

# Fire dampers

- Types FKR-01-K90 · FKR-02-K90
- with general building inspectorate licence

Z-41.3-322



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**FKR-01-K90 with fusible link**



**FKR-02-K90 with spring return actuator**



Fire dampers shut automatically to prevent the propagation of fire and smoke through ductwork to adjacent designated fire compartments. FKR fire dampers are tested according to DIN 4102. Local requirements and building inspectorate approvals are essential in the country where the units are to be installed.

Correct installation locations are solid walls, solid ceiling slabs and gypsum wallboards are approved installation locations. Installation orientation and air flow direction are not critical. In the case of fire, the damper is triggered either by a fusible link at 72 °C or thermoelectrically with a spring return actuator, the release mechanism is accessible and can be tested from the outside.

Fire dampers Type FKR-01-K90 with flanges and FKR-02-K90 comply with DIN 4102-6, fire resistance class K90.

## Special characteristics

- Type FKR-01-K90:  
Casing with connecting flanges both ends
- Type FKR-02-K90:  
Casing with spigot connections suitable for circular connecting ducts
- Casing air leakage complies with EN 1751, Class B
- Large free cross sectional area, therefore low differential pressure
- Integration into the centralised building management system (BMS) with TROXNETCOM

## General building inspectorate licence: Z-41.3-322

Further, current information in particular licence and operating manual can be found on our website.

Also available on the internet is the on-line design programme "Easy Product Finder" for the design and selection of our units.

Fire dampers are products that require approval. The general and specific regulations of the general building inspectorate and the operating manual must be complied with. The general guidelines of DIN 31051 and EN 13306 are also applicable.


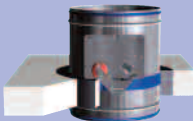
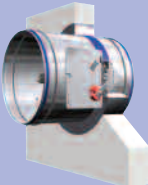
The functional reliability of fire dampers must be tested at least at six-monthly intervals. If two consecutive tests are successful, the next test can be conducted one year later.

In general, it is sufficient to close and reopen, fire dampers with spring return actuator, this can be by remote control.

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

## Design information

- The fire resistance class of FKR for the following applications is K90.
- This can only be achieved with non-combustible ducts connected at both ends or with a non-combustible 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 the case of a fire.
- Flexible connectors must be used to connect solid ducting to the fire damper for installation in plaster board walls. Flexible ducting may be connected directly to the fire damper.

Mounting location	Construction and building material	Minimum thickness in mm	Fire resistance class		Installation details Page
			at minimum thickness	See note above	
<b>Solid walls</b> 	Solid walls in concrete, aerated concrete or lightweight concrete	100	F90	K90	13
	Solid walls made of brickwork	115			
<b>Ceiling slabs</b> 	Ceiling slab of concrete	100	F90	K90	
<b>Wallboards</b> 	Gypsum wallboards to DIN 18163	100	F90	K90	

# Construction · Dimensions

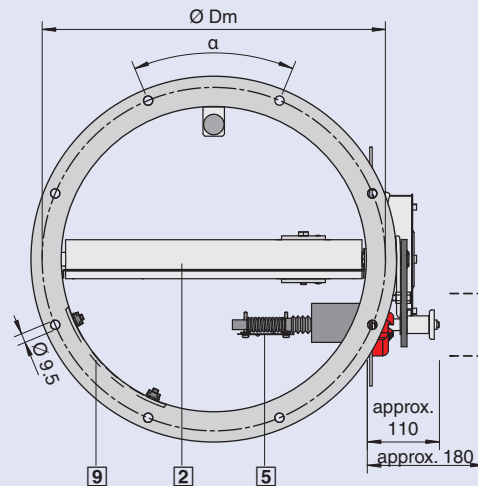
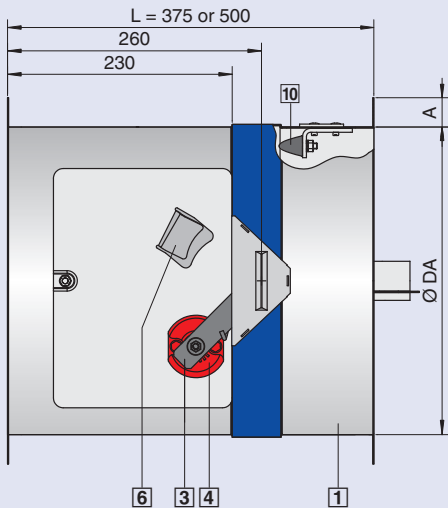
## Characteristics

- Fire resistance class according to DIN 4102-6, K90
- Two casing lengths to allow for wall and ceiling slabs of various thicknesses
- Air flow in either direction
- Large free cross sectional area, therefore low differential pressure
- Release mechanism 72°C
- Approved installation orientation from 0° to 360°

## Constructional features

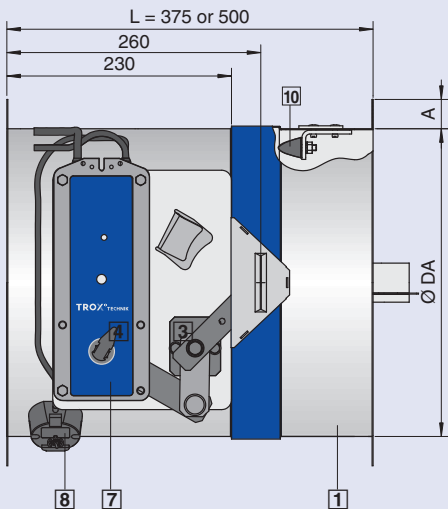
- Type FKR-01-K90:  
Rigid casing with connecting flanges both ends
- Type FKR-02-K90:  
Rigid casing with spigot connections suitable for circular connecting ducts  
Spigot connections on both ends with lip seal suitable for commercial ventilation ducts to EN 1506 or EN 13180 plus non-standard nominal sizes 224 and 280
- Inspection panel included in standard construction
- Casing air leakage complies with EN 1751, class B

### FKR-01-K90 with fusible link



----- Keep clear to provide access to release mechanism

### FKR-01-K90 with spring return actuator



#### FKR-01-K90 with fusible link Dimensions in mm or °

Nominal size	200	224	250	280	315	355	400	450	500	560	630	710
Ø DA	199	223	249	279	314	354	399	448	498	558	628	708
A	28	28	28	33	33	33	33	33	33	38	38	38
Ø Dm	233	257	283	317	352	392	438	488	538	600	670	750
α	60°	60°	60°	45°	45°	45°	45°	45°	45°	30°	30°	30°
Number of holes	6	6	6	8	8	8	8	8	8	12	12	12
Weight in kg												
L = 375	6	7	7	8	9	10	11	13	16	19	22	25
L = 500	7	7	8	9	10	11	13	14	18	21	24	28

FKR-01-K90 with spring return actuator: weight + 2 kg.

# Construction · Dimensions

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

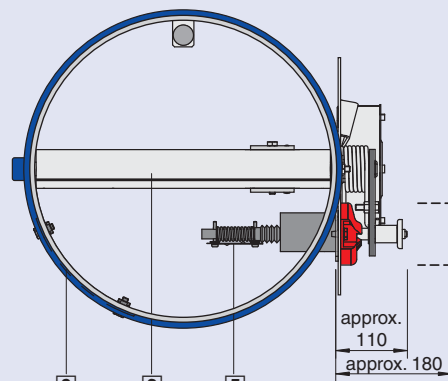
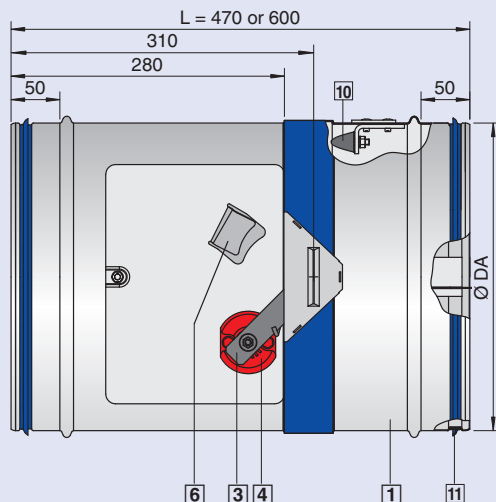
Construction variant		Order code
Casing	Damper blade	
Galvanised	Standard	-
Powder-coated	Standard	-1
Stainless steel	Standard	-2
Galvanised	Coated	-7
Powder-coated	Coated	-1-7
Stainless steel	Coated	-2-7

## Materials

- Casing in galvanised sheet steel
- Casing with powder coating (RAL 7001)
- Casing of stainless steel 1.4301
- Damper blade from special insulation material
- Damper blade with lacquer coating, RAL 7001
- Damper blade perimeter seal in neoprene
- Lip seal in thermoplastic elastomer TPE

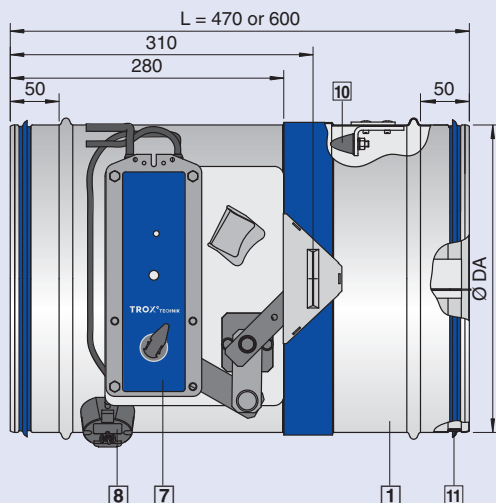
Attachment	Order code
Lip seal (both ends)	10

### FKR-02-K90 with fusible link



----- Keep clear to provide access to release mechanism

### FKR-02-K90 with spring return actuator



- 1 Casing
- 2 Damper blade with perimeter seal
- 3 Handle
- 4 Release mechanism
- 5 Fusible link
- 6 Interlock
- 7 Spring return actuator
- 8 Thermoelectric release mechanism
- 9 Inspection panel
- 10 Travel stop
- 11 Lip seal

FKR-02-K90 with fusible link												
Dimensions in mm												
Nominal size	200	224	250	280	315	355	400	450	500	560	630	710
Ø DA	199	223	249	279	314	354	399	448	498	558	628	708
Weight in kg												
L = 470	6	7	8	8	9	10	12	14	17	19	22	26
L = 600	7	8	8	9	10	12	13	15	19	21	25	29

FKR-02-K90 with spring return actuator: weight + 2 kg.

# Attachments

## Cover grille

If only one end is 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 can also be supplied separately.

If a cover grille is used on the installation side select casing length L = 500 or 600mm.

Further information about extension piece see page 8.

Attachments		Order code
Operating side	Installation side	
<b>FKR-0..-K90</b>		
Cover grille	–	11
–	Cover grille	12
<b>FKR-0..-K90-1 · FKR-0..-K90-2</b>		
Cover grille	–	61
–	Cover grille	62

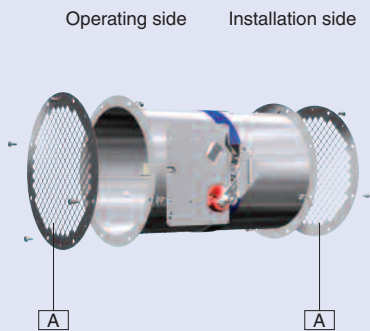
## Materials

- Cover grille in galvanised steel (it is also powder coated when used with basic powder coated and stainless steel dampers).

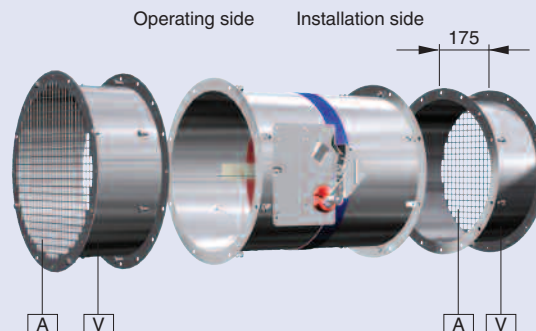
Arrangement of extension piece		
Type	Nominal size	
	Operating side	Installation side
FKR-01-K90	From 450	From 400
FKR-02-K90	From 355	From 355

## Cover grille

### FKR-01-K90



### FKR-01-K90 with extension piece

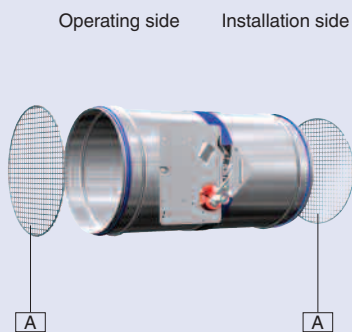


#### Important!

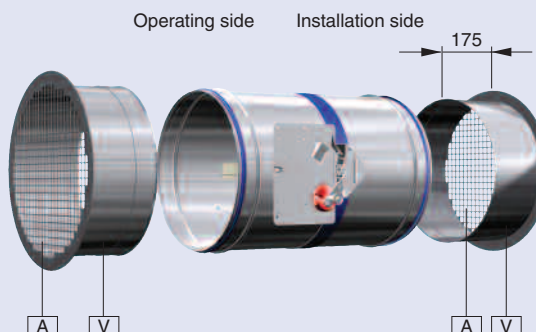
- Extension pieces nominal size 400 and above are supplied factory installed.

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

### FKR-02-K90



### FKR-02-K90 with extension piece



#### Important!

- Fire dampers type FKR-02-K90 with cover grille are supplied without lip seals.
- Extension pieces nominal size 355 and above are supplied factory installed.

## Flexible connectors

Ducting must be installed in such a manner that it does not impose any loads on the fire damper in the case of a fire. If fire dampers are installed in walls made of gypsum panels connection of rigid ducting can only be made with flexible connectors between the fire damper and the ducting. Flexible ducts may be directly connected to the fire damper. Flexible connectors can also be supplied separately.

If a flexible connector is used on the installation side select casing length L = 500 or 600mm.

Further information about extension piece see page 8.

Attachments		Order code
Operating side	Installation side	
<b>FKR-0...K90</b>		
Flexible connectors	–	14
–	Flexible connectors	15
Flexible connectors	Flexible connectors	16
<b>FKR-0...K90-1 · FKR-0...K90-2</b>		
Flexible connectors	–	64
–	Flexible connectors	65
Flexible connectors	Flexible connectors	66

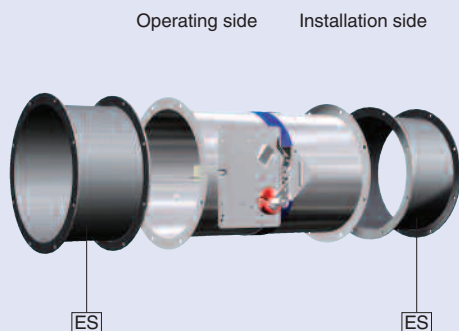
## Materials

- Flexible connectors in galvanised steel (FKR-01-K90 only) and fibre-reinforced plastic

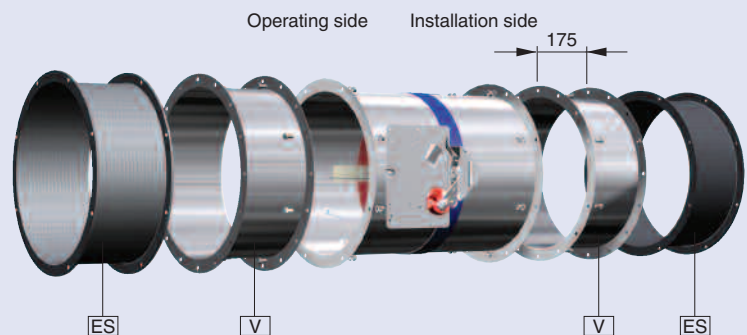
Arrangement of extension piece		
Type	Nominal size	
	Operating side	Installation side
FKR-01-K90	From 450	From 400
FKR-02-K90	From 560	From 500

## Flexible connectors

### FKR-01-K90



### FKR-01-K90 with extension piece

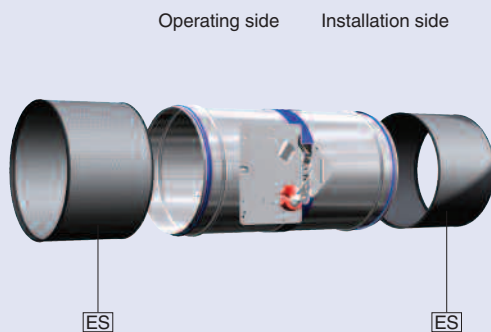


#### Important!

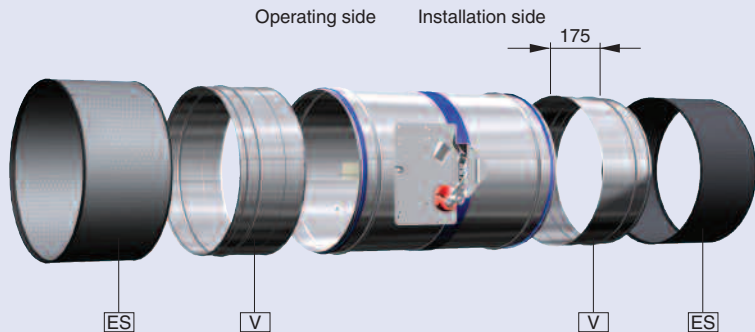
- Extension pieces nominal size 400 and above are supplied factory installed.
- Flexible connectors are supplied loose, hose clamps are supplied by others.

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

### FKR-02-K90



### FKR-02-K90 with extension piece



#### Important!

- Fire dampers type FKR-02-K90 with flexible connectors are supplied without lip seals.
- Extension pieces nominal size 500 and above are supplied factory installed.
- Flexible connectors are supplied loose, hose clamps are supplied by others.

# Attachments

## Extension piece

When using cover grilles or flexible connectors an extension piece is required for some nominal sizes.

Fire dampers with these attachments are supplied with extension piece.

Flexible connectors can also be supplied separately.

## Minimum distance

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

Further information about cover grilles and flexible connectors see pages 6 and 7.

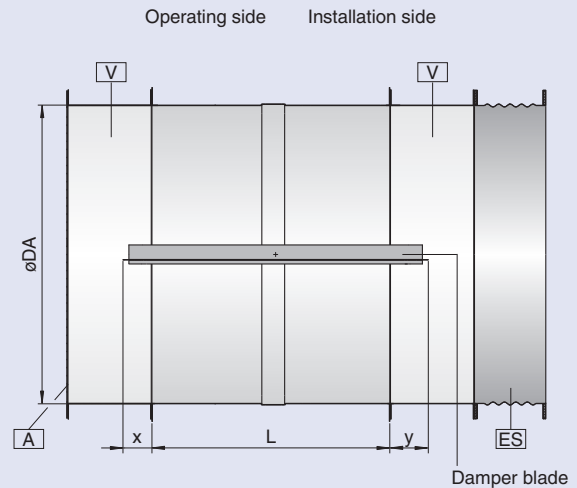
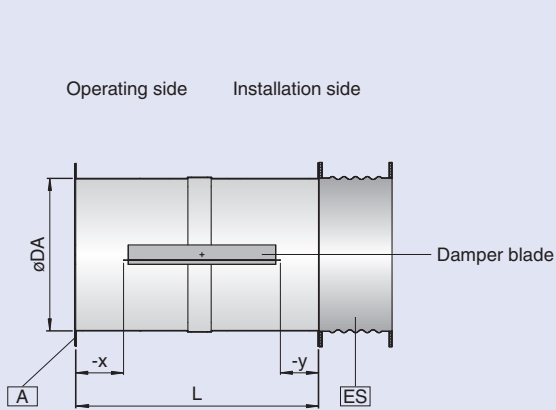
## FKR-01-K90

Dimensions in mm													
Nominal size	200	224	250	280	315	355	400	450	500	560	630	710	
x									-31	-7	23	61	100
y													
L = 375	-11	2	15	30	47	67	89	114	139	168	206	245	
L = 500								-36	-11	14	43	81	120

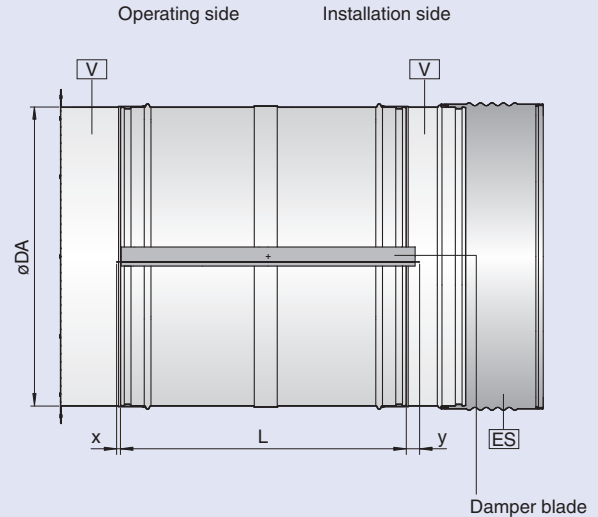
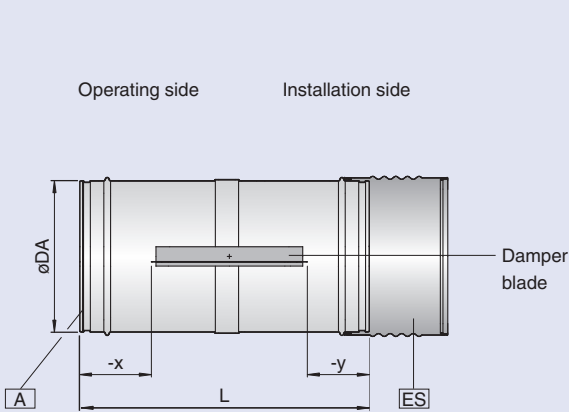
## FKR-02-K90

Dimensions in mm												
Nominal size	200	224	250	280	315	355	400	450	500	560	630	710
x										-27	11	50
y												
L = 470		-44	-31	-16	2	22	44	69	94	123	161	200
L = 600									-37	-7	31	70

## FKR-01-K90



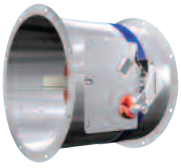
## FKR-02-K90



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

# Accessories - limit switch

## FKR-01-K90 · FKR-02-K90 with fusible link



Limit switches with potential-free contacts enable the damper blade position indication. Within the range of the switch rating, relays or indication 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 plug-in limit switches or they can be installed later.

Accessories	Order code
Limit switch damper blade position "CLOSED"	Z01
Limit switch damper blade position "OPEN"	Z02
Limit switch damper blade position "CLOSED" and "OPEN"	Z03

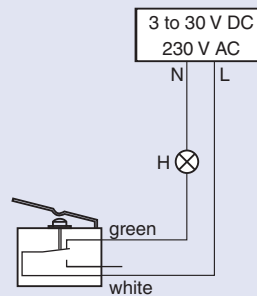
Limit switch	
Connecting cable length / cross section	1 m / 3 x 0.34 mm <sup>2</sup>
Protection level	IP 66
Type of contact	1 change-over contact, galv. gold-plated
Max. switching current	0.5 A
Max. switching voltage	30 V DC, 250 V AC
Contact resistance	approx. 30 mΩ

### Limit switch

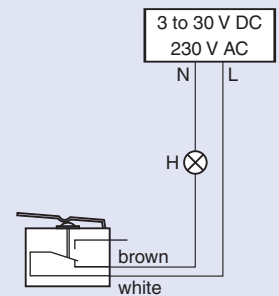


### Wiring Examples

Limit switch not actuated



Limit switch actuated



H: Indicator light or relay, supplied by others

### FKR-01-K90 · FKR-02-K90 in OPEN position



Damper blade position indicator	Limit switch
OPEN	actuated
CLOSED	non-actuated

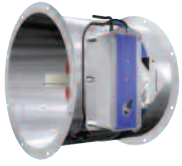
### FKR-01-K90 · FKR-02-K90 in CLOSED position



Damper blade position indicator	Limit switch
OPEN	non-actuated
CLOSED	actuated

# Accessories - spring return actuator

## FKR-01-K90 · FKR-02-K90 with spring return actuator



Operation of the fire damper with a spring return actuator allows remote control and/or release by a 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.

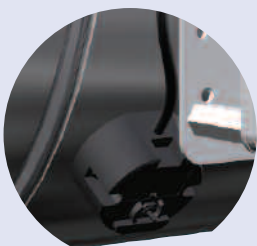
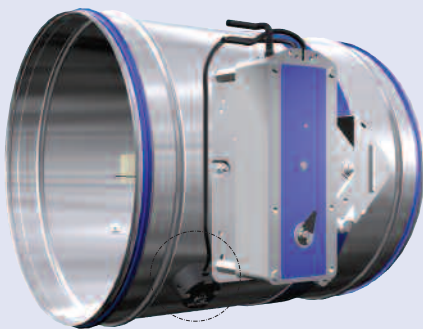
Two limit switches are integrated into the actuator. The connecting cables of the BF24-T-ST TR are fitted with plugs. The connection to the TROX AS-i bus system can be quickly made.

A conversion kit is available for adding an actuator.

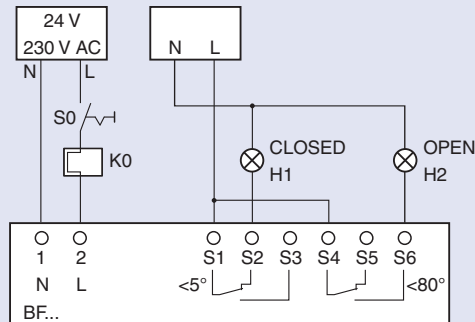
Accessories	Order code
BF230-T TR	Z43
BF24-T-ST TR	Z45

Spring return actuator type BF		230-T TR	24-T-ST TR
Supply voltage		230 V AC $\pm 14\%$ 50/60 Hz	24 V AC $\pm 20\%$ 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
Run time	motor / spring return	approx. 140 s / approx. 16 s	
Limit switch	Type of contact	2 change-over contacts	
	Max. switching voltage	30 V DC / 250 V AC	
	Max. switching current	3 A at DC / 6 A at AC	
	Contact resistance	< 100 m $\Omega$	
IEC protection class		II	III
Protection level		IP54	
Connecting cable Length / Cross section		1 m / 2 x 0.75 mm	

### Spring return actuator



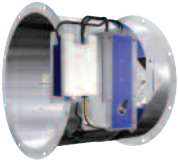
### Wiring example



- S0 Switch for opening and closing, supplied by others
- K0 Optional release mechanism, e.g. TROX smoke detector Type RM-O-3-D or RM-O-VS-D
- H1, H2 Indicator light, supplied by others

# Accessories - TROXNETCOM

## FKR-01-K90 · FKR-02-K90 with spring return actuator and TROXNETCOM



The fire dampers with spring return actuator BF24-T-ST TR and the modules shown here as attached accessories form a function 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) are to be connected by the customer.

The AS interface is a world-standard bus system according to EN 50295 and IEC 62026-2.

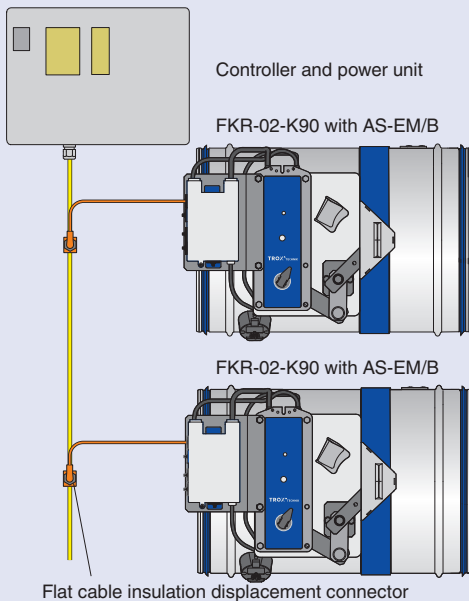
It enables the integration of different components (modules) in a network regardless of the manufacturer and the design. The modules control actuators and/or receive signals from sensors.

Accessories	Order code
AS-EM/B and BF24-T-ST TR	ZA03

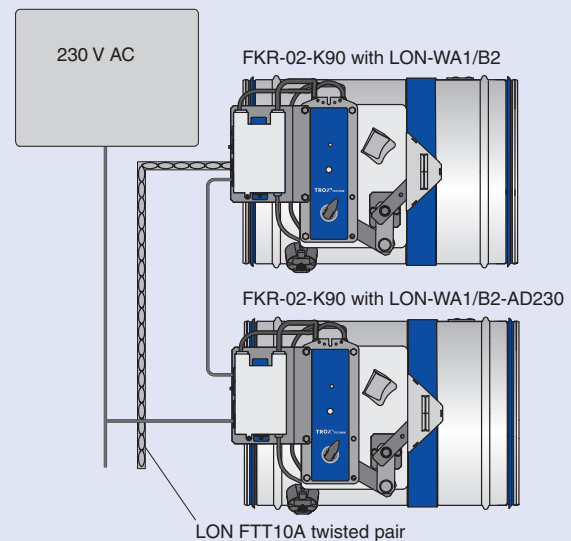
Accessories	Order code
LON-WA1/B2 and BF24-T-ST TR	ZL06
LON-WA1/B2-AD and BF24-T-ST TR	ZL07
LON-WA1/B2-AD230 and BF24-T-ST TR	ZL08

LON and LONMARK are a standardised local operating network system with manufacturer-independent communications. Data is transferred by a microprocessor supplied by Echelon Corporation using a unified protocol. Standards are defined in accordance with LONMARK to ensure that products are compatible.

### 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 run 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**  
For the control of 1 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

Further information can be found on our website.

# Technical selection data

## Nomenclature

$v_A$  in m/s : Air velocity based on nominal size  
 $\Delta p$  in Pa : Total pressure differential (duct installation) based on nominal size =

$$\zeta \cdot \frac{\rho}{2} \cdot v_A^2$$

$\zeta$  : Resistance coefficient (fully ducted)  
 $\rho$  in kg/m<sup>3</sup> : Air density (approx. 1.2 at 20°C)  
 $L_{WA}$  in dB(A) : Sound power level of the air-regenerated noise in the duct  
 $L_{WNC}$  : NC rating of the sound power level  
 $L_W$  in dB : Octave band sound power level  
 $f_m$  in Hz : Octave band centre frequency

– Using  $v_A$  in the table:

$\Delta p, L_{WA}, L_{WNC}, L_W$  can be determined

– for intermediate values of  $v_A$ :

$$\Delta p = \zeta \cdot \frac{\rho}{2} \cdot v_A^2$$

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

## Example

Given: Fire damper FKR-02-K90  
 Nominal size = 400,  $v_A = 6$  m/s

Required:  $\Delta p, L_{WA}, L_{WNC}, L_W$

Result:  $\Delta p = 8$  Pa  
 $L_{WA} = 38$  dB(A)  
 $L_{WNC} = 33$

All sound power levels are based on 1 pW.

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

$L_W$ in dB	$f_m$ in Hz							
	63	125	250	500	1000	2000	4000	8000
	48	39	37	34	34	31	22	12

Nominal size	$\zeta$	$v_A$ in m/s	$\Delta p$ in Pa	$L_{WA}$ in dB(A)	$L_{WNC}$	$f_m$ in Hz							
						63	125	250	500	1000	2000	4000	8000
						$L_W$ in dB							
200	1.16	6	25	41	36	53	42	39	38	37	33	28	18
		8	44	49	44	59	49	46	45	45	42	39	30
		10	69	56	50	63	55	50	50	51	49	48	40
		15	156	68	64	72	64	59	60	62	61	62	58
224	0.91	6	20	41	35	52	41	37	36	37	34	28	17
		8	35	49	43	58	48	44	43	45	43	39	30
		10	55	56	50	62	53	48	48	51	50	47	40
		15	123	68	63	70	63	57	58	62	61	62	58
250	0.74	6	16	39	34	51	40	36	34	35	32	25	16
		8	29	48	42	57	47	42	41	43	41	36	29
		10	45	54	49	61	52	47	47	50	48	44	39
		15	100	66	61	69	62	56	56	61	60	59	57
280	0.61	6	13	38	33	50	39	35	33	34	31	22	15
		8	23	46	41	56	46	42	40	42	40	34	28
		10	37	53	48	60	51	46	46	49	47	42	38
		15	82	65	60	69	61	55	55	60	59	57	56
315	0.5	6	11	37	32	49	39	35	33	33	30	20	14
		8	19	46	41	55	46	41	40	42	39	32	27
		10	30	52	47	60	51	46	45	48	47	41	37
		15	68	64	59	68	61	55	55	59	59	56	55
355	0.42	6	9	38	32	48	39	36	33	34	31	21	13
		8	16	47	41	54	46	42	41	42	41	33	26
		10	25	53	48	59	51	47	46	49	48	42	36
		15	56	66	60	67	61	56	56	60	60	57	54
400	0.35	6	8	38	33	48	39	37	34	34	31	22	12
		8	13	47	42	54	46	43	42	43	42	34	26
		10	21	54	49	58	51	48	47	50	49	43	36
		15	47	67	62	66	61	57	57	61	61	59	54
450	0.3	6	6	39	33	47	39	38	35	35	31	22	11
		8	11	48	42	53	46	45	43	44	42	35	25
		10	18	55	50	58	51	50	49	50	49	44	35
		15	40	67	62	66	61	58	59	62	62	60	53
500	0.26	6	6	39	33	47	39	39	36	35	31	22	11
		8	10	49	43	53	46	46	44	44	42	35	24
		10	15	56	50	57	52	51	50	51	50	45	34
		15	35	68	63	65	61	60	60	62	63	61	53
560	0.22	6	5	39	32	47	39	40	36	33	29	18	<10
		8	8	48	42	53	46	47	45	43	40	33	22
		10	13	54	49	57	52	52	50	50	48	42	33
		15	30	67	61	65	62	61	61	61	61	58	51
630	0.19	6	4	38	32	47	40	42	37	32	26	15	<10
		8	7	47	41	52	47	49	45	42	38	30	21
		10	11	54	48	57	52	54	51	49	46	40	31
		15	26	66	60	65	62	63	61	61	59	56	50
710	0.17	6	4	37	31	47	40	43	36	28	19	<10	<10
		8	6	46	40	53	47	50	44	38	32	22	18
		10	10	52	46	57	53	55	50	46	40	33	28
		15	22	63	57	65	62	64	61	58	54	49	47

# Installation details

Solid walls, ceiling slabs and gypsum wallboards

Installation of the fire damper is approved only in solid walls and ceiling slabs and also in gypsum wallboards with perimeter mortar in fill (wet installation).

Installation orientation and air flow direction are not critical.

In general note that:

- Minimum wall thickness: 100 mm concrete, aerated concrete, lightweight concrete or gypsum wallboards or 115 mm brickwork
- Minimum ceiling slab thickness: 100 mm concrete
- If the wall or ceiling is thicker than 115 mm, casing length  $L = 500$  or  $600$  mm should be installed to simplify the connection to the duct.
- Minimum distance between two fire dampers: 150 mm

**Rigid ducts must be connected with a flexible connector when installed in gypsum wallboards to DIN 18163.**

## Mortar based installation

An opening or a cut hole with a minimum nominal size + 120 mm is required for installation of the fire damper in the wall or ceiling slab.

As an alternative the fire damper is concreted into the wall or ceiling slab during construction.

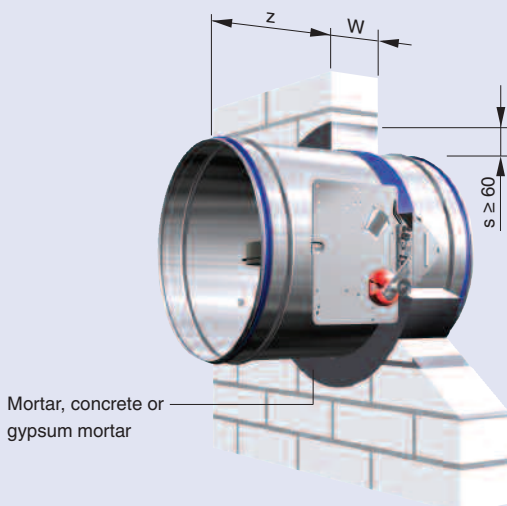
The perimeter gap "s" must be completely sealed with mortar. The mortar bed depth must not be less than 100 mm. Mortar that conforms to DIN 1053, Groups II or III, concrete or gypsum mortar are approved for use.

### Distance z in mm

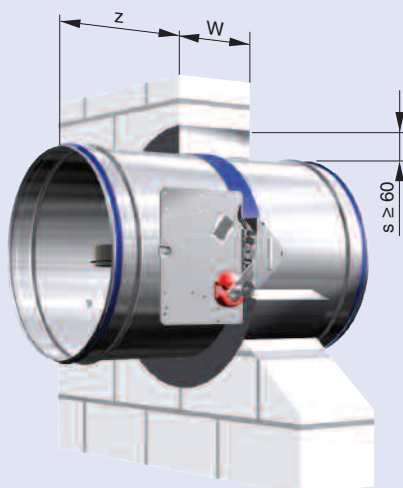
FKR-01-K90	230
FKR-02-K90	280

### Wall installation

W: 100 to 115 mm

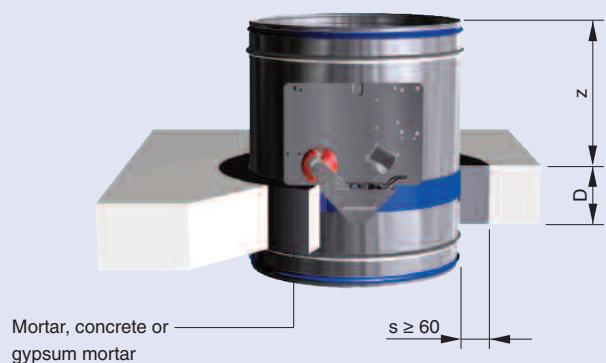


W > 115 mm



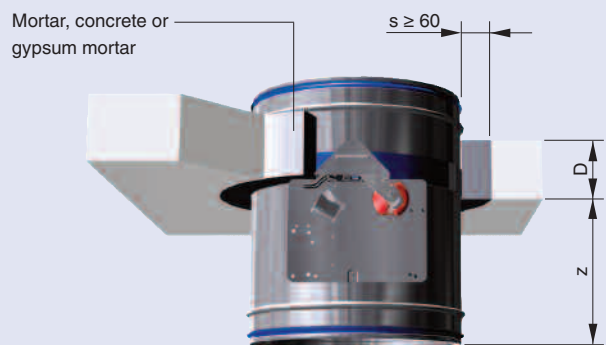
### Ceiling slab installation, upright

D ≥ 100 mm



### Ceiling slab installation, suspended

D ≥ 100 mm



# Order Details

## Specification text \*

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

Ready-for-operation unit contains a fire-resistant damper blade and a release mechanism. Fire resistance class: K90. Tested for fire resistance properties according to DIN 4102, with general building inspectorate licence Z-41.3-322 of the "Deutsches Institut für Bautechnik", Berlin.

For mortar based installation in solid walls, ceilings and gypsum wallboards.

Special characteristics:

- Tested for fire resistance according to DIN 4102
- Casing air leakage complies with EN 1751, Class B
- Large free cross sectional area, therefore low differential pressure
- Integration into the centralised building management system (BMS) with TROXNETCOM

System pressure range 20 to 2000 Pa.

Fire damper model with:

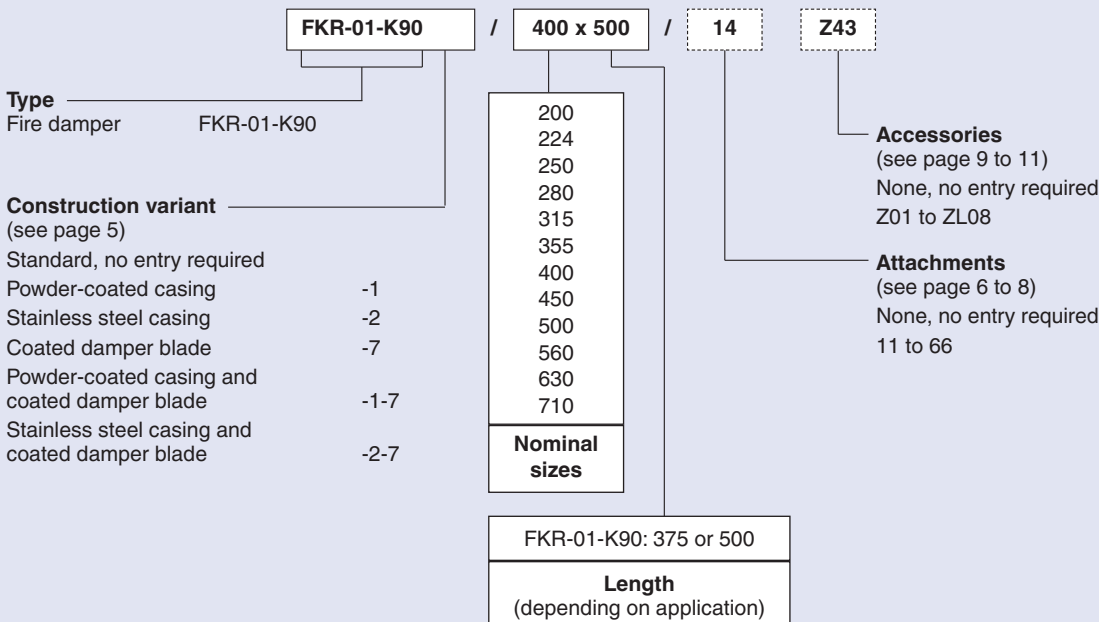
Spring return actuator with thermoelectric release mechanism. Two limit switches integrated into actuator for damper blade position indication "OPEN" and "CLOSED".

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

\* Text for a FKR-01-K90 with fusible link

Text for construction variants, attachments and accessories see design programme or our home page

## Order code FKR-01-K90



## Order example FKR-01-K90 with fusible link

Make: TROX  
Type: FKR-01-K90 / 400 x 375

## Order example FKR-01-K90, powder-coated, operating side flexible connector and spring return actuator 230 V AC

Make: TROX  
Type: FKR-01-K90-1 / 400 x 500 / 14 / Z43

## Specification text \*

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

Ready-for-operation unit contains a fire-resistant damper blade and a release mechanism. Fire resistance class: K90. Tested for fire resistance properties according to DIN 4102, with general building inspectorate licence Z-41.3-322 of the "Deutsches Institut für Bautechnik", Berlin.

For mortar based installation in solid walls, ceilings and gypsum wallboards.

Special characteristics:

- Tested for fire resistance according to DIN 4102
- Casing air leakage complies with EN 1751, Class B
- Large free cross sectional area, therefore low differential pressure
- Integration into the centralised building management system (BMS) with TROXNETCOM

System pressure range 20 to 2000 Pa

Spigot connections on both ends with lip seal suitable for standard circular ventilation ducts to EN 1506 or EN 13180 plus non-standardised nominal sizes 224 and 280.

Fire damper model with:

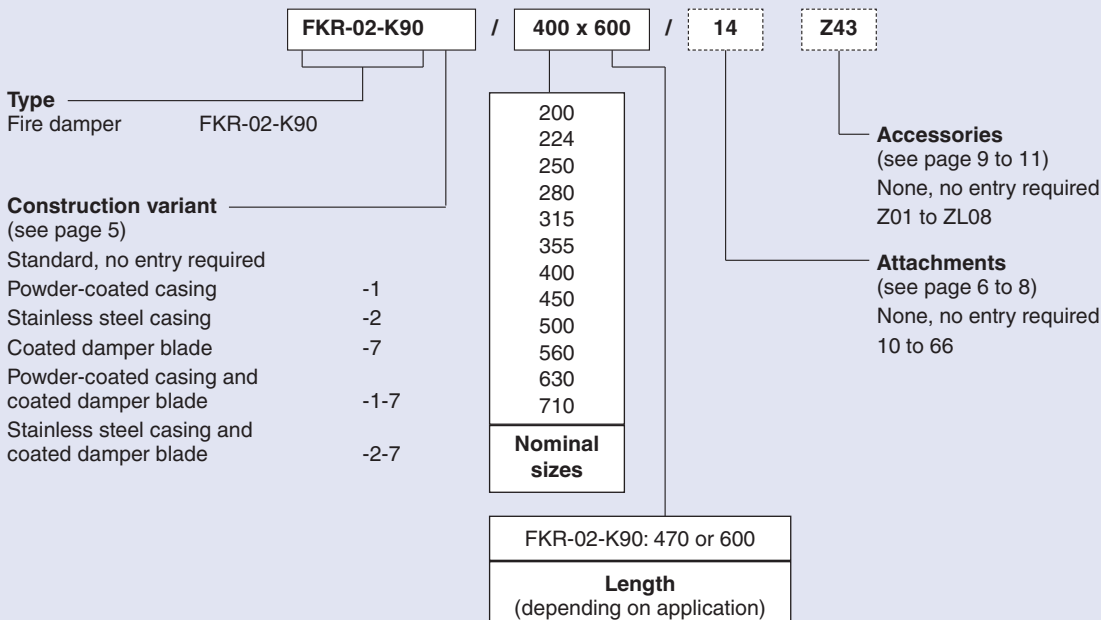
Spring return actuator with thermoelectric release mechanism. Two limit switches integrated into actuator for damper blade position indication "OPEN" and "CLOSED".

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

\* Text for a FKR-02-K90 with fusible link

Text for construction variants, attachments and accessories see design programme or our home page

## Order code FKR-02-K90



## Order example FKR-02-K90 with fusible link

Make: TROX  
Type: FKR-02-K90 / 400 x 470

## Order example FKR-02-K90, powder-coated, operating side flexible connector and spring return actuator 230 V AC

Make: TROX  
Type: FKR-02-K90-1 / 400 x 600 / 14 / Z43



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