



## 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 m<sup>3</sup>/h or 100 l/s – 115110 m<sup>3</sup>/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<sup>®</sup> technology
- C<sub>mod</sub> 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<sub>600</sub> 120 (V<sub>ed</sub> h<sub>od</sub> i↔o) S 1500 C<sub>mod</sub> 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

#### Materials 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.

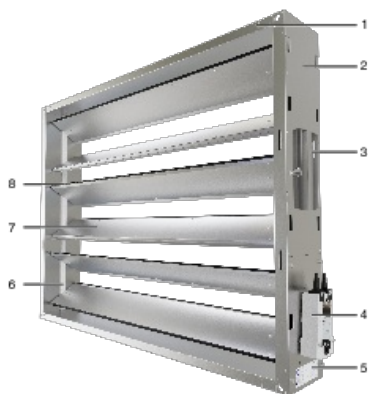
## ТЕХНИЧЕСКА ИНФОРМАЦИЯ

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



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 x H	100 x 100 – 1250 x 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	<ul style="list-style-type: none"> <li>• ≤ 12 m/s</li> <li>• ≤ 20 m/s</li> </ul> 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 x 480 class 3
Casing leakage	EN 1751, class B, from nominal width 840 x 480 class C
EC conformity	<ul style="list-style-type: none"> <li>• EU Construction Products Regulation No. 305/2011</li> <li>• EN 12101-8: Smoke and heat control systems – Part 8: Smoke control dampers</li> <li>• EN 1366-10: Fire resistance tests for service installations – Part 10: Smoke control dampers</li> <li>• EN 13501-4: Fire classification of construction products and building elements – Part 4: Fire resistance tests on components of smoke control</li> <li>• EN 1751: Ventilation for buildings – Air terminal devices</li> </ul>
Declaration of performance	DoP/EK-JS/001

- Quick sizing tables in the Easy Product Finder provide a good overview of the volume flow rates for different airflow velocities and the corresponding differential pressures
- Exact values can be determined with the help of our design program EPF
- You will find the Easy Product Finder on our website:  
[www.trox.de/mytrox/auslegungsprogramm-easy-product-finder-182e16348fac3d33](http://www.trox.de/mytrox/auslegungsprogramm-easy-product-finder-182e16348fac3d33)

#### Correction for different throttle positions

The adjustment of the damper blade angle enables the setting of different throttle positions. Based on the determined data for the open position, both the resistance coefficient and the sound power level can be corrected to design the operating conditions with angled blades.

For this purpose, the resistance coefficient is multiplied by the correction factor C, which corresponds to the diagram of the "Resistance factor" for the correction factor.

For the correction of the sound power level, this is added to the correction value K, which corresponds to the diagram of the "Sound power level" for the correction value.

Smoke control dampers with a height of less than or greater than 320 mm are differentiated.

Example:

EK-JS / installation case A

H x B: 960 mm x 1000 mm

Upstream velocity: 5 m/s

EPF (data for OPEN position)

- Resistance factor = 0.23
- Sound power level = 40 dB(A)

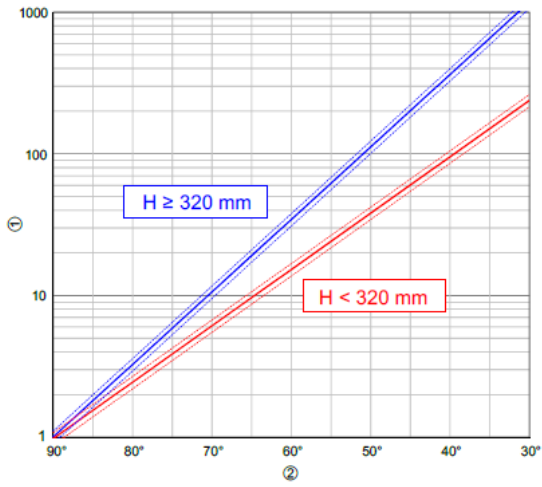
Correction for a blade angle of 65

(read from diagram correction factor "resistance coefficient" and correction value "sound power level")

Resistance factor:  
 Correction value C = 20  
 $0.23 \times 20 = 4.6$

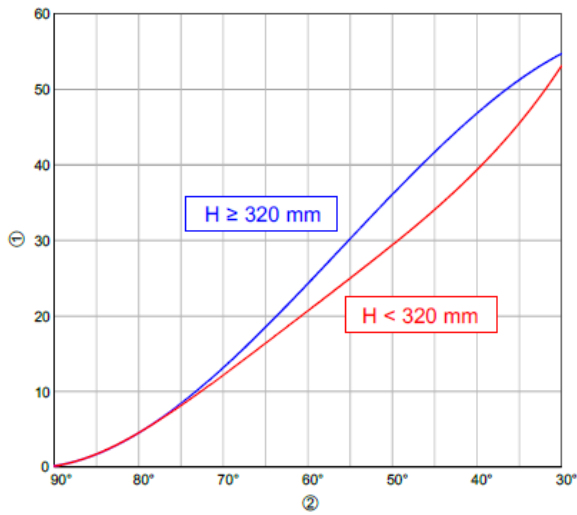
Sound power level:  
 Correction value K = 8  
 $40 \text{ dB(A)} + 8 \text{ dB(A)} = 48 \text{ dB(A)}$

Correction factor: Resistance factor



Blade angle  $90^\circ$  = open  
 ① Correction factor C  
 ② Blade angle

Correction value: Sound power level



Blade angle  $90^\circ$  = open  
 ① Correction value K [dB]  
 ② Blade angle

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#### 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

$$\Delta P_t = 3.5 \text{ Pa}$$

$$dB(A) = 40$$

$$A_{\text{free}} = 1.095 \text{ m}^2$$

$$A_{\text{geo}} = 1.2 \text{ m}^2$$

$$q_v = 21600 \text{ m}^3/\text{h}$$

#### 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<sub>600</sub> 120 (V<sub>ed</sub> h<sub>od</sub> i↔o) S 1500 C<sub>mod</sub> 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<sub>mod</sub> 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

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 according to EN 12101-8 2 Construction No entry required: Galvanised steel standard construction

#### 2 Stainless steel

#### 3 Country of destination

DE Germany

CH Switzerland

AT Austria

PL Poland  
and others

4 Nominal size [mm] Width between 100 – 1250 mm in 5 mm steps in combination with height 100, 125, 150 or 165 mm. Width between 180 – 1250 mm in 5 mm steps in combination with height 320 to 2560 mm in 160 mm steps.

#### 5 Accessories

No entry required: None (standard)

17 HT sealing tape (15 mm)

18 Suspension brackets for horizontal damper alignment

19 Suspension brackets for horizontal damper alignment and HT sealing tape (15 mm)

#### 6 Attachments 1

No entry required: None (standard)

K Expanded metal mesh 14 × 16, galvanised steel

0 Without attachment on operating/installation side

First character signifies operating side (0, K)

Second character signifies installation side (0, K) Any combination is possible

#### 7 Attachments

224 V AC/DC:

## B24 (Actuator)

B24SR (Actuator continuous control, ventilation function C<sub>mod</sub><sup>1</sup>) 24 V AC/DC: with operating range DC 2 – 10 V/230 V AC:

## B230 (Actuator)

Actuator combined with TROX control module: Module for signalling, TROXNETCOM:

B24A (B24 actuator + TROXNETCOM control module AS-EM/EK<sup>2</sup>)

B24AS (B24 actuator + TROXNETCOM control module AS-EM/SIL<sup>2</sup>)

B24AM (B24 actuator + TROXNETCOM control module AS-EM/M, for function C<sub>mod</sub><sup>1</sup>)

Other communication modules: Belimo: Communication and power supply unit

B24BKNE (B24 actuator + BKNE230-24)

BV-Control: Communication and power supply unit with SLC<sup>®</sup> technology:

B24C (B24 actuator + BC24 G2) Agnosys: BRM-10-F fire damper and smoke control damper module

B24D (B24 actuator + BRM-10-F-ST)

B230D (B230 actuator + BRM-10-F)

<sup>1</sup> Function C<sub>mod</sub> For damper blade in intermediate position

<sup>2</sup> The AS-i system is based on the industrial standard AS-Interface

## 8 Standard construction of surface

No entry required: None (standard)

P1 Powder-coated RAL 7030 (technical lacquer paint finish), industrial polyester

80% ± 5 gloss levels, texture grade: textured or all other colours according to RAL chart, gloss level

80% ± 5 gloss levels, texture grade: smooth

## 9 Surface of attachment 1

No entry required: None (standard)

P2 Powder-coated RAL 7030 (technical lacquer paint finish), industrial polyester

80% ± 5 gloss levels, texture grade: textured or all other colours according to RAL chart, gloss level

80% ± 5 gloss levels, texture grade: smooth

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)

## Dimensions



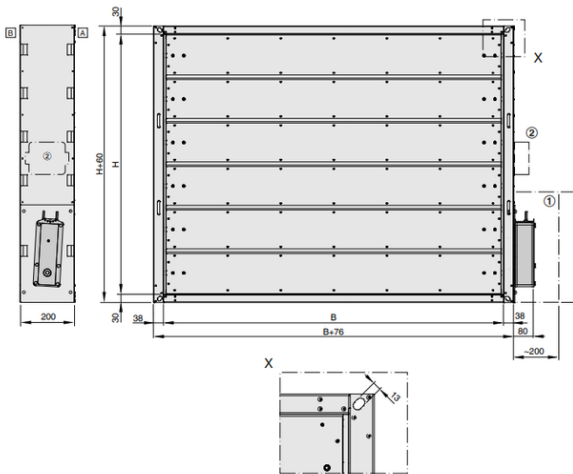
Weights [kg], width 100 – 650 mm



H	B											
	100	150	200	250	300	350	400	450	500	550	600	650
100	7.33	7.65	8.02	8.33	8.65	8.97	9.28	9.6	9.92	10.23	10.55	10.87
125	7.58	7.9	8.27	8.59	8.9	9.22	9.54	9.86	10.18	10.5	10.82	11.14
150	7.82	8.15	8.52	8.84	9.16	9.48	9.8	10.13	10.45	10.77	11.09	11.41
165	8.07	8.39	8.77	9.09	9.42	9.74	10.06	10.39	10.71	11.04	11.36	11.69
320		11.29	11.95	12.62	13.29	13.95	14.62	15.28	15.95	16.62	17.29	
480		13.41	14.17	14.92	15.68	16.44	17.2	17.95	18.71	19.47	20.22	
640		15.54	16.38	17.23	18.08	18.92	19.77	20.62	21.47	22.31	23.16	
800		17.66	18.6	19.53	20.47	21.41	22.35	23.28	24.22	25.16	26.1	
960		19.78	20.81	21.84	22.87	23.9	24.92	25.95	26.98	28.01	29.04	
1120		21.96	23.1	24.23	25.37	26.51	27.64	28.78	29.92	31.05	32.19	
1280		24.14	25.38	26.63	27.87	29.12	30.36	31.61	32.85	34.1	35.35	
1440		26.31	27.67	29.02	30.37	31.73	33.08	34.43	35.79	37.15	38.52	
1600		28.49	29.95	31.41	32.88	34.34	35.8	37.26	38.72	40.18	41.64	
1760		30.66	32.24	33.81	35.38	37.17	38.74	40.31	41.88	43.46	45.03	
1920		32.84	34.52	36.42	38.1	39.78	41.46	43.14	44.82	46.5	48.19	
2080		35.02	37.03	38.81	40.6	42.39	44.18	45.97	47.76	49.55	51.34	
2240		37.41	39.31	41.21	43.1	45	46.9	48.8	50.7	52.6	54.5	
2400		39.59	41.6	43.6	45.61	47.62	49.62	51.63	53.63	55.64	57.65	
2560		41.76	43.88	45.99	48.11	50.23	52.34	54.45	56.57	58.69	60.81	

Weights [kg]. width 700-1250 mm

H	B											
	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250
100	11.18	11.5	11.82	12.13	12.45	12.77	13.08	13.4	13.72	14.03	14.35	14.67
125	11.46	11.78	12.1	12.42	12.73	13.05	13.37	13.69	14.01	14.33	14.65	14.97
150	11.73	12.06	12.38	12.7	13.02	13.34	13.66	13.99	14.31	14.63	14.95	15.27
165	12.01	12.33	12.66	12.98	13.31	13.63	13.95	14.28	14.6	14.93	15.25	15.58
320	17.95	18.62	19.28	19.95	20.62	21.28	21.95	22.62	23.28	23.95	24.62	25.29
480	20.98	21.74	22.49	23.25	24.01	24.76	25.52	26.28	27.03	27.79	28.55	29.31
640	24.01	24.85	25.7	26.55	27.39	28.24	29.09	29.94	30.78	31.63	32.48	33.33
800	27.03	27.97	28.91	29.85	30.78	31.72	32.66	33.6	34.53	35.47	36.41	37.35
960	30.06	31.09	32.12	33.15	34.17	35.2	36.23	37.26	38.28	39.31	40.34	41.59
1120	33.32	34.46	35.6	36.74	37.87	39.01	40.37	41.5	42.64	43.77	44.91	46.11
1280	36.59	37.83	39.3	40.55	41.79	43.04	44.28	45.53	46.77	48.02	49.26	50.51
1440	40.07	41.43	42.78	44.14	45.49	46.84	48.2	49.55	50.9	52.26	53.62	55.03
1600	43.34	44.8	46.26	47.73	49.19	50.65	52.12	53.58	55.04	56.5	57.97	59.43
1760	46.6	48.17	49.74	51.32	52.89	54.46	56.03	57.61	59.17	62.35	63.92	65.55
1920	49.86	51.55	53.23	54.91	56.58	58.27	61.55	63.23	64.91	66.59	68.27	69.95
2080	53.13	54.92	56.71	58.5	61.88	63.68	65.47	67.26	69.04	70.83	72.62	74.47
2240	56.39	59.89	61.79	63.69	65.58	67.48	69.38	71.28	73.18	75.08	76.98	78.88
2400	61.25	63.26	65.27	67.28	69.28	71.29	73.3	75.31	77.31	79.32	81.33	83.4
2560	64.52	66.64	68.75	70.87	72.98	75.1	77.22	79.33	81.44	83.56	85.68	87.8



- Keep area free for accessibility of the actuator
- ② Fixing option for control module

## Attachments

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### Application

- Open/close actuators for the opening and closure of smoke control dampers, with automatic (AA) or manual release (MA).
- With integral limit switches for capturing the end positions
- Override control for up to 25 minutes
- Ambient temperature for normal operation: -30 to 50 °C, up to 95%, without temperatures below the dew point, no condensation (EN 60730-1)
- Two integral limit switches with volt-free contacts can indicate the damper blade position (OPEN and CLOSED)
- The connecting cables of the 24 V actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system
- The connecting cable of the 230 V AC actuator is fitted with wire end ferrules

### Variants

#### B24

- 24 V AC/DC supply voltage
- BEN24-ST TR: Torque 15 Nm
- BEE24-ST TR: Torque 25 Nm
- BE24-12-ST TR: Torque 40 Nm

#### B230

- Supply voltage 230 V AC
- BEN230 TR: Torque 15 Nm
- BEE230 TR: Torque 25 Nm
- BE230-12 TR: Torque 40 Nm

#### B24-SR

- BEN24-SR: Torque 15 Nm
- BEE24-SR: Torque 25 Nm

The torque required to operate the smoke control damper depends on the size, which is why the actuator type cannot be chosen freely.

Torque tables

## Wiring examples, technical data

Actuator	BEN24-ST	BEE24-ST	BE24-ST
Supply voltage (AC)	AC 19.2 – 28.8 V, 50/60 Hz		
Supply voltage (DC)	DC 21.6 – 28.8 V, 50/60 Hz		
Power consumption – when running	3 W	2.5 W	12 W
Power consumption – when idle	0.1 W		0.5 W
Power rating for cable sizing	I <sub>max</sub> 8.2 A at 5 ms		
Torque	15 Nm	25 Nm	40 Nm
Run time for 90°	< 30 s		
Limit switch contacts	2 × EPU		
Switching current	1 mA – 3 A (0.5 A inductive), AC 250 V   1 mA – 6 A (0.5 A inductive), AC 250 V		
Limit switch – open	5°		3°
Limit switch – close	80°		87°
Connecting cable – actuator	Cable 1 m, 3 × 0.75 mm <sup>2</sup> , halogen-free		
Connecting cable – limit switches	Cable 1 m, 6 × 0.75 mm <sup>2</sup> , halogen-free		
IEC protection class	III safety extra low voltage (SELV)		
Protection level	IP 54		
EC conformity	CE according to 2014/30/EU Low Voltage Directive CE according to 2014/35/EU		
Operating temperature	-30 to 55 °C		
Weight	0.9 kg	1.1 kg	2.7 kg

Actuator	BEN230 TR	BEE230 TR	BE230 TR
Supply voltage (AC)	AC 198 – 264 V, 50/60 Hz		
Power consumption – when running	4 W	3.5 W	8 W
Power consumption – when idle	0.4 W		0.5 W
Power rating for cable sizing	I <sub>max</sub> 4 A at 5 ms		I <sub>max</sub> 7.9 A at 5 ms
Torque	15 Nm	25 Nm	40 Nm
Run time for 90°	< 30 s		
Limit switch contacts	2 × EPU		
Switching current	1 mA – 3 A (0.5 A inductive), AC 250 V   1 mA – 6 A (0.5 A inductive), AC 250 V		
Limit switch – open	5°		3°
Limit switch – close	80°		87°
Connecting cable – actuator	Cable 1 m, 3 × 0.75 mm <sup>2</sup> , halogen-free		
Connecting cable – limit switches	Cable 1 m, 6 × 0.75 mm <sup>2</sup> , halogen-free		
IEC protection class	II reinforced insulation		
Protection level	IP 54		
EC conformity	CE according to 2014/30/EU Low Voltage Directive CE according to 2014/35/EU		
Operating temperature	-30 to 55 °C		-30 to 50 °C
Weight	0.9 kg	1.1 kg	2.7 kg

Actuator	BEN24-SR	BEE24-SR
Supply voltage (AC)	AC 19.2 – 28.8 V, 50/60 Hz	
Supply voltage (DC)	DC 21.6 – 28.8 V, 50/60 Hz	
Power consumption – when running	3 W	
Power consumption – when idle	0.3 W	
Power rating for cable sizing	I <sub>max</sub> 8.2 A at 5 ms	
Torque	15 Nm	25 Nm
Run time for 90°	< 30 s	
Limit switch contacts	2 × EPU	
Switching current	1 mA – 3 A (0.5 A inductive), AC 250 V	
Limit switch – open	5°	
Limit switch – close	80°	
Connecting cable – actuator	Cable 1 m, 4 × 0.75 mm <sup>2</sup> , halogen-free	
Connecting cable – limit switches	Cable 1 m, 6 × 0.75 mm <sup>2</sup> , halogen-free	
IEC protection class	III safety extra low voltage (SELV)	
Protection level	IP 54	
EC conformity	CE according to 2014/30/EU Low Voltage Directive CE according to 2014/35/EU	
Operating temperature	-30 to 55 °C	
Weight	1.1 kg	0.9 kg

Interfaces to higher level systems

TROX fire and smoke protection systems have standardised interfaces for central building management systems. In the simplest case, the interface consists of discrete signalling contacts that connect the alternating inputs and outputs of TROX systems and other building components.

Control and communication modules for smoke control dampers

Type	B24A	B24AS	B24BKNE	B24C	B230D	B24D	B24AM
	AS-EM/EK	AS-EM/SIL2	BKNE230-24	BC24-G2	BRM-10-F	BRM-10-F-ST	AS-EM/M
EK-EU	x	x	x	x	x	x	x
EK-JZ	x	x	x	x	x	x	x
EK-JS	x	x	x	x	x	x	x

Note:

Actuators and communication modules are factory tested together; only tested combinations must be used.

B24A – AS-EM/EK

Application

- Module for the control of smoke control dampers
- Capturing damper blade positions OPEN and CLOSED
- Actuators can be started even without controller communication
- LEDs for OPEN and CLOSED positions; monitoring of run time errors
- Integral AS-Interface slave
- Monitoring of signal reception
- Master can be used to monitor the run time of the damper blade actuator
- Supply voltage of the module and the 24 V DC actuator using AS-Interface ( 2-wire control)
- Plug-in connection for Belimo actuators (factory-mounted and wired)

Use

B24A – Mounted to the smoke control damper

Description	AS-EM/EK
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, including actuator	450 mA
Inputs:	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V AC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP:	
Galvanically isolated	No
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay:	
Galvanically isolated	Yes
Maximum voltage	32 V
Max. current load	500 mA
Ambient temperature	-5 to 75 °C
Protection level, IEC protection class	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

B24AS – AS-EM/SIL2

Application

- Module for the control of smoke control dampers
- Capturing damper blade positions OPEN and CLOSED
- Approved up to SIL2 to IEC/EN 61508
- Integrated AS-Interface
- Monitoring of signal reception
- Master can be used to monitor the run time of the damper blade actuator
- Connection with terminals
- Supply voltage of the module and the 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators (factory-mounted and wired)

#### Use

#### B24AS – Mounted to the smoke control damper

Description	AS-EM/SIL2
Supply voltage	26.5 – 31.6 V DC
Current consumption	< 400 mA from AS-i
Max. current load per output	340 mA
Max. current load per module	340 mA
Status LED	
AS-i power	1 × green
PeripheralFault	1 × red, blinking
ComError	1 × red, static
Output Q0	1 × yellow (DO0)
Output Q1	1 × yellow (DO1)
Input status LED SI-1	1 × yellow
Input status LED SI-2	1 × yellow
Input status DI0	1 × yellow (DI0)
Input status DI1	1 × yellow (DI1)
Input status DI2	1 × yellow (DI2)
Binary inputs	2 outputs with transistor (typically 24 V DC from AS-i, voltage range 18 – 30 V)
Operating temperature	-20 to 70 °C
Storage temperature	-20 to 75 °C
Protection level, IEC protection class	IP 54
Casing material	Plastic
AS-i profile	S-7.B.E (Safety at Work) and S7.A.E (motor module)
EMC	EN 61000-6-2; EN 61000-6-3

#### B24AM – AS-EM/M

#### Application

- Module for the control of smoke control dampers with C<sub>mod</sub> function:

- Capturing the damper blade end positions (CLOSED and OPEN)
- Time-controlled selection of 13 intermediate positions of the damper blade (opening angle between 0° and 90°)
- Actuators can be started even without controller communication
- Emergency position can be set (OPEN or CLOSED)
- LEDs for OPEN and CLOSED positions; monitoring of run time errors
- Integral AS-Interface slave
- Monitoring of signal reception
- Master can be used to monitor the run time of the damper blade actuator
- Supply voltage of the module and 24 V DC actuator using AS-Interface (2-wire control)
- Plug-in connection for Belimo actuators

Use

B24AM – Mounted to the smoke control damper

Description	AS-EMM
Electrical design	4 inputs/3 outputs
Output function	PNP transistor
Supply voltage	26.5 – 31.6 V DC
Current consumption, including actuator	450 mA
Inputs	
Switching	DC PNP
Sensor voltage supply	AS-i
Voltage range	18 – 30 V AC
With short circuit protection	Yes
Switching level – high signal 1	10
Input current high/low	> 7 mA/< 2 mA
Input characteristic	IEC 61131-2 Type 2
Outputs, PNP	
Galvanically isolated	No
Max. current load per output	400 mA per output/400 in total (from AS-i)
Outputs, relay	
Galvanically isolated	Yes
Maximum voltage	32 V
Max. current load	500 mA
Ambient temperature	-5 to 75 °C
Protection level, IEC protection class	IP 42
AS-i profile	S-7.A.E
I/O configuration	7 Hex
ID code	7 Hex
EMC	EN 61000-6-2; EN 61000-6-3

## B24BKNE – Communication module

### Application

- Communication and power supply unit for 24 V actuators in smoke extract applications, status LEDs, retention of the damper control input signal, 230 V AC connection, 1 m cable, free of halogens

### Use

B24BKNE – BKNE230-24 communication module

Description	BKNE230-24
Nominal voltage	230 V AC 50/60 Hz
Functional range	198 – 264 V AC
Rating	19 VA (including actuator)
Power consumption	10 W (including actuator)
Length / cross section	On the actuator = 1 m, 3 (6*) × 0.75 mm <sup>2</sup> (free of halogens)
IEC protection class	II (protective insulation)
Ambient temperature	-30 to 50 °C
Storage temperature	-40 to 80 °C
Protection level	IP 54
EC conformity	EMC to 89/336/EEC, 73/23/EEC
Mode of action	Type 1 (EN60730-1)
Software class	A (EN60730-1)
Maintenance	Maintenance-free
Weight	680 g

## B24C – Communication module

### Application

- SLC<sup>®</sup> technology
- The BC 24 module is used for the control of damper actuators
- Power supply and communication are implemented with an interchangeable two-core cable, SLC24-16B system.
- A thermoelectric release mechanism and a duct smoke detector can be connected without the need for additional devices

### Use

B24C – BC24-G2 communication module from BV-Control AG



Description	B24C
Nominal voltage	From SLC® control module
Power consumption	1 W
Connections	Plug connections, screw terminals
Damper power supply	24 V
Ambient temperature	-20 to 50 °C
Storage temperature	-20 to 80 °C
Humidity	95 % rh, no condensation
Weight	255 g
B × H × T	114 × 153 × 54 mm
Max. impulse voltage	2.5 kV (EN60730-1)

B24D, B230D – Communication module

#### Application

- AGNOSYS system
- BRM-F-ST module is used for the monitoring and control of smoke control dampers
- Up to 126 modules can be connected in a ring topology

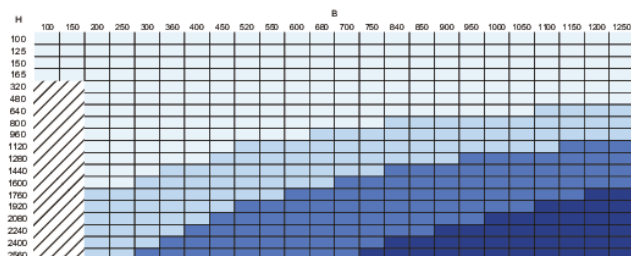
#### Use

B24D – AGNOSYS BRM10FST communication module

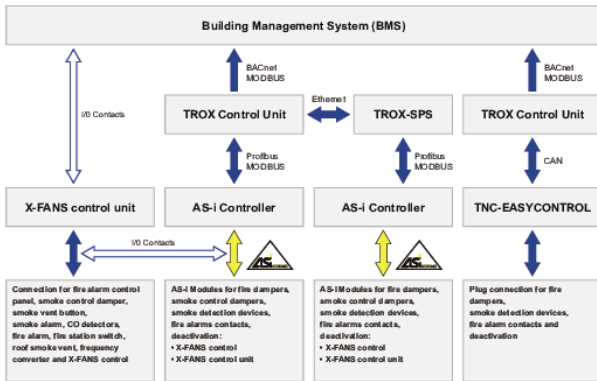
B230D – AGNOSYS BRM10F communication module

Description	B24D/B230D
Nominal voltage	18 – 32 V DC (typically 24 V)
Connections	Plug connections, screw terminals
Damper power supply	24/230 V AC 24 V DC
Ambient temperature	0 to 45 °C
Humidity	90 % rh, no condensation
Weight	510 g
B × H × T	158 × 180 × 65 mm

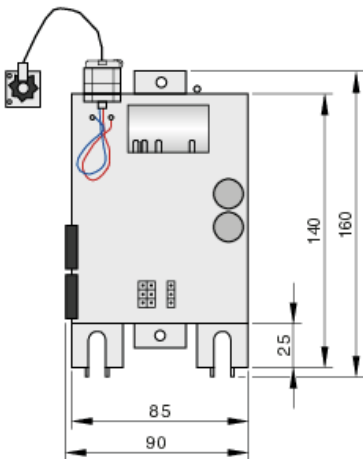
#### Torque tables - Motor allocation matrix for ≤ 20 m/s



BEN 15 Nm  
 BEE 25.0 Nm  
 BE 40.0 Nm  
 Technical clarification needed



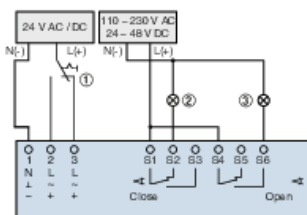
## AS-i module AS-EM/SIL2



## AS-EM/EK



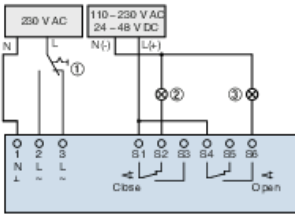
## Wiring example 24 V AC / DC



① Switch for opening and closing, to be provided by others

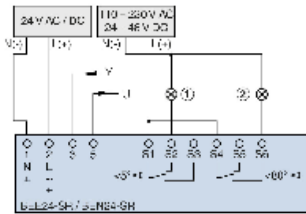
- ② Indicator light for CLOSED position, to be provided by others
- ③ Indicator light for OPEN position, to be provided by others

**Wiring example 230 V AC**



- ① Switch for opening and closing, to be provided by others
- ② Indicator light for CLOSED position, to be provided by others
- ③ Indicator light for OPEN position, to be provided by others

**Wiring example 24 V AC / DC, modulating**



- ① Indicator light for CLOSED position, to be provided by others
- ② Indicator light for OPEN position, to be provided by others

Y: 0(2) – 10 V DC operating range (target value)  
U: 2 – 10 V DC position feedback (actual value)