TROX® TECHNIK
The art of handling air

EK-JZ SMOKE CONTROL DAMPER

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SMOKE CONTROL DAMPER EK2-EU

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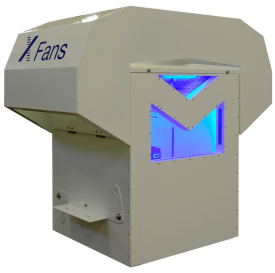


BVDAX FOR SMOKE EXTRACT IN COMBINATION WITH A FREQUENCY INVERTER

BVDAX for smoke extract, CE-certified according to EN12101-3

temperature category F400

With TROXNETCOM as an option

CE compliant according to European regulations

EK-JS

FOR MECHANICAL SMOKE EXTRACT SYSTEMS, SMOKE CONTROL DAMPER FOR INDIVIDUAL SECTIONS

Rectangular sheet steel smoke control damper including ventilation function for the removal of smoke and heat in smoke extract systems, as well as for the controlled flow of the necessary supply air. Suitable as a support for keeping safety rooms and their anterooms smoke-free in pressurised ventilation systems (DBA), e.g., in fire brigade lift shafts or for smoke removal in escape tunnels.

- Can be used in discharge environments with elevated temperatures of up to 600 °C at tested smoke extract ducts and sheet steel ducts
- Meets pressure level 3 with any airflow direction and automatic release (AA)
- Nominal sizes 100 × 100 – 1250 × 2560 mm
- Volume flow rate of 360 m³/h or 100 l/s – 115110 m³/h or 31975 l/s at 10 m/s
- Design in sheet steel (also powder-coated according to RAL-CLASSIC chart) or stainless steel sheet in A4 quality
- According to EN 1751: Leakage air flow with closed damper at least class 2 and casing leakage air flow class B, from nominal sizes 840 × 480 leakage air flow with closed damper 3 and casing leakage air flow class C
- Integration into the central BMS with TROXNETCOM or with interface modules such as those in SLC® technology
- C_{mod} for smoke extraction with ventilation function and control characteristics in combined systems (combination damper) and therefore pneumatic balancing possible via travel to intermediate positions

General information

Application

- Smoke control damper with CE marking and declaration of performance for the dissipation of smoke and heat in smoke control systems with mechanical smoke control devices
- Use in pressurised ventilation systems (DBA) with ventilation function, but also for outside air supply (afterflow)
- Integration into the central BMS with TROXNETCOM or other standard bus systems possible

Classification

E_{600} 120 (v_{ed} h_{od} i↔o) S 1500 C_{mod} AA Single

Nominal sizes

- 100 × 100 to 1250 × 2560 mm
- Casing length L = 200 mm

Parts and characteristics

- For increased temperatures up to 600 °C

- Permitted for automatic release AA
- Smoke control damper with ventilation function
- Adjustable discharge and afterflow volumes
- Pressure level 3 (operating pressure -1500/+500 Pa)

Attachments

- Cover grille: Expanded metal mesh
- OPEN/CLOSE actuators with 24 V AC/DC or 230 V AC supply voltage
- Constantly regulating actuators with 24 V AC/DC
- Network modules for integration with AS-i networks
- Network modules for other standard bus systems, such as the required SLC® technology

Optional products

TROXNETCOM

- X-FANS control unit for extract air and smoke extract control

TROX-X FANS smoke exhaust fans from the X-FANS subassembly

- Smoke exhaust fan for roof installation BVDAX/BVD
- Smoke exhaust fan for wall installation BVW/BVWAXN
- Smoke exhaust centrifugal fan BVREH/BVRA
- Smoke exhaust jet fans BVGAX/BVGAXN

All smoke exhaust fans are tested to EN 12101-3, for F200/F300/F400 and F600, depending on the type. With CE marking, declaration of performance and application approval for the German market. Speed adjustment for smoke exhaust fans

- X-FANS control, certified frequency inverter unit
- Safe and precise speed adjustment of smoke exhaust fans both in single-zone and in multi-zone systems.

Construction features

- Rectangular construction
- Opposite opening and closing of the damper blade field
- The smoke control damper is driven by a reversible OPEN/CLOSED actuator or a continuously regulating actuator with 0 - 10 V control voltage
- Suitable for the connection of cover grilles
- Suitable for front and rear connection of sheet steel cables

Material and surfaces

- Casing, damper blade, mechanics optionally galvanised steel or stainless steel in A4 quality
- Surfaces can be finished in colours according to RAL chart
- Bearings are DU-coated
- Seals made of glass fabric and high-temperature sealing tape (HT sealing tape)

Standards and guidelines

- Construction Products Regulation
- EN 12101-8 Smoke and heat control systems – Smoke control dampers
- EN 1366-10 Fire resistance tests for service installations – Smoke control dampers
- EN 13501-4 Fire classification of construction products and building elements using data from fire resistance tests
- EN 1751 Ventilation for buildings – Air terminal devices

Maintenance

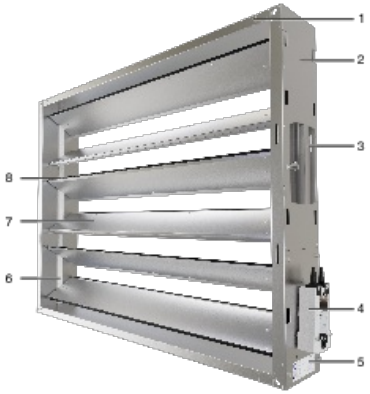
Smoke control dampers must be operational at all times and must be maintained regularly so that they meet the performance requirements.

- Maintenance is required at least every 6 months
- A maintenance report must be created; documents must be kept for reference
- The functional reliability of the smoke control damper must be tested at least every six months; this has to be arranged by the owner of the smoke extract system; functional tests must be carried out in compliance with the basic maintenance principles stated in EN 13306 and DIN 31051. If two consecutive tests, one 6 months after the other, are successful, the next test of the smoke control damper can be conducted one year later.
- Depending on where dampers are installed, country-specific regulations may apply.
- For details on maintenance and inspection, refer to the installation and operating manual.

TECHNICKÉ ÚDAJE

Type EK-JS smoke control dampers are tested according to EN12101-8 and EN 1366-10. In rectangular steel and stainless steel construction. Intended for the discharge of smoke and heat in smoke extract systems and for the flow of necessary supply air into the area from which smoke is to be extracted. EK-JS is intended for use in pressurised ventilation systems (DBA) in order to keep safety stairwells and their anterooms and fire brigade lift shafts or escape tunnels smoke-free. They thus enable the controlled discharge of released smoke. EK-JS is intended for use in single sections and may be used at elevated operating temperatures of up to 600 °C on and in horizontally and vertically aligned smoke extract ducts according to EN 12101-7, tested according to EN 1366-9. EK-JS can be used in combined systems (combination damper) for ventilation and is suitable for restricting extract air volume flows. The OPEN-CLOSE actuators can be signalled either with ready-wired actuator control modules or with bus modules.

Schematic illustration



1 Casing
2 Linkage cover (cut open)
3 Drive linkage
4 Actuator
5 Rating plate
6 Side seal
7 Damper blades
8 Damper blade profiled seal

Nominal sizes B × H	100 × 100 – 1250 × 2560 mm
Casing length	200 mm
Volume flow rate range at 10 m/s	From 360 m³/h to 115110 m³/h or from 100 l/s to 31975 l/s
Differential pressure range	Pressure level 3: -1500 to 500 Pa
Operating temperature	30 °C – 50 °C without temperatures below the dew point
Upstream velocity with same upstream and downstream flow	• ≤ 12 m/s • ≤ 20 m/s For dimensions, see motor allocation matrix (technical clarification with TROX required for some sizes)
Closed damper blade air leakage	EN 1751, at least class 2, from nominal width 840 × 480 class 3
Casing leakage	EN 1751, class B, from nominal width 840 × 480 class C
EC conformity	• EU Construction Products Regulation No. 305/2011 • EN 12101-8: Smoke and heat control systems – Part 8: Smoke control dampers • EN 1366-10: Fire resistance tests for service installations – Part 10: Smoke control dampers • EN 13501-4: Fire classification of construction products and building elements – Part 4: Fire resistance tests on components of smoke control • EN 1751: Ventilation for buildings – Air terminal devices
Declaration of performance	DoP/EK-JS/001

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Specification text

Type EK-JS smoke control dampers are tested according to EN12101-8 and EN 1366-10. In rectangular steel and stainless steel construction. Intended for the discharge of smoke and heat in smoke extract systems and for the flow of necessary supply air into the area from which smoke is to be extracted. EK-JS is intended for use in pressurised ventilation systems (DBA) in order to keep safety stairwells and their anterooms and fire brigade lift shafts or escape tunnels smoke-free. They thus enable the controlled discharge of released smoke. EK-JS is intended for use in single sections and may be used at elevated operating temperatures of up to 600 °C on and in horizontally and vertically aligned smoke extract ducts according to EN 12101-7, tested according to EN 1366-9. EK-JS can be used in combined systems (combination damper) for ventilation and is suitable for restricting extract air volume flows. The OPEN-CLOSE actuators can be signalled either with ready-wired actuator control modules or with bus modules.

Materials and surfaces

- Casing, damper blades and mechanics: optionally galvanised steel or stainless steel
- Optional powder-coated casing and damper blades in standard RAL colour 7030 or according to RAL chart
- Plain bearing: Coated steel
- Grille attachment: Galvanised sheet steel, powder-coated
- Seals made of glass fabric and high-temperature sealing tape

Technical data

Exemplary for a nominal smoke control damper width of 1250 × 960 related to the mean airflow velocities v = 5 m/s

ΔP_t = 3.5 Pa

LWA = 40 dB(A)

A_{free} = 1.095 m²

A_{geo} = 1.2 m²

q_v = 21600 m³/h

Standards and guidelines

- Product standard EN 12101-8
- Classification according to EN 13501-4
- Tested according to EN 1366-10 (for pressure level 3: up to 1500 Pa negative pressure)
- Determination of air leakage with closed damper field according to EN 1751, at least class 2, from nominal width 840 × 480 class 3
- Casing leakage to EN 1751, class B, from nominal width 840 × 480 class C

Classification

E_{600} 120 (v_{ed} h_{od} i↔o) S 1500 C_{mod} AA Single

Nominal sizes

Dimensions B × H: 100 × 100 – 1250 × 2560 [mm]

Casing length L = 200 mm

Accessories

- HT sealing tape
- Suspension bracket for horizontal damper alignment

Attachments

- Cover grille: Expanded metal mesh
- OPEN/CLOSE actuators with 24 V AC/DC or 230 V AC supply voltage
- Constantly regulating actuators with 24 V AC/DC
- Network modules for integration with AS-i networks
- Network modules for other standard bus systems, such as the required SLC® technology

Equivalence criteria

- Large discharge openings up to 3.2 m² with only one actuator
- For increased temperatures up to 600 °C
- Operating pressure -1500/+500 Pa (pressure level 3)
- C_{mod} for the smoke extract and ventilation function with control characteristics across all nominal sizes, control range 30 - 90° damper blade position
- Automatic release (AA) also with TROXNETCOM or network modules for other standard bus systems, for e.g., required SLC® technology

- Any upstream airflow direction
- In galvanised construction with or without powder coating and in stainless steel construction

Life cycle assessment
A life cycle assessment is available for the product series in form of an Environmental Product Declaration (EPD) that has been checked and published by a programme holder.

EK-JS	–	2	/	DE	/	600 × 800	/	17	/	K0	/	B24A	/	P1 – RAL...	/	P2 – RAL...
1		2		3		4		5		6		7		8		9

1 Type
EK-JS Smoke control damper

2 Construction
No entry: galvanised steel (standard)
2 Stainless steel
3 Country of destination
DE Germany
CH Switzerland
AT Austria
PL Poland
Other destination countries upon request

4 Nominal size [mm]
Width 100 – 1250 mm in increments of 5 mm combined with height 100, 125, 150 or 165 mm
Width 180 – 1250 mm in increments of 5 mm combined with height 320 – 2560 mm in increments of 160 mm

5 Accessories
No entry: no accessories (standard)
17 HT sealing tape (15 mm)
18 Suspension brackets for horizontal damper
19 Suspension brackets for horizontal damper and HT sealing tape (15 mm)

6 Attachments 1
No entry: without attachment (standard)
K Expanded metal grille, 14 × 16, galvanised steel
0 No attachment on the operating or installation side

The 1st character refers to the operating side (0, K)
The 2nd character refers to the installation side (0, K)
Any combination is possible

7 Attachments 2
<u>Actuator</u>
B24 Actuator 24 V AC/DC
B24SR[1] Actuator B24 (modulating, ventilation function G_{mod}) with 2 – 10 V DC operating range
B230 Actuator, 230 V AC

<u>Actuator with control module</u>
TROX control modules for AS-i (TROXNETCOM)
B24A[2] Actuator B24 with TROXNETCOM module AS-EM/EK
B24AS[2] Actuator B24 with TROXNETCOM module AS-EM/SIL2
B24AM[1] Actuator B24 with TROXNETCOM control module AS-EM/M, for function G_{mod}

Communication and power supply unit
B24BKNE Actuator B24 with Belimo BKNE230-24
B24C Actuator B24 with BV-Control with SLC® BC24 G2

Smoke control damper module with Modbus/RTU protocol
B24D Actuator B24 with Agnosys BRM-10-F-ST
B230D Actuator B230 with Agnosys BRM-10-F

8 Surface – standard construction
No entry: without coating (standard)

P1 powder-coated, RAL 7030 (technical lacquer finish), industrial polyester
80% ±5 GU; texture: textured
or any other RAL colour, gloss level
80% ± 5 GU; texture: smooth

9 Surface – attachment 1
No entry: without coating (standard)
P2 powder-coated, RAL 7030 (technical lacquer finish), industrial polyester
80% ±5 GU; texture: textured
or any other RAL colour, gloss level
80% ± 5 GU; texture: smooth

[1] Function C_{mod}: damper blade in intermediate position
[2] The AS-i system is based on the industrial standard AS-Interface technology

Order example: EK-JS/DE/600×800/17/K0/B24A/P1-RAL9010-80%-glatt

Type	EK-JS
Construction	Galvanised steel standard construction
Country of destination	Germany
Nominal size	600 × 800
Accessories	HT sealing tape
Attachment 1	Expanded metal mesh on the operating side
Attachment 2	Actuator with TROXNETCOM control module AS-EM/EK
Standard construction of surface	P1 RAL 9010 80%: Smoke control damper with powder coating, RAL 9010, pure white, gloss level 80%, texture grade: smooth
Surface of attachment 1	None (standard)