Fire dampers

Type FKR-EU

tested to EN 1366-2

according to Declaration of Performance

DoP / FKR-EU / DE / 2013 / 001

CE

TROX® TECHNIK

The art of handling air

Contents · Description

FKR-EU with fusible link

FKR-EU-FL with spring return actuator

In case of a fire, fire dampers shut automatically to prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments. Type FKR-EU fire dampers are tested to EN 1366-2 and comply with EN 15650.

Correct approved installation locations are in solid walls and ceiling slabs, in lightweight partition walls, in lightweight fire walls, and in shaft walls.
Installation orientation and airflow direction are not critical.

In case of a fire, the damper is triggered at 72 °C or at 95 °C (for use in warm air ventilation systems) either by a fusible link or thermoelectrically with a spring return actuator. The release mechanism is accessible and can be tested from the outside.

The class of performance of FKR-EU fire dampers depends on the application, see table on page 3.

Special features

- Complies with the requirements of EN 15650
- Tested for fire resistance properties according to EN 1366-2
- Classified according to EN 13501-3
- For mortar-based installation into lightweight partition walls, lightweight fire walls, and shaft walls
- Large free cross sectional area, hence low differential pressure
- Integration into the central BMS with TROXNETCOM

Declaration of performance
DoP / FKR-EU / DE / 2013 / 001

For further and up-to-date information, including 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.

This technical leaflet is only valid in Germany.

Correct use

To ensure complete functioning of the fire damper it is essential to read the operating and installation manual and to comply with it. In addition, the national guidelines must be complied with. The general guidelines of DIN 31051 and EN 13306 are also applicable.

The functional reliability of fire dampers must be tested at least every six months. If two consecutive tests are successful, the next test can be conducted one year later.

In general, it is sufficient to release and re-open the fire damper; for a fire damper with spring return actuator this can be done by remote control.

Fire dampers must be included in the regular cleaning schedule of the ventilation system.

Design information

- The class of performance of FKR-EU fire dampers depends on the application, see table.
- Installation in solid walls and ceiling slabs whose class of performance is lower than that of the fire damper is approved. In this case the class of performance of the wall or ceiling slab applies also to the FKR-EU.
- The FKR-EU fire damper is approved only for use in ventilation systems. Ducts must be connected on both ends, or a duct on one end and a cover grille on the other end.
- Installation of fire dampers must be carried out in compliance with provisions of federal state law and the generally recognised codes of practice.
- Ducting must be installed in such a manner that it does not impose any loads on the fire damper in case 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).
- It is recommended to use flexible connectors to connect rigid ducting to the fire damper for particular applications.
- Flexible ducting may be connected directly to the fire damper.

Installation location	Construction and building material	Minimum thickness [mm]	Class of performance EI TT (v_e–h_o, i ↔ o) S	Installation details on page
Solid walls and ceiling slabs 	Solid walls, gross density ≥ 500 kg/m³	100	EI 120 S	15
	Solid ceiling slabs, gross density ≥ 600 kg/m³	150	EI 120 S	
Lightweight partition walls with metal support structure and cladding on both sides 	Lightweight partition walls	100	EI 90 S	16
Fire walls with metal support structure and cladding on both sides 	Fire walls	115	EI 90 S	17
Lightweight partition walls with metal support structure and cladding on one side 	Shaft walls	90	EI 90 S	18
Lightweight partition walls without metal support structure but with cladding on one side 	Shaft walls	50	EI 90 S	19

Construction · Dimensions

Characteristics

- Classified according to EN 13501-3
- For classes of performance see table on page 3
- Airflow in either direction
- Large free cross sectional area, hence low differential pressure
- Release temperature 72 °C or 95 °C (for use in warm air ventilation systems)
- Approved installation orientation from 0° to 360°

Construction features

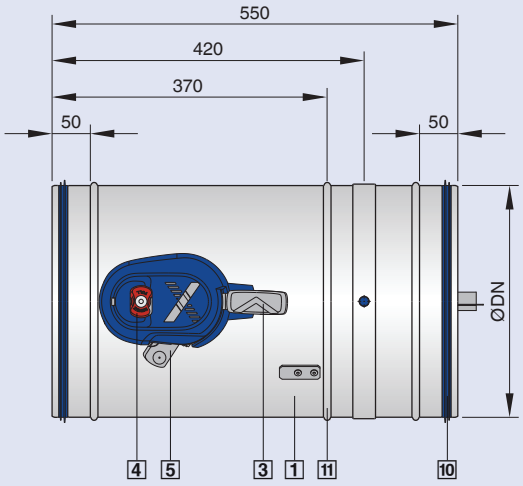
- Type FKR-EU:
  Rigid casing with spigot connections suitable for circular connecting ducts
  Spigot connections with lip seal on both ends, suitable for commercially available ducts according to EN 1506 or EN 13180
- Type FKR-EU-FL:
  Rigid casing with connecting flanges on both ends; flanges comply with EN 12220 and are suitable for standard circular ventilation ducts to EN 1506 or EN 13180

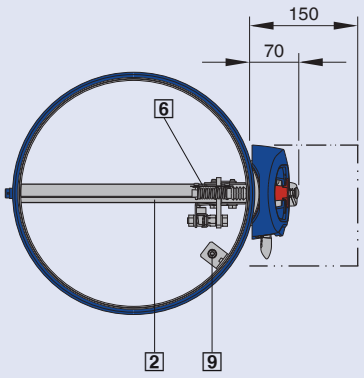
FKR-EU and FKR-EU-FL Dimensions [mm]

Nominal size	315	355	400	450	500	560	630	710	800
ØDN	314	354	399	449	498	558	629	709	799
A	31	31	31	36	36	36	36	36	36
$ØD_1$	352	392	438	488	538	600	670	750	840
α	45°	45°	45°	45°	45°	30°	30°	30°	22.5°
Number of screw holes	8	8	8	8	8	12	12	12	16
Weight [kg]									
with fusible link	6.8	7.3	8.5	14.1	16.4	18.0	21.3	25.7	28.6
with spring return actuator	8.2	8.7	9.9	16.7	19.0	20.6	23.9	28.3	31.3

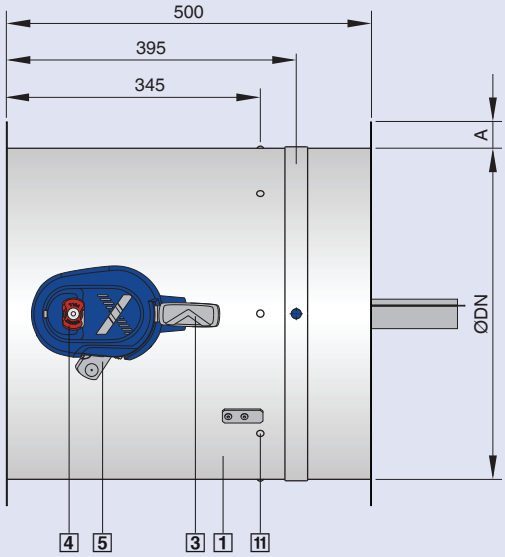
- Closed blade air leakage according to EN 1751, class 4
- Casing air leakage according to EN 1751, class C

FKR-EU with fusible link

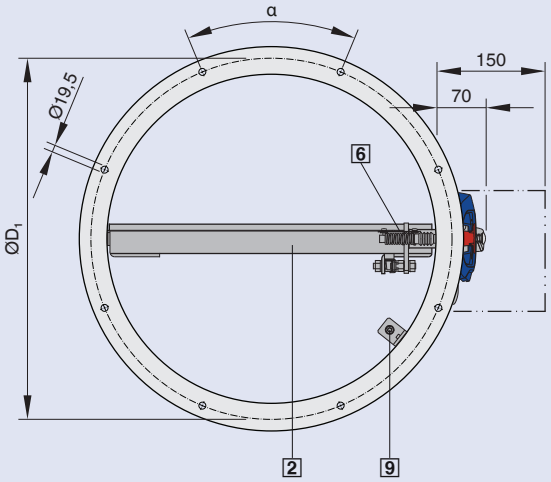




FKR-EU-FL with fusible link



– – – – – **Keep clear to provide access to the release mechanism**



1 Casing
2 Damper blade with seal
3 Handle
4 Release mechanism with cover
5 Interlock
6 Fusible link
7 Spring return actuator
8 Thermoelectric release mechanism
9 Travel stop
10 Lip seal
11 Installation marking ØDN ≤ 400: grove; ØDN ≥ 450: indentation

Materials

– Casing in galvanised sheet steel, with powder coating RAL 7001 (1), or in stainless steel 1.4301 (2)
– Damper blade made of special insulation material
– Damper blade coated in RAL7001
– Damper blade seal made of neoprene
– Lip seal made of thermoplastic elastomer (TPE)

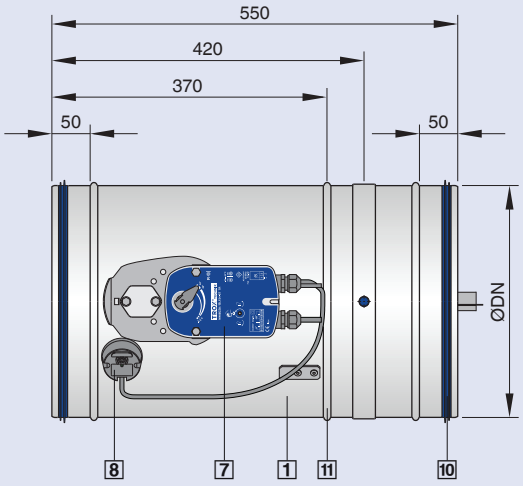
Construction variant 1		Order code
Casing	**Damper blade**	
Galvanised	Standard	
Powder-coated	Standard	1
Stainless steel[1]	Standard	2
Galvanised	Coated	7
Powder-coated	Coated	1-7
Stainless steel[1]	Coated	2-7

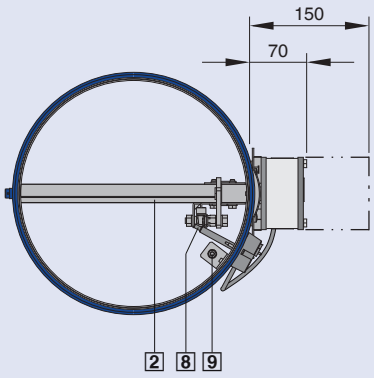
Construction variant 2	Order code
Fusible link 95 °C (only for use in warm air ventilation systems)	W[1]

[1] W can be combined with all construction variants 1.

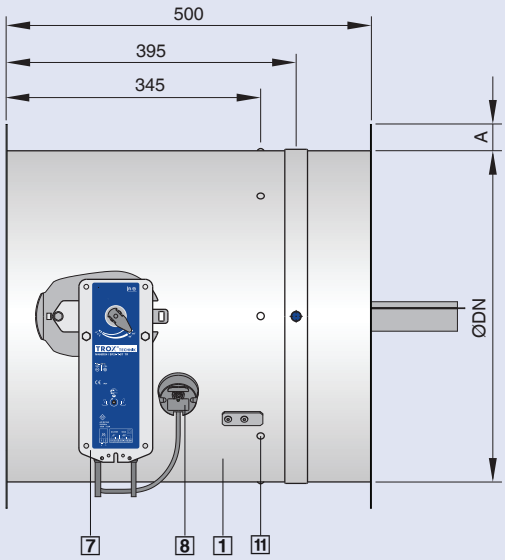
The construction variants with stainless steel or powder-coated casing meet more critical requirements for corrosion protection. They are also available with a coated damper blade.
Detailed listing on request.

FKR-EU with spring return actuator

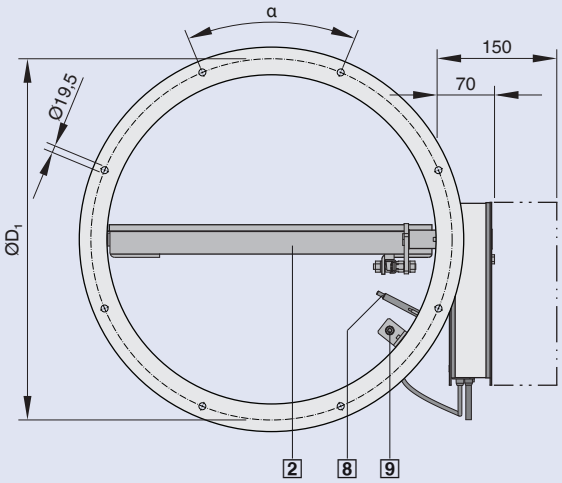




FKR-EU-FL with spring return actuator



– – – – – **Keep clear to provide access to the spring return actuator**



Accessories

Cover grille

If only one end is to be ducted on site, the other end must have a cover grille. Fire damper, cover grille and, if applicable, extension piece are assembled at the factory to form a unit.
The free cross sectional area of the cover grille is approx. 70 %.
Cover grilles are also available separately.

For further information on extension pieces see page 8.

Flexible connectors

Ducting must be installed in such a manner that it does not impose any loads on the fire damper in case 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 become deformed in case of a fire, we recommend for the following applications using flexible connectors when connecting the fire damper to rigid ducts:

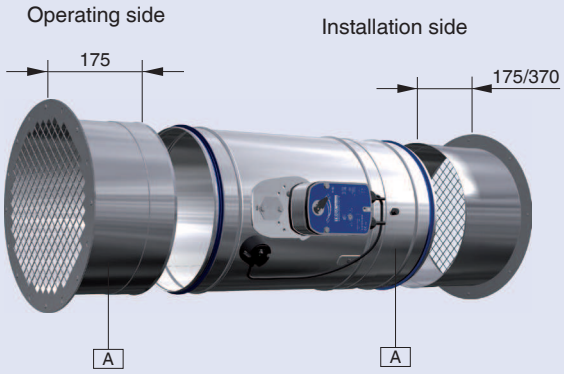
– in lightweight partition walls
– in lightweight shaft walls

The 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.
Flexible connectors are also available separately.

For further information on extension pieces see page 8.

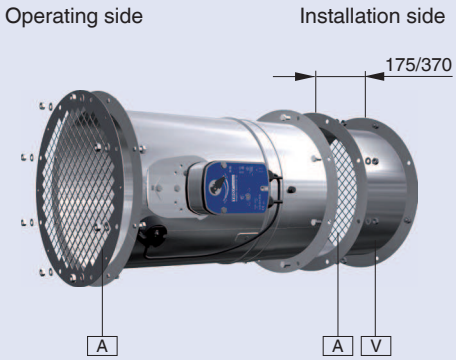
Cover grille

FKR-EU

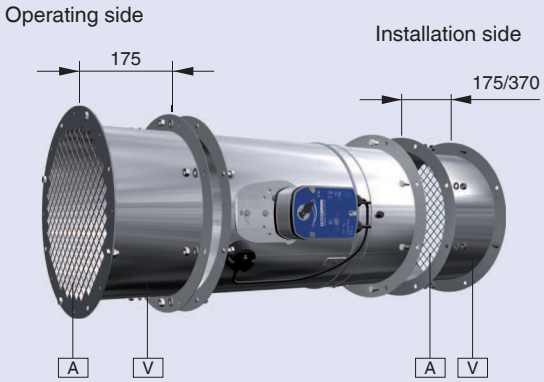


A Cover grille, on operating or installation side
V Extension piece

FKR-EU-FL



FKR-EU-FL with extension pieces



Important!
– Extension pieces and cover grilles are supplied factory assembled.

Accessories		Order code
Operating side	Installation side	
Flexible connector	–	S0
–	Flexible connector	0S
Flexible connector	Flexible connector	SS
Cover grille	–	A0
–	Cover grille	0A
Flexible connector	Cover grille	SA
Cover grille	Flexible connector	AS

Materials

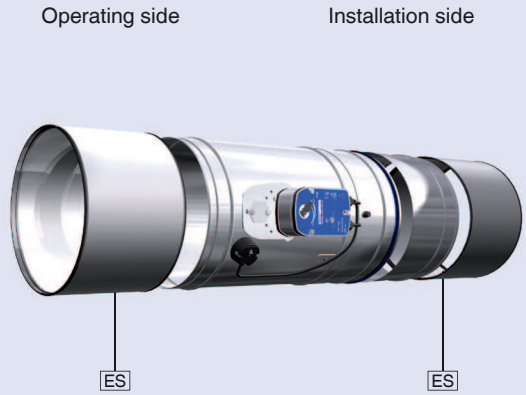
- Cover grilles in galvanised sheet steel (powder-coated silver-grey (RAL 7001) when used with powder-coated (1) and stainless steel (2) dampers)
- Extension pieces same as casing variants
- Flexible connectors in galvanised steel (FKR-EU-FL only) and fibre-reinforced plastic

FKR-EU / FKR-EU-FL Length of extension piece Dimensions [mm]

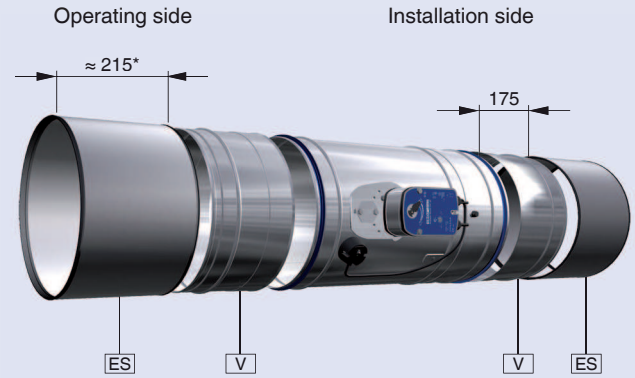
Nominal size	Operating side		Installation side	
	Cover grille	Flexible connector	Cover grille	Flexible connector
315	175 / –	– / –	175 / 175	175 / 175
355	175 / –	– / –	175 / 175	175 / 175
400	175 / –	– / –	175 / 175	175 / 175
450	175 / –	– / –	370 / 175	370 / 175
500	175 / –	– / –	370 / 370	370 / 370
560	175 / –	– / –	370 / 370	370 / 370
630	175 / –	– / –	370 / 370	370 / 370
710	175 / –	– / 175	370 / 370	370 / 370
800	175 / 175	175 / 175	370 / 370	370 / 370

Flexible connectors

FKR-EU



FKR-EU with extension pieces

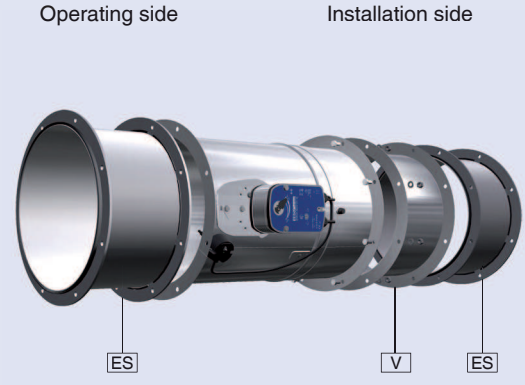


* flexible length ≥ 100 mm when installed

Important!

- Type FKR-EU fire dampers with flexible connectors are supplied without lip seal.
- Flexible connectors are supplied unassembled, connection material is to be provided by others.

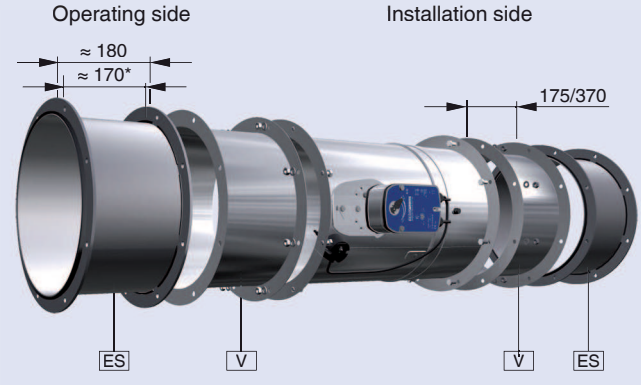
FKR-EU-FL



Important!

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

FKR-EU-FL with extension pieces



* flexible length ≥ 100 mm when installed

ES Flexible connector, on operating and/or installation side
V Extension piece

Accessories

Extension piece

When using cover grilles or flexible connectors an extension piece is required for some nominal sizes.
Fire dampers with these accessories are supplied with extension piece.
Extension pieces are also available separately.

Minimum distance

The distance between the open damper blade edge and the cover grille or flexible connector should be at least 50 mm.

For further information on cover grilles and flexible connectors see pages 6 and 7.

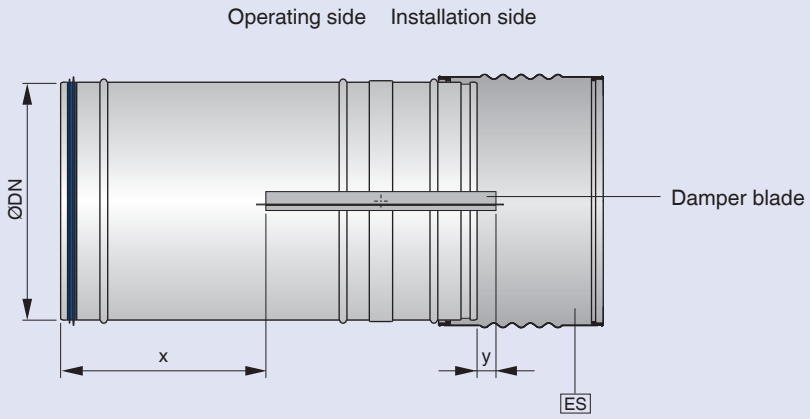
FKR-EU

Dimensions [mm]									
Nominal size	315	355	400	450	500	560	630	710	800
x	-270	-250	-230	-200	-175	-145	-110	-70	-25
y	25	45	70	90	115	145	180	220	265

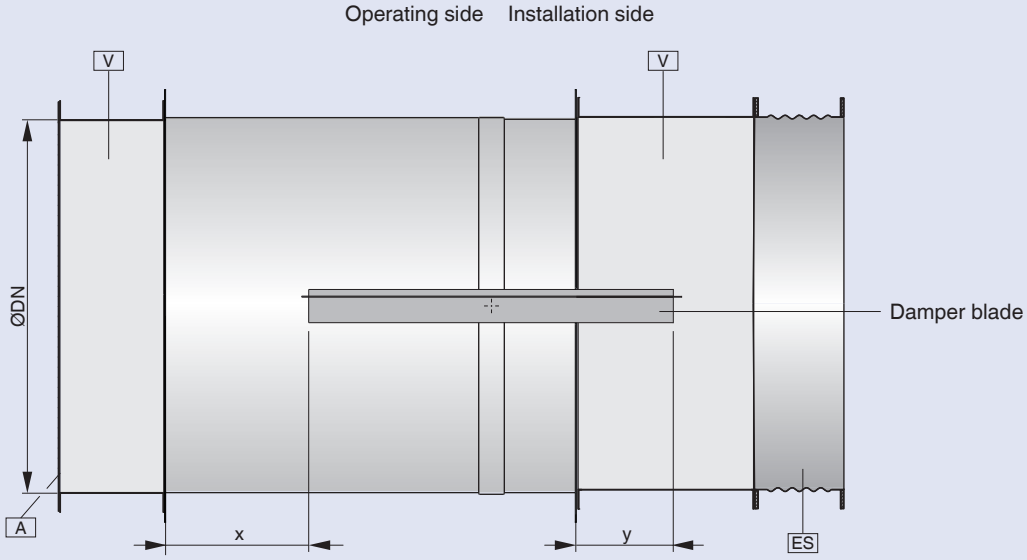
FKR-EU-FL

Dimensions [mm]									
Nominal size	315	355	400	450	500	560	630	710	800
x	-240	-220	-200	-170	-145	-115	-80	-40	5
y	55	75	95	95	120	150	185	225	270

FKR-EU
Example of nominal size 315



FKR-EU-FL
Example of nominal size 450



A Cover grille, on operating or installation side
ES Flexible connector, on operating and/or installation side
V Extension piece

FKR-EU with fusible link

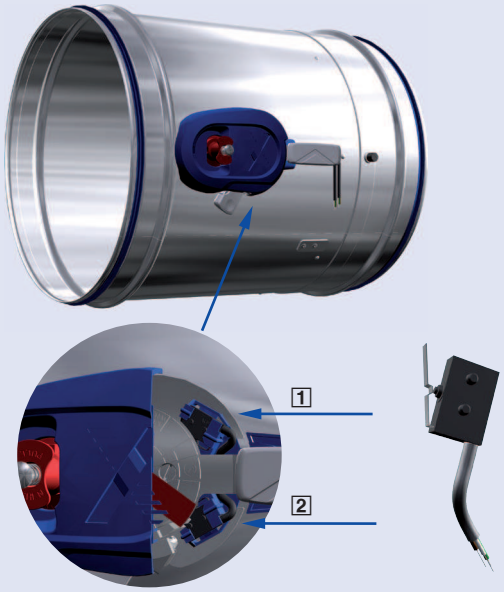
Limit switches with volt-free contacts enable the damper blade position indication. Relays or indicator lights for fire alarm systems can be used up to the maximum switch rating.
One limit switch each is required for damper blade positions OPEN and CLOSED.

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
Standard construction	Z00
Standard construction with limit switch for damper blade position CLOSED	Z01
Standard construction with limit switch for damper blade position OPEN	Z02
Standard construction with limit switches for damper blade positions CLOSED and OPEN	Z03

Limit switches	
Connecting cable length / cross section	1 m / 3 × 0.34 mm²
Protection level	IP 66
Type of contact	1 changeover contact, gold-plated
Max. switching current	0.5 A
Max. switching voltage	30 V DC, 250 V AC
Contact resistance	approx. 30 mΩ

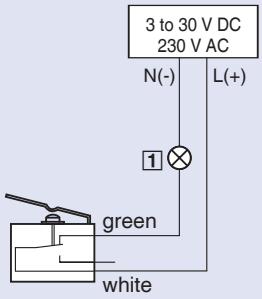
Limit switch



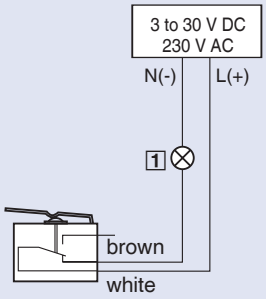
1 Limit switch for damper blade position OPEN
2 Limit switch for damper blade position CLOSED

Wiring examples

Limit switch not actuated

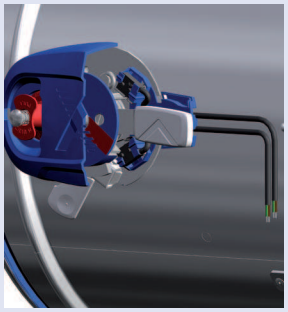


Limit switch actuated



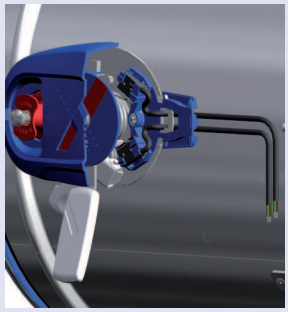
1 Indicator light or relay, to be provided by others

FKR-EU when open



Indicated position	Limit switch
OPEN	actuated
CLOSED	not actuated

FKR-EU when CLOSED



Indicated position	Limit switch
OPEN	not actuated
CLOSED	actuated

FKR-EU with spring return actuator BLF

Operation of the fire damper with a spring return actuator allows remote control and/or release by a suitable smoke detector. If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close). Fire dampers with spring return actuator can be functionally checked OPEN/CLOSED/OPEN.

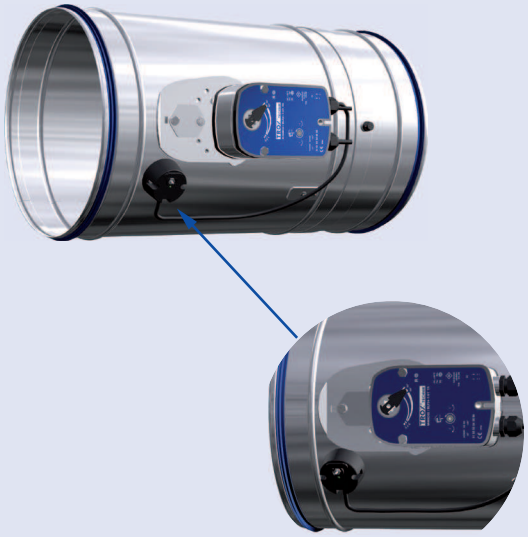
The actuator includes two limit switches. The connecting cables of the BLF24-T-ST TR are fitted with plugs. This ensures quick and easy connection to the TROX AS-i bus system.

A conversion kit is available for retrofitting an actuator on a standard construction.

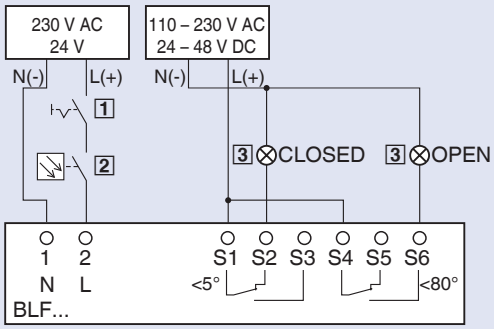
Attachments	Order code
BLF230-T TR	Z43
BLF24-T-ST TR	Z45

Spring return actuator BLF		230-T TR	24-T-ST TR
Supply voltage		230 V AC ±14 % 50/60 Hz	24 V AC ±20 % 50/60 Hz or 24 V DC -10 % / +20 %
Power rating	Spring compression	6 W	5 W
	Hold position	3 W	2.5 W
	Rating	7 VA	
Running time	Motor / spring return	40 to 75 s / 20 s	
Limit switch*	Type of contact	2 change-over 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	III
Protection level		IP54	
Connecting cable	Length / Cross section	1 m / 2(6*) × 0.75 mm²	

Spring return actuator BLF...
Nominal sizes 315 – 400



Wiring example
CLOSED position



1 Switch for opening and closing, to be provided by others
2 Optional release mechanism, e.g. TROX smoke detector type RM-O-3-D or RM-O-VS-D
3 Indicator light, to be provided by others

FKR-EU with spring return actuator BF

Operation of the fire damper with a spring return actuator allows remote control and/or release by a suitable smoke detector. If the supply voltage fails, or with thermoelectric release, the damper closes (power off to close). Fire dampers with spring return actuator can be functionally checked OPEN/CLOSED/OPEN.

The actuator includes two limit switches. The connecting cables of the BF24-T-ST-2 TR spring return actuator are fitted with plugs. This ensures quick and easy connection to the TROX AS-i bus system.

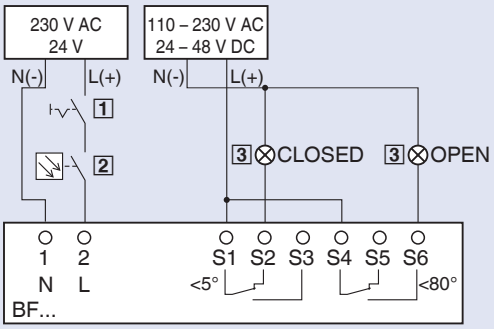
A conversion kit is available for retrofitting an actuator on a standard construction.

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

Spring return actuator BF		230-T-2 TR	24-T-ST-2 TR
Supply voltage		230 V AC ±14 % 50/60 Hz	24 V AC ±20 % 50/60 Hz or 24 V DC -10 % / +20 %
Power rating	Spring compression	8 W	7 W
	Hold position	3 W	2 W
	Rating	12.5 VA	10 VA
Running time	Motor / spring return	approx. 140 s / approx. 16 s	
Limit switch*	Type of contact	2 change-over 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	III
Protection level		IP54	
Connecting cable	Length / Cross section	1 m / 2(6*) x 0.75 mm^2	

Spring return actuator BF...
Nominal sizes 450 – 800

Wiring example
CLOSED position



1 Switch for opening and closing, to be provided by others
2 Optional release mechanism, e.g. TROX smoke detector type RM-O-3-D or RM-O-VS-D
3 Indicator light, to be provided by others

Attachments
TROXNETCOM

FKR-EU with spring return actuator and TROXNETCOM

Attachments	Order code
AS-EM/B and BLF24-T-ST TR* or BF24-T-ST TR	ZA03

Attachments	Order code
LON-WA1/B2 and BLF24-T-ST TR* or BF24-T-ST-2 TR	ZL06
LON-WA1/B2-AD and BLF24-T-ST TR* or BF24-T-ST-2 TR	ZL07
LON-WA1/B2-AD230 and BLF24-T-ST TR* or BF24-T-ST-2 TR	ZL08

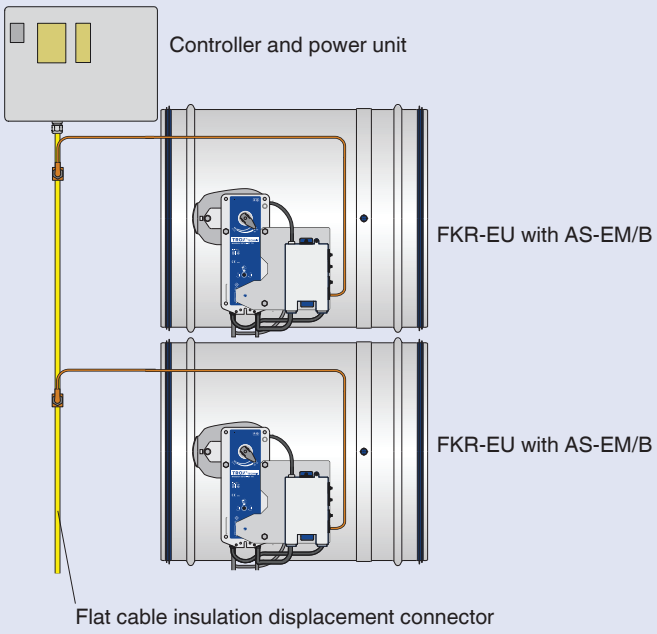
* For nominal sizes from 315 to 400

The fire dampers with spring return actuator BLF24-T-ST TR or BF24-T-ST-2 TR and the modules shown here as attachments form a functional unit ready for operation by an automatic fire damper controller. The components are factory-assembled and wired. Only the bus line and the supply voltage (LON only) remain to be connected by others.

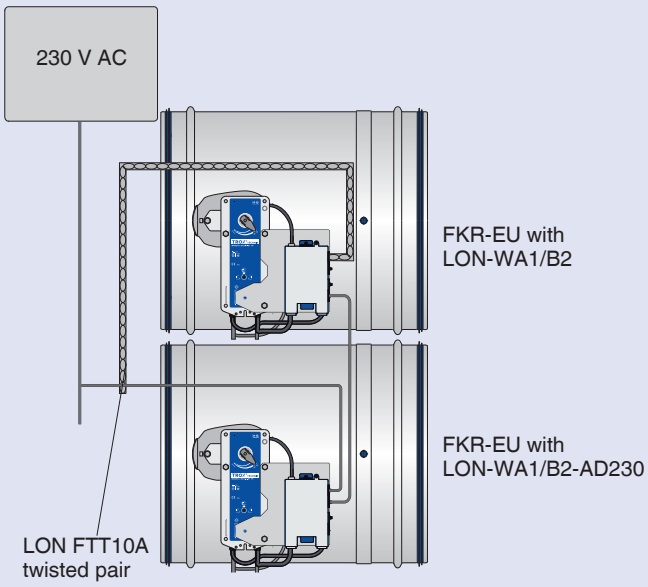
The AS interface is a world-standard bus system according to EN 50295 and IEC 62026-2. It enables the integration of different components (modules) in a network regardless of the manufacturer and the design. The modules control actuators and/or receive signals from sensors.

LON and LonMark indicate 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.

AS-EM/B module



Module LON-WA1/...



- The module sends the control signals between the spring return actuator and the controller and power unit. This enables the actuator to be controlled and the monitoring of 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

- **LON-WA1/B2**
  To control up to 2 fire dampers
- **LON-WA1/B2-AD**
  Connection box for the second fire damper with 24 V AC supply voltage
- **LON-WA1/B2-AD230**
  Connection box for the second fire damper with 230 V AC supply voltage

For further information please refer to our website.

To prevent smoke from spreading in buildings through the air conditioning system, it is extremely important that the smoke is detected at an early stage.
Type RM-O-VS-D smoke detectors operate on the principle of light scattering and detect the smoke regardless of its temperature so that the fire dampers can be closed before the release temperature 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 or smoke control damper is released when the brightness of the scattered light exceeds a certain threshold.

Attachments	Order code
Smoke detector with airflow monitor	RM-O-VS-D

Smoke detectors are attachments and to be ordered separately.

Smoke detector RM-O-VS-D
with airflow monitor

- Smoke detector for fire and smoke control dampers
- General building inspectorate licence Z-78.6-67
- For air velocities from 1 to 20 m/s
- Independent of the airflow direction
- Airflow monitoring with lower warning limit 2 m/s
- Supply voltage 230 V AC, 50/60 Hz
- Volt-free signal and alarm relays
- Integrated signal lights
- Contamination level indicator
- Automatic adjustment of alarm threshold
- Long service life
- Installation in ductwork
- For correct use and further technical data see leaflet 4/6.2/EN/..

Aerodynamic selection

Nomenclature

v_A	[m/s] :	Airflow velocity
Δp_t	[Pa] :	Total differential pressure (duct installation)

$$\Delta p_t = \zeta \times \rho/2 \times v_A^2$$

ζ	:	Resistance coefficient (fully ducted)
ρ	[kg/m³] :	Air density (approx. 1.2 at 20 °C)
L_{WA}	[dB(A)] :	Sound power level of the air-regenerated noise in the duct
L_{WNC}	:	NC rating of the sound power level spectrum
L_W	[dB] :	Octave band sound power level
f_m	[Hz] :	Octave band centre frequency

All sound power levels are based on 1 pW.

All noise levels were determined in a reverberation chamber. The sound power data has been determined and corrected according to ISO 5135, February 1999.

– when using v_A from the table:

Δp_t, L_{WA}, L_{WNC}, L_W from table

– when using v_A intermediate values:

$$\Delta p_t = \zeta \times \rho/2 \times v_A^2$$

L_{WA}, L_{WNC}, L_W can be interpolated with sufficient accuracy between the values given in the table

Example

Given data: FKR-EU fire damper
Nominal size = 400, v_A = 6 m/s
Required: Δp_t, L_{WA}, L_{WNC}, L_W
Result: Δp_t = 6 Pa
L_{WA} = 36 dB(A)
L_{WNC} = 29

L_w [dB]	f_m [Hz]							
	63	125	250	500	1000	2000	4000	8000
	48	40	37	33	30	26	15	<10

Nominal size	ζ	v_A [m/s]	Δp_t [Pa]	L_{WA} [dB(A)]	L_{WNC}	f_m [Hz]							
						63	125	250	500	1000	2000	4000	8000
						L_W [dB]							
315	0.44	4	4	23	15	39	28	25	20	16	11	<10	<10
		6	10	34	27	47	38	35	30	28	25	15	<10
		8	17	42	35	53	45	42	37	36	34	26	15
		10	26	48	42	58	50	47	43	43	42	36	24
355	0.34	4	3	24	16	39	29	26	21	17	11	<10	<10
		6	7	34	28	47	39	36	32	29	25	15	<10
		8	13	43	36	53	46	43	39	37	35	27	17
		10	20	49	43	58	51	49	44	44	42	36	26
400	0.26	4	3	25	17	39	30	27	23	19	12	<10	<10
		6	6	36	29	48	40	37	33	30	26	15	<10
		8	10	43	37	54	46	44	40	38	36	27	19
		10	16	50	44	58	52	50	46	45	43	36	28
450	0.21	4	2	27	19	40	32	29	25	21	14	<10	<10
		6	5	38	31	49	41	39	35	32	28	17	11
		8	8	46	39	55	48	46	42	41	38	29	22
		10	13	52	46	59	54	52	48	47	45	38	31
500	0.17	4	2	28	20	40	32	30	26	22	14	<10	<10
		6	4	39	32	49	42	40	36	33	28	17	13
		8	7	46	40	55	49	47	44	41	38	29	24
		10	10	53	47	60	54	53	49	48	46	38	33
560	0.13	4	1	29	22	41	33	31	28	22	15	<10	<10
		6	3	40	33	49	43	41	38	34	29	17	14
		8	5	47	41	55	50	48	45	42	39	29	26
		10	8	54	48	60	55	54	51	49	46	38	35
630	0.10	4	1	30	23	41	34	32	29	23	16	<10	<10
		6	2	41	34	49	43	42	39	35	29	17	16
		8	4	48	42	55	50	49	46	43	39	29	28
		10	6	55	49	60	56	55	52	50	47	38	36
710	0.08	4	1	31	25	41	35	33	31	25	16	<10	<10
		6	2	42	36	50	44	43	41	36	30	18	18
		8	3	50	44	55	51	51	48	44	40	29	30
		10	5	56	50	60	56	56	53	51	47	38	38
800	0.06	4	1	32	26	41	35	35	32	26	17	<10	<10
		6	1	43	37	50	45	45	42	37	31	18	20
		8	2	51	45	56	52	52	49	46	41	30	32
		10	4	57	51	60	57	57	55	52	48	39	40

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

Mortar-based installation

Installation of the fire damper in solid walls and ceiling slabs is approved with perimeter mortar infill (wet installation). Installation in horizontal and vertical ducts. Airflow direction is not critical.

Requirements

- Solid walls or fire walls (if referred to as such) made of, for example, concrete, aerated concrete, masonry, or solid gypsum wallboards according to EN 12859 (without hollow spaces), gross density ≥ 500 kg/m^3, and a minimum thickness of 100 mm
- Solid ceiling slabs made of concrete or aerated concrete, gross density ≥ 600 kg/m^3, and a minimum thickness of 150 mm
- 40 mm minimum distance to load bearing structural elements
- 40 mm minimum distance between two fire dampers, about 80 mm with flanged construction

Recommendations

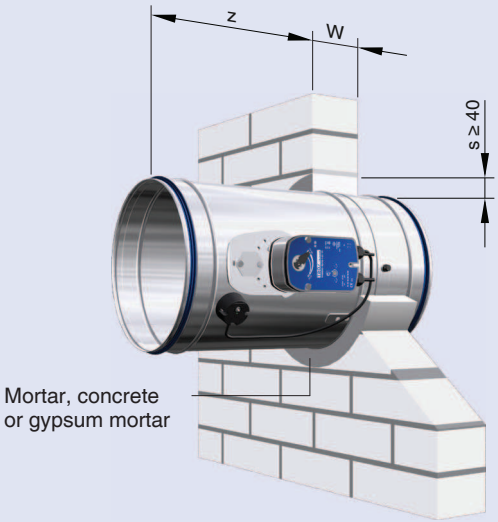
- An extension piece should be used if the thickness of the wall or ceiling slab exceeds 115 mm

Installation details

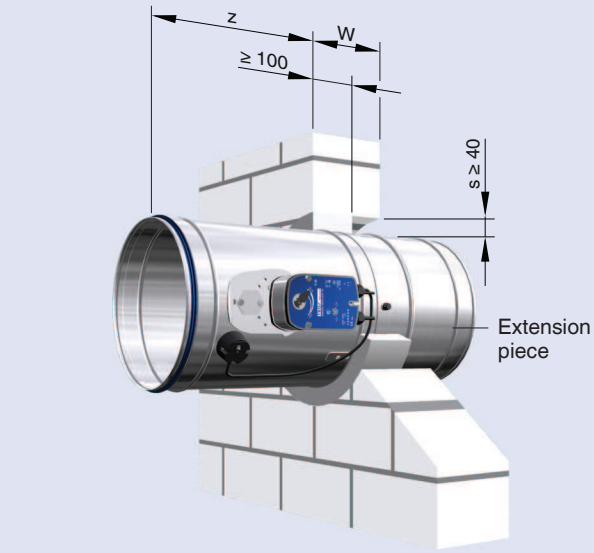
- An opening or a cut hole with a minimum diameter of nominal size plus 80 mm...120 mm is required for installation of the fire damper into the wall or ceiling slab; alternatively, the fire damper can be concreted into the wall or ceiling slab during construction.
- Completely close off the perimeter gap »s« with one of the following: mortar of group II, IIa, III or IIIa according to DIN 1053; fire protection mortar of group II or III or equivalent according to EN 998-1/2 (classes M 2.5 to 10); fire protection mortar of class M 2.5 or 10; gypsum mortar; or, if necessary, concrete. The mortar bed depth is the same as the wall thickness.

Distance z [mm]	
FKR-EU with spigots	370
FKR-EU with flanges	345

Wall installation
W: 100 to 115 mm

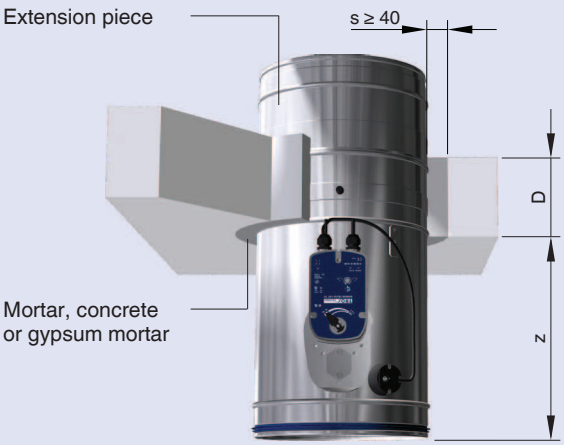


W > 115 mm



Ceiling slab installation, upright

Ceiling slab installation, suspended



Installation details

Lightweight partition walls with metal support structure and cladding on both sides

Mortar-based installation of fire dampers in lightweight partition walls with metal support structure and cladding on both sides is approved.
Installation in horizontal ducts. Airflow direction is not critical.

Requirements

- Lightweight partition walls with a metal support structure and cladding on both sides, with European classification to EN 13501-2 or comparable national classification
- Cladding made of gypsum bonded or cement bonded panel materials and a minimum thickness of 100 mm
- Additional layers of cladding or double stud systems are approved
- 40 mm minimum distance to load bearing structural elements
- 40 mm minimum distance between two fire dampers, about 80 mm with flanged construction

Recommendations

- An extension piece should be used if the thickness of the wall exceeds 115 mm

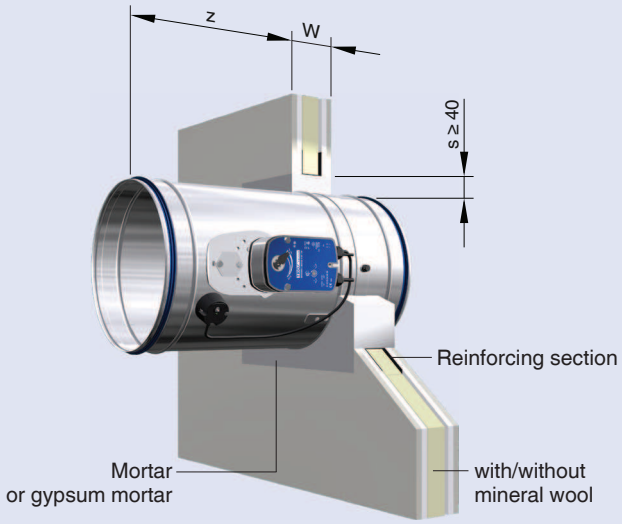
Mortar-based installation

Installation details

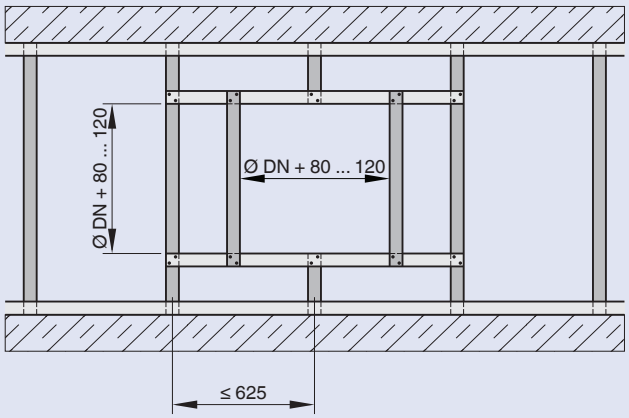
- An opening with at least the nominal size plus 80 mm...120 mm is required
- Completely close off the perimeter gap »s« with one of the following: mortar of group II, IIa, III or IIIa according to DIN 1053; fire protection mortar of group II or III or equivalent according to EN 998-1/2 (classes M 2.5 to 10); fire protection mortar of class M 2.5 or 10; gypsum mortar; or, if necessary, concrete.
  The mortar bed depth is the same as the wall thickness.

Distance z [mm]	
FKR-EU with spigots	370
FKR-EU with flanges	345

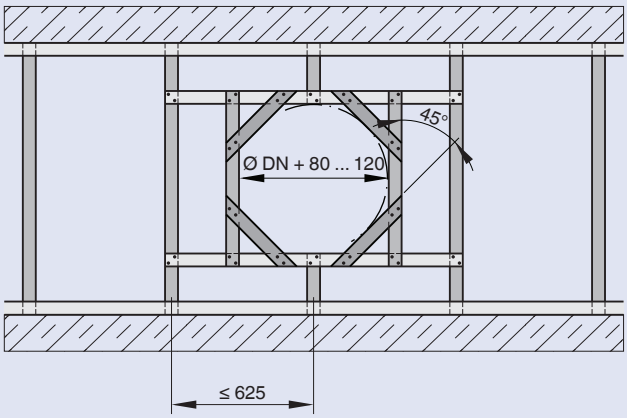
Mortar-based installation



Metal support structure
up to NW 400



from NW 450



Installation details

Fire walls with metal support structure and cladding on both sides

Mortar-based installation of fire dampers in fire walls with metal support structure and cladding on both sides is approved.
Installation in horizontal ducts. Airflow direction is not critical.

Requirements

- Lightweight partition walls with a metal support structure and cladding on both sides, with European classification to EN 13501-2 or comparable national classification
- Cladding made of gypsum bonded or cement bonded panel materials and a minimum thickness of 115 mm
- Supplementary sheet steel inserts, additional layers of cladding, or double stud systems are approved
- Wall height 5000 mm max.
- 40 mm minimum distance between two fire dampers, about 80 mm with flanged construction

Recommendations

- An extension piece should be used if the thickness of the wall exceeds 115 mm

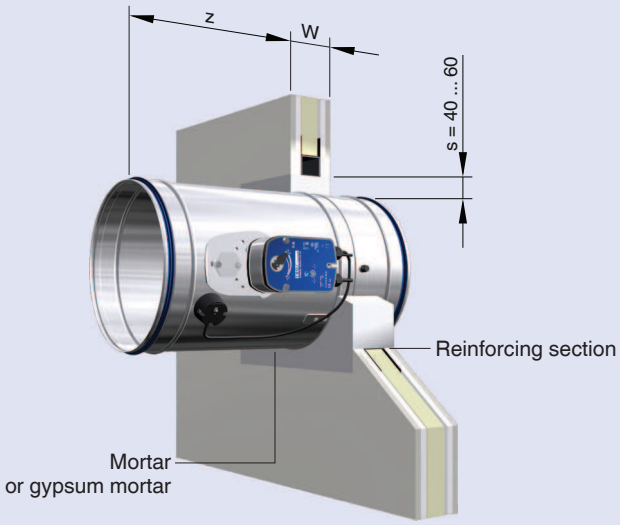
Mortar-based installation

Installation details

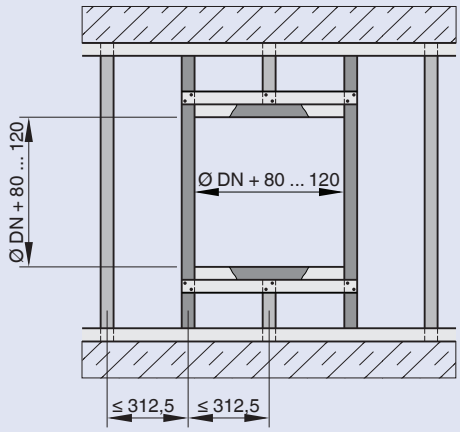
- An opening with at least the nominal size plus 80 mm...120 mm is required
- Completely close off the perimeter gap »s« with one of the following: mortar of group II, IIa, III or IIIa according to DIN 1053; fire protection mortar of group II or III or equivalent according to EN 998-1/2 (classes M 2.5 to 10); fire protection mortar of class M 2.5 or 10; gypsum mortar; or, if necessary, concrete.
  The mortar bed depth is the same as the wall thickness.

Distance z [mm]	
FKR-EU with spigots	370
FKR-EU with flanges	345

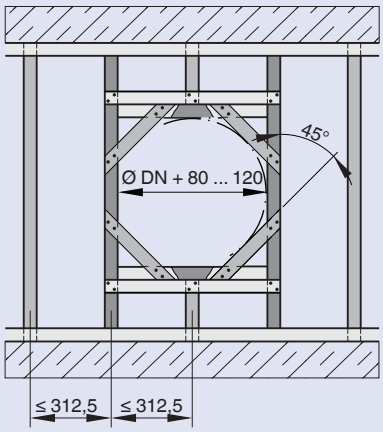
Mortar-based installation



Metal support structure
up to NW 400



from NW 450



Installation details

Lightweight partition walls with metal support structure and cladding on one side

Mortar-based installation of fire dampers in lightweight partition walls with metal support structure and cladding on one side is approved.
Installation in horizontal ducts. Airflow direction is not critical.

Requirements

- Lightweight partition walls with a metal support structure and cladding on one side with European classification according to EN 13501-2 or comparable national classification
- Cladding made of gypsum bonded or cement bonded panel materials and a minimum thickness of 90 mm
- Additional reinforcing board near the fire damper, at least 20 mm thick
- Wall height 5000 mm max.
- 40 mm minimum distance to load bearing structural elements
- 200 mm minimum distance between two fire dampers

Recommendations

- An extension piece should be used if the thickness of the wall exceeds 115 mm

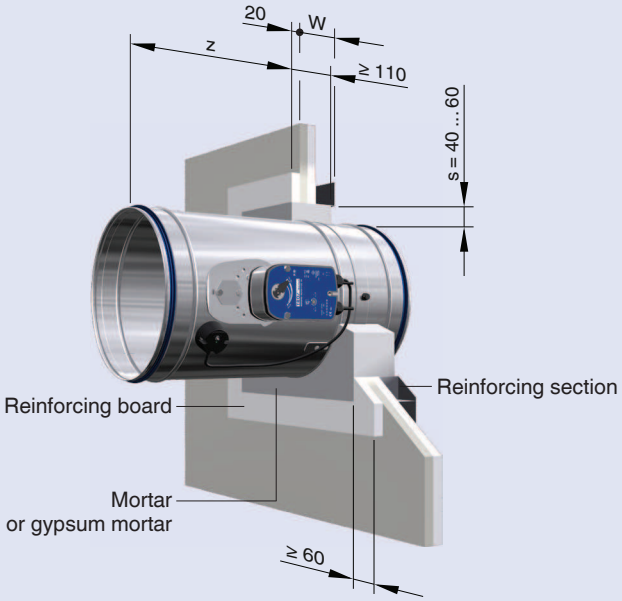
Mortar-based installation

Installation details

- An opening with at least the nominal size plus 80 mm...120 mm is required
- Completely close off the perimeter gap »s« with one of the following: mortar of group II, IIa, III or IIIa according to DIN 1053; fire protection mortar of group II or III or equivalent according to EN 998-1/2 (classes M 2.5 to 10); fire protection mortar of class M 2.5 or 10; gypsum mortar; or, if necessary, concrete.
  The mortar bed depth is the same as the wall thickness.

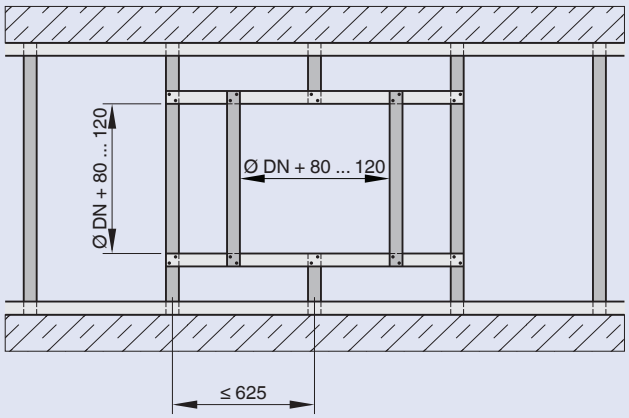
Distance z [mm]	
FKR-EU with spigots	370
FKR-EU with flanges	345

Mortar-based installation

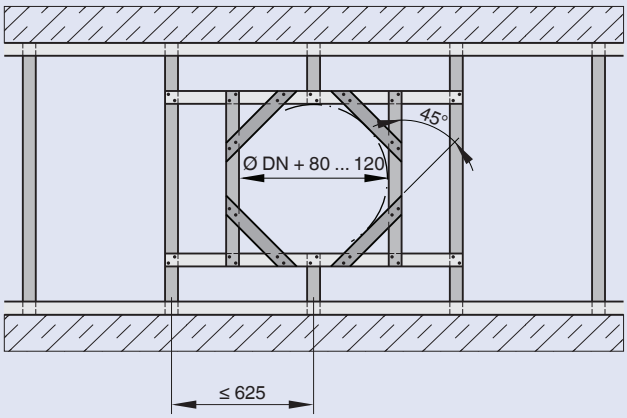


Metal support structure

up to NW 400



from NW 450



Installation details

Lightweight partition walls without metal support structure but with cladding on one side

Mortar-based installation of fire damper in lightweight partition walls without metal support structure but with cladding on one side is approved.
Installation in horizontal ducts. Airflow direction is not critical.

Requirements

- Lightweight partition walls without metal support structure, with minimum thickness 50 mm
- Wall width 2000 mm max.
- Wall height 5000 mm max.
- 40 mm minimum distance to load bearing structural elements
- 200 mm minimum distance between two fire dampers

Recommendations

- An extension piece should be used if the thickness of the wall exceeds 115 mm

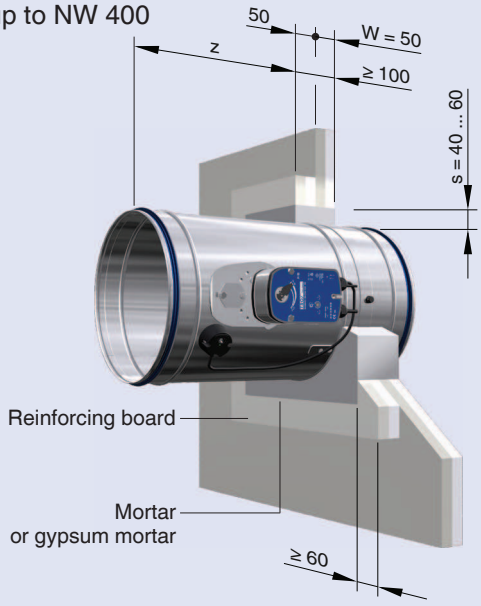
Mortar-based installation

Installation details

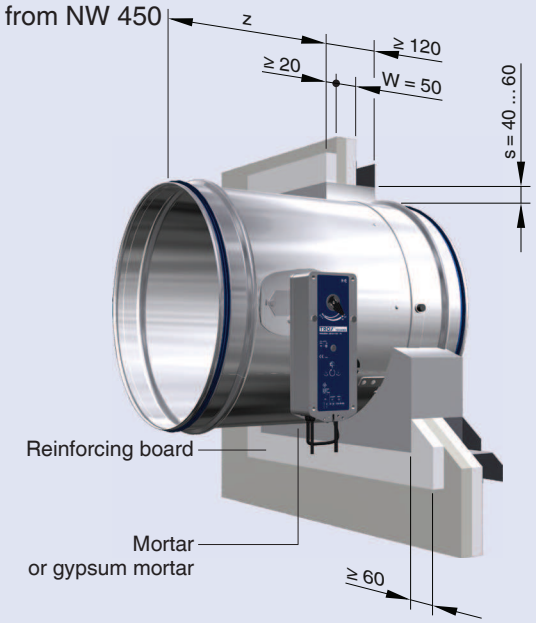
- An opening with at least the nominal size plus 80 mm...120 mm is required
- From NW 450, use reinforcement profiles
- Completely close off the perimeter gap »s« with one of the following: mortar of group II, IIa, III or IIIa according to DIN 1053; fire protection mortar of group II or III or equivalent according to EN 998-1/2 (classes M 2.5 to 10); fire protection mortar of class M 2.5 or 10; gypsum mortar; or, if necessary, concrete.
  The mortar bed depth is the same as the wall thickness.

Distance z [mm]	
FKR-EU with spigots	370
FKR-EU with flanges	345

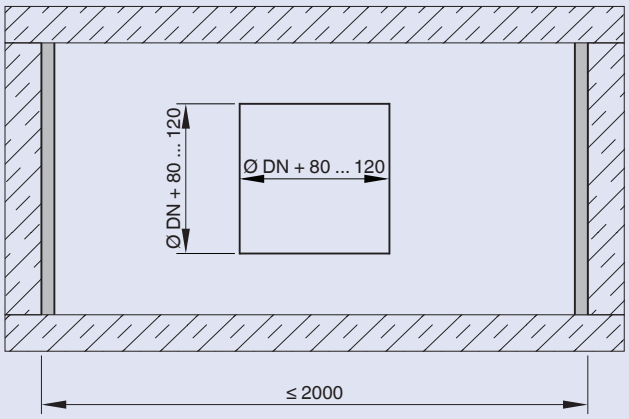
Mortar-based installation
up to NW 400



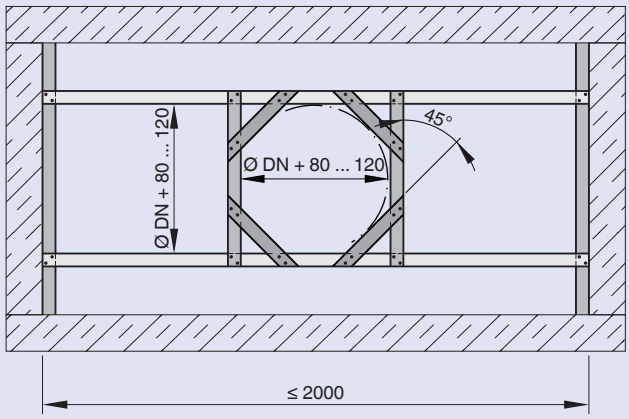
from NW 450



Metal support structure
up to NW 400



from NW 450



Order Details

Specification text *

Circular fire dampers in 9 nominal sizes for the isolation of duct penetrations between fire compartments.

Ready-for-operation unit includes a fire-resistant damper blade and a release mechanism.

Tested for fire resistance properties to EN 1366-2.
With declaration of performance
DoP / FKR-EU / DE / 2013 / 001 and CE marking.

For mortar-based installation in solid walls and ceiling slabs, lightweight partition walls and lightweight fire walls.

Special features:

- Complies with the requirements of EN 15650
- Tested for fire resistance properties according to EN 1366-2
- Classified according to EN 13501-3
- For mortar-based installation into lightweight partition walls, lightweight fire walls, and shaft walls
- Large free cross sectional area, hence low differential pressure
- Integration into the central BMS with TROXNETCOM

Differential pressure range 20 to 2000 Pa.

Spigots with lip seal on both ends, suitable for commercially available circular ducts to EN 1506 or EN 13180.

Alternatively:

Spigots with flanges on both ends; flanges to EN 12220, suitable for commercially available circular ducts according to EN 1506 or EN 13180.

Closed blade air leakage according to EN 1751, class 4.
Casing air leakage according to EN 1751, class C.

Fire damper variant with: spring return actuator with thermo-electric release mechanism. Two limit switches integrated into actuator for indicating damper blade positions OPEN and CLOSED.

Materials:

Casing and accessories made of galvanised sheet steel, damper blade made of special insulating material, damper blade perimeter seal made of neoprene.

* Text for an FKR-EU with spigot and fusible link.
For texts applying to different construction variants, attachments and accessories, please refer to the design programme on our website.

Order code

FKR-EU - FL - 1	/	DE	/	400	/	A0	/	Z43
1 2 3		4		5		6		7

1 Type

2 Flange
- No entry: None (construction variant with spigots)
- FL Flanges on both ends

3 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
- W[1] 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
- No entry: none
- S0 to AS

7 Attachments
- Z00 to ZL08

[1] W can be combined with all construction variants 3.

Order example for FKR-EU with spigots and fusible link

Make: TROX
Typs: FKR-EU / DE / 400 / Z00

Order example for FKR-EU, flanges on both ends, powder-coated, with operating side cover grille and spring return actuator 230 V AC

Make: TROX
Type: FKR-EU-FL-1 / DE / 400 / A0 / Z43