circuit 1
2.Y1	EDM 2/input feedback circuit, output circuit 2
2.Y2	Start 2/Start input, output circuit 2

Dimensions

AS-i safety monitor TNC-A003S



Specification text

Standard description (characteristics)

- Safety monitor for monitoring data transmission and the AS-i controller, for safety related applications up to SIL 3 to IEC/EN 61508, e.g. for the control of up to 4 smoke control dampers
- Supply voltage: 24 V DC ±15 %
 - AS-i voltage range: 18.5 – 31.6 V
 - AS-i current consumption: < 45 mA
 - Operating temperature: -20 to 60 C°
 - Protection level: IP 20 (only for use in rooms where electric systems operate/switch cabinet with minimum IP54)
 - Make: TROX GmbH or equivalent
 - Type: TNC-A003S

Description



TNC-ZB0252

Application

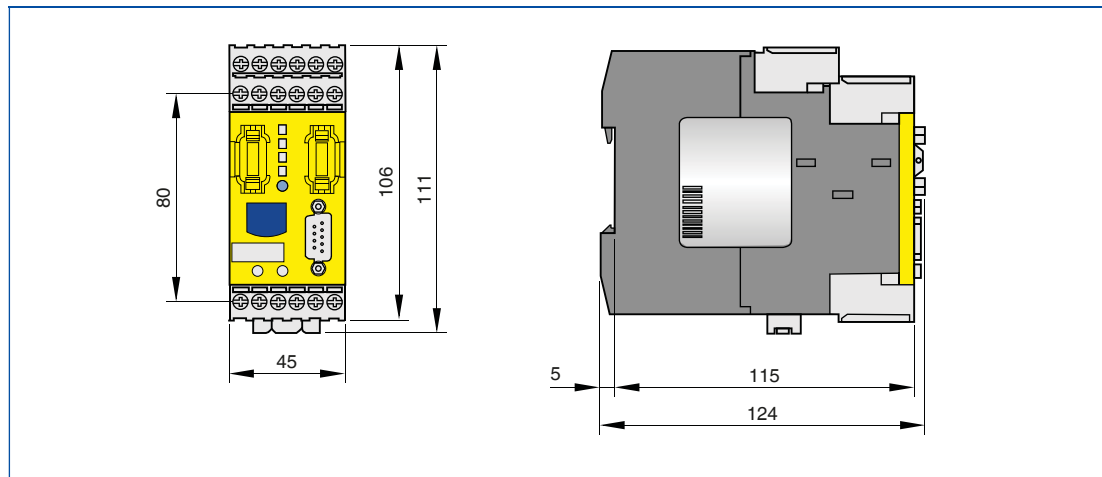
- AS-i gateway TNC-ZB0252/F-Link for monitoring the inputs of safety related binary AS-i slaves
- Compact, safety related gateway between PROFIBUS (DP slave) and AS-Interface
- Core component of 'integrated safety', meant 'to close the gap in bus-based safety technology'
- Monitoring of the inputs of fail-safe binary AS-i slaves (ASIsafe slaves) and data transmission via PROFIsafe. No need for additional safety related components for AS-Interface (e.g. safety monitor)
- AS-i master according to AS-Interface specification V3.0, master profile M4, to connect up to 31 AS-i slaves, with integrated analog value transmission
- Direct integration with PROFIBUS networks. Optional integration with PROFINET networks via PROFINET/PROFIBUS gateway (IE/PB link) or SIMATIC S7-315 F PN/DP
- Optimised TIA integration in STEP 7 via Object Manager, inclusion in engineering tools by third parties via PROFIBUS type file (GSD)
- On-site diagnosis using LEDs and a display with button
- Assembly change without PG since start-up data is transmitted by PROFIBUS DP master

Technical data

Description	TNC-ZB0252
Supply voltage	24 V DC
Separate voltage supply	Yes
Current consumption	100 mA
Power loss	3 W
Data interface	PROFIBUS DP; RS 485
Supported protocols	ASIsafe (safety at work) protocol, PROFIsafe protocol, PROFIBUS protocol
No. of AS-i slaves	Up to 62
Bus cycle time with 31 slaves	5 ms
Bus cycle time with 62 slaves	10 ms
Max. acceptable relative humidity	10 - 95 %
Ambient temperature	0 - 50 °C
Storage temperature	-40 to 85 °C
IP protection level	IP 20
MTTF	36 years
AS-i profile	M4
AS-i specification	V 3.0
Safety integrity level	SIL3 to IEC 61508
Casing dimensions (B x H x T)	45 x 111 x 124 mm
Fixing	On DIN mounting rail

Dimensions

AS-i gateway TNC-ZB0252



Specification text

Standard description (characteristics)

AS-i safety gateway for monitoring the inputs of safety related binary AS-i slaves and for data transmission via PROFIsafe. Direct integration with PROFIBUS networks via PROFIBUS type file (GSD). Connection of up to 20 AS-i safety modules AS-EM/SIL2.

- Supply voltage: 24 V DC
- Current consumption: 100 mA
- Operating temperature 0 to 50 °C
- IP protection level: IP 20
- Make: TROX GmbH or equivalent
- Type: TNC-ZB0252

Description



TNC-Z0119

Application

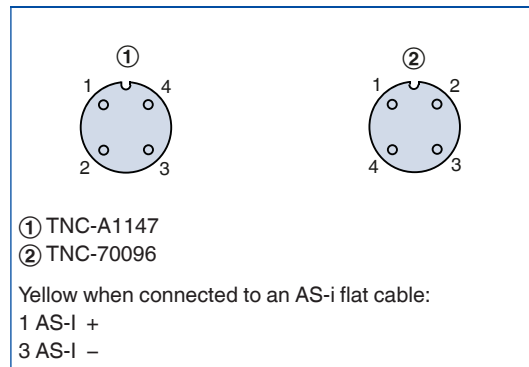
- Passive bus termination
- Cable extension up to 200 m without additional repeater
- Improved signal quality
- Supply voltage monitoring with 2 LEDs
- Connection to AS-i cable with flat cable connector
- Can only be used when actuators have a separate voltage supply

Technical data

Description	TNC-Z0119 (TNC-A1147 + TNC-70096)
Type	TNC-A1147
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 10 mA
Galvanically isolated	Yes
Status LED	Yellow = AS-i voltage > 18.5 V; green = AS-i voltage > 26 V
Ambient temperature	-25 to 70 °C
IP protection level	IP 67
MTTF	550 years
Connection	Flat cable insulation displacement connector
Note	No addressing required
Type	TNC-70096
Max. current load	2 A
Ambient temperature	-25 to 75 °C
IP protection level	IP 67
Casing material	PA
Note	No addressing required

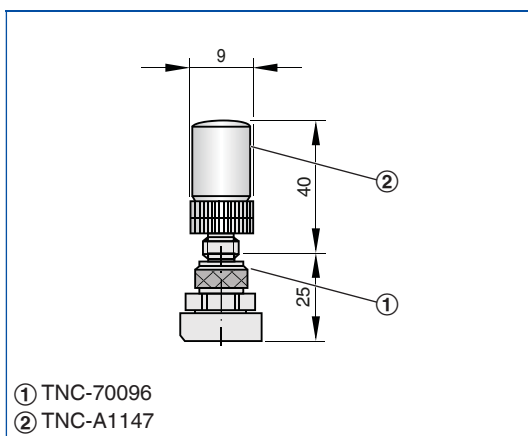
Wiring

**Connecting cable core identification
TNC-Z0119**



Dimensions

AS-i passive bus termination TNC-Z0119



Specification text

Standard description (characteristics)

- Passive bus termination (TNC-A1147) with flat cable connector (TNC-70096) to make a connection to the AS-i flat cable. Bus termination to improve the signal quality and to extend the AS-i cable network. Cable extension up to 200 m.
- Supply voltage: 26.5 – 31.6 V DC
 - Current consumption: < 10 mA
 - Max. current load: 2 A
 - Ambient temperature: –25 to 70 C°
 - IP protection level: IP 67
 - Make: TROX GmbH or equivalent
 - Type: TNC-Z0019

TROXNETCOM AS-i

Master and display units



For the control and operation of a system with several controller and power units, and for the display of its functions

Control and display unit as a master for controlling and operating an entire system

- With TROXNETCOM Basic User Software for rapid and safe commissioning and configuration
- Touch display as communication master for 28 controller and power units
- High-quality touch display in four sizes: 4.3", 5.7", 10.4" and 12.1"
- Integration with higher-level systems via Modbus or BACnet/ip interface (no additional effort required)
- For automated function tests including logging
- Display of all system status values
- PLC also for safety related control according to SIL

Type		Page
Master and display units	General information	6.2 – 22
	Special information – TP043N	6.2 – 23
	Special information – TP057N	6.2 – 24
	Special information – TP104N	6.2 – 25
	Special information – TP121N	6.2 – 26
	Special information – SPS	6.2 – 27
	Basic information and nomenclature	6.4 – 1

Description



TROXNETCOM AS-i
Master and display units

Application

- Displays
- Display and control panel
 - Graphical colour TFT displays
 - Touch screen
 - Display and control of all fire damper operating states
 - With TNC Basic User Software
 - Configuration of the entire system
 - For automated fire damper function tests including logging
- PLC master control
- PLC master control (e.g. S7)
 - For the administration of AS-i controllers based on standard PROFIBUS DP communication
 - Connection to central BMS, e.g. with Modbus RTU or some other standard protocol

Order code

TP043N
1

1 Type

- TP043N**
- TP057N
- TP104N
- TP121N
- SPS Upon request

Description



TP043N

Application

- 4.3" MMI system for display and operation, also as communication master for up to 3 AS-i controllers TNC-A1353/54
- ModBus TCP and BACnet/IP interfaces for integration with central BMS
- With TNC Basic User Software

Technical data

Description	TP043N
Display	TFT (colour)
Operation	Touch screen
Resolution	480 × 272 pixels
Display angle vertical/horizontal	120/150°
Display area B × H	53.8 × 95 mm
Diagonal	4.3"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B × H × T	140 × 100 × 5 mm
Cut-out B × H	132 × 92 mm
Installation depth without plug attached	Approx. 42 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 590 g
Interfaces	Ethernet, USB
Memory	32 MB flash, 64 MB flash SDRAM, 512 KB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.3 A
Current consumption (max.)	0.4 A
Power required	7.2 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

Specification text

Standard description (characteristics)

- MMI system for display, operation and as communication master
- 4.3 " colour display, touch screen
 - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
 - With Basic User Software for controlling and for the display of all system status values
 - Automatic recognition of TROX modules and their functions
 - Network control
 - Automatic function test, including documentation
 - Real time clock
 - Ethernet, USB
 - Dimensions of front panel (B × H × T):
140 × 100 × 5 mm
 - IP protection level: Front IP 65; back IP 20
 - Supply voltage 24 V DC
 - Make: TROX GmbH or equivalent
 - Typ: TP043N

Description



TP057N

Application

- 5.7" MMI system for display and operation, also as communication master for up to 28 AS-i controllers TNC-A1305/06
- ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
- With TNC Basic User Software

Technical data

Description	TP057N
Display	TFT (colour)
Operation	Touch screen
Resolution	320 x 240 pixels
Display angle vertical/horizontal	135/150°
Display area B x H	115.2 x 86.4 mm
Diagonal	5.7"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B x H x T	203 x 147 x 5 mm
Cut-out B x H	195 x 139 mm
Installation depth without plug attached	Approx. 49 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 1000 g
Interfaces	RS232, TTY, USB, Ethernet and field bus interface PROFIBUS DP master
Memory	1 GB flash, 128 MB flash SDRAM, 1 MB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.5 A
Current consumption (max.)	0.8 A
Power required	12 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

6

Specification text

Standard description (characteristics)

- MMI system for display, operation and as communication master
- 5.7 " colour display, touch screen
 - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
 - With Basic User Software for controlling and for the display of all system status values
 - Automatic recognition of TROX modules and their functions
 - Network control
 - Automatic function test,
- including documentation
- Real time clock
 - 4 digital inputs/outputs, interfaces
COM2=RS485, COM1=RS232, Ethernet, USB
 - Dimensions of front panel (B x H x T):
230 x 147 x 5 mm
 - IP protection level: Front IP 65; back IP 20
 - Supply voltage 24 V DC
 - Make: TROX GmbH or equivalent
 - Typ: TP057N

Description



TP104N

Application

- 10.4" MMI system for display and operation, also as communication master for up to 28 AS-i controllers TNC-A1305/06
- ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
- With TNC Basic User Software

Technical data

Description	TP104N
Display	TFT (colour)
Operation	Touch screen
Resolution	800 × 600 pixels
Display angle vertical/horizontal	110/140°
Display area B × H	211 × 158 mm
Diagonal	10.4"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B × H × T	295 × 220 × 5 mm
Cut-out B × H	287 × 212 mm
Installation depth without plug attached	Approx. 56 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 1900 g
Interfaces	RS232, TTY, USB, Ethernet and field bus interface PROFIBUS DP master
Memory	1 GB flash, 128 MB flash SDRAM, 1 MB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.7 A
Current consumption (max.)	1.0 A
Power required	16.8 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

Specification text

Standard description (characteristics)

- MMI system for display, operation and as communication master
- 10.4 " colour display, touch screen
 - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
 - With Basic User Software for controlling and for the display of all system status values
 - Automatic recognition of TROX modules and their functions
 - Network control
 - Automatic function test, including documentation
 - Real time clock
 - 4 digital inputs/outputs, interfaces COM2=RS485, COM1=RS232, Ethernet, USB
 - Dimensions of front panel (B × H × T): 295 × 220 × 5 mm
 - IP protection level: Front IP 65; back IP 20
 - Supply voltage 24 V DC
 - Make: TROX GmbH or equivalent
 - Typ: TP104N

Description



TP121N

Application

- 12.1" MMI system for display and operation, also as communication master for up to 28 AS-i controllers TNC-A1305/06
- ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
- With TNC Basic User Software

Technical data

Description	TP121N
Display	TFT (colour)
Operation	Touch screen
Resolution	800 × 600 pixels
Display angle vertical/horizontal	110/140°
Display area B × H	246 × 185 mm
Diagonal	12.1"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B × H × T	340 × 270 × 5 mm
Cut-out B × H	315 × 243.5 mm
Installation depth without plug attached	Approx. 65 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 2500 g
Interfaces	RS232, TTY, USB, Ethernet and field bus interface PROFIBUS DP master
Memory	1 GB flash, 128 MB flash SDRAM, 1 MB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	-25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.7 A
Current consumption (max.)	1.0 A
Power required	16.8 W
EMC immunity	EN 61000-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

6

Specification text

Standard description (characteristics)

- MMI system for display, operation and as communication master
- 12.1 " colour display, touch screen
 - Interfaces: ModBus RTU/TCP and BACnet/IP interfaces for integration with the central BMS
 - With Basic User Software for controlling and for the display of all system status values
 - Automatic recognition of TROX modules and their functions
 - Network control
 - Automatic function test, including documentation
 - Real time clock
 - 4 digital inputs/outputs, interfaces COM2=RS485, COM1=RS232, Ethernet, USB
 - Dimensions of front panel (B × H × T): 340 × 270 × 5 mm
 - IP protection level: Front IP 65; back IP 20
 - Supply voltage 24 V DC
 - Make: TROX GmbH or equivalent
 - Typ: TP121N

Description

Application

- For the administration of AS-i controllers based on standard PROFIBUS DP communication
- Connection to central BMS via standard interface
- Standard protocol
- Interface between PROFIBUS DP Master and AS-i controller is possible
- CPU with memory card
- Power supply unit for subassemblies
- Ready-to-install unit for installation in a switch cabinet

Technical data varies depending on system.
Construction details and technical data available upon request.

TROXNETCOM AS-i

Switching power supply units



Switching power supply unit for a 24 V supply voltage

Controlled power supply for sensors, actuators, sensor electronics and controller

- High efficiency of > 87 %
- Input and output with overvoltage protection
- Can be attached to a mounting rail, no tools required
- Output voltage adjustable up to 28 V DC
- Overload protection, up to 1.5 × nominal current
- Very high efficiency, hence very low heat build-up
- LED for secondary voltage indication



Type		Page
Switching power supply units	General information	6.2 – 29
	Special information – TNC-D1020	6.2 – 30
	Special information – TNC-D2011	6.2 – 32
	Special information – TNC-D2012	6.2 – 34
	Special information – TNC-D2013	6.2 – 36
	Basic information and nomenclature	6.4 – 1

Description



TROXNETCOM AS-i
Switching power supply units

Application

- 24 V power supply for AS-i controllers and for operating and display units
- Highly efficient module that transform 230 V input voltage to 24 V.

Order code

<p>TNC – D1020</p> <p>1</p>

1 Type

- TNC-D1020
- TNC-D2011
- TNC-D2012
- TNC-D2013**

Description



TNC-D1020

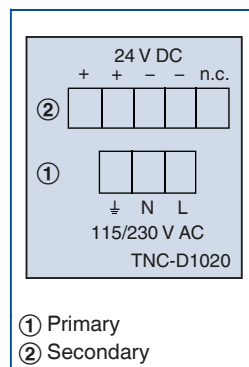
Application

- Switching power supply unit TNC-D1020 (24 V DC; 1.3 A)
- Power supply for AS-i controllers and for operating and display units
- Very high efficiency of 87.5 %
- Low ripple, < 50 mV
- High reliability

Technical data

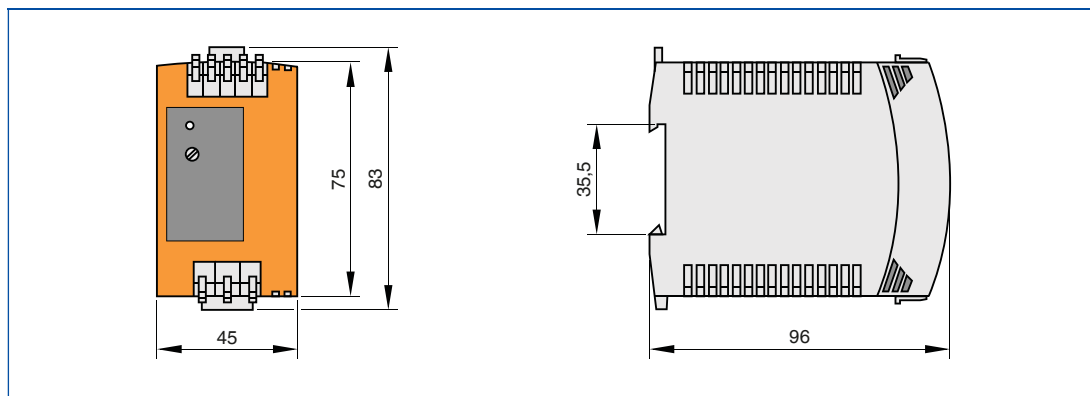
Description	TNC-D1020
Output current	1.3 A
Nominal voltage, primary	115/230 V AC
Input voltage range	100 – 240 V AC
Nominal frequency	50 – 60 Hz
Efficiency	87.5 %
Casing	Polycarbonate
IP protection level	IP 20
IEC protection class	I (protective earth)
Connection	Terminals up to 2.5 mm ²
Temperature range	-10 to +70 °C
Derating	Typically 1 W/K (60 – 70 °C)
Output voltage	24 – 28 V DC (± 2 %) to SELV/PELV
Power ON delay time	< 20 ms
Residual ripple	< 50 mV
Mains buffering time	> 190 ms
Short-circuit protection / overload protection	Yes (to IEC 61140)
EMC	EN 61000-6-2; EN 61000-6-3
MTTF	411 years
Overvoltage protection	<40 V
LEDs	Green: output voltage

Wiring

**Connecting cable
core identification
TNC-D1020**


Dimensions

AS-i switching power supply unit TNC-D1020



Specification text

Standard description (characteristics)

Switching power supply unit TNC-D1020, supplying voltage to the controller or text display.

- Nominal voltage: 115/230 AC V
- Output voltage: 24 – 28 V DC ($\pm 2\%$), SELV/PELV
- Output current: 1.3 A
- Nominal frequency: 50 – 60 Hz
- Efficiency: 87.5 % (230 V AC; 24 V DC/1.3 A)
- Connection: Spring clips up to 2.5 mm²
- Casing materials: polycarbonate
- Ambient temperature: -10 to +70 °C
- IP protection level: IP 20
- Status display: LED green
- Make: TROX GmbH or equivalent
- Type: TNC-D1020

Description



TNC-D2011

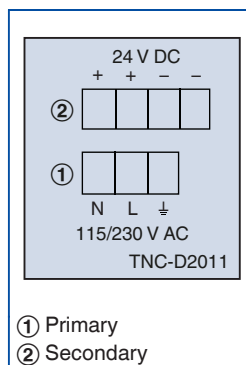
Application

- Switching power supply unit TNC-D2011 (24 V DC; 2.5 A)
- Power supply for AS-i controllers and for operating and display units
- Very high efficiency of 87.5 %
- Low ripple, < 0.25 mV
- High reliability

Technical data

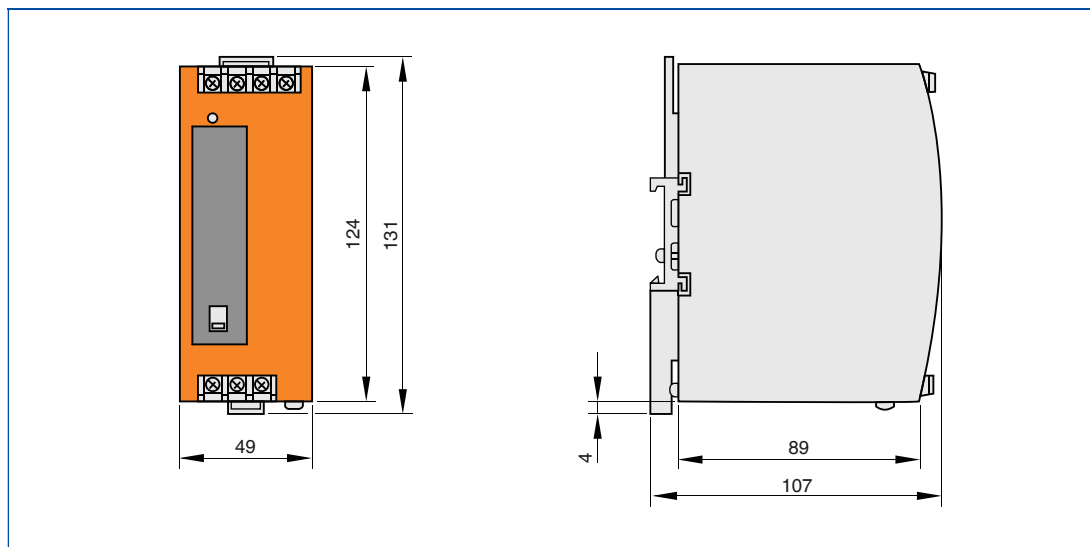
Description	TNC-D2011
Output current	2.5 A
Nominal voltage, primary	115/230 V AC
Input voltage range	85 – 132 V AC/176 – 264 V AC/160 – 375 V DC
Nominal frequency	47 – 63 Hz
Efficiency	87.5 %
Casing	Aluminium
IP protection level	IP 20
IEC protection class	I (protective earth)
Connection	Terminals 1.5 – 6 mm ²
Temperature range	-10 to +60 °C
Derating	1.5 W/K (60 – 70 °C)
Output voltage	24 V DC (± 5 %/-1 %) to SELV/PELV
Power ON delay time	< 20 ms
Residual ripple	< 25 mV
Mains buffering time	> 20 ms
Short-circuit protection / overload protection	Yes (to IEC 61140)
EMC	EN 50081-1; EN 61000-6-1; EN 61000-6-2; EN 61000-6-3; EN 61000-6-4
MTTF	294 years
Overvoltage protection	32 V
LEDs	Green: output voltage

Wiring

Connecting cable core identification
TNC-D2011

Dimensions

AS-i switching power supply unit TNC-D2011



Specification text

Standard description (characteristics)

Switching power supply unit TNC-D2011, supplying voltage to the controller or text display.

- Nominal voltage: 115/230 AC V
- Output voltage: 24 V DC (+5 %/-1 %), SELV/PELV
- Output current: 2.5 A
- Nominal frequency: 47 – 63 Hz
- Efficiency: 87.5 %
- Connection: Terminals, 1.5 to 6 mm²
- Casing materials: Aluminium
- Ambient temperature: -10 to +60 C°
- IP protection level: IP 20
- Status display: LED green, output voltage
- Make: TROX GmbH or equivalent
- Type: TNC-D2011

Description



TNC-D2012

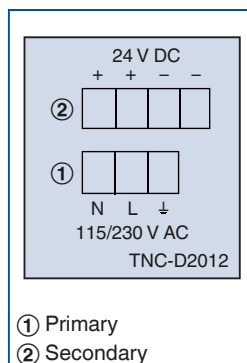
Application

- Switching power supply unit TNC-D2012 (24 V DC; 5 A)
- Power supply for AS-i controllers and for operating and display units
- Very high efficiency of 90 %
- Low ripple, < 50 mV
- High reliability

Technical data

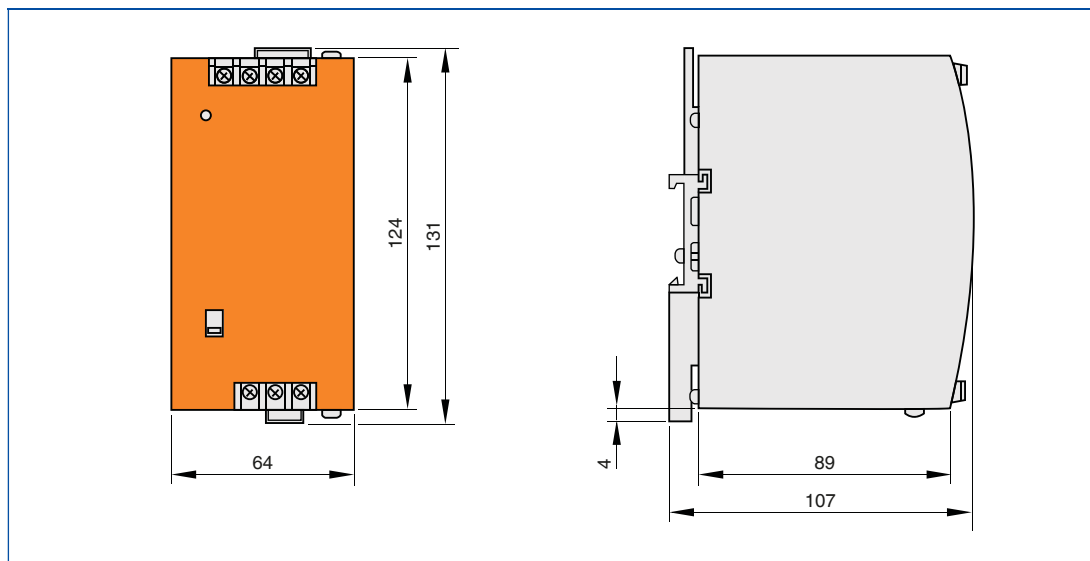
Description	TNC-D2012
Output current	5 A
Nominal voltage, primary	115/230 V AC
Input voltage range	85 – 132 V AC/176 – 264 V AC/210 – 375 V DC
Nominal frequency	47 – 63 Hz
Efficiency	90 %
Casing	Aluminium
IP protection level	IP 20
IEC protection class	I (protective earth)
Connection	Terminals 1.5 – 6 mm ²
Temperature range	–10 to +60 °C
Derating	3 W/K (60 – 70 °C)
Output voltage	24 V DC (± 5 %/–1 %) to SELV/PELV
Power ON delay time	< 20 ms
Residual ripple	< 50 mV
Mains buffering time	> 37 ms
Short-circuit protection / overload protection	Yes (to IEC 61140)
EMC	EN 50081-1; EN 61000-6-1; EN 61000-6-2; EN 61000-6-3; EN 61000-6-4
MTTF	241 years
Oversvoltage protection	29 V
LEDs	Green: output voltage

Wiring

Connecting cable core identification
TNC-D2012

Dimensions

AS-i switching power supply unit TNC-D2012



Specification text

Standard description (characteristics)

Switching power supply unit TNC-D2012, supplying voltage to the controller or text display.

- Nominal voltage: 115/230 AC V
- Output voltage: 24 V DC (+5 %/-1 %), SELV/PELV
- Output current: 5 A
- Nominal frequency: 47 – 63 Hz
- Efficiency: 90 %
- Connection: Terminals, 1.5 to 6 mm²
- Casing materials: Aluminium
- Ambient temperature: -10 to +60 C°
- IP protection level: IP 20
- Status display: LED green, output voltage
- Make: TROX GmbH or equivalent
- Type: TNC-D2012

Description

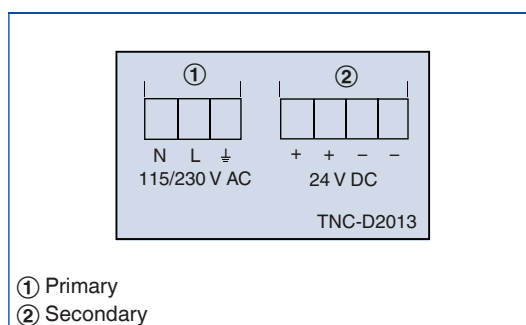
TNC-D2013

Application

- Switching power supply unit TNC-D2013 (24 V DC; 10 A)
- Power supply for AS-i controllers and for operating and display units
- Very high efficiency of 90 %
- Low ripple, < 30 mV
- High reliability

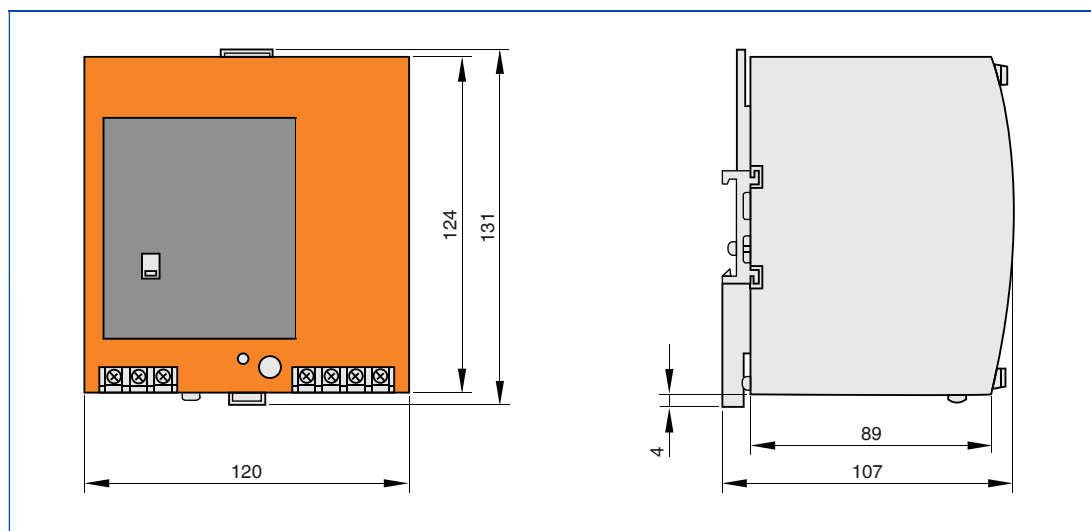
Technical data

Description	TNC-D2013
Output current	10 A
Nominal voltage, primary	115/230 V AC
Input voltage range	85 – 132 V AC/176 – 264 V AC/240 – 375 V DC
Nominal frequency	47 – 63 Hz
Efficiency	90 %
Casing	Aluminium
IP protection level	IP 20
IEC protection class	I (protective earth)
Connection	Terminals 1.5 – 6 mm ²
Temperature range	–10 to +60 °C
Derating	12 W/K (60 – 70 °C)
Output voltage	24 – 28 V DC (± 5 %/–1 %) to SELV/PELV
Power ON delay time	< 20 ms
Residual ripple	< 30 mV
Mains buffering time	> 20 ms
Short-circuit protection / overload protection	Yes
EMC	EN 50081-1; EN 61000-6-2
MTTF	195 years
Overvoltage protection	29 V
LEDs	Green: output voltage

Wiring**Connecting cable core identification
TNC-D2013**

Dimensions

AS-i switching power supply unit TNC-D2013



Specification text

Standard description (characteristics)

Switching power supply unit TNC-D2013,
supplying voltage to the controller or text display.

- Nominal voltage: 115/230 AC V
- Output voltage: 24 – 28 V DC ($\pm 2\%$),
SELV/PELV
- Output current: 10 A
- Nominal frequency: 47 – 63 Hz
- Efficiency: 90 %
- Connection: Terminals, 1.5 to 6 mm²
- Casing materials: Aluminium
- Ambient temperature: -10 to $+60$ C°
- IP protection level: IP 20
- Status display: LED green, output voltage
- Make: TROX GmbH or equivalent
- Type: TNC-D2013

TROXNETCOM AS-i

Power supply units



AS-i system voltage for master, sensors, actuators, and modules

AS-Interface power supply units for power supply and unimpaired data transmission

- High efficiency of 88 % or 90.9 %
- Low ripple, < 50 mV or < 100 mV
- Input and output with overvoltage protection
- With short circuit, idle and overload protection
- Increased operational reliability due to the bridging of voltage drops
- Very high efficiency, hence very low heat build-up
- LED for secondary voltage
- Power supply units meet the requirements of VDE 0106 for AS-i networks



Type		Page
Power supply units	General information	6.2 – 39
	Special information – TNC-A1256	6.2 – 40
	Special information – TNC-A1258	6.2 – 42
	Basic information and nomenclature	6.4 – 1

Description



TNC-A1258

Application

- Power supply unit provide energy to the AS-i network and the connected slaves
- Power supply units with data decoupling are used to simultaneously transmit data and energy.

Order code

TNC – A1256

1

1 Type

TNC-A1256

TNC-A1258

Description



TNC-A1256

Application

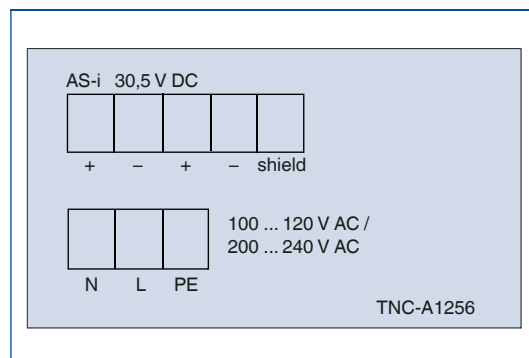
- AS-i power supply unit TNC-1256 (2.8 A) with data decoupling
- Voltage supply for sensors, actuators and modules
- For systems where the power supply is not provided by AS-i
- Very high efficiency of 88 %
- Low ripple, < 50 mV
- High reliability

Technical data

Description	TNC-A1256
Output current	2.8 A
Nominal voltage, primary	115/230 V AC (switching is possible)
Input voltage range	100 – 120/200 – 240 V AC; ± 10 %; automatic switching between ranges
Nominal frequency	50/60 Hz
Efficiency	86.9 % (120 V AC; 60 Hz)/88 % (230 V AC; 50 Hz)
Casing	Sheet steel
IP protection level	IP 20
Connection	Screw terminals
Temperature range	-25 to 70 °C
Derating	0 W/K (60 – 70 °C)
Output voltage	30.5 DC
Power ON delay time	≤ 900 ms
Residual ripple	< 50 mV
Mains buffering time	98 ms (120 V AC; 60 Hz)/96 ms (230 V AC; 50 Hz)
With short circuit protection / overload protection	Yes
EMC	EN 61000-6-1; EN 61000-6-2; EN 61000-6-4
MTBF	801000 h
AS-i certificate	98701
Status LED	Green (display of AS-i voltage)
Fixing	On mounting rail

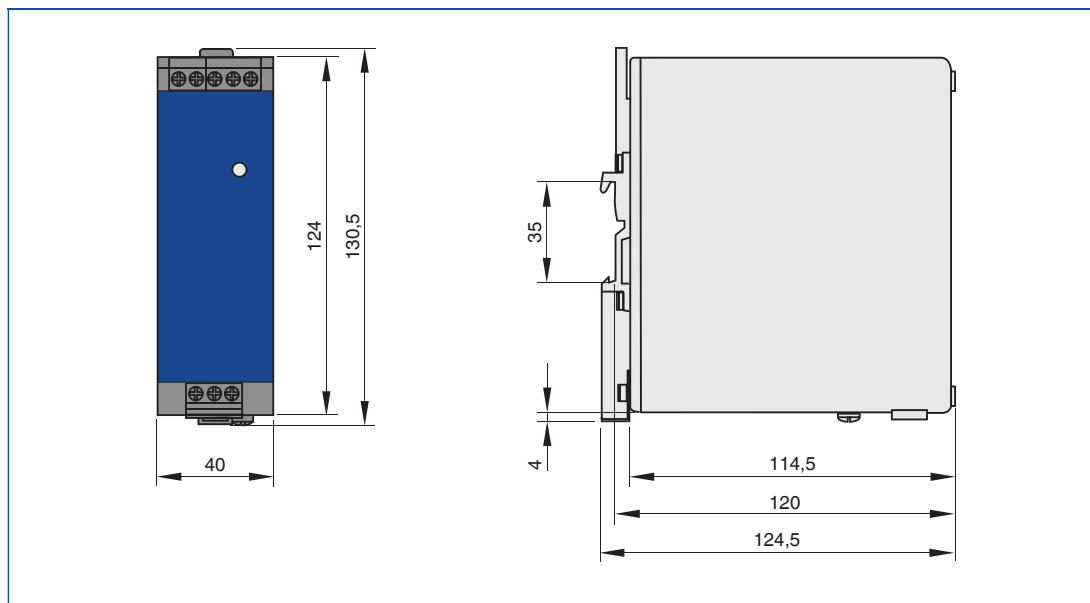
Wiring

**Connecting cable core identification
TNC-A1256**



Dimensions

Power supply unit TNC-A1256



Specification text

Standard description (characteristics)

AS-i power supply units, 115/230 V AC, with data decoupling, ensure power supply for master, sensors, actuators and modules.

- Nominal voltage: 115/230 AC V
- Nominal frequency: 50/60 Hz
- Efficiency: 88 %
- Connection: Screw terminals
- Casing materials: Galvanised sheet steel
- Ambient temperature: -25 to 70 C°
- IP protection level: IP 20
- Function LED: Green (display of AS-i voltage)
- Make: TROX GmbH or equivalent
- Type: TNC-A1256

Description



TNC-A1258

Application

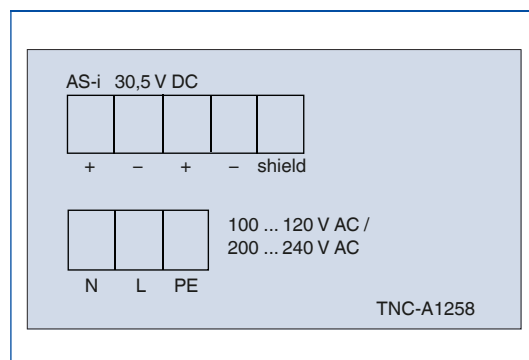
- TROX AS-i power supply unit TNC-1258 (8 A) with data decoupling
- Voltage supply for sensors, actuators and modules
- For systems where the power supply is not provided by AS-i
- Very high efficiency of 90.9 %
- Low ripple, < 100 mV
- High reliability

Technical data

Description	TNC-A1258
Output current	8 A
Nominal voltage, primary	115/230 V AC (switching is possible)
Input voltage range	100 – 120/200 – 240 V AC; ± 10 %; automatic switching between ranges
Nominal frequency	50/60 Hz
Efficiency	89.4 % (120 V AC; 60 Hz)/90.9 % (230 V AC; 50 Hz)
Casing	Sheet steel
IP protection level	IP 20
Connection	Screw terminals
Temperature range	-25 to 70 °C
Derating	6 W/K (60 – 70 °C)
Output voltage	30.5 DC
Power ON delay time	≤ 800 ms
Residual ripple	< 100 mV
Mains buffering time	44 ms (120 V AC; 60 Hz)/42 ms (230 V AC; 50 Hz)
With short circuit protection / overload protection	Yes
EMC	EN 61000-6-1; EN 61000-6-2; EN 61000-6-4
MTBF	771000 h
AS-i certificate	98501
Status LED	Green (display of AS-i voltage)
Fixing	On mounting rail

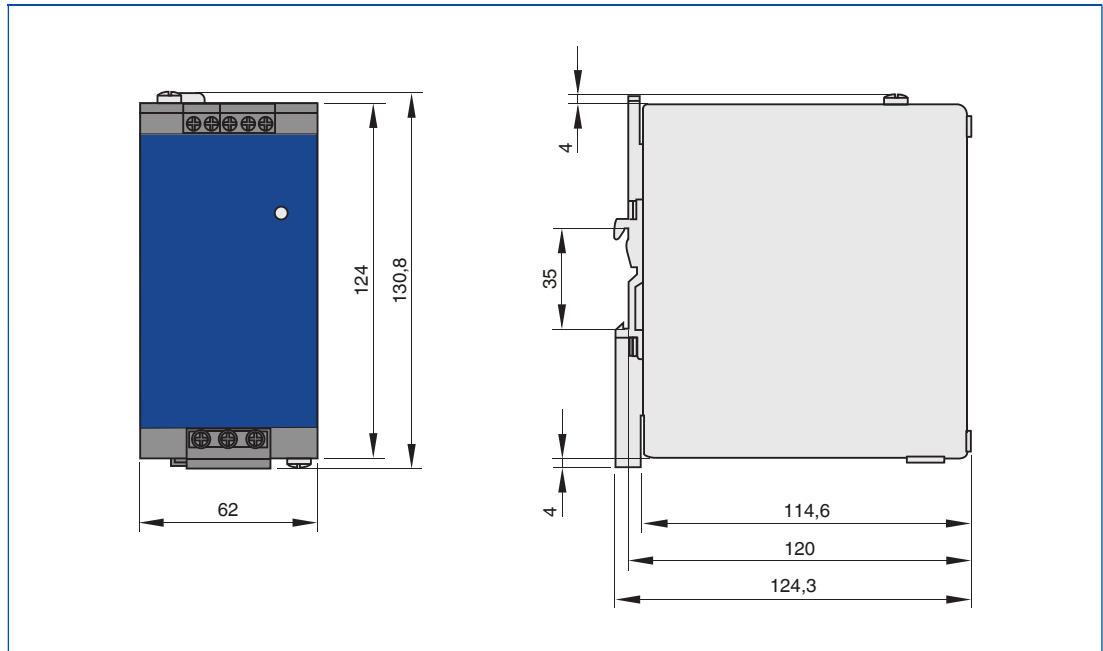
Wiring

**Connecting cable core identification
TNC-A1258**



Dimensions

Power supply unit TNC-A1258



Specification text

Standard description (characteristics)

AS-i power supply units, 115/230 V AC, with data decoupling, ensure power supply for master, sensors, actuators and modules.

- Nominal voltage: 115/230 AC V
- Nominal frequency: 50/60 Hz
- Efficiency: 90.9 %
- Connection: Screw terminals
- Casing materials: Galvanised sheet steel
- Ambient temperature: -25 to 70 C°
- IP protection level: IP 20
- Function LED: Green (display of AS-i voltage)
- Make: TROX GmbH or equivalent
- Type: TNC-A1258

TROXNETCOM AS-i

Pre-configured switch boxes



For the control of fire and smoke protection systems

Pre-configured modular base station with power supply units, relays and controllers, for the rapid implementation and adjustment of control systems

- Space saving, compact design
- All components are already wired to rail mount terminals
- Quick, error free assembly and installation
- Robust design
- With TROXNETCOM Basic User Software for rapid and safe commissioning and configuration
- Integral display, also for operation

Type	Page
Pre-configured switch boxes General information	6.2 – 45
Special information – TNC-SVR0*	6.2 – 47
Special information – TNC-SVC0*DP*	6.2 – 48
Special information – TNC-SVC0*DPR*	6.2 – 49
Special information – TNC-SVC0*MB*	6.2 – 50
Special information – TNC-SVC0*MBR*	6.2 – 51
Basic information and nomenclature	6.4 – 1

Description



TROXNETCOM AS-i
Pre-configured
switch boxes

Application

- Controller and power unit which consists of: Controller, switching power supply unit, AS-i power supply unit, and repeater or relay modules, in a plastic casing with transparent cover
- Installed and wired to rail mount terminals
- Cable glands with clamping bracket for mains cable, AS-i bus cable and network cable
- European 'Schuko' socket for programming device
- Communication master can be installed in the door of the switch cabinet
- For one or two masters
- With TNC Basic User Software for fire and smoke protection
- Communication interface to higher level systems (BACnet/Modbus)
- Display, also for operation

Order code



1 Serie

TNC-SVR01	1xTNC-A2225; 1xTNC-A1256
TNC-SVR02	1xTNC-A2225; 1xTNC-A1258
TNC-SVC01DP	1xTNC-A1305; 1x TNC-A1256; 1xTNC-D1020
TNC-SVC02DP	1xTNC-A1305; 1x TNC-A1258; 1xTNC-D1020
TNC-SVC03DP	1xTNC-A1306; 2x TNC-A1256; 1xTNC-D1020
TNC-SVC04DP	1xTNC-A1306; 2x TNC-A1258; 1xTNC-D1020
TNC-SVC01DPR	1xTNC-A1305; 1x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC02DPR	1xTNC-A1305; 1x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC03DPR	1xTNC-A1306; 2x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC04DPR	1xTNC-A1306; 2x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC01DPRR	1xTNC-A1305; 1x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC02DPRR	1xTNC-A1305; 1x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC03DPRR	1xTNC-A1306; 2x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC04DPRR	1xTNC-A1306; 2x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC01MB	1xTNC-A1353; 1x TNC-A1256; 1xTNC-D1020
TNC-SVC02MB	1xTNC-A1353; 1x TNC-A1258; 1xTNC-D1020
TNC-SVC03MB	1xTNC-A1354; 2x TNC-A1256; 1xTNC-D1020
TNC-SVC04MB	1xTNC-A1354; 2x TNC-A1258; 1xTNC-D1020
TNC-SVC01MBR	1xTNC-A1353; 1x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC02MBR	1xTNC-A1353; 1x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC03MBR	1xTNC-A1354; 2x TNC-A1256; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC04MBR	1xTNC-A1354; 2x TNC-A1258; 1xTNC-D1020; 1xTNC-Z0094
TNC-SVC01MBRR	1xTNC-A1353; 1x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC02MBRR	1xTNC-A1353; 1x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC03MBRR	1xTNC-A1354; 2x TNC-A1256; 1xTNC-D1020; 2xTNC-Z0094
TNC-SVC04MBRR	1xTNC-A1354; 2x TNC-A1258; 1xTNC-D1020; 2xTNC-Z0094

Description

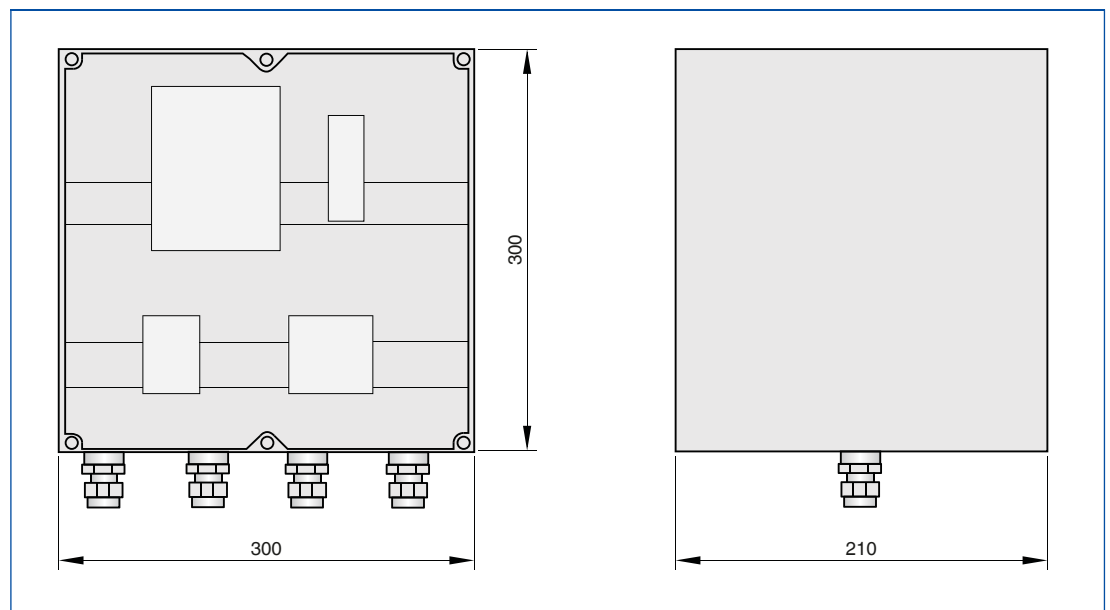
TNC-SVR01/TNC-SVR02

Application

- Pre-configured AS-i base stations for repeaters (TNC-A2225), with an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- Allows for AS-i cable extension by 100 m

Technical data

Description	TNC-SVR01/SVR02
Casing dimensions (B x H x T)	300 x 300 x 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVR01: 1 x TNC-A2225; 1 x TNC-A1256; TNC-SVR02: 1 x TNC-A2225; 1 x TNC-A1258
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVR01: 0.1 KW; TNC-SVR02: 0.24 KW
Pre fuse	20 A
IP protection level	IP 65

Dimensions**AS-i pre-configured switch boxes TNC-SVR01, TNC-SVR02****Specification text****Standard description (characteristics)**

Switch box 'Repeater'

- Dimensions: 300 x 300 x 210 mm
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable and AS-i bus cable
- Mains supply: 230 V AC, 50 Hz
- Repeater: TNC-A2225
- Power supply unit: TNC-A1256 = 2.8 A (TNC-SVR01) or TNC-A1258 = 8 A (TNC-SVR02)
- Type: TNC-SVR0*

Description



TNC-SVC02DPR
(Example)

Application

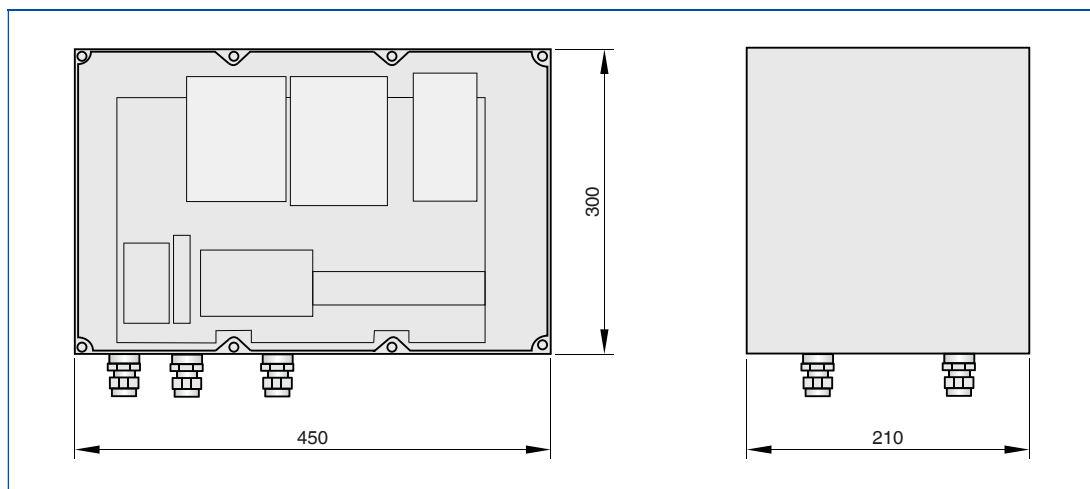
- Pre-configured AS-i base stations for controllers with a master for 31 AS-i participants (TNC-A1305), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC01DP, -02DP, -01DPR, -02DPR, -01DPRR, -02DPRR
Casing dimensions (B x H x T)	450 x 300 x 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC01DP: 1 x TNC-A1305; 1 x TNC-A1256, 1 x TNC-D1020; TNC-SVC02DP: 1 x TNC-A1305; 1 x TNC-A1258, 1 x TNC-D1020; TNC-SVC01DPR: 1 x TNC-A1305; 1 x TNC-A1256, 1 x TNC-D1020, 1 x Z0094; TNC-SVC02DPR: 1 x TNC-A1305; 1 x TNC-A1258, 1 x TNC-D1020, 1 x Z0094; TNC-SVC01DPRR: 1 x TNC-A1305; 1 x TNC-A1256, 1 x TNC-D1020, 2 x Z0094; TNC-SVC02DPRR: 1 x TNC-A1305; 1 x TNC-A1258, 1 x TNC-D1020, 2 x Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC01DP, -01DPR, -01DPRR: 0,15 kW; TNC-SVC02DP, -02DPR, -02DPRR: 0,3 kW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



Specification text

Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 x 300 x 210 mm
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- Controller: TNC-A1305 PROFIBUS DP with Basic User Software, 1 master

- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: 1 x TNC-A1256 = 2.8 A (TNC-SVC01DP) or 1 x TNC-A1258 = 8 A (TNC-SVC02DP) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*DP*

Description

TNC-SVC04MB
(example)

Application

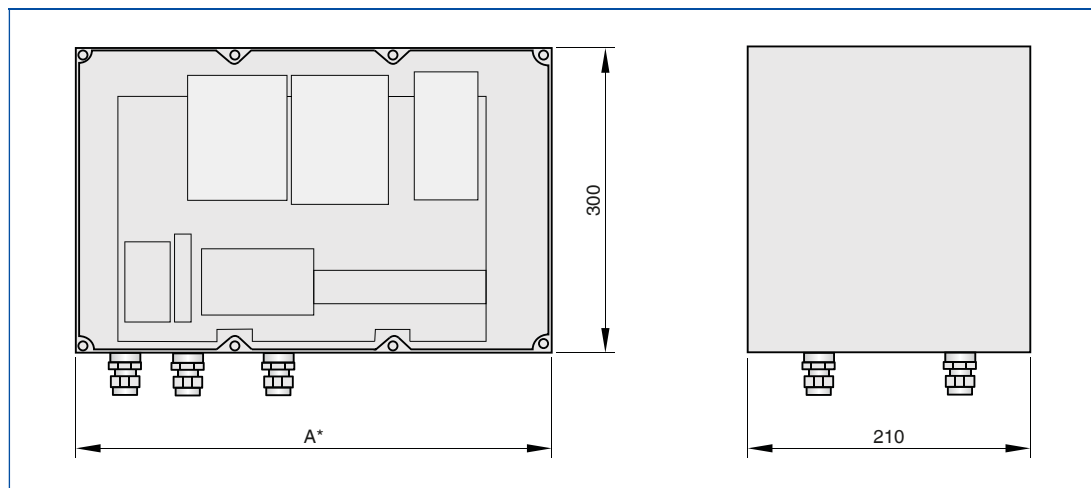
- Pre-configured AS-i base stations for controllers with two masters for 62 AS-i participants (TNC-A1306), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC03DP, -04DP, -03DPR, -04DPR, -03DPRR, -04DPRR
Casing dimensions (B × H × T)	TNC-SVC03DP, -04DP, -03DPR, -04DPR: 450 × 300 × 210 mm; TNC-SVC03DPRR, -04DPRR: 600 × 300 × 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC03DP: 1 × TNC-A1306; 2 × TNC-A1256, 1 × TNC-D1020; TNC-SVC04DP: 1 × TNC-A1306; 2 × TNC-A1258, 1 × TNC-D1020; TNC-SVC03DPR: 1 × TNC-A1306; 2 × TNC-A1256, 1 × TNC-D1020, 1 × Z0094; TNC-SVC04DPR: 1 × TNC-A1306; 2 × TNC-A1258, 1 × TNC-D1020, 1 × Z0094; TNC-SVC03DPRR: 1 × TNC-A1306; 2 × TNC-A1256, 1 × TNC-D1020, 2 × Z0094; TNC-SVC04DPRR: 1 × TNC-A1306; 2 × TNC-A1258, 1 × TNC-D1020, 2 × Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC03DP, -03DPR, -03DPRR: 0,2 KW; TNC-SVC04DP, -04DPR, -04DPRR: 0,5 KW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



* 450 mm with TNC-SVC03DP, -04DP, -03DPR, -04DPR*600 mm with TNC-SVC03 DPRR, -04DPRR

Specification text

Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 × 300 × 210 mm (TNC-SVC03DP, -03DPR, -04DP, -04DPR)
- Dimensions: 600 × 300 × 210 mm (TNC-SVC03DPRR, -04DPRR)
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- Controller: TNC-A1306 PROFIBUS DP with Basic User Software, 2 masters
- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: 2 × TNC-A1256 = 2.8 A (TNC-SVC03DP, -03DPR*, -03DPRR*) or 2 × TNC-A1258 = 8 A (TNC-SVC04DP; -04DPR*, -04DPRR*) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*DP*

Description



TNC-SVC02DPR
(Example)

Application

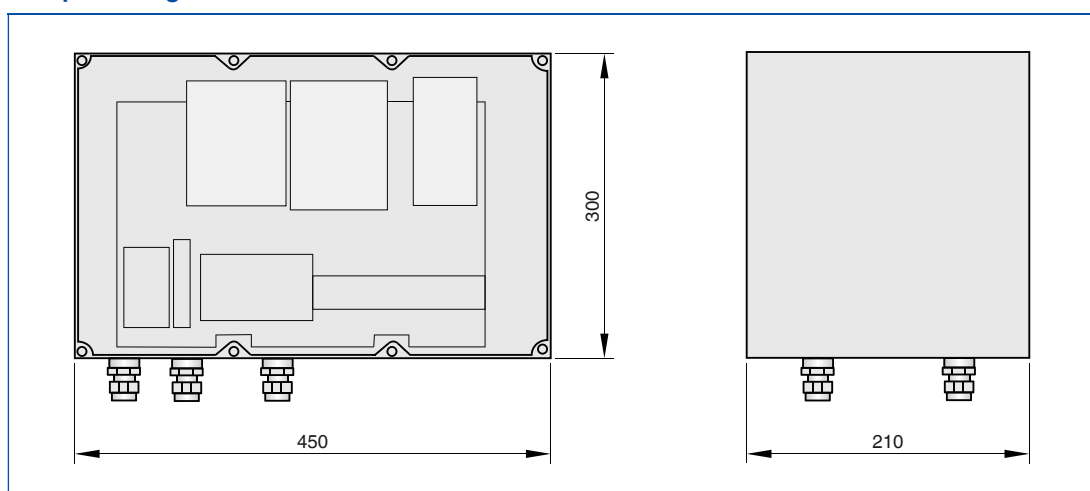
- Pre-configured AS-i base stations for controllers with a master for 31 AS-i participants (TNC-A1353), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover
- Communication interface to higher level systems (Modbus)
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC01MB, -02MB, -01MBR, -02MBR, -01MBRR, -02MBRR
Casing dimensions (B x H x T)	450 x 300 x 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC01MB: 1 x TNC-A1353; 1 x TNC-A1256, 1 x TNC-D1020; TNC-SVC02MB: 1 x TNC-A1353; 1 x TNC-A1258, 1 x TNC-D1020; TNC-SVC01MBR: 1 x TNC-A1353; 1 x TNC-A1256, 1 x TNC-D1020, 1 x Z0094; TNC-SVC02MBR: 1 x TNC-A1353; 1 x TNC-A1258, 1 x TNC-D1020, 1 x Z0094; TNC-SVC01MBRR: 1 x TNC-A1353; 1 x TNC-A1256, 1 x TNC-D1020, 2 x Z0094; TNC-SVC02MBRR: 1 x TNC-A1353; 1 x TNC-A1258, 1 x TNC-D1020, 2 x Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC01MB, -01MBR, -01MBRR: 0.15 kW; TNC-SVC02MB, -02MBR, -02MBRR: 0.3 kW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



Specification text

Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 x 300 x 210 mm
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- Pre fuse: 20 A
- Controller: TNC-A1353 Modbus with Basic User Software, 1 master
- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: TNC-A1256 = 2.8 A (TNC-SVC01MB, -01MBR*, -01MBRR*) or TNC-A1258 = 8 A (TNC-SVC02MB, -02MBR*, -02MBRR*) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*MB*

Description

TNC-SVC04MB
(example)

Application

- Pre-configured AS-i base stations for controllers with two masters for 62 AS-i participants (TNC-A1354), an AS-i power supply unit TNC-A1256 = 2.8 A or TNC-A1258 = 8 A and switching power supply unit (TNC-D1020), and one or two additional relay modules (TNC-Z0094)
- Installed and wired to rail mount terminals
- Plastic casing, free of halogens, with transparent cover

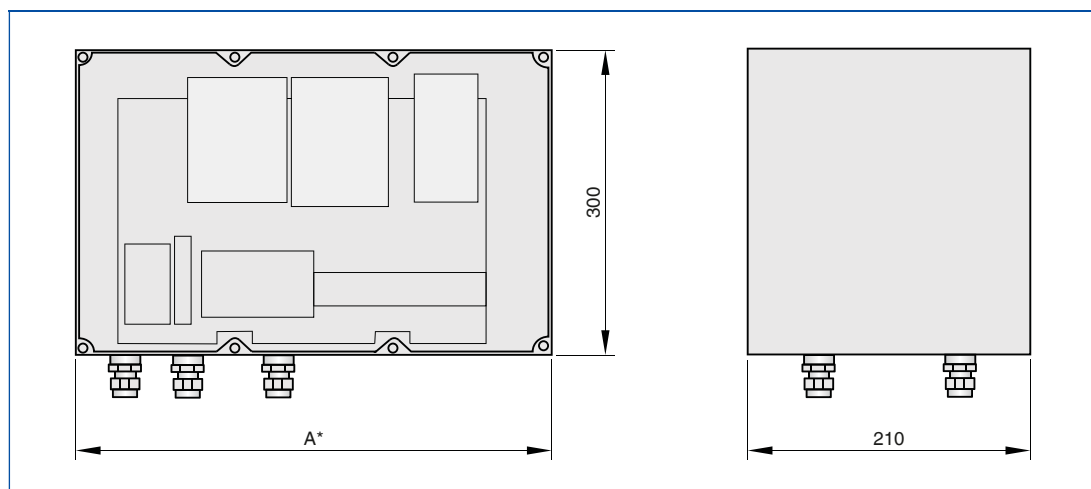
- Communication interface to higher level systems (Modbus)
- With TNC Basic User Software for fire and smoke protection

Technical data

Description	TNC-SVC03MB, -04MB, -03MBR, -04MBR, -03MBRR, -04MBRR
Casing dimensions (B x H x T)	TNC-SVC03MB, -04MB, -03MBR, -04MBR: 450 x 300 x 210 mm; TNC-SVC03MBRR, -04MBRR: 600 x 300 x 210 mm
Casing material	Plastic, free of halogens, with transparent cover
Wired components	TNC-SVC03MB: 1 x TNC-A1354; 2 x TNC-A1256, 1 x TNC-D1020; TNC-SVC04MB: 1 x TNC-A1354; 2 x TNC-A1258, 1 x TNC-D1020; TNC-SVC03MBR: 1 x TNC-A1354; 2 x TNC-A1256, 1 x TNC-D1020, 1 x Z0094; TNC-SVC04MBR: 1 x TNC-A1354; 2 x TNC-A1258, 1 x TNC-D1020, 1 x Z0094; TNC-SVC03MBRR: 1 x TNC-A1354; 2 x TNC-A1256, 1 x TNC-D1020, 2 x Z0094; TNC-SVC04MBRR: 1 x TNC-A1354; 2 x TNC-A1258, 1 x TNC-D1020, 2 x Z0094
Mains supply	230 V AC, 50 Hz
Max. power consumption	TNC-SVC03MB, -03MBR, -03MBRR: 0.2 kW; TNC-SVC04MB, -04MBR, -04MBRR: 0.5 kW
Pre fuse	20 A
IP protection level	IP 65

Dimensions

AS-i pre-configured switch boxes TNC



* 450 mm with TNC-SVC03MB, -04MB, -03MBR, -04MBR 600 mm with TNC-SVC03MBRR, -04MBRR

Specification text

Standard description (characteristics)

Switch box 'Controller and power unit'

- Dimensions: 450 x 300 x 210 mm (TNC-SVC03MB, -03MBR, -04MB, -04MBR)
- Dimensions: 600 x 300 x 210 mm (TNC-SVC03MBRR, -04MBRR)
- Casing materials: Plastic, free of halogens, with transparent cover
- Components: installed and wired to rail mount terminals
- Cable glands: M20 with clamping bracket for mains cable, AS-i bus cable and network cable
- PROFIBUS DP connector
- European 'Schuko' socket for programming device
- Circuit breaker: 16 A
- Mains supply: 230 V AC, 50 Hz
- IP protection level: IP 65
- Controller: TNC-A1354 Modbus with Basic User Software, 2 masters
- Switching power supply unit: TNC-D1020 = 1.3 A
- Power supply unit: TNC-A1256 = 2.8 A (TNC-SVC03MB, -03MBR*, -03MBRR*) or TNC-A1258 = 8 A (TNC-SVC04MB, -04MBR*, -04MBRR*) (*no. of relay modules)
- Make: TROX GmbH or equivalent
- Type: TNC-SVC0*MB*

TROXNETCOM AS-i Modules



Communication interface between a component and the controller

The module is used to connect the control system with the components

- Integral AS-Interface slave
- Monitoring of signal receipt
- With short circuit protection
- Easy wiring due to flat cable insulation displacement connectors ('click and go')
- Certified motor control modules for safe communication up to SIL2
- Special modules for dampers with special functions including redundant voltage supply
- Universal module for the connection of various terminal units such as fire dampers, smoke protection dampers or duct smoke detectors

Type		Page
Modules	General information	6.2 – 53
	Special information – AS-EP	6.2 – 54
	Special information – AS-EM	6.2 – 56
	Special information – AS-EM/EK	6.2 – 58
	Special information – AS-EM/SO	6.2 – 60
	Special information – AS-EM/SIL2	6.2 – 62
	Special information – AS-EM/C	6.2 – 64
	Special information – TNC-A005S	6.2 – 66
	Special information – TNC-Z0094	6.2 – 68
	Special information – TNC-Z0047	6.2 – 70
	Basic information and nomenclature	6.4 – 1

Description



TROXNETCOM AS-i
Modules

Application

- Module used to capture the status of volt-free contacts, e.g. the OPEN and CLOSED positions of fire dampers that are fitted with conventional limit switches, Type AS-EP
- Module used to control the actuator for a fire damper, multileaf damper or air transfer damper, or a duct smoke detector, Type AS-EM
- Module used to control the actuator for a smoke control damper, Type AS-EM/EK
- Module with redundant voltage supply used to control dampers with special functions, Type AS-EM/SO
- SIL2-certified module used to control fire dampers, smoke protection dampers or smoke control dampers, Type AS-EM/SIL2
- Multi functional module used as a control and signalling module for the monitoring of 4 fire damper actuators with one electric limit switch each, to provide the control input signal for and to monitor 2 motorised fire dampers, Type AS-EM/C
- AS-i Safety input module for capturing the actuator end positions, approved for applications up to SIL2 to IEC/EN 61508
- I/O module for the volt-free signalling of errors or of the I/O state of systems etc., Type TNC-A005S
- Illuminated push button module for the connection between AS-i controller and operating staff, Type TNC-Z0047

Order code

AS – EP

1

1 Type

AS-EP	Module for capturing 4 end positions
AS-EM	Module for controlling actuators for fire dampers, smoke protection dampers, etc.
AS-EM/EK	Module for controlling actuators on smoke control dampers
AS-EM/SO	Module for controlling actuators with special functions
AS-EM/SIL2	Module for controlling actuators with SIL2 certificate
AS-EM/C	Module for controlling actuators with separate voltage supply, or for capturing four end positions
TNC-A005S	AS-i safety input module
TNC-Z0094	Relay module 4E/4A
TNC-Z0047	Illuminated push button module

Description



AS-EP

Application

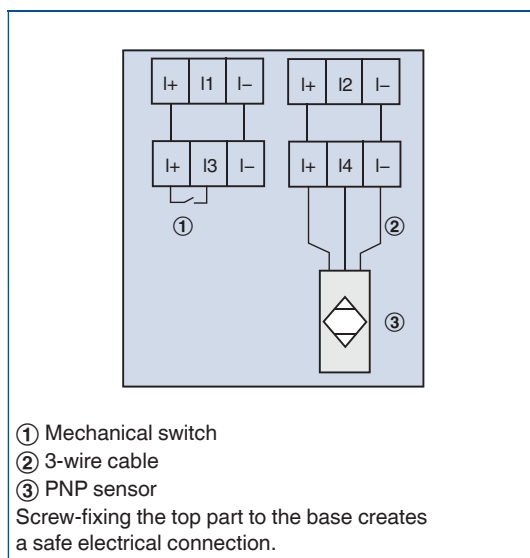
- Connection of up to four limit switches:
Damper blade position CLOSED or OPEN
for 4 fire dampers, or positions CLOSED
and OPEN for 2 fire dampers
- Integral AS-Interface slave
- Monitoring of signal receipt
- Supply voltage to the module through
the AS interface
- Wiring of the limit switches with terminals;
PG glands for cable penetration
- Up to 30 m cable length between module
and limit switch
- Connection with flat cable insulation
displacement connector

Technical data

Description	AS-EP
Electrical design	4 inputs
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 80 mA
Inputs	
Switching	PNP
Sensor voltage supply	AS-i
Voltage range	20 – 30 V DC
Max. current load (total for all inputs)	160 mA
With short circuit protection	Yes
Switching level – high signal 1	> 10 V
Input current high/low	> 5/< 1 mA
Status display	
Operation	LED green
Function	LED yellow
Ambient temperature	-25 to 85 °C
IP protection level	IP 67
AS-i profile	S 0.0
I/O configuration	0 Hex
ID code	0 Hex
EMC	EN 50081-2; EN 50082-2
Casing materials	PBTP (Pocan)
Dimensions L × B × H	102 × 45 × 70 mm
Connection	Contact pins on FC or SC lower module
Data bits	Data bit I allocation: D0 I – 1, D1 I – 2, D2 I – 3, D3 I – 4

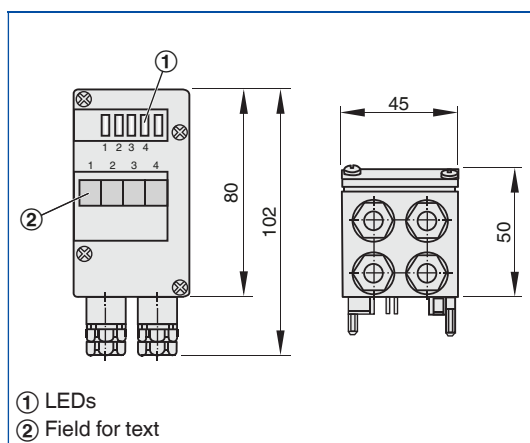
Wiring

Connection of limit switches



Dimensions

AS-i module AS-EP



6

Specification text

Standard description (characteristics)

- Module for capturing 4 damper blade end positions (volt-free)
- Integral AS-Interface slave
- Monitoring of signal receipt
- Flat cable connection
- Supply voltage to the module through the AS interface
- Make: TROX GmbH or equivalent
- Type: AS-EP

Description



AS-EM

Application

- Module used to control actuators for fire dampers, air transfer dampers, smoke detectors and multileaf dampers
- Capturing the damper blade end positions (CLOSED and OPEN) as well as intermediate positions
- Actuators can be started even without controller communication
- Emergency position can be set (OPEN or CLOSED)
- LEDs for OPEN and CLOSED positions; monitoring of running time errors
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Connection with flat cable insulation displacement connector
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators

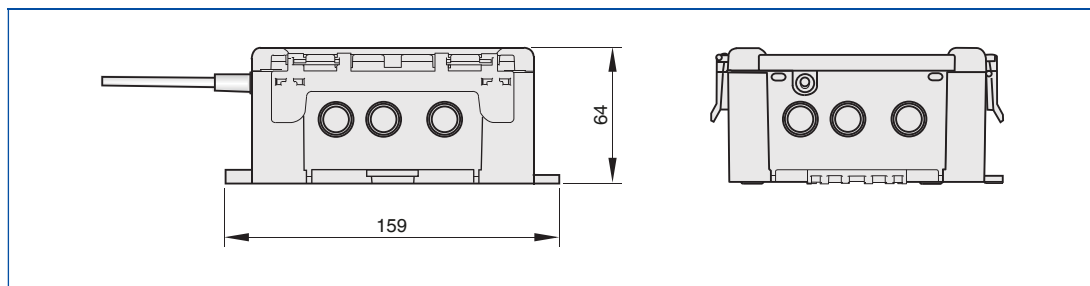
Damper accessories (mounted)	Usage
-	Module, unmounted
ZA07	Mounted to fire damper
ZA08	Mounted to multileaf damper with reversible actuator
ZA10	Mounted to fire protection damper or multileaf damper with spring return actuator
ZA11	Wired to duct smoke detector RM-O-3-D or RM-O-VS-D
ZA12	Mounted to air transfer damper

Technical data

Description	AS-EM
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, incl. actuator	450 mA
Inputs	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP	
Galvanically isolated	No
With short circuit protection	Yes
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay	
Galvanically isolated	Yes
Maximum voltage	32 V
Max. current load	500 mA
Ambient temperature	-5 to 75 °C
IP protection level	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

Dimensions

AS-EM



Specification text

Standard description (characteristics)

- Module used to control fire dampers, air transfer dampers, smoke detectors and multileaf dampers: fire damper / multileaf damper: actuator with spring return (2DI/1DO); smoke control damper / multileaf damper: actuator without spring return (2DI/2DO); air transfer damper: actuator with spring return and smoke detector RM-O-3-D (4DI/2DO); 24 V terminal. F. RM); smoke detector (4DI/2DO)
- Capturing the damper blade end positions (CLOSED and OPEN) as well as intermediate positions
- Actuators can be started even without controller communication
- Emergency position can be set (OPEN or CLOSED)
- LEDs for OPEN and CLOSED positions; monitoring of running time errors
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Connection with flat cable insulation displacement connector
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators
- Ambient temperature: -5 to 75 °C
- IP protection level: IP 42
- Make: TROX GmbH or equivalent
- Type: AS-EM

Description



AS-EM/EK

Application

- Module for the control of smoke control dampers
- Capturing damper blade positions OPEN and CLOSED
- Actuators can be started even without controller communication
- LEDs for OPEN and CLOSED positions; monitoring of running time errors
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators

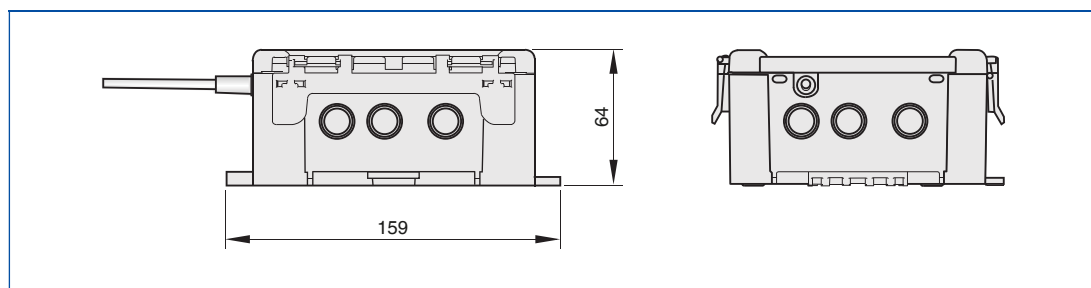
Damper accessories (mounted)	Usage
B24A	Mounted to the smoke control damper

Technical data

Description	AS-EM/EK
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, incl. actuator	450 mA
Inputs	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP	
Galvanically isolated	No
With short circuit protection	Yes
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay	
Galvanically isolated	Yes
Maximum voltage	32 V
Max. current load	500 mA
Ambient temperature	-5 to 75 °C
IP protection level	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

Dimensions

AS-EM/EK



Specification text

Standard description (characteristics)

- Module for the control of smoke control dampers
- Capturing the damper blade end positions (CLOSED and OPEN)
- Actuators can be started even without controller communication
- Emergency position can be set (OPEN or CLOSED)
- LEDs for OPEN and CLOSED positions; monitoring of running time errors
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators
- Ambient temperature: -5 to 75 °C
- IP protection level: IP 42
- Make: TROX GmbH or equivalent
- Type: AS-EM/EK

Description



AS-EM/SO

Application

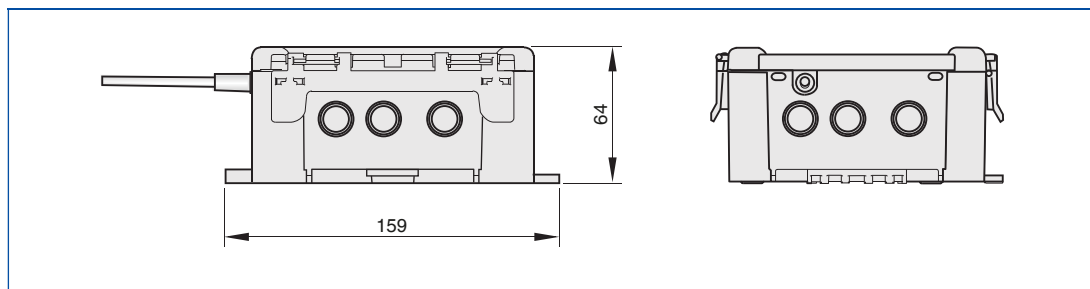
- Module used to control damper actuators with a special function
- Including maintenance-free electric double-layer capacitors for redundant 24 V voltage supply
- No battery change required
- Capturing the damper blade end positions (CLOSED and OPEN) as well as intermediate positions
- LEDs for OPEN and CLOSED positions; monitoring of running time errors
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Emergency position can be set (OPEN or CLOSED)
- Connection with terminals
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Actuators can be started even without controller communication
- Plug-in connection for Belimo actuators

Technical data

Description	AS-EM/SO
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, incl. actuator	550 mA
Inputs	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP	
Galvanically isolated	No
With short circuit protection	Yes
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay	
Galvanically isolated	Yes
Maximum voltage	32
Max. current load	500 mA
Ambient temperature	-5 to 60 °C
IP protection level	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

Dimensions

AS-EM/SO



Specification text

Standard description (characteristics)

- Module used to control dampers with a special function
- Including maintenance-free electric double-layer capacitors for redundant 24 V voltage supply
- No battery change required
- Capturing the damper blade end positions (CLOSED and OPEN) as well as intermediate positions
- LEDs for OPEN and CLOSED positions; monitoring of running time errors
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Emergency position can be set (OPEN or CLOSED)
- Connection with terminals
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Actuators can be started even without controller communication
- Plug-in connection for Belimo actuators
- Ambient temperature: -5 to 75 °C
- IP protection level: IP 42
- Make: TROX GmbH or equivalent
- Type: AS-EM/SO

Description



AS-EM/SIL2

Application

- Module for the control of smoke control dampers
- Capturing damper blade positions OPEN and CLOSED
- Approved up to SIL2 to IEC/EN 61508
- Integral AS-Interface slave
- Monitoring of signal receipt
- Master can be used to monitor the running time of the damper blade actuator
- Connection with terminals
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators

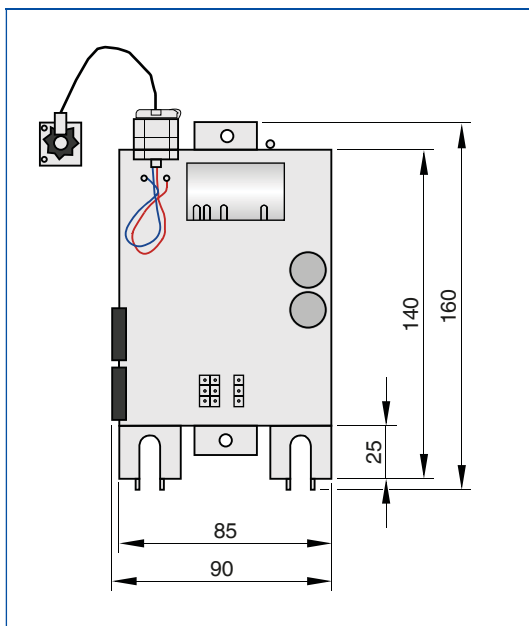
Damper accessories (mounted)	Usage
B24AS	Mounted to the smoke control damper

Technical data

Description	AS-EM/SIL2
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 400 mA from AS-i
Max. current load per output	340 mA
Max. current load per module	340 mA
Status LED	
AS-i power	1 × green
PeripheralFault	1 × red, blinking
ComError	1 × red, static
Output Q0	1 × yellow (DO0)
Output Q1	1 × yellow (DO1)
Input status LED SI-1	1 × yellow
Input status LED SI-2	1 × yellow
Input status DI0	1 × yellow (DI0)
Input status DI1	1 × yellow (DI1)
Input status DI2	1 × yellow (DI2)
Binary inputs	2 outputs with transistor (typically 24 V DC from AS-i, voltage range 18 – 30 V)
Operating temperature	–20 to 70 °C
Storage temperature	–20 to 75 °C
IP protection level	IP 54
Casing material	Plastic
AS-i profile	S-7.B.E (Safety at Work) and S7.A.E (motor module)
EMC	EN 61000-6-2; EN 61000-6-3

Dimensions

AS-i module AS-EM/SIL2



Specification text

Standard description (characteristics)

- Control module for dampers
- To be mounted to dampers and wired to the actuator
- Capturing the damper blade end positions (CLOSED and OPEN) as well as intermediate positions
- Approved for SIL to IEC/EN 61508
- Integral AS-Interface slave
- Monitoring of signal receipt
- Controller can be used to monitor the running time of the damper blade actuator
- Supply voltage for the module and the damper actuator (24 V DC) from AS-i
- Total current consumption from AS-i: 400 mA
- Ambient temperature: -20 to 70 °C
- IP protection level: IP54
- Make: TROX GmbH or equivalent
- Type: AS-EM/SIL2

Description



AS-EM/C

Application

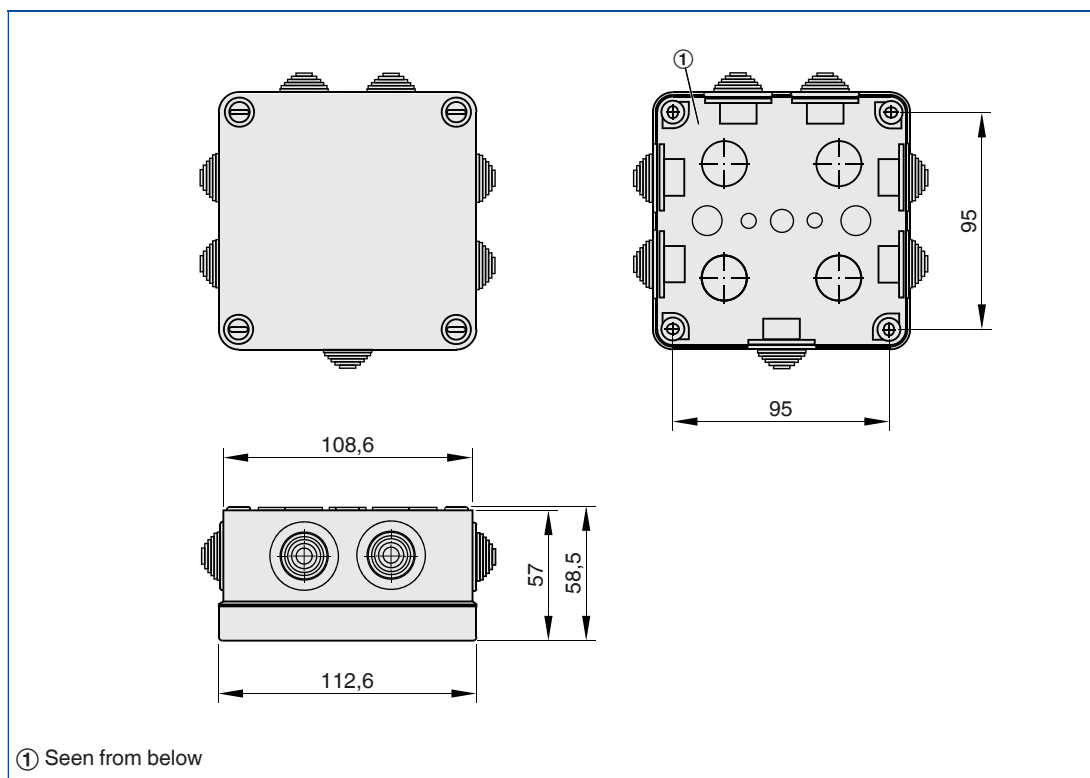
- Universal module with plastic casing
- Can be used to control 2 fire dampers with separate power supply
- Can be used to control the explosion-proof actuator for a fire damper
- Can be used to control the actuator for a KA-EU fire damper with blade opening actuator
- Can be used to capture the damper blade positions CLOSED and OPEN, for example in fire dampers with conventional limit switches
- Connection of up to four dampers with one limit switch each, or two dampers with two limit switches each
- Can be used to capture signals from duct smoke detectors of Type RM-O-VS-D or RM-O-3-D
- Integral AS-Interface slave
- Monitoring of signal receipt
- Voltage supply for actuators with separate 24 V or 230 V AC voltage supply
- Cable connection with terminal strip

Technical data

Description	AS-EM/C
Electrical design	4 inputs/2 outputs
Output function	Relay
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 100 mA
Inputs	
Switching	PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V DC
Max. current load (total for all inputs)	100 mA
With short circuit protection No	No
Switching level – high signal 1	> 10 V
Input current high/low	> 6/< 2 mA
Outputs	
Galvanically isolated	Yes
With short circuit protection	No
Watchdog	Yes
Max. current load per output	1500 mA
External voltage supply	Yes
Voltage range	10 – 240 V AC/24 V DC
Max. current load per module	6000 mA
Status display	
Switching state	LED yellow
Operation	LED green
Errors	LED red
Ambient temperature	-25 to 50 °C
IP protection level	IP 54
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	A.E Hex
EMC	EN 50295; EN 50178
Casing material	PP (polypropylene); flame retardant
Dimensions L x B x H	110 x 110 x 58 mm
Data bits	Data bit: D0; D1; D2; D3
Input function	In1; In2; In3; In4
Output function	O1; O2
Connecting cable core identification	A+: AS-i +, A-: AS-i -, In+: Sensor supply voltage +24 V, In1 – In4: Switching input, sensors 1 – 4, N: common reference point

Dimensions

AS-i module AS-EM/C



Specification text

Standard description (characteristics)

- Universal module with plastic casing
- Can be used to control 2 fire dampers with separate power supply
- Can be used to capture the damper blade positions CLOSED and OPEN, for example in fire dampers with conventional limit switches
- Connection of up to four dampers with one limit switch each, or two dampers with two limit switches each
- Can be used to capture signals from duct smoke detectors of Type RM-O-VS-D or RM-O-3-D
- Integral AS-Interface slave
- Monitoring of signal receipt
- Voltage supply for actuators with separate 24 V or 230 V AC voltage supply
- Cable connection with terminal strip
- Ambient temperature: -25 to 50 °C
- IP protection level: IP54
- Make: TROX GmbH or equivalent
- Type: AS-EM/C

Description



TNC-A005S

Application

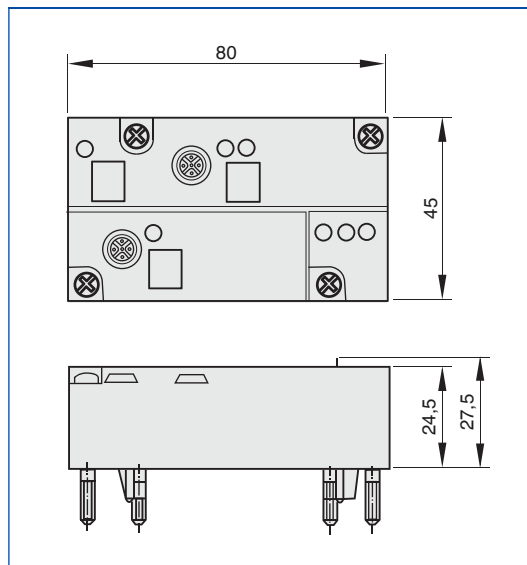
- AS-i Safety input module for capturing the actuator end positions
- Approved for applications up to SIL 2 according to IEC/EN 61508
- Supplied either mounted on the damper blade and wired to the actuator or as a separate unit
- Integral AS-Interface slave
- Monitoring of signal receipt
- Supply voltage to the module through the AS interface

Technical data

Description	TNC-A005S
Electrical design	2 inputs
Supply voltage	26.5 – 31.6 V DC
Current consumption	Type 80, max. 200 mA depending on sensor
Control category to EN 954-1	4
AS-i specification	V2.1
AS-i profile	S-7.B.1
Short circuit monitoring	Yes
EMC	EN 50081-1; EN 50082-2
IP protection level	IP 67
Ambient temperature	-20 to 60 °C
Display of AS-i voltage	LED green
Display of input	LED yellow
Addressing	With addressing socket
Casing dimensions H × B × T	80 × 45 × 24 mm
Fixing	On mounting rail

Dimensions

AS-i module TNC-A005S



Specification text

Standard description (characteristics)

- AS-i Safety input module for capturing an actuator end position
- Approved for applications up to SIL 2 according to IEC/EN 61508
- Supplied mounted on the damper blade and wired to the actuator
- Integral AS-Interface slave
- Monitoring of signal receipt
- Connection with flat cable insulation displacement connector
- Supply voltage to the module through the AS interface
- Total current consumption from AS-i: ≤ 800 mA
- Ambient temperature: -20 to 60 °C
- IP protection level: IP 65
- Make: TROX GmbH or equivalent
- Type: TNC-A005S

Description



TNC-Z0094

Application

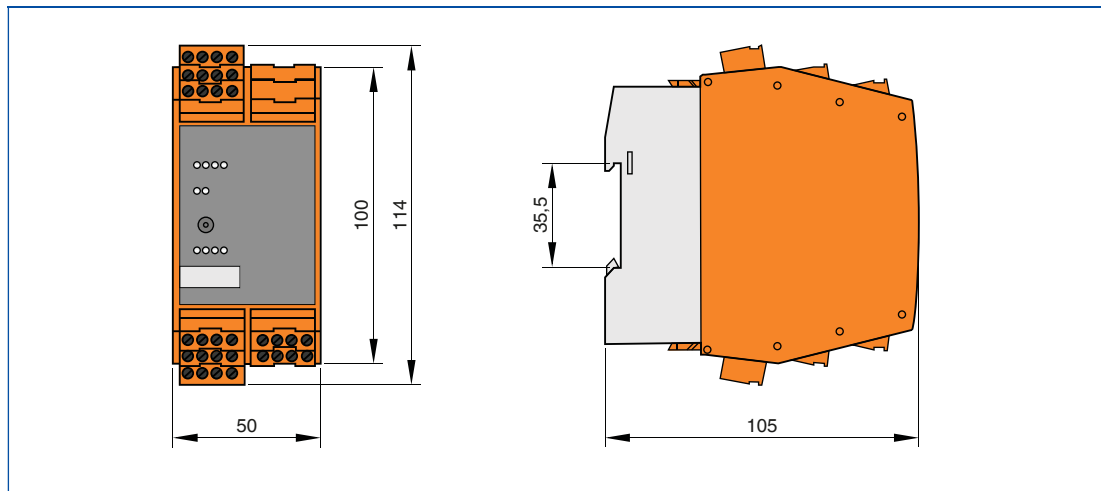
- Module with 4 digital inputs and outputs
- Outputs with relays, galvanically isolated
- Integral AS-Interface slave
- Monitoring of signal receipt
- Providing a watchdog function for digital outputs
- Connection to AS-i network with Combicon connector with screw terminal
- Supply voltage to the module through the AS interface

Technical data

Description	TNC-Z0094
Electrical design	4 inputs/4 outputs
Output function	Relay
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 250 mA
Inputs	
Switching	PNP
Sensor voltage supply	AS-i
Voltage range	16 – 30 V DC
Max. current load (total for all inputs)	200 mA
With short circuit protection	Yes
Switching level – high signal 1	> 11 V
Input current high/low	> 6/< 2 mA
Outputs	
Galvanically isolated	Yes
Voltage range	10 – 240 V AC/24 V DC
Max. current load per output	6000 mA
Status display	
Operation	LED green
Function	LED yellow
Error display	LED red
Ambient temperature	-25 to 60 °C
IP protection level	IP 20
IEC protection class	
AS-i profile	S 7.0.E
I/O configuration	7 Hex
ID code	0.E Hex
EMC	EN 50295; EN 50178
MTTF	305 years
Casing materials	PA 6.6
Dimensions L x B x H	105 x 50 x 114 mm
Connection	Screw terminals

Dimensions

AS-i module TNC-Z0094



Specification text

Standard description (characteristics)

- Module with 4 digital inputs and outputs;
several modules can be installed in a row
- Installation with screw terminals
on a rail or on the rear wall of a switch cabinet
- Total current consumption from AS-i: < 250 mA
- Ambient temperature: -25 to 60 °C
- IP protection level: IP 20
- Make: TROX GmbH or equivalent
- Type: TNC-Z0094

Description



TNC-Z0047

Application

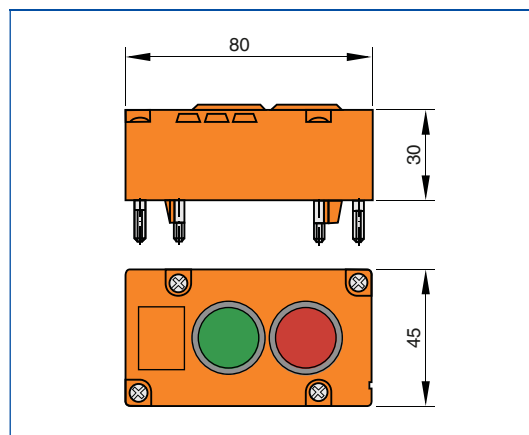
- Illuminated push button module with standard EMS interface
- Can be connected to the AS-i bus using flat cable mounting base
- IP protection level IP67; can be mounted on site
- No additional voltage supply required
- The push buttons are protected against accidental contact
- LEDs with a high light output ratio at a low operating current

Technical data

Description	TNC-Z0047
Electrical design	2 push buttons/LEDs
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 55 mA (LED on)
AS-i interface reverse voltage protection	Yes
AS-i profile	S-3.F.F
I/O configuration	3 Hex
ID code	F Hex
AS-i certificate	Yes
Data bit D0 open	Push button 2 (red)
Data bit D1 open	Push button 1 (green)
Data bit D2 open	LED 2 red
Data bit D3 open	LED 1 green
Parameter bits	Not used
Ambient temperature	-25 to 60 °C
IP protection level	IP 67
EMC	EN 50295
MTTF	1661 years
Casing materials	PBT (Pocan)
Dimensions L x B x H	80 x 45 x 50 mm
Connection	Contact pins on FC or
Connection	SC lower part; LED supply
Connection	from AS-i cable

Dimensions

AS-i adjustment and addressing device TNC-Z0047



Specification text

Standard description (characteristics)

- Illuminated push button module with 2 push buttons/2 LEDs, including mounting base with addressing socket
- Voltage supply via AS-i cable
- Opening and closing via bus
- Supply voltage: 26.5 – 31.6 V DC
- Total current consumption from AS-i: < 55 mA
- Ambient temperature: –25 to 60 °C
- IP protection level: IP 67
- Make: TROX GmbH or equivalent
- Type: TNC-Z0047



TNC-DP connector



TNC-70113



TNC-70413



TNC-A4000

TROXNETCOM AS-i

AS-i installation set



Accessories for easy and safe installation

All products are of high quality and meet the requirements of AS-Interface

- Asymmetrically shaped cable to ensure error-free connection (reverse voltage protection)
- Easy wiring due to flat cable insulation displacement connectors ('click and go')
- Protection level up to IP 67

Type		Page
AS-i installation	General information	6.2 – 73
	TNC-A4000	6.2 – 74
	TNC-70381	6.2 – 75
	TNC-70413	6.2 – 76
	TNC-DP	6.2 – 77
	Basic information and nomenclature	6.4 – 1

Description



TROXNETCOM AS-i
AS-i installation set

Application

- A TROXNETCOM AS-i system does not require any particular topology
- Communication lines can be laid in a tree topology that makes the best possible use of the building structure
- Connection to the yellow AS-i flat cable is made using insulation displacement connectors
- No wire end sleeves are required
- The cable is cut to the required length and connected to modules and flat cable distributors by flat cable insulation displacement connectors
- The AS-i cable is used for data and energy for AS-i field bus modules and damper actuators (24 V) or for duct smoke detectors
- No terminal resistors are required

Order code

TNC – A4000

1

1 Type

- TNC-A4000**¹⁾ Flat cable
TNC-70381 Flat cable distributor
TNC-70413²⁾ End seals for flat cables
TNC-70113²⁾ Heat shrink caps for flat cables
TNC-70067³⁾ Cable clips for flat cables
TNC-DP connector

¹⁾ Standard length = 100 m; 50 m roll upon request

²⁾ pack of 10 pieces

³⁾ pack of 100 pieces

Description



TNC-A4000

Application

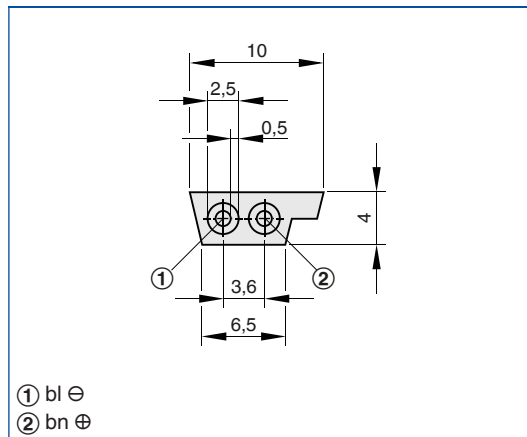
- AS-i flat cable for the transmission of data (communication) and voltage to the slaves
- For use with flat cable connectors and mounting bases

Technical data

Description	TNC-A4000
Temperature range	-40 to 85 °C
Material	EPR (ethylene propylene); free of halogens
Colour	Traffic yellow
IP protection level	IP 67 in connection with flat cable mounting base
Wire diameter	2 × 1.5 mm ²
Wire colours	Brown (AS-i +), blue (AS-i -)
Special features	Reverse voltage protection due to special shape
Available lengths	50 or 100 m

Dimensions

AS-i installation TNC-A4000



Dimensions

Standard description (characteristics)

- AS-i flat cable for use with flat cable insulation displacement connectors and Compact modules, available as a roll of 50 m or 100 m
- Supply voltage: 26.5 – 31.6 V DC (AS-i)
 - Electrical design: AS-i
 - Connection: 2 × 1.5 mm²
 - Ambient temperature: -40 to 85 C°
 - IP protection level: IP 67
 - Make: TROX GmbH or equivalent
 - Type: TNC-A4000

Description



TNC-70381

Application

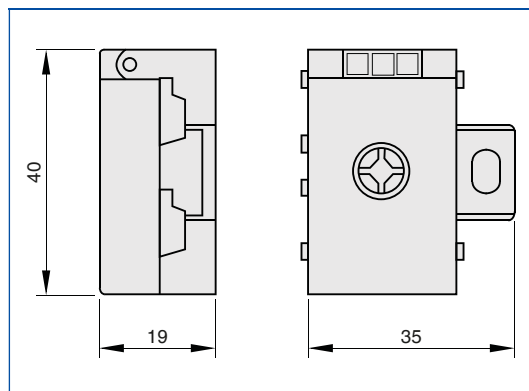
- Flat cable distributor to create a topology
- Distributors may be connected even while a voltage is being applied
- To distribute power from one to two cables

Technical data

Description	TNC-70381
Electrical design	AS-i/24 V
Max. current load per module	8000 mA
Max. tightening torque	1.65 Nm
Ambient temperature	-25 to 75 °C
IP protection level	IP 67
Casing materials	PA 6 GF35 Grivory
Weight	0.025 kg
Notes	Flat cable cannot terminate in the flat cable distributor. Use an end seal or heat shrink cap for sealing.
Accessories (optional)	Flat cable end seal TNC-70413, heat shrink cap TNC-70113

Dimensions

AS-i installation TNC-70381



Specification text

Standard description (characteristics)

Flat cable distributors allow for an inexpensive and quick wiring of AS-i installations. Distributors are available for one or two AS-i flat cables.

- Rating: AS-i/24 V
- Casing materials: PA 6 GF35 Grivory
- Ambient temperature: -25 to 75 °C
- IP protection level: IP 67
- Make: TROX GmbH or equivalent
- Type: TNC-70381

Description



TNC-70413

Application

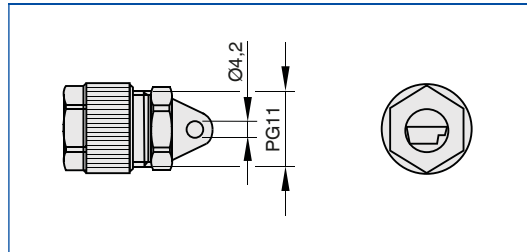
- To prevent short circuits, cable ends (bare wire ends) should be protected from moisture and from accidental contact
- Protect cable ends with an end seal (TNC-70413) or with a heat shrink cap (TNC-70113)

Technical data

Description	TNC-70413
Temperature range	-20 to 70 °C
Casing	ULTRAMID; seal: NBR
IP protection level	IP 67
Tightening torque	2 Nm

Dimensions

AS-i installation TNC-70413



Specification text

Standard description (characteristics)

End seal to protect the ends of flat cables, TNC-70413.

- Casing materials: ULTRAMID; seal: NBR
- Ambient temperature: -20 to 70 °C
- Make: TROX GmbH or equivalent
- Type: TNC-70413

Description



TNC-DP connector

Application

- For the connection of a PROFIBUS controller or display to the PROFIBUS bus
- Easy assembly
- With terminal resistor

Technical data

Description	TNC-DP connector
Supply voltage	4.75 – 5.25 V DC (to be provided by the terminal unit)
Terminal resistor	Integral resistor can be set using the slide switch
Transfer rate	Max. 12 Mbit/s
Cable routing	35° angle
PROFIBUS component	SUB-D socket, 9-pole
PROFIBUS bus cable	4 rail mount terminals for wires up to 1.0 mm ²
Ambient temperature	0 – 60 °C
Storage temperature	-25 to 80 °C
Relative humidity	Max. 75 % at 25 °C
IP protection level	IP 20

Specification text

Standard description (characteristics)

- One PROFIBUS DP connector per AS-i DP controller and DP master system (display).
- Supply voltage: 4.75 – 5.25 V DC (must be provided by the terminal unit)
 - Cable routing: 35° angle
 - Ambient temperature: 0 – 60 C°
 - IP protection level: IP 20
 - Make: TROX GmbH or equivalent
 - Type: TNC-DP Stecker

TROXNETCOM AS-i

Adjustment and addressing devices



For the addressing of field modules (slaves)

Compact device for addressing slaves and writing slave parameters

- Display of all slaves on a bus
- Reading and writing slave data and slave parameters
- Reading of safety codes (AS-i Safety at Work)
- Connection of different modules using a universal adapter

Type		Page
Adjustment and addressing devices	General information	6.2 – 79
	Special information – TNC-Z0045	6.2 – 80
	Special information – TNC-A1145	6.2 – 81
	Basic information and nomenclature	6.4 – 1

Description

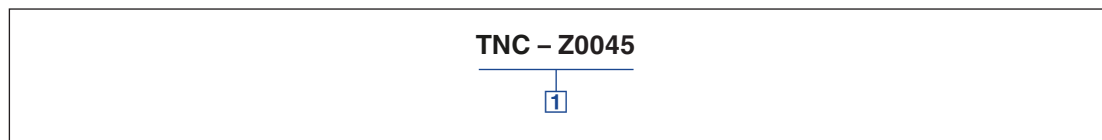


TROXNETCOM AS-i
Adjustment and
addressing devices

Application

- TNC-Z0045: Addressing device for the addressing of active AS-i modules and intelligent sensors and actuators, including display of all slaves on the bus
- TNC-A1145: Diagnosis and analysis tool for AS-i to create test protocols for AS-i networks

Order code



- 1 Type**
TNC-Z0045 Addressing device
TNC-A1145 AS-i system tester

Description



TNC-Z0045

Application

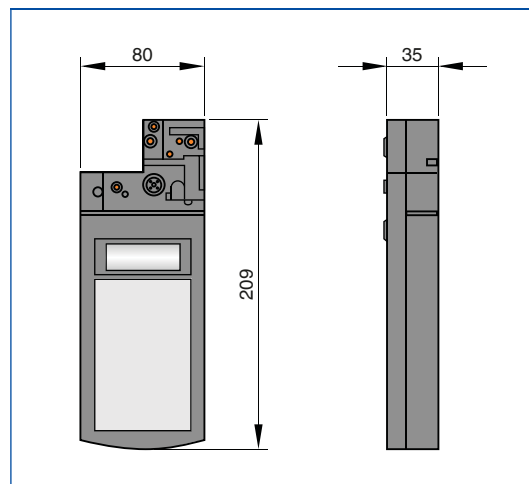
- TROX AS-i addressing device TNC-Z0045 for the addressing of active AS-i modules and intelligent sensors and actuators
- Display of all slaves on a bus
- Reading and writing slave data and slave parameters
- Compact device, with battery pack

Technical data

Description	TNC-Z0045
Keypad	5 push buttons, protected by a membrane
Display	LC display, seven segments
AS-i interfaces	M12 and universal adapter
Interfaces, external voltage supply	Jack socket, 2.1 mm
Connection	Min. 1 AS-i slave, max. 62 slaves
Power supply	Integral battery pack
Operating time	With fully charged battery pack: approx. 8 h; this equals approx. 250 write/read actions
Charger	230 V AC
Charging time	Approx. 12 h
IP protection level	IP 20
Accessories	Addressing plug TNC-70213, addressing cable TNC-11452

Dimensions

AS-i addressing device TNC-Z0045



Specification text

Standard description (characteristics)

AS-i addressing device for commissioning and diagnosis, easy slave addressing. Compact device with integral universal adapter, including cable.

Description

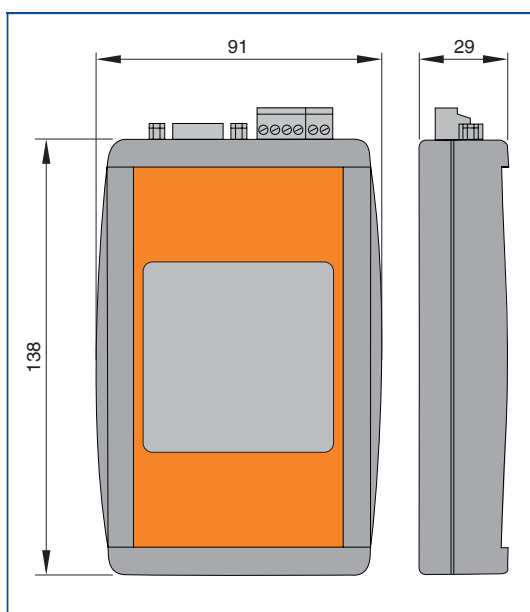
TNC-A1145

Application

- Passive AS-i participant as an interface for AS-i system analysis with a PC
- Slave lists as system overview
- Slave data (inputs and outputs)
- Configuration data for the connected slaves
- Communication error statistics
- Complete message evaluation in expert mode

Technical data

Description	TNC-A1145
Rated operating current	70 mA
Ambient temperature	0 – 55 °C
MTTF	280 years
EMC	EN 50081-2; EN 61000-6-2
AS-i version	2.1
Controls	LED green (power): Supply voltage OK; LED green (serial active): RS232 interface being used; LED green/red (test): test mode
Interfaces	AS-i; RS-232 (PC connection); trigger input (24 V); trigger output (TTL)
System requirements	IBM-compatible PC with Pentium processor or higher; Windows version 95/98/ME/NT4/2000/XP

Dimensions**AS-i adjustment and diagnosis device
TNC-A1145**

Specification text

Standard description (characteristics)

- Local diagnosis of the AS-i network
- Creation of test reports for AS-i networks
- User-friendly diagnosis#
and evaluation using the connected PC
- Rated operating current: 70 mA
- Ambient temperature: 0 – 55 °C
- Make: TROX GmbH or equivalent
- Type: TNC-A1145

Decentralised operating and monitoring systems TNC-EASYCONTROL



System for controlling and monitoring motorised fire dampers

Stand-alone solution for controlling and monitoring up to 12 motorised fire dampers or up to 24 damper blade end positions

- Easy electrical installation using coded plug connections
- Pre-installed application software
- No additional programming required
- Improves the fire safety



LED/buzzer combination



TNC-EC-AZM
display module

Type		Page
TNC-EASYCONTROL	General information	6.3 – 2
	Special information – TNC-EC-Z00–Z03	6.3 – 3
	Special information – TNC-EC-GP	6.3 – 4
	Special information – TNC-EC-AZM	6.3 – 5
	Special information – technical data	6.3 – 6
	Special information – TP043EC	6.3 – 8
	Special information – TNC-LINKBOX	6.3 – 10
	Basic information and nomenclature	6.4 – 1

Description

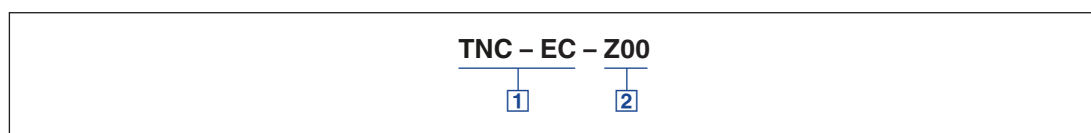


Decentralised operating and monitoring system
TNC-EASYCONTROL

Application

- TNC-EASYCONTROL, for controlling and monitoring motorised fire dampers
- Control of up to 6 motorised fire dampers with 24 V DC (up to 12 fire dampers with parallel operation); alternatively for capturing the end positions of up to 12 mechanical dampers with one limit switch (up to 24 limit switches with parallel operation)
- Topology: star-shaped with 4-wire line
- Processing of a signal from the smoke detector or central fire alarm system
- Automated and time-controlled function test using timer, or external control by central BMS and manual triggering
- Menu-driven operation and error display using integrated LCD and softkeys
- Manual control (OPEN/CLOSE) of individual fire dampers
- Power supply unit 230 V AC/24 V DC, week timer, terminal strip for external connections
- Simple plug-in connection

Order code



1 Type

TNC-EC-Z00 – Z03 (standard construction)

TNC-EC-GP (main PCB)

TNC-EC-AZM (display module)

2 Accessories

Z00 Standard construction, encased

Z01 Standard construction with signal lamp

Z02 Standard construction with display module

Z03 Standard construction with signal lamp and display module

Description



Decentralised operating and monitoring system
TNC-EASYCONTROL

Application

- Control system encased in sheet steel casing with cutout window, including power supply unit and timer, completely wired and ready for plug-in
- Stand-alone solution for controlling and monitoring of up to 6 motorised fire dampers with 24 V DC (up to 12 fire dampers with parallel operation); alternatively for capturing the end positions of up to 12 mechanical dampers with one limit switch (up to 24 limit switches with parallel operation)
- With pre-installed user software, ready to use
- Topology: star-shaped with 4-wire line
- Manual control (OPEN/CLOSE) of individual fire dampers
- Monitoring of the fire damper opening and closure times
- Automated and time-controlled function test using timer, or external control by central BMS and manual triggering

- Output of alarm messages: fire, smoke, fire damper closed, fault during function test, running/limit switch faults, smoke detector contamination
- Menu-driven operation using integral LCD and softkeys on the main PCB, signalling with LEDs

Accessories

Z01

- LED/buzzer combination for alarm signalling
- Mounted into the cover plate and completely wired (ready to use)

Z02

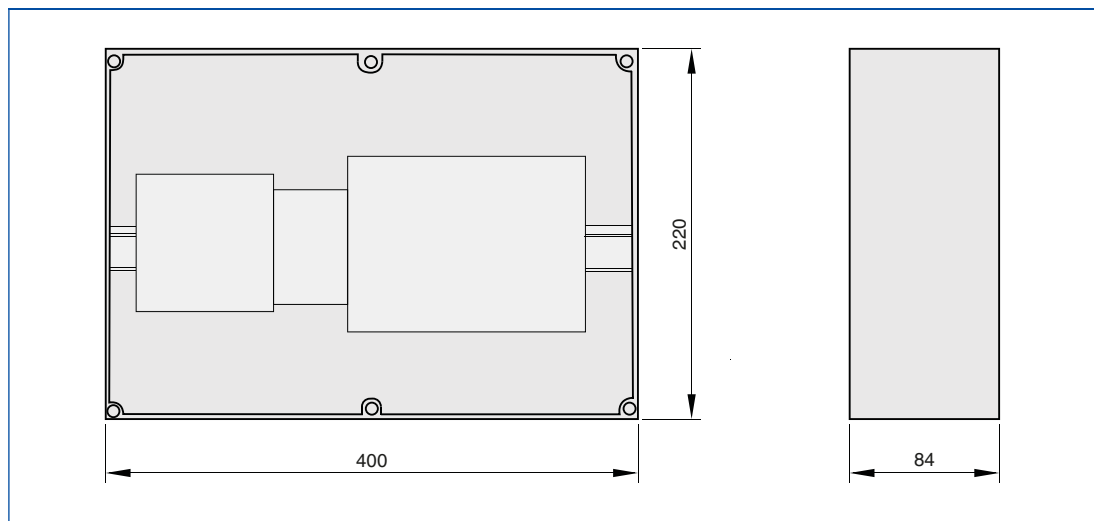
- 2.8 inch colour LCD, mounted into the cover plate and completely wired (ready to use)
- For displaying damper blade positions
- For controlling individual fire dampers
- For starting a functional test

Z03

- 2.8 inch colour LCD and LED/buzzer combination

Dimensions

TNC-EC-Z00–Z03



Specification text

Standard description (characteristics)

For controlling and monitoring up to 6 motorised fire dampers (24 V DC) - or up to 12 fire dampers with parallel operation); alternatively for capturing one end position each for up to 12 mechanical dampers (up to 24 limit switches with parallel operation); complete with switching power supply unit and timer in a sheet steel casing, powder-coated RAL 9010 and with an acrylic glass window.

- With pre-installed user software, ready to use
- CAN bus interface for the connection of an external operating and display unit
- Supply voltage: 230 V AC $\pm 10\%$
- Power consumption: <150 mA (without external load)
- Dimensions: 400 × 220 × 84 mm (B × H × T)
- Installation: on a wall
- IP protection level: IP 40
- Power supply: 230 V AC/50 Hz

- Operating manual
- Make: TROX GmbH or equivalent
- Type: TNC-EC-Z0*

Accessories

Z01

Z02

Z03

Description



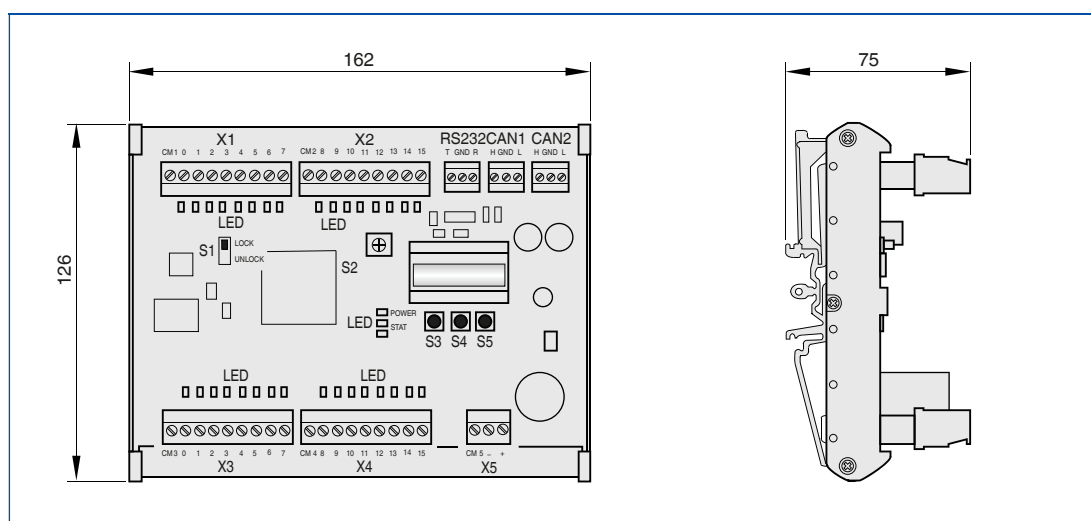
TNC-EC-GP

Application

- Single PCB control for installation on a mounting rail
- Stand-alone solution for controlling and monitoring of up to 6 motorised fire dampers with 24 V DC (up to 12 fire dampers with parallel operation); alternatively for capturing the end positions of up to 12 mechanical dampers with one limit switch (up to 24 limit switches with parallel operation)
- With pre-installed user software, ready to use
- Menu-driven operation using integral LCD and softkeys on the main PCB, signalling with LEDs
- Topology: star-shaped with 4-wire line
- Processing of a signal from the smoke detector or central fire alarm system (smoke detection, contamination of smoke detector)
- Manual control (OPEN/CLOSE) of individual fire dampers
- Automatic function test

Dimensions

TNC-EC-GP



6

Specification text

Standard description (characteristics)

- Single PCB control for controlling and monitoring of up to 6 motorised fire dampers with 24 V DC (up to 12 fire dampers with parallel operation); alternatively for capturing the end positions of up to 12 mechanical dampers with one limit switch (up to 24 limit switches with parallel operation)
- With pre-installed user software
 - CAN bus interface for the connection of an external operating and display unit
 - Supply voltage: 24 V DC, -15 to 25 %
 - Power consumption: <150 mA (without external load)
 - Dimensions: 162 × 126 × 75 mm (B × H × T)
 - Installation: on mounting rail
 - Make: TROX GmbH or equivalent
 - Type: TNC-EC-GP

Description



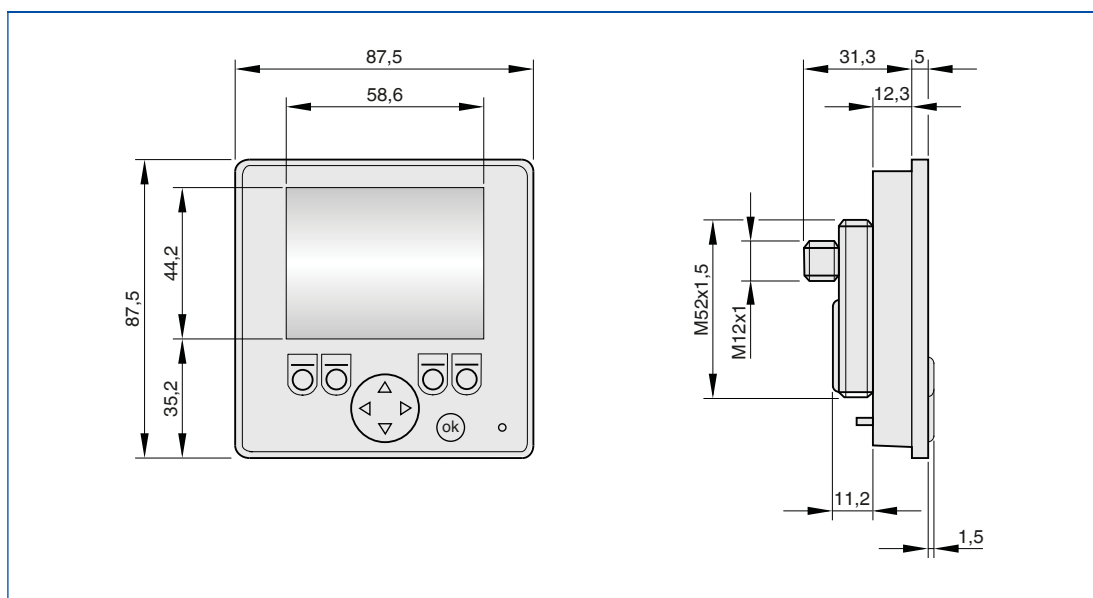
TNC-EC-AZM
display module

Application

- Display module for menu-driven operation and error display
- 2.8 inch colour LED and backlit function buttons with rocker switch for cursor allow for menu-driven operation and error display
- Language selection (German, English, Finnish; other languages upon request)
- Connecting cable for data and supply voltage, standard length of 5 m
- Menu-driven function test
- Manual control of fire dampers
- Password protection

Dimensions

TNC-EC-AZM



Specification text

Standard description (characteristics)

- Menu-driven operation and display of the TNC-EASYCONTROL control system
- 2.8 inch colour LCD with 5 function buttons and rocker switch for cursor
 - Language selection (for operation and display): German, English, Finnish
 - CAN bus interface
 - Supply voltage: 8 – 32 V DC
 - Power consumption: 70 mA at 24 V DC
 - Dimensions: 87.5 × 87.5 × 37.5 mm (B × H × T)
 - Casing: plastic, black
 - Degree of protection: IP 67 when installed in the front panel of the casing, otherwise IP 65
 - Operating manual
 - Make: TROX GmbH or equivalent
 - Type: TNC-EC-AZM

Technical data

Main PCB

Electrical design	16 inputs/outputs
Supply voltage	24 V DC, -15 to 25 %
Current consumption	< 150 mA
Operating temperature	0 to 40 °C
Construction	Open PCB
IP protection level	IP 00
Dimensions B x H x T	162 x 126 x 75 mm
Connection	Screw terminals
Fixing	On mounting rail (if mounted with casing)
Program memory	256 kB
Data memory	SRAM 2 x 128 kByte, EEPROM 1 kByte 256 kB
Interface	1 x RS232C, 9.6 kBaud, CAN1, CAN2, CANopen protocol
Status display	Power LED - green; status LEDs - green and red; programmed 8-digit LCD
Operating buttons	3 softkeys
Inputs IN 0 – IN 15	
Number of inputs	16, common reference point (GND)
Display	Yellow LED
Input voltage	24 V DC nominal
Input current	Typically 10 mA
Activation level high	15 – 30 V DC
Deactivation level low	0 – 5.5 V DC
Outputs OUT 0 – OUT 15	
Number of outputs	16 (2 x 8), 24 V DC for 8 outputs each
Display	Red LED
Switching voltage	12 – 34 V DC, 24 V DC nominal
Switching current	1.1 A per output
Coincidence factor	100 %
Short circuit protection	>6 A (electronic) per channel

Switching power supply unit

Input voltage (N, L)	90 – 264 V AC
Output voltage	24 – 28 V DC (adjustable)
Output current	4.2 A
Internal fuse, input	T3.15A/250 V AC
External fuse, output	T4 A/24 V DC (fuse holder in switch box)
Ambient temperature	-25 to 71 °C
IP protection level	IP 20
Dimensions B x H x T	91 x 90 x 57 mm
Connection	Screw terminals up to 2.5 mm ²
Fixing	On mounting rail

Casing

Dimensions (B x H x T)	400 x 220 x 84 mm
Casing material	Galvanised sheet steel, powder-coated RAL 9010
Inspection window	Plexiglass XT, colourless
Components	Installed on mounting rail
IP protection level	IP 40

Timer

Number of contacts	1 changeover contacts
Supply	230 V AC (50/60 Hz)
Shortest switching time	30 min
Cycle precision	1 s/day
Ambient temperature	-20 – 50 °C
IP protection level	IP 20
Battery life	6 years
Battery type	CR 2032, 3 V, 230 mAh
EMC immunity to interference	EN 61000-4-2 to -4-6
Fixing	On mounting rail

Display module

Display	2.8" TFT colour LCD
Resolution	320 × 240 pixels
Colours	256
Backlighting	LED
Dimensions (B x H x T)	87.5 × 87.5 × 37.7 mm
Casing material	Plastic, black
Buttons	5 function buttons
Rocker switch	Cursor functions (UP, DOWN, LEFT, RIGHT)
IP protection level	IP 67 when installed in the front panel of the casing, otherwise IP 65
Operating temperature	-20 to 30 °C
Supply voltage	8 to 32 V DC
Current consumption	70 mA at 24 V DC
CAN interface	CANopen protocol

Signal lamp

Casing	PC-ABS-Blend
Dome cap	PC, transparent
Illumination pattern	LED continuous
Type of tone	Continuous tone
Dimensions (Ø × H)	49.5 × 75 mm
Noise level	80 dB
Tone frequency	3 kHz
Switch-on current	0.5 A
Current consumption	80 mA
Supply voltage	24 V DC
IP protection level	IP 65
Service life	50,000 h
Connection	Plug with screw terminal, max. 0.5 mm ²

Description



TP043EC

Application

- 4.3" MMI system for display and operation, also as communication master for up to three TNC-EASYCONTROL units
- ModBus TCP and BACnet/IP interfaces for integration with central BMS
- With integral TNC Basic User Software/EC

Order code

<p>TNC043EC</p> <p>1</p>
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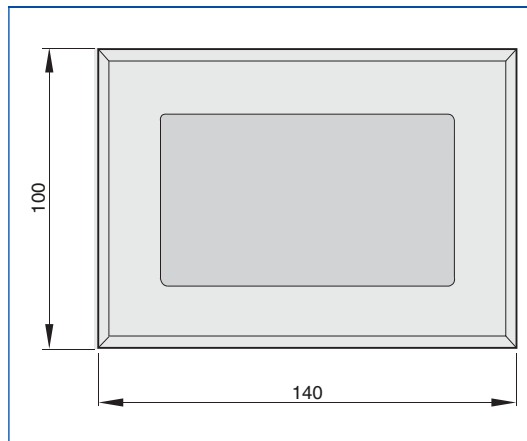
1 Type
TP043EC

Technical data

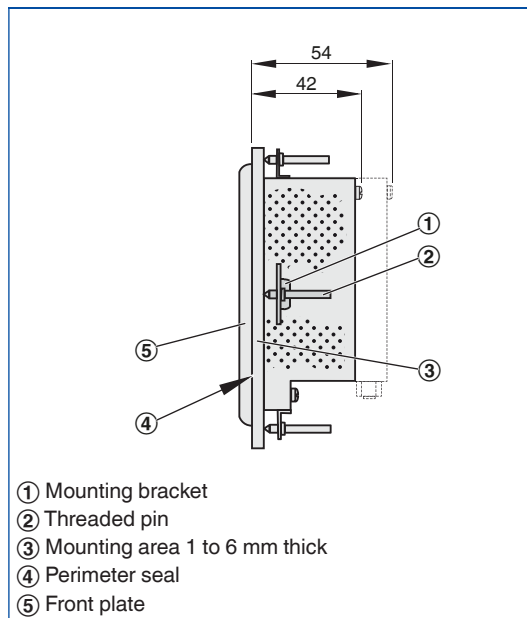
Description	TP043N
Display	TFT (colour)
Operation	Touch screen
Resolution	480 × 272 pixels
Display angle vertical/horizontal	120/150°
Display area B × H	53.8 × 95 mm
Diagonal	4.3"
Casing	Galvanised sheet steel
Front material	Aluminium, anodised (natural colour)
Front B × H × T	140 × 100 × 5 mm
Cut-out B × H	132 × 92 mm
Installation depth without plug attached	Approx. 42 mm
IP protection level	Front IP 65, back IP 20
Total weight	Approx. 590 g
Interfaces	CAN bus Ethernet, USB
Memory	32 MB flash, 64 MB flash SDRAM, 512 KB SRAM, battery pack
Temperature range for operation	0 – 50 °C
Temperature range for storage	–25 to 70 °C
Rel. humidity for operation and storage	20 – 85 %, non-condensing
Supply voltage	24 V DC (SELV/PELV to EN 61131)
Residual ripple	Max. 10 %
Minimum voltage	18 V
Maximum voltage	30 V
Current consumption (typically 24 V)	0.3 A
Current consumption (max.)	0.4 A
Power required	7.2 W
EMC immunity	EN 6100-4-2 to 4-6
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

Dimensions

TP43AT



TP43AT



Specification text

Standard description (characteristics)

- MMI system for display and operation,
also as communication master
for up to three TNC-EASYCONTROL units
- 4.3 " colour display, touch screen
 - Interfaces: ModBus RTU/TCP and BACnet/IP
interfaces for integration with the central BMS
 - With Basic User Software/EC for controlling
and for the display of all system status values
 - Automatic function test,
including documentation
 - Real time clock
 - Ethernet, USB
 - Dimensions of front panel (B × H × T):
140 × 100 × 5 mm
 - IP protection level: Front IP 65; back IP 20
 - Supply voltage 24 V DC
 - Make: TROX GmbH or equivalent
 - Type: TP043EC

Description



TNC-LINKBOX

Application

Module to be combined with TNC-EASYCONTROL for the control of motorised fire dampers and for capturing the damper blade end positions.

- Easy and quick connection of actuator cables to TNC-EASYCONTROL (als connection box or linkbox)
- 24 V DC power supply to actuator
- Ready to be used with actuators with AMP plug
- Capturing damper blade positions OPEN and CLOSED
- Parallel operation of two damper actuators (as distribution box)
- Easy function change using a jumper on the PCB

Order code

TNC – Linkbox 1

1 Type

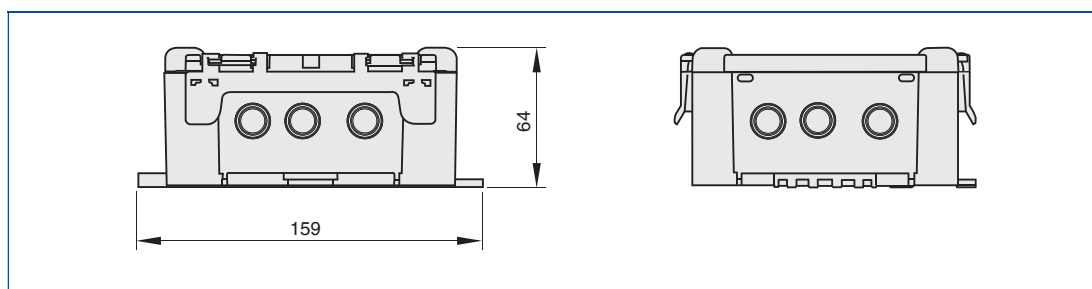
TNC-Linkbox

Technical data

Description	TNC LINKBOX
Supply voltage	24 V DC
Current consumption	≤ 850 mA
IEC protection class	IP 42
Double-stack terminal block	4-pole; 0.12 – 1.5 mm ²
AMP-Mate-N-LOK socket	Control cable, 3-pole; end positions, 6-pole

Dimensions

EASYCONTROL TNC Linkbox



Specification text

Standard description (characteristics)

Module used to connect the actuator control cables to TNC-EASYCONTROL; if two motorised fire dampers are used simultaneously, the LINKBOX acts as a distributor. Can be attached to fire dampers with a mounting bracket (accessory ZA14)

- Supply voltage: 24 V DC
- Current consumption: ≤ 850 mA
- Ambient temperature: -5 to 75 °C
- IP protection level: IP 42
- Make: TROX GmbH or equivalent
- Type: TNC-LINKBOX

Decentralised operating and monitoring systems Type MB-BAC-WA 1/4



Communication interface for exchanging variables via BACnet or Modbus

Functional modules designed for the monitoring of motorised fire dampers
and smoke control dampers

- Programming according to the standardised BACnet device profile B-ASC
- High transmission reliability and data integrity
- Network can easily be expanded



BACnet-MS/TP interface

Type		Page
MB-BAC-WA 1/4	General information	6.3 – 12
	Order code	6.3 – 13
	Dimensions and weight	6.3 – 14
	Specification text	6.3 – 15
	Basic information and nomenclature	6.4 – 1

Description



MB-BAC-WA1/4

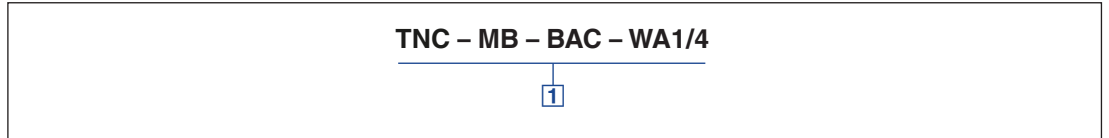
Application

- MB-BAC-WA1/4 is a functional module that has been specially developed for the monitoring of motorised fire dampers and smoke control dampers
- Up to four motorised fire dampers or smoke control dampers can be controlled with MB-BAC-WA1/4
- Mechanical fire dampers with one or two limit switches for the damper blade end positions can also be monitored with MB-BAC-WA1/4
- Supply voltage: 230 V AC, 24 V AC/DC
- The connections for the damper actuators are either designed for the respective supply voltage of volt-free
- MB-BAC-WA1/4 can be integrated with the central BMS using the integral EIA RS 485 interface (two-wire).
Choice of BACnet MS/TP or MODBUS RTU communication protocol
- An EIA RS 485 standard bus (two-wire) is used as a communication line
- With a BACnet client or a Modbus master, the inputs and outputs can be activated or data can be retrieved using BACnet objects or Modbus registers

Technical data

Supply voltage	230 V AC $\pm 10\%$, 50/60 Hz, 24 V AC or 24 V DC $\pm 10\%$ as an option; double terminals for looping through
Power consumption	Approx. 12 VA without actuators (4.8 VA or W)
Inputs	8 digital inputs for volt-free switches
Outputs	5 digital outputs, each with changeover relay
Modbus/BACnet interface	4-pole spring-loaded terminals for 0.08 – 2.5 mm ² ; EIA-RS 485 standard (BACnet MS/TP or Modbus RTU)
IP protection level	IP 20
Operating temperature	10 – 60 °C
Relative humidity	20 – 95 % (non-condensing)
Connection terminals	Actuator control: 4-pole spring-loaded terminals for 0.08 – 2.5 mm ² ; actuators for position indication: 4-pole spring-loaded terminals for 0.08 – 2.5 mm ²
Supply voltage for terminals	2 x 3-pole for 0.08 – 2.5 mm ²
Firechain signal	3-pole spring-loaded terminals for 0.08 – 2.5 mm ²
Dimensions (B x H x T)	285 x 270 x 150 mm
Material	ABS plastic, blue (RAL 5002)

Order code



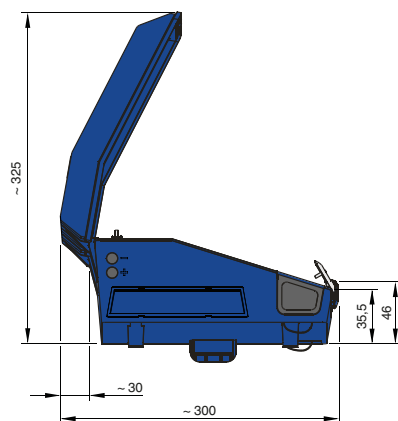
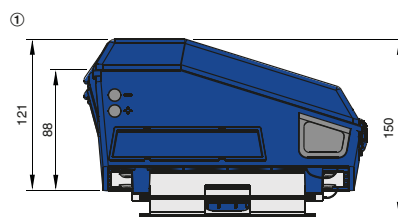
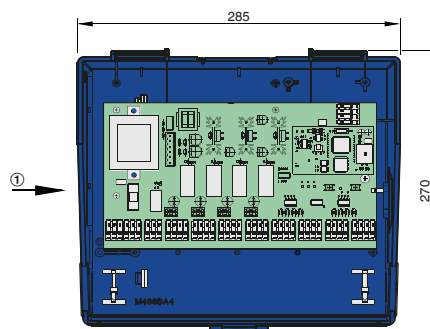
1 Type
TNC-MB-BAC-WA1/4

Dimensions



MB-BAC-WA1/4

Module MB-BAC-WA1/4



① Illustration shows module rotated by 90°, with cover

Description

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

Standard description (characteristics)

Module for the control of up to four motorised fire dampers or smoke control dampers (230 V or 24 V AC/DC). Also for monitoring up to 8 mechanical fire dampers with one limit switch for end position OPEN or CLOSED, or up to 4 mechanical fire dampers with two limit switches for capturing end positions OPEN and CLOSED. Transmission of all signals and control input signal for motorised fire dampers; transmission of the system status; integral watchdog and heartbeat functions

The following parameters can be defined:

- Maximum interval for sending data
- Minimum interval for receiving data
- Maximum interval for sending status
- Zone number
- Designation of the damper
- Installation date and time
- Date and time of the last inspection
- Maximum time required to CLOSE the damper
- Maximum time required to OPEN the damper
- Maximum time for test run

Connections

- 8 digital inputs
- 5 digital relay outputs, changeover contact 250 V/5 A
- Choice of 230 V AC or 24 V AC/DC voltage supply
- Outputs either with supply voltage or volt-free
- BACnet interface EIA RS 485 MS/TP
- Modbus interface EIA RS 485 Modbus RTU

Order options

Type

- TNC-MB-BAC-WA1/4

TROXNETCOM

Basic information and nomenclature



- Communication systems for fire protection systems
- Colour codes according to IEC 60757
- AS-Interface
- LON

Description

Information and communication are becoming more and more important in today's world. People not only want more information, they also want more detailed information. This development is also visible in building automation, and there is no end in sight. A building becomes 'transparent' through distributed intelligence and new decentralised communication systems.

These new technologies allow us to develop bespoke system solutions for various building services and to integrate them with building management systems. In this way, the best solutions for the different building services can be combined to create the best possible overall solution. Decentralised communication systems offer you the most advanced technology for your application requirements.

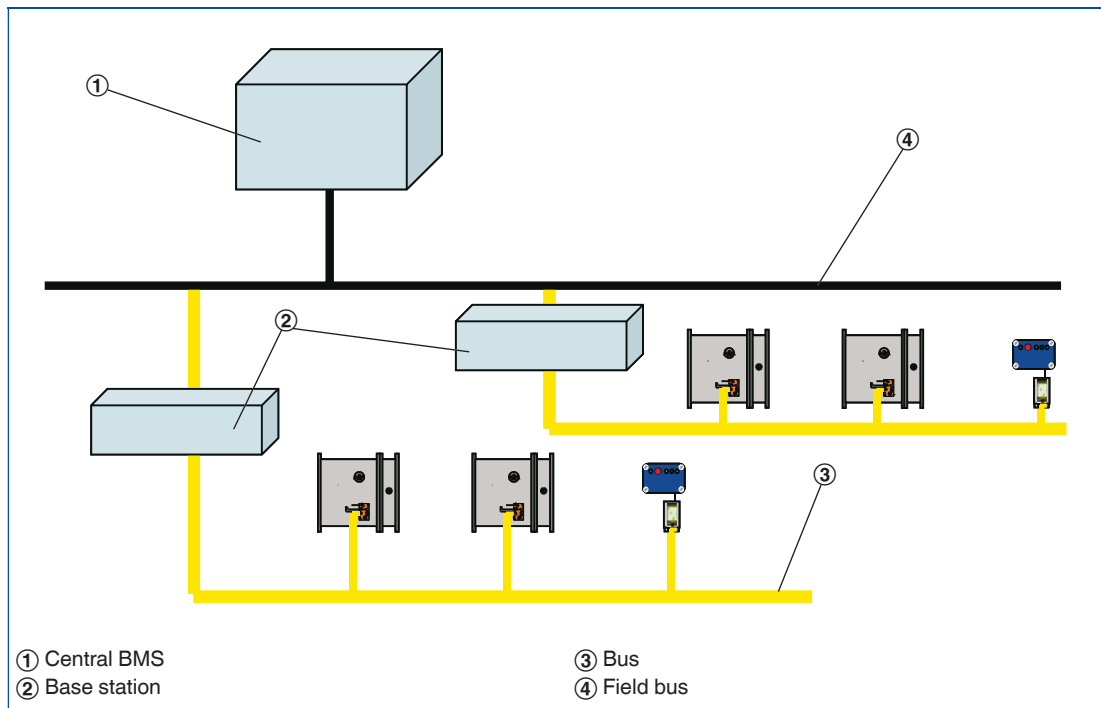
Communication systems for fire protection systems

The functional safety of programmable electronic systems is becoming more and more important in fire protection and is implemented with regard to protection goals and risks. According to IEC 61508, the requirements for these systems are based on a risk analysis. Components are given an SIL rating (safety integrity level) and must meet the corresponding requirements to ensure safety even in case of a malfunction.

General advantages of decentralised bus systems

It is no longer necessary to wire every single actuator and every single controller. Modern bus systems only need one bus cable, and in some cases a supply cable, to connect all components. This saves not only installation time but also cables, connectors, terminal blocks, and control cabinet space. It also drastically reduces the fire load and the installation costs. All signals from all components on a bus can be retrieved and recorded by the central unit. Inspection is simplified, and measurement and control can be optimised.

Communications system



Wiring

Colour codes according to IEC 60757

Code	Colour
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue

Colour codes according to IEC 60757

Code	Colour
VT	violet
GY	grey
WH	white
PK	pink
TQ	turquoise
GNYE	green-yellow

Description

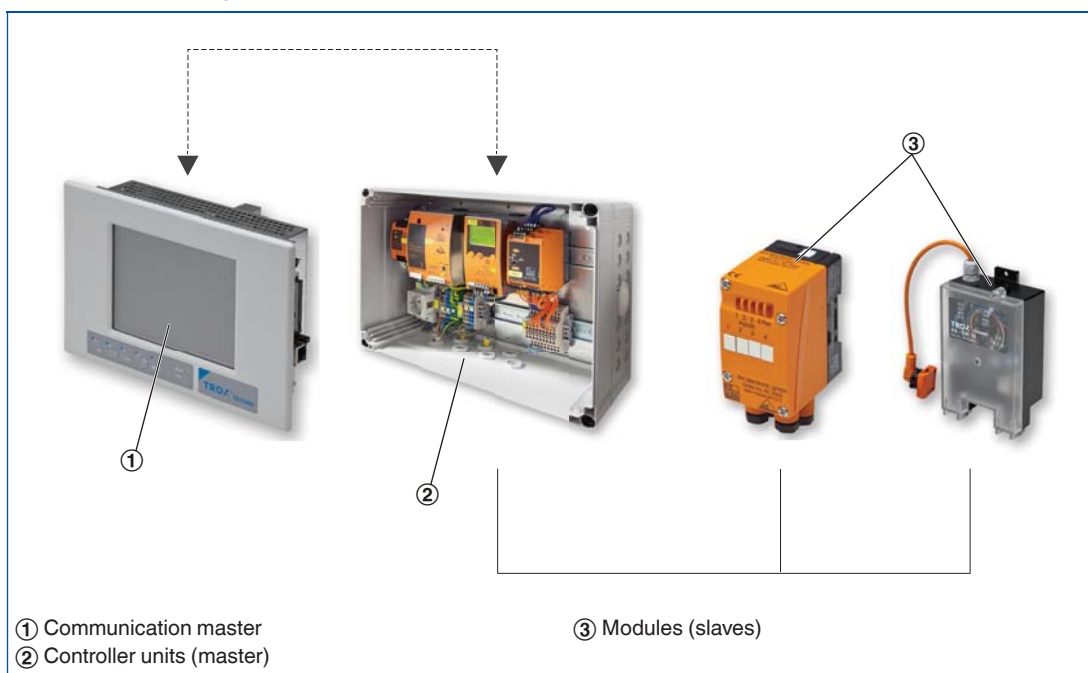
The AS interface is a world-standard bus system according to EN 50295 and IEC 62026-2. It enables the integration of different components (modules) in a network regardless of the manufacturer and the design. The modules control actuators and/or receive signals from sensors. TROX provides a system for controlling fire dampers, smoke protection dampers and smoke control dampers based on the AS-i standard. TROX modules are characterised by a wide spectrum of functions yet simple cabling.

Special characteristics

- Data exchange and power supply with just one cable
- Central control of actuators and monitoring of damper blade positions and duct smoke detectors
- Simple commissioning using standardised software
- Automatic function test including data logging

The system

Communications system



The communication master is the central display and control panel for the entire system.

- Connection of up to 28 controller and power units
- Display of operating status
- Operation of actuators
- Menu-driven operation in case of errors or malfunctions
- System configuration at the time of commissioning
- Logging of function tests and error messages

The controller and power unit combines the control functions, the power supply, and the data exchange for all components on the bus.

- The controller and power unit is installed near the modules, e.g. as a floor distributor
- With TNC Basic User Software for fire and smoke protection
- Communication interface to higher level systems (BACnet/Modbus)
- Display, also for operation
- Units with: 1 master – for 31 modules, 2 masters – for 62 modules

The modules establish the link between the measurement and control signals (sensors and actuators) and the network on the so-called field level. A module provides the supply voltage for the operation of actuators.

- Modules can be part of a fire damper or used separately to connect one or more fire dampers
- Integrated monitoring function, e.g. for running time
- Connection to the bus cable is with a flat cable insulation displacement connector

Description

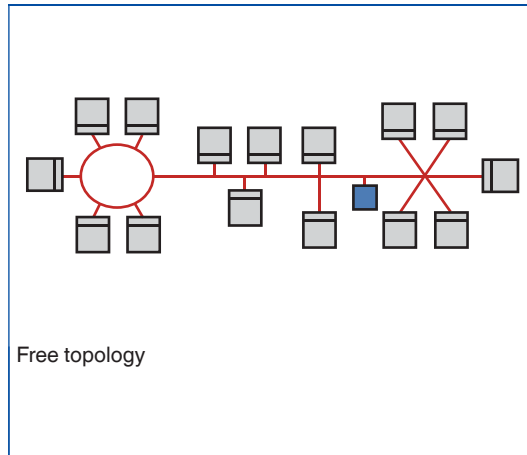
LON indicates a standard local operating network system with manufacturer-independent communications. Data is transferred by a microprocessor supplied by Echelon Corporation using a unified protocol. LonMark defines standards to ensure product compatibility. TROX offers components that meet LON standards. TROX modules are characterised by a wide spectrum of functions yet simple cabling.

Special characteristics

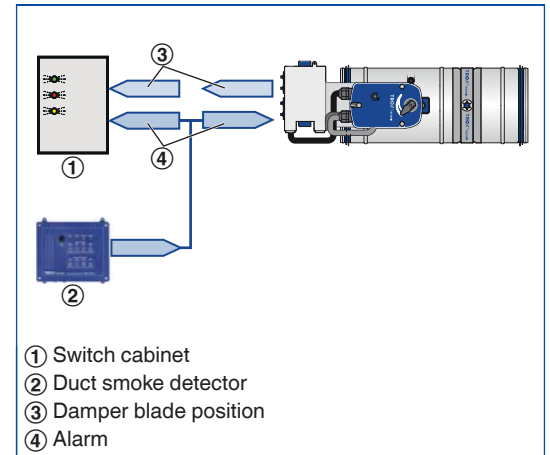
- Data exchange and power supply can be achieved with just one cable
- Decentralised structure with high operational reliability
- Standardised data transfer
- Manufacturer-independent compatibility

The system

Network topology



Binding network variables



Network

The local operating level (subnet) consists of the modules (nodes) and free topology data cables. A subnet can consist of up to 64 nodes or, alternatively, can be extended to 128 nodes using a repeater or router. Physical data transfer is via systems with or without a transfer of supply voltage. All nodes of a subnet must comply with the system. In larger networks the routers link the subnets with each other. The routers communicate with each other via the backbone, on a separate network level. Central monitoring of a LON network is possible and is connected to the backbone or above it.

Data exchange

Network variables are used for the communication between the nodes. These variables ensure unambiguous data exchange between the nodes. For commissioning, it is necessary to link the network variables between the nodes (binding). Project software is used to link the outputs of a node to the inputs of other nodes. Binding information is transferred to the subnet. Binding is carried out by a system integrator.

Product index

Attachments for fire dampers	1.2 – 1	FKRS-EU	1.1 – 111
AS-i Controllers and repeaters	6.2 – 1	FKS-EU	1.1 – 49
AS-i Adjustment and addressing devices	6.2 – 78	FV-EU	1.1 – 169
AS-i installation	6.2 – 72	JF	5.1 – 1
AS-i Configurable control box	6.2 – 44	JZ-RS	2.1 – 1
AS-i Master and display units	6.2 – 21	KA-EU	1.1 – 152
AS-i Modules	6.2 – 52	KU-K30	1.1 – 139
AS-i Power supply units	6.2 – 38	LON-Modules	6.1 – 1
AS-i Switching power supply units	6.2 – 28	Modbus/BACnet Modules	6.3 – 11
EK-EU	4.1 – 1	RM-O-3-D	3.1 – 7
FK-EU	1.1 – 1	RM-O-VS-D	3.1 – 1
FKR-EU	1.1 – 74	TNC-EASYCONTROL	6.3 – 1

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Fire and Smoke Protection Systems

2015

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