

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

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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

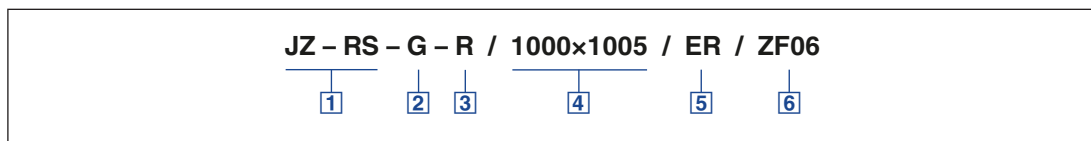


Schematic illustration of JZ-RS with installation subframe



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
ZF10 24 V AC / DC with control actuator

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



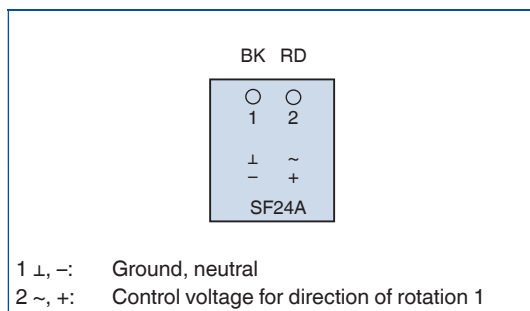
Actuator SF24A

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



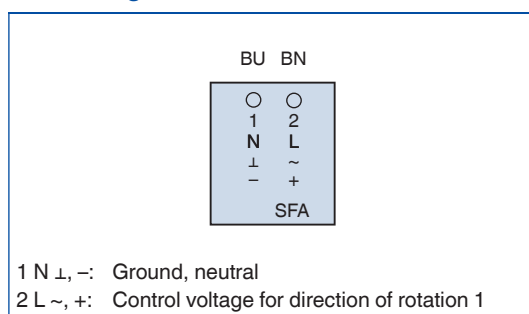
Actuator SFA

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

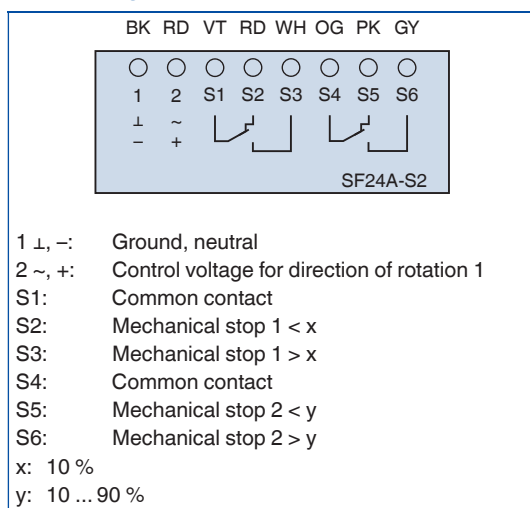
Actuator SF24A-S2

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

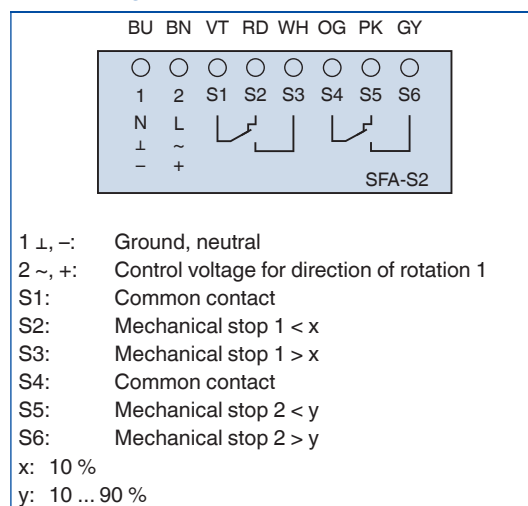
Spring return actuator SFA-S2

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

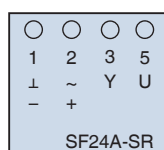
Actuator SF24A-SR

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 ⊥, –: 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

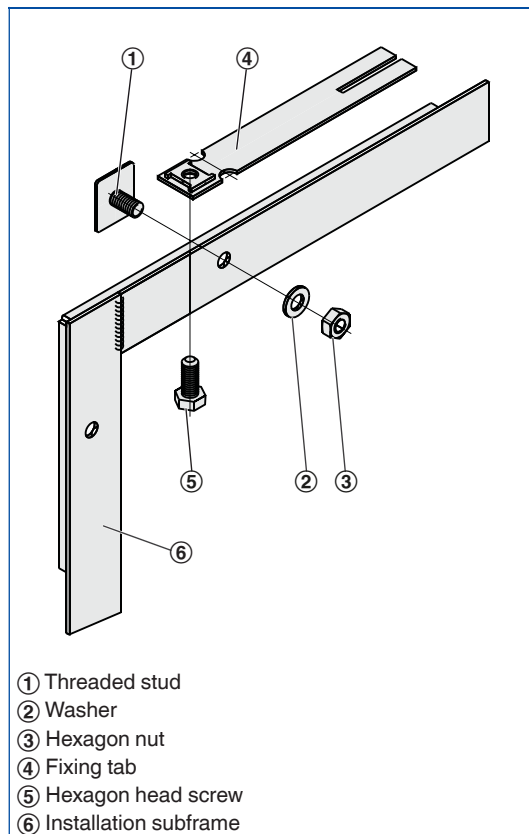
- Installation subframe consisting of angle sections
- Threaded studs
- Washers
- Hexagon nuts
- Fixing tabs

Materials and surfaces

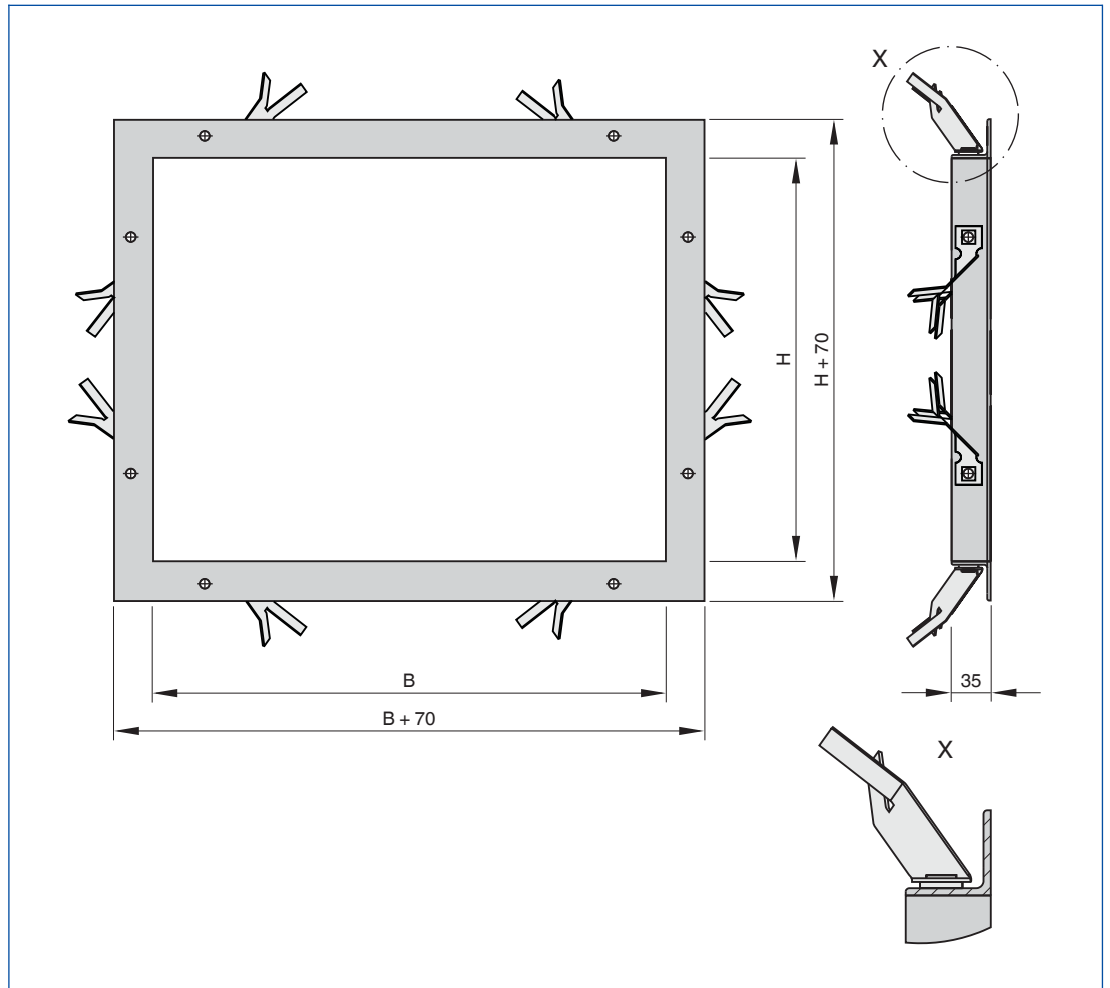
JZ-RS

- 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

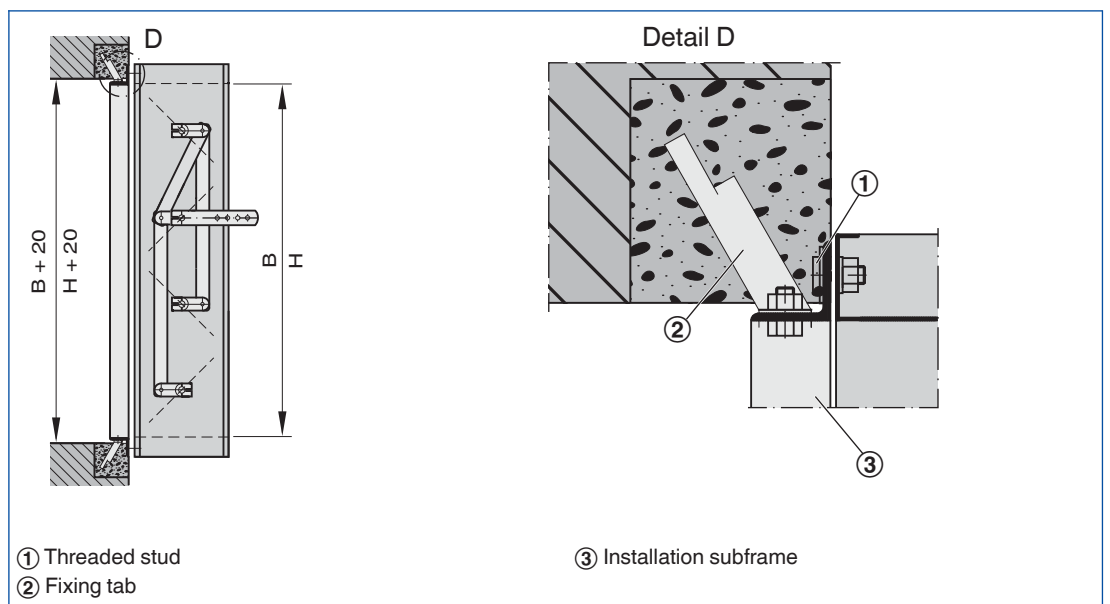


Installation subframe ready to be mortared in

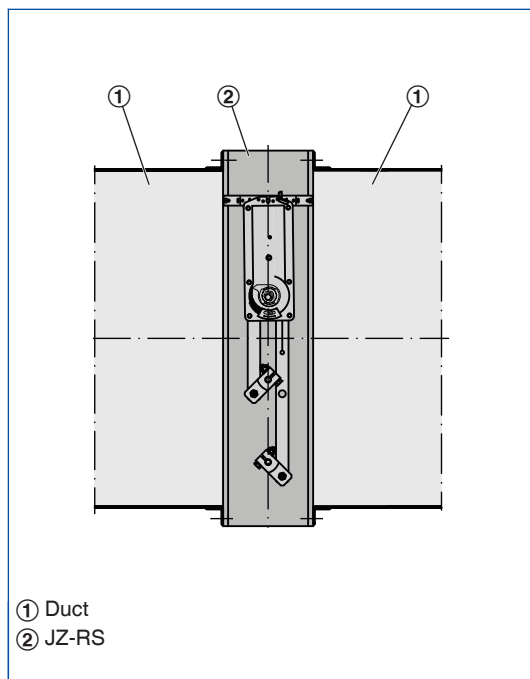


Before the subframe is mortared in, the fixing tabs must be bent and spread (by others).

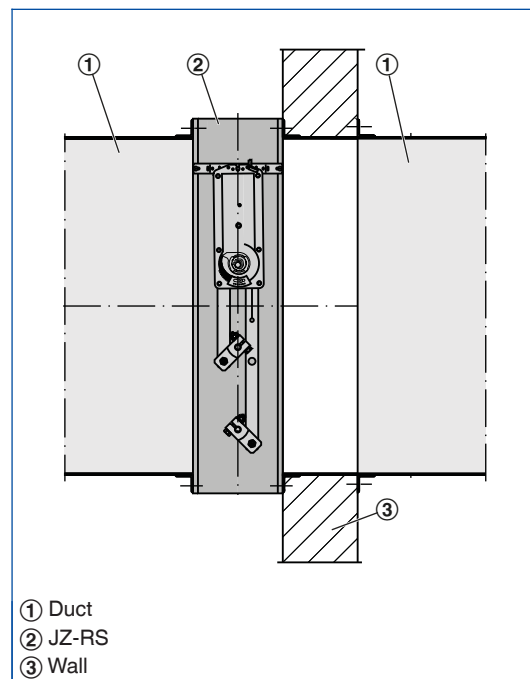
Installation subframe for JZ-RS



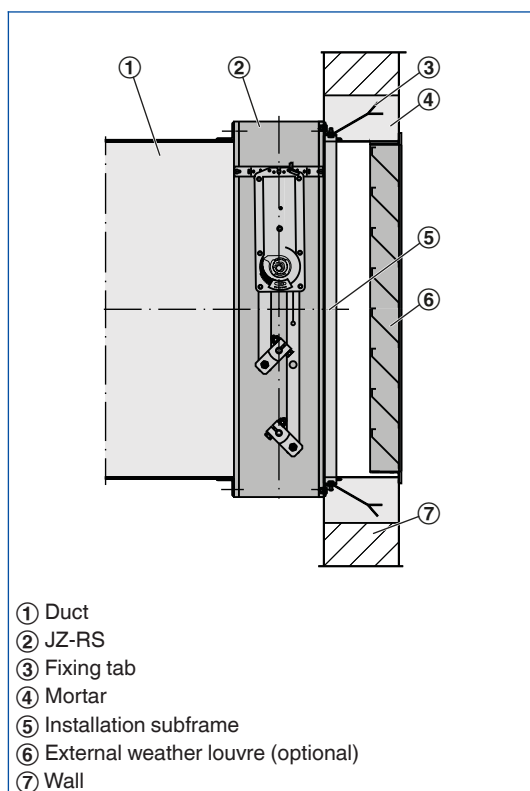
Installation in non-combustible ducts



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

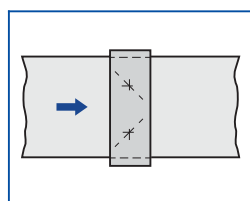
v	Damper blade position α									
	OPEN/0°		20°		40°		60°		80°	
	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}	Δp_{st}	L_{WA}
m/s	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)
0.5	<5	<30	<5	<30	<5	<30	22	44	255	67
1	<5	<30	<5	<30	8	38	85	59	1010	82
2	<5	31	<5	35	28	53	335	74	>2000	>90
4	<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

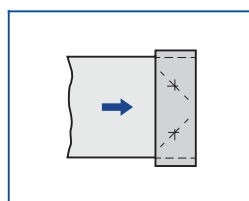
Installation types

Installation type A



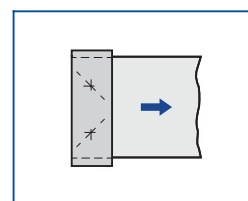
Ducts on both sides

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

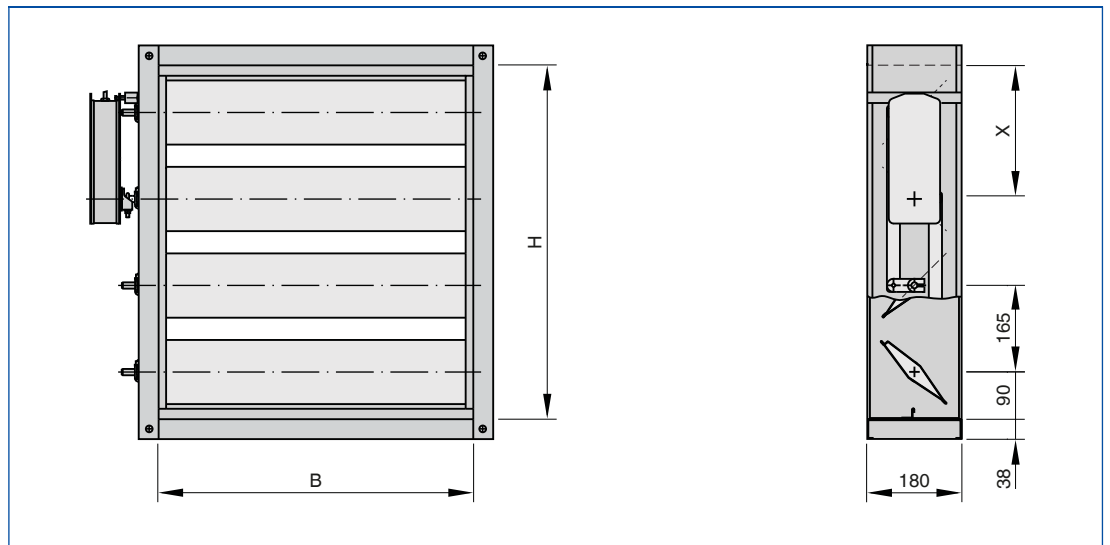


Illustration shows smoke protection damper with spring return actuator, operating side on the right

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

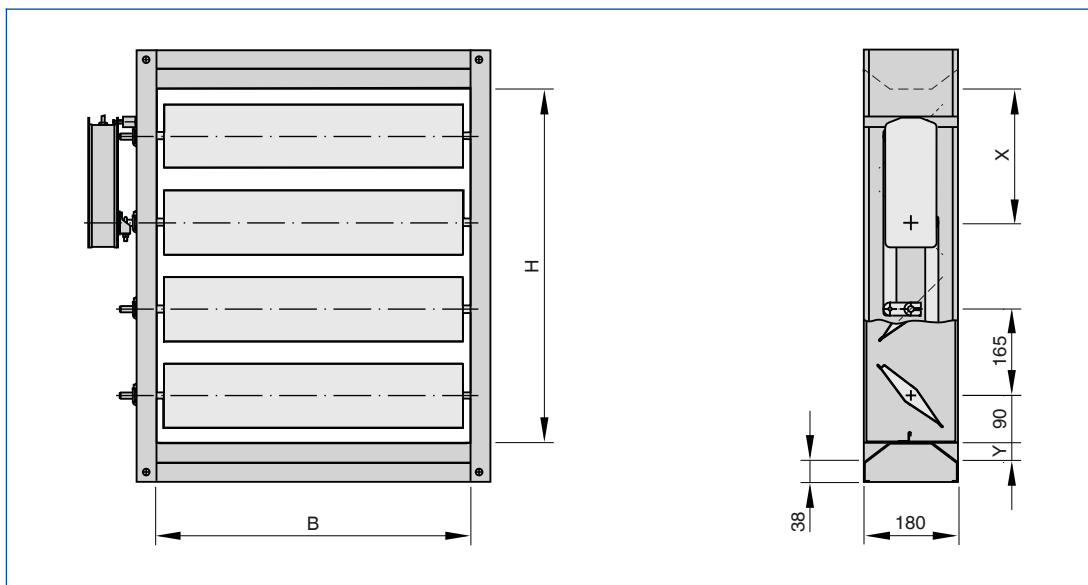


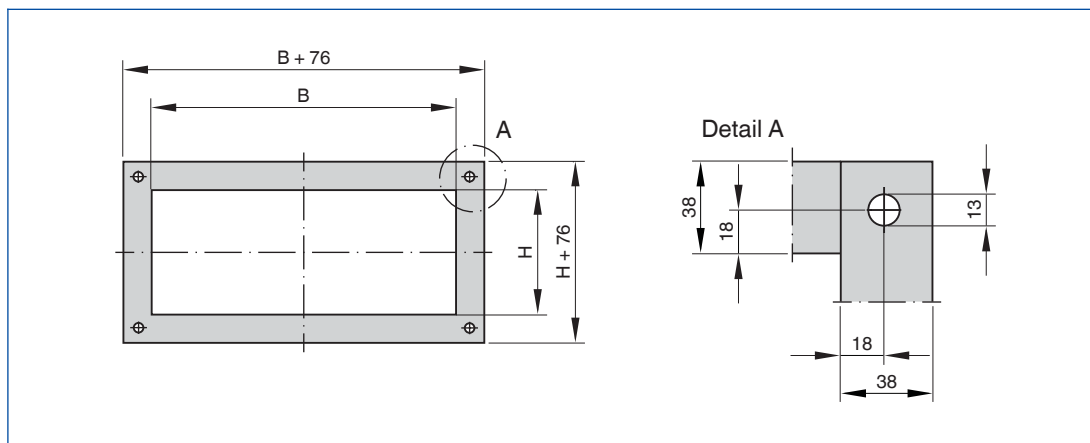
Illustration shows smoke protection damper with spring return actuator, operating side on the right

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

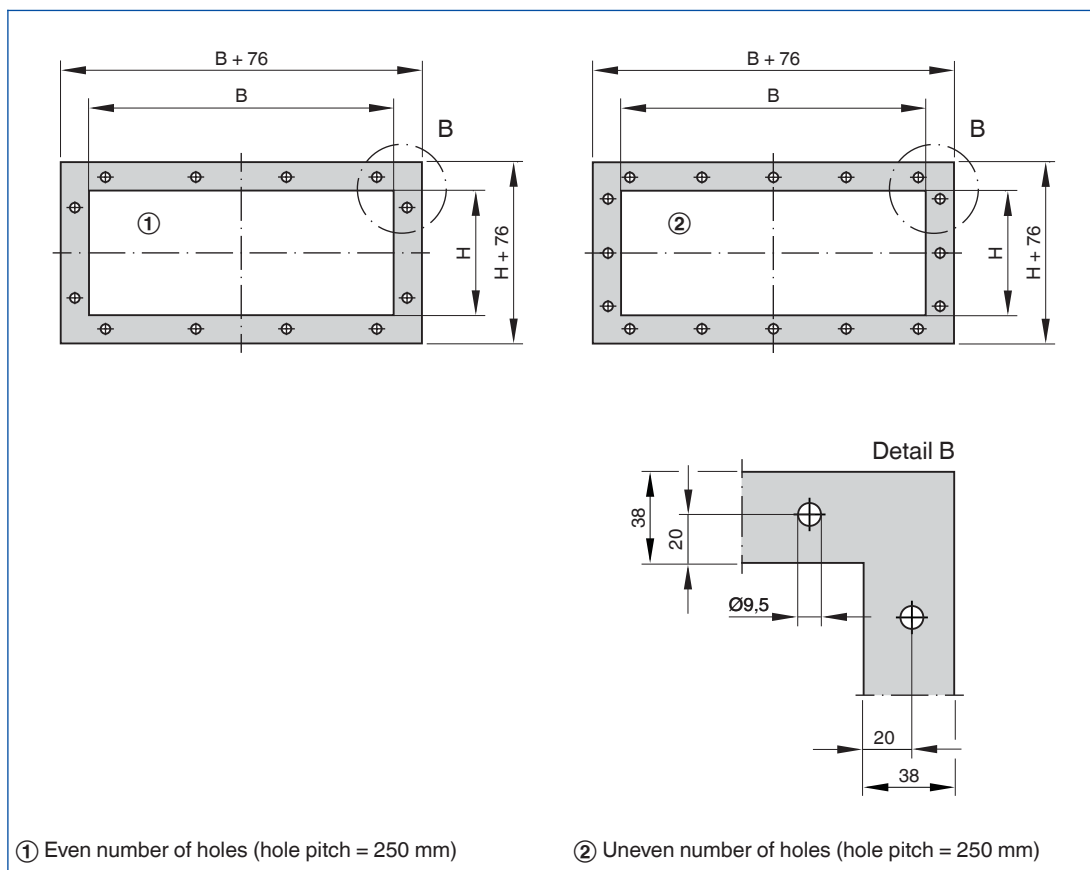
Smoke protection dampers – corner holes



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