



EK-JZ smoke control dampers with ventilation function for heat and smoke exhaust



**SMOKE CONTROL
DAMPER EK2-EU**

EK2-EU for mechanical smoke extract systems, pressurisation systems (RDA), and also for providing additional supply air.



EK-JS for mechanical smoke extract systems, smoke control damper for single compartments

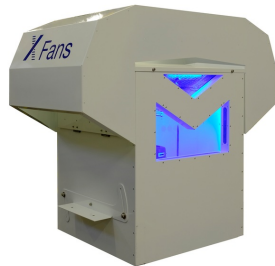


EK-D LEFT-HAND VERSION

EK-D for mechanical smoke extract systems, in air release shafts in pressurised ventilation systems (DBA)

□

Design cover grille with various blade shapes, in all common RAL colour shades



BVDAX FOR SMOKE EXTRACT IN COMBINATION WITH A FREQUENCY INVERTER

BVDAX for smoke extraction operation with frequency converter, CE certified in accordance with EN 12101-3 Temperature category F400

EK-JZ

□

FOR MECHANICAL SMOKE EXTRACT SYSTEMS (MRA), PRESSURISED VENTILATION SYSTEMS (DBA) AND FOR PROVIDING ADDITIONAL SUPPLY AIR FLOW

Rectangular smoke control dampers including ventilation function with low installation depth and large cross section area for smoke and heat exhaust via mechanical smoke extract systems, for the provision of additional supply air, and in pressurised ventilation systems

- Nominal sizes 200 × 230 - 1200 × 2030 mm, for smoke gas volume flows up to 36540 l/s or 131544 m³/h at 15 m/s, upstream velocities up to 20 m/s possible
- Actuator accessibility optionally in air direction or on the side
- Simple and quick installation in and on components
- Casing, damper blades and actuator encasing made of calcium silicate
- Pressure level 2 (operating pressure -1000 to 500 Pa)
- Automatic release (AA), option of manual override (MA)
- For smoke extract ducts from 35 mm wall thickness
- Closed blade air leakage acc. to EN 1751, class 3
- Casing air leakage acc. to EN 1751, class C

Optional equipment and accessories

- Cover grille (various constructions)
- Connecting subframe for calcium silicate and sheet steel smoke extract ducts
- Integration into the central BMS with TROXNETCOM

- External encasing for associated fire-tested control or communication modules
- Coating for use in exterior wall areas
- C_{mod} = for smoke extract and ventilation function in combined systems, which allows for pneumatic flow rate balancing possible by taking intermediate positions

General information



Application

- Smoke control damper with CE marking and Declaration of Performance for the removal of smoke and heat via smoke extraction systems with mechanical smoke extraction devices
- Can be used for the provision of fresh air (outdoor air supply) in mechanical smoke extract systems
- Can be used in pressurised ventilation systems
- Can be used for ventilation if the mechanical smoke extract system has been certified (general building inspectorate licence) for use with combined systems
- Integration into the central BMS with TROXNETCOM

Special characteristics

- C_{mod} for the smoke extraction and ventilation function in combined systems and thus pneumatic balancing possible via the selection of intermediate positions
- Meets the requirements of EN 12101-8
- Tested acc. to EN 1366-2 and 1366-10 for fire resistance properties
- Closed blade air leakage acc. to EN 1751, Class 3, and casing leakage acc. to EN 1751, Class C
- Low sound power level and differential pressure
- Any airflow direction
- Manual release also by TROXNETCOM
- Endurance test according to EN 1366-10, with 20000 OPEN/CLOSED cycles
- Accessibility to the actuator depending on use, sidewise or in airflow direction

Classification

EI 120/90 (v_{edw} - h_{odw} , $i \leftrightarrow o$) S1000 C_{mod} HOT 400/30 MA multi

Nominal sizes

- 200 × 230 - 1200 × 2030 mm
- Casing lengths L = 250 mm

Parts and characteristics

- Installation orientation is independent of the airflow direction
- Pressure level 2 (operating pressure -1000 to 500 Pa)
- For automatic and manual release
- Smoke control damper with ventilation function

Attachments 1

- Connecting subframe for calcium silicate and sheet steel smoke extract ducts
- Cover grille - crimped wire mesh or square perforated metal plate
- Cover grille - grille with straight or slanted blades

Attachments 2

- Open-close actuators with 24 V AC/DC or 230 V AC supply voltage
- Network modules for the integration with AS-i networks
- Network modules for other standard bus systems
- External encasing for associated tested control and communication modules (optional)

Optional products

TROXNETCOM

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

Smoke extract fans from the X-FANS subassembly

- Smoke exhaust roof fans BVDAX/BVD
- Smoke exhaust wall fans BVW/BVWAXN
- Radial (centrifugal) smoke exhaust fans BVREH/BVRA
- Smoke exhaust jet fans BVGAX/BVGAXN

All smoke exhaust fans are tested acc. 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 one-zone and in multi-zone systems.

Construction features

- Rectangular construction style
- The smoke control damper is opened and closed by means of a reversible drive (various types available)
- Accessibility to the actuator depending on product use, sidewise or in airflow direction
- Suitable for the connection of cover grilles or connecting subframes

Material and surfaces

- Casing, damper blade and actuator encasing made of calcium silicate
- Brass bearings
- Blade shafts, drive arm and shaft bearing made of galvanised steel

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 1366-2 Fire resistance tests for service installations – Fire 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 regularly maintained. For this purpose, the required services must be provided.

- Maintenance is required at least every 6 months
- Record maintenance, keep documents
- The owner of the smoke extract system must arrange for a functional check of the smoke control damper every six months. For this purposes, follow the maintenance specifications according to EN 13306 in conjunction with DIN 31051. If 2 consecutive tests, one 6 months after the other, are successful, the next test on the 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

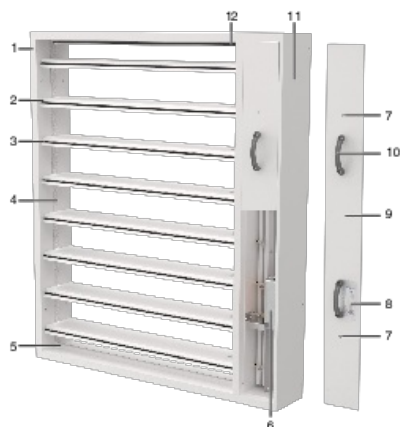
TECHNICAL INFORMATION

Function, Technical Data, Quick sizing, Specification text, Order code



Smoke control dampers are used in mechanical smoke extract systems. They are used for extracting smoke gases and for providing additional supply air to one or more fire compartments. The smoke control dampers are made of calcium silicate panels. In case of fire, the smoke control dampers are opened by a thermally encased actuator. Smoke detection is carried out by a duct smoke detector or via a fire alarm control system. Smoke control dampers have two safe positions: open and closed. In the case of fire-resistant smoke control dampers for multiple compartments, the safe position is either 'open' or 'closed', depending on the fire site and the path of the smoke to be extracted. If the position is 'open', the free cross-sectional area must be maintained even in the event of a fire. The smoke control damper moves to the desired safety position after receiving an automatic or manual control signal. A change in position is possible up to 25 minutes at a temperature load in accordance with the ISO standard fire curve (MA, manual release). In addition, the EK-JZ product series enables position changes for modulation applications (C_{mod}) and thus a pneumatic balancing in the venting mode of a combined system. This is done by moving the damper blades to intermediate positions. Regular maintenance of the smoke control damper is required to ensure its functional reliability.

Schematic illustration



- 1 Casing
- 2 Blades
- 3 Blade tip seal (special profile seal)
- 4 Side seal

- 5 Travel stop, bottom
- 6 Actuator
- 7 Cover fixing
- 8 Rating plate
- 9 Cover of the actuator encasing
- 10 Handle (to remove the cover)
- 11 Actuator encasing
- 12 Travel stop, top

Order code details Encasing Operating side



- 1 R right (standard): installation in walls and ceilings
- 2 S Side: duct connection on both sides

Note:

In special applications, even for duct connection on both sides, the version R can be used - for details, see the installation and operating instructions.

Nominal sizes B × H	200 × 230 mm - 1200 × 2030 mm
Casing length [mm]	250 mm
Flow rate range at maximum upstream velocity	up to 920 l/s or up to 3312 m ³ /h - up to 36540 l/s or up to 131544 m ³ /h
Differential pressure range	Pressure level 2: -1000 - 500 Pa
Operating temperature	At least -30 to 50 °C; the temperature should not fall below the dew point
Upstream velocity*	up to 15 m/s for maximum dimension and ≤ 20 m/s for damper sizes up to 1200 × 1830 mm, otherwise technical clarification required

* Data applies to uniform upstream and downstream conditions for smoke control dampers

- The quick sizing in the Easy Product Finder gives a good overview of the possible volume flow rates at different flow velocities and the corresponding pressure losses
- Precise values based on project-specific data can be determined with our 'Easy Product Finder' design software
- You can find the Easy Product Finder on our website:
www.trox.de/mytrox/auslegungsprogramm-easy-product-finder-182e16348fac3d33

Rectangular or square smoke control dampers acc. to product standard EN 12101-8, tested acc. to EN 1366-10 and EN 1366-2, for use in smoke extract systems. In addition to removing smoke, heat and combustion products from a fire compartment, smoke control dampers enable the controlled removal of released hazardous and toxic combustion and fire suppression gases. The EK-JZ smoke control dampers can also be used in pressurised ventilation systems and venting devices of overpressure systems as well as pressure relief dampers for gas extinguishing systems. Also for extracting smoke gases and for providing additional supply air for the mechanical smoke extract of one or more fire compartments and in all listed systems of the same type that need to fulfil modulation applications. EK-JZ can be used in combined smoke exhaust systems which have been approved for controlled ventilation. The fire-resistant smoke control damper for multiple compartments is suitable for installation in and on fire-resistant smoke extract ducts or smoke extract shafts and in fire-resistant standard supporting constructions. The OPEN-CLOSE actuators can be controlled either with ready-wired actuator control modules or bus modules inside the temperature-resistant actuator encasing.

Classification

EI 120/90 (v_{edw} - h_{odw} , $i \leftrightarrow 0$) S1000 C_{mod} HOT 400/30 MA multi

Special features

- C_{mod} for the smoke extraction and ventilation function in combined systems and thus pneumatic balancing possible via the selection of intermediate positions
- Meets the requirements of EN 12101-8
- Tested acc. to EN 1366-2 and 1366-10 for fire resistance properties
- Closed blade air leakage acc. to EN 1751, Class 3, and casing leakage acc. to EN 1751, Class C
- Low sound power level and differential pressure
- Any airflow direction
- Manual release also by TROXNETCOM
- Endurance test according to EN 1366-10, with 20000 OPEN/CLOSED cycles
- Accessibility to the actuator depending on use, sidewise or in airflow direction

Material and surfaces

- Casing, damper blade and actuator encasing made of calcium silicate
- Brass bearings
- Blade shafts, drive arm and shaft bearing made of galvanised steel

Technical data

- Nominal sizes W × H: 200 × 230 mm to 1200 × 2030 mm
- Casing length: 250 mm
- Volume flow for maximum dimension: up to 36540 l/s or up to 131544 m³/h (after technical clarification up to 48720 l/s or up to 175390 m³/h possible)
- Differential pressure range: Pressure level 2: -1000 – 500 Pa
- Operating temperature: at least -30 °C to 50 °C, the temperature should not fall below the dew point
- Upstream velocities*: up to 15 m/s for maximum dimension and ≤ 20 m/s for damper sizes up to 1200 × 1830 mm, otherwise technical clarification required

* Data applies to uniform upstream and downstream conditions for the smoke control dampers

AT Austria
PL Poland
Other countries of destination on request

6 Nominal size [mm]
Width × height

Width
200 to 1200 (in increments of 50 mm)

Height
230 to 2030 (in increments of 200 mm)

7 Attachments 1
No entry: without attachment

2 entries possible: Attachment for operating side and for installation side
0 No accessory on this side
A Crimped wire mesh (20 × 20 mm), galvanised steel
B Perforated plate with square perforations (10 × 10 mm), galvanised steel
C Grille with slanted blades, aluminium
D Grille with slanted blades, aluminium, with additional crimped wire mesh (20 × 20 mm), galvanised steel
E Grille with slanted blades, aluminium, with additional welded mesh (6 × 6 mm), galvanised steel
F Connecting subframe, galvanised steel
W Connecting subframe sealed, galvanised steel

8 Attachments 2
TROX actuator without expansion module
B24 Actuator 24 V AC/DC
B24SR¹ Actuator B24 + control voltage Y = DC 2 - 10 V
B230 Actuator 230 V AC

Actuator + control module
TROX control modules with AS-i technology (TROXNETCOM)
B24A² Actuator B24 + TROXNETCOM AS-EM/EK
B24AS² Actuator B24 + TROXNETCOM AS-EM/SIL2
B24AM¹ Actuator B24 + TROXNETCOM AS-EM/M

Communication and power supply unit
B24BKNE Actuator B24 + Belimo BKNE230-24
B24C Actuator B24 + BV-Control BC24E with SLC line

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

9 Airflow velocity
No entry: up to 15 m/s (standard)
S20 up to 20 m/s

10 Accessories
No entry: no external encasing
X external encasing

11 Installation accessories
No entry: no accessories (standard)
01³ Fixing tab

For horizontal damper blade alignment
02 HT seal (high temperature seal) bottom
03³ Bottom HT seal and fixing tabs
04 Side HT seal
05 Bottom and side HT seals
06³ Bottom and side HT seal and fixing tabs
07³ Side HT seal and fixing tabs

- 08 Top HT seal (special)
- 09 Top (special) and side HT seals
- 10³ Top HT seal (special) and fixing tabs
- 11³ Top (special) and side HT seal and fixing tabs
- 12³ Fixing tabs, ceiling (double quantity depends on the nominal size)

For vertical damper blade alignment

- 13 Top HT seal (special)
- 14 Side HT seal and top HT seal (special)
- 15³ Top HT seal (special) and fixing tabs
- 16³ Side HT seal and top HT seal (special) and fixing tabs
- 20³ Bottom HT seal and fixing tabs
- 21³ Bottom HT seal and side HT seal and fixing tabs

12 Surface (attachments 1)

- No entry: without coating (standard)
- P1 powder-coated, specify RAL CLASSIC colour
- PS powder-coated, specify DB colour shade

Gloss level

- RAL 9010 GU 50
- RAL 9006 GU 30
- All other RAL colours GU 70

- ¹ Function C_{mod}: Damper blade position in intermediate position
- ² AS-i system based on the standardised industrial technology (AS-Interface)
- ³ Selection depends on nominal size

Note: Further explanations on item

2 Encasing operating side see chapter Function.

Order example: EK-JZ-R-V-C1/DE/1200x2030/FA-B24A/S20/X-20/P1-RAL9010

Type	EK-JZ
Encasing operating side	right
Damper blade alignment	Vertical damper blade alignment
Coating	Promat impregnation
Country of destination	Germany
Nominal size [mm]	Width 1200, height 2030
Attachment 1	Operating side: Connection frame, galvanised steel, Installation side: Corrugated wire mesh (20 x 20 mm), galvanised steel
Attachment 2	TROX actuator 24 V AC/DC + TROXNETCOM AS-EM/EK module for control with AS-i technology
Airflow velocity	Up to 20 m/s
Accessories	External encasing
Installation accessories	Bottom HT seal and fixing tabs
Surface (attachment part 1)	powder-coated, RAL 9010 (pure white)

Order code design cover grille AFG (accessories, components)

AFG	-	EK-JZ	-	N	-	V	-	G	-	0	/	1090 x 410	/	0	/	P1 - RAL 9016
1		2		3		4		5		6		7		8		9

1 Type
AFG

2 Variant

- EK For OTHER use than with EK-JZ (independent of type), depending on the size of the installation opening
- EK-JZ type dependent, EK-JZ with horizontal damper blade alignment (standard)
- EK-JZV type dependent, EK-JZ with vertical damper blade alignment

3 Cover size

- 0 free selection, size is determined by dimensions of the installation opening
- N Cover intake cross section (nominal size for EK-JZ and EK-JZV)
- L Cover smoke control damper, total (nominal size for EK-JZ and EK-JZV + 240 mm)

4 Blade arrangement
0 horizontal (standard)
V vertical

5 Blade spacing
G 25 mm (Standard)
H 16.7 mm

6 Blade alignment
0 straight (Standard)
15 slanted

7 Dimensions
B × H depending on 2 Variant and 3 Cover size
EK in mm steps up to maximum B or H = 2370 mm
EK-JZ and EK-JZV with horizontal or vertical damper blade alignment, depending on the nominal size of the smoke control damper

8 Installation accessories
0 without

9 Surface
No entry: anodised, E6-C-0, natural colour
P0 powder-coated RAL 9010 50 %
P1 powder-coated, specify RAL CLASSIC colour
PS powder-coated, specify DB colour shade
Gloss level:
RAL 9010 50 %
RAL 9006 30 %
all other RAL colours 70 %

Order example: AFG-EK-JZV-N-V-G-0/1090×410/P1-RAL 9016

Type	AFG
Variant	EK-JZV
Cover size	Nominal size
Blade arrangement	vertical
Blade spacing	25 mm
Blade alignment	straight
Dimensions	1090 × 410 mm
Surface	RAL 9016, traffic white, gloss level 70 %

Installation and commissioning

- Installation on/in concrete or masonry shaft walls
- Installation in lightweight partition walls
- Installation in shaft walls that are covered on one side
- Installation in or on tested, fire-resistant vertical or horizontal smoke extract ducts
- Installation in fire-resistant REI 120 or EI 120 walls
- For smoke extract ducts made of calcium silicate from 35 mm wall thickness
- For sheet steel smoke extract ducts
- After installation the damper must remain accessible for inspection, cleaning and repair
- Connected smoke extract ducts must have an inspection access
- Mechanical smoke extract systems require that the power supply is maintained even in the event of a fire

Smoke control dampers must be installed, connected and attached according to the operating and installation manual