Smoke control dampers
Type EKA-EU

EKA-EU with BLE-actuator

CE compliant according to European regulations

With TROXNETCOM as an option

Tested to VDI 6022

For mechanical smoke extract systems and as an additional supply air inlet

Rectangular smoke control dampers with extract ventilation function, for smoke extract with mechanical smoke extract systems or as an additional supply air inlet

- Nominal sizes 400 × 200 – 1500 × 800 mm, available in increments of 5 mm
- Low differential pressure and sound power level
- Optional stainless steel casing or powder-coated casing for increased corrosion protection

Optional equipment and accessories

- Cover grilles
- Circular spigot
- Duct smoke detectors
- Integration into the central BMS with TROXNETCOM
- Remote control with actuator

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Application

Application
- Smoke control dampers of Type EKA-EU, with CE marking and declaration of performance, for smoke extract with mechanical smoke extract systems
- Provision of fresh air supply for mechanical smoke extract systems
- Extract ventilation function is possible if the mechanical smoke extract system has been approved (general building approval) for extract ventilation
- Integration into the central BMS with TROXNETCOM

Special characteristics
- Declaration of performance according to Construction Products Regulation
- Classification to EN 13501-4, up to EI 120 (v_{ew} – i ↔ o) S 1500 C10000 AA multi
- Complies with the requirements of EN 12101-8
- Tested for fire resistance properties to DIN 1366-10 and EN 1366-2
- Hygiene complies with VDI 6022 part 1, VDI 3803, DIN 1946 part 4 and EN 13779
- Corrosion protection according to EN 15650 in connection with EN 60068-2-52
- Closed blade air leakage to EN 1751, class 2
- Casing air leakage to EN 1751, class C; (B + H) ≤ 700, class B
- Low differential pressure and sound power level
- Any airflow direction
- Integration into the central BMS with TROXNETCOM

Classification
- Class of performance to EI 120 (v_{ew} – i ↔ o) S 1500 C10000 AA multi to EN 13501-4

Nominal sizes
- B × H: 400 × 200 – 1500 × 800 mm (available in increments of 5 mm)
- L: 240 mm or 500 mm

Description

Attachments
- Open/Close actuator, 24 V AC/DC or 230 V AC supply voltage

Accessories
- Cover grilles
- Circular spigots

Useful additions
- Duct smoke detector RM-O-3-D
- Duct smoke detector with airflow monitor RM-O-VS-D
- EK-JZ smoke control damper
- Smoke control damper EK-EU

X-FANS smoke exhaust fans
- 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.

Construction features
- Rectangular or square construction, rigid casing, both flanges with fixing holes
- Reversible open/close actuator
- Suitable for the connection of smoke extract ducts, cover grilles or spigots
- Remote control with open/close actuator

Materials and surfaces
Casing:
- Galvanised sheet steel
- Galvanised sheet steel, powder-coated RAL 7001
- Stainless steel 1.4301

Damper blade:
- Special insulation material
- Special insulation material with impregnation

Other components:
- Damper blade shafts and drive linkage made of stainless steel
- Brass or stainless steel bearings
- Seals of polyurethane or elastomer

The construction variants with stainless steel or powder-coated casing meet even more critical requirements for corrosion protection. Detailed listing on request.

Standards and guidelines
- Construction Products Regulation
- EN 12101-8:2011 Smoke and heat control systems – Smoke control dampers
- EN 1366-10:2011 Fire resistance tests for service installations – Smoke control dampers
- EN 1366-2:1999 Fire resistance tests for service installations – Fire dampers
- EN 13501-4:2009 Fire classification of construction products and building elements
- EN 1751:1999 Ventilation for buildings – Air terminal devices

Maintenance
- Smoke control dampers must be maintained regularly and must be operational at all times
- 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 can be conducted one year later
- For details on maintenance and inspection refer to the installation and operating manual

Functional description

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 dampers are made of galvanised sheet steel or stainless steel and are opened by an actuator; when smoke is detected, the actuator is triggered by a signal either from a duct smoke detector or from a fire alarm 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 safe position is 'open', the free area must be maintained even in the event of a fire.
Regular maintenance of the smoke control damper is required to ensure its functional reliability.

Schematic illustration of the EKA-EU with open/close actuator

① Casing
② Damper blade
③ Perimeter travel stop (B × H > 400 × 300 mm)
④ Seal
⑤ Open/Close actuator (illustration shows BLE)

Nominal sizes	400 × 200 to 1500 × 800 mm
Casing lengths	240 and 500 mm
Volume flow rate range	Up to 12000 l/s or up to 43200 m^3/h
Differential pressure range	Pressure level 3, –1500 to 500 Pa
Temperature range	At least –30 to 50 °C
Upstream velocity	≤ 10 m/s

Free area and resistance coefficient

H [mm]	Parameter	B [mm]					
		400	450	500	550	600	650
200	A [m^2]	0.051	0.039	0.044	0.049	0.054	0.059
	ζ	0.65	3.02	2.89	2.80	2.72	2.65
250	A [m^2]	0.070	0.059	0.066	0.074	0.081	0.089
	ζ	0.52	1.78	1.69	1.63	1.58	1.54
300	A [m^2]	0.089	0.078	0.088	0.098	0.108	0.118
	ζ	0.45	1.26	1.20	1.15	1.11	1.08
350	A [m^2]	0.085	0.098	0.110	0.123	0.135	0.148
	ζ	1.07	0.99	0.94	0.90	0.86	0.84
400	A [m^2]	0.102	0.117	0.132	0.147	0.162	0.177
	ζ	0.89	0.83	0.78	0.74	0.71	0.69
450	A [m^2]	0.119	0.137	0.154	0.172	0.189	0.207
	ζ	0.78	0.72	0.67	0.64	0.61	0.59
500	A [m^2]	0.136	0.156	0.176	0.196	0.216	0.236
	ζ	0.69	0.64	0.60	0.57	0.54	0.52

Free area and resistance coefficient

H [mm]	Parameter	B [mm]									
		700	750	800	900	1000	1100	1200	1300	1400	1500
200	A [m^2]	0.064	0.069	0.074	0.084	0.094	0.104	0.114	0.124	0.134	0.144
	ζ	2.60	2.55	2.51	2.45	2.40	2.36	2.33	2.30	2.28	2.26
250	A [m^2]	0.096	0.104	0.111	0.126	0.141	0.156	0.171	0.186	0.201	0.216
	ζ	1.50	1.47	1.44	1.40	1.37	1.34	1.32	1.31	1.29	1.28
300	A [m^2]	0.128	0.138	0.148	0.168	0.188	0.208	0.228	0.248	0.268	0.288
	ζ	1.05	1.03	1.01	0.98	0.95	0.93	0.91	0.90	0.89	0.88
350	A [m^2]	0.160	0.173	0.185	0.210	0.235	0.260	0.285	0.310	0.335	0.360
	ζ	0.81	0.79	0.78	0.75	0.73	0.71	0.70	0.69	0.68	0.67
400	A [m^2]	0.192	0.207	0.222	0.252	0.282	0.312	0.342	0.372	0.402	0.432
	ζ	0.67	0.65	0.64	0.61	0.59	0.58	0.57	0.56	0.55	0.54
450	A [m^2]	0.224	0.242	0.259	0.294	0.329	0.364	0.399	0.434	0.469	0.504
	ζ	0.57	0.56	0.54	0.52	0.50	0.49	0.48	0.47	0.46	0.45
500	A [m^2]	0.256	0.276	0.296	0.336	0.376	0.416	0.456	0.496	0.536	0.576
	ζ	0.50	0.49	0.47	0.45	0.44	0.43	0.42	0.41	0.40	0.39

Free area and resistance coefficient

H [mm]	Parameter	B [mm]					
		400	450	500	550	600	650
550	A [m²]	0.153	0.176	0.198	0.221	0.243	0.266
	ζ	0.63	0.58	0.54	0.51	0.49	0.47
600	A [m²]	0.170	0.195	0.220	0.245	0.270	0.295
	ζ	0.58	0.53	0.50	0.47	0.44	0.43
650	A [m²]	0.187	0.215	0.242	0.270	0.297	0.325
	ζ	0.54	0.50	0.46	0.43	0.41	0.39
700	A [m²]	0.204	0.234	0.264	0.294	0.324	0.354
	ζ	0.51	0.47	0.43	0.41	0.38	0.37
750	A [m²]	0.221	0.254	0.286	0.319	0.351	0.384
	ζ	0.48	0.44	0.41	0.38	0.36	0.34
800	A [m²]	0.238	0.273	0.308	0.343	0.378	0.413
	ζ	0.46	0.42	0.39	0.36	0.34	0.33

Free area and resistance coefficient

H [mm]	Parameter	B [mm]									
		700	750	800	900	1000	1100	1200	1300	1400	1500
550	A [m²]	0.288	0.311	0.333	0.378	0.423	0.468	0.513	0.558	0.603	0.648
	ζ	0.45	0.44	0.42	0.41	0.39	0.38	0.37	0.36	0.35	0.35
600	A [m²]	0.320	0.345	0.370	0.420	0.470	0.520	0.570	0.620	0.670	0.720
	ζ	0.41	0.40	0.39	0.37	0.35	0.34	0.33	0.32	0.32	0.31
650	A [m²]	0.352	0.380	0.407	0.462	0.517	0.572	0.627	0.682	0.737	0.792
	ζ	0.38	0.37	0.35	0.34	0.32	0.31	0.30	0.30	0.29	0.28
700	A [m²]	0.384	0.414	0.444	0.504	0.564	0.624	0.684	0.744	0.804	0.864
	ζ	0.35	0.34	0.33	0.31	0.30	0.29	0.28	0.27	0.27	0.26
750	A [m²]	0.416	0.449	0.481	0.546	0.611	0.676	0.741	0.806	0.871	0.936
	ζ	0.33	0.32	0.31	0.29	0.28	0.27	0.26	0.25	0.25	0.24
800	A [m²]	0.448	0.483	0.518	0.588	0.658	0.728	0.798	0.868	0.938	1.008
	ζ	0.31	0.30	0.29	0.27	0.26	0.25	0.24	0.24	0.23	0.23

Volume flow rate $\dot{V}$ [m³/h] at differential pressure Δp_{st} < 35 Pa

B [mm]	L_{WA} [dB(A)]	H [mm]												
		200	250	300	350	400	450	500	550	600	650	700	750	800
400	35	1417	1897	2361	1871	2219	2564	2908	3251	3592	3933	4273	4612	4951
	45	1981	2652	3301	2660	3154	3645	4134	4621	5107	5591	6074	6556	7038
450	35	919	1331	1736	2135	2532	2925	3317	3707	4095	4483	4870	5256	5641
	45	1306	1893	2468	3036	3599	4159	4715	5270	5822	6373	6923	7471	8019
500	35	1033	1497	1951	2399	2844	3285	3724	4162	4597	5032	5465	5897	6329
	45	1469	2128	2774	3411	4043	4671	5295	5916	6536	7153	7769	8384	8997
550	35	1148	1662	2166	2663	3156	3645	4131	4616	5098	5579	6059	6537	7015
	45	1632	2363	3079	3786	4486	5182	5873	6562	7248	7931	8613	9294	9973
600	35	1262	1827	2380	2926	3467	4004	4538	5069	5598	6126	6652	7176	7700
	45	1794	2597	3384	4160	4929	5692	6451	7206	7959	8708	9456	10202	10946
650	35	1376	1992	2595	3190	3778	4363	4944	5522	6098	6671	7243	7814	8383
	45	1956	2832	3689	4534	5372	6202	7028	7850	8669	9484	10297	11109	11918
700	35	1490	2157	2809	3452	4089	4721	5349	5974	6596	7216	7835	8451	9066
	45	2118	3066	3993	4908	5813	6712	7605	8493	9378	10259	11138	12014	12888
750	35	1604	2321	3023	3715	4400	5079	5754	6426	7095	7761	8425	9087	9748
	45	2281	3300	4298	5281	6255	7221	8181	9135	10086	11033	11977	12918	13858
800	35	1718	2486	3237	3978	4710	5437	6159	6877	7592	8305	9015	9723	10429
	45	2443	3534	4602	5655	6696	7730	8756	9777	10794	11806	12815	13822	14826
900	35	1946	2815	3665	4502	5331	6152	6968	7779	8587	9391	10193	10992	11789
	45	2766	4002	5210	6400	7578	8746	9906	11059	12207	13351	14490	15626	16759
1000	35	2174	3144	4092	5026	5950	6866	7776	8680	9580	10476	11369	12259	13147
	45	3090	4469	5817	7146	8459	9761	11054	12340	13619	14893	16163	17428	18690
1100	35	2401	3472	4519	5550	5670	7580	8583	9580	10572	11560	12544	13525	14503
	45	3413	4936	6424	7890	9339	10776	12202	13620	15030	16434	17833	19227	20617
1200	35	2628	3800	4946	6073	7188	8293	9390	10480	11564	12643	13718	14789	15857
	45	3737	5403	7031	8634	10219	11790	13348	14898	16439	17974	19502	21025	22543
1300	35	2856	4128	5372	6597	7807	9006	10196	11378	12554	13725	14891	16053	17211
	45	4060	5869	7637	9378	11098	12803	14494	16175	17847	19512	21169	22821	24467
1400	35	3083	4456	5798	7119	8425	9718	11001	12276	13544	14806	16063	17315	18563
	45	4382	6335	8243	10121	11977	13815	15639	17452	19255	21049	22836	24616	26390
1500	35	3310	4784	6224	7642	9042	10430	11806	13174	14533	15887	17234	18577	19915
	45	4705	6801	8849	10864	12855	14827	16784	18728	20661	22585	24501	26409	28311

Sizing example

Given data
$\dot{V}$ = 8459 m³/h
Maximum width: 1000 mm
Sound power level: 45 dB(A)

Quick sizing
EKA-EU/1000×400×500

Volume flow rate $\dot{V}$ [l/s] at differential pressure Δp_{st} < 35 Pa

B [mm]	L_{WA} [dB(A)]	H [mm]												
		200	250	300	350	400	450	500	550	600	650	700	750	800
400	35	394	527	656	520	616	712	808	903	998	1093	1187	1281	1375
	45	550	737	917	739	876	1013	1148	1284	1419	1553	1687	1821	1955
450	35	255	370	482	593	703	813	921	1030	1138	1245	1353	1460	1567
	45	363	526	686	843	1000	1155	1310	1464	1617	1770	1923	2075	2228
500	35	287	416	542	666	790	913	1034	1156	1277	1398	1518	1638	1758
	45	408	591	771	948	1123	1298	1471	1643	1816	1987	2158	2329	2499
550	35	319	462	602	740	877	1013	1148	1282	1416	1550	1683	1816	1949
	45	453	656	855	1052	1246	1439	1631	1823	2013	2203	2393	2582	2770
600	35	351	508	661	813	963	1112	1261	1408	1555	1702	1848	1993	2139
	45	498	721	940	1156	1369	1581	1792	2002	2211	2419	2627	2834	3041
650	35	382	553	721	886	1049	1212	1373	1534	1694	1853	2012	2171	2329
	45	543	787	1025	1259	1492	1723	1952	2181	2408	2634	2860	3086	3311
700	35	414	599	780	959	1136	1311	1486	1659	1832	2004	2176	2348	2518
	45	588	852	1109	1363	1615	1864	2113	2359	2605	2850	3094	3337	3580
750	35	446	645	840	1032	1222	1411	1598	1785	1971	2156	2340	2524	2708
	45	634	917	1194	1467	1738	2006	2273	2538	2802	3065	3327	3588	3849
800	35	477	691	899	1105	1308	1510	1711	1910	2109	2307	2504	2701	2897
	45	679	982	1278	1571	1860	2147	2432	2716	2998	3279	3560	3839	4118
900	35	541	782	1018	1251	1481	1709	1936	2161	2385	2609	2831	3053	3275
	45	768	1112	1447	1778	2105	2429	2752	3072	3391	3709	4025	4341	4655
1000	35	604	873	1137	1396	1653	1907	2160	2411	2661	2910	3158	3405	3652
	45	858	1241	1616	1985	2350	2711	3071	3428	3783	4137	4490	4841	5192
1100	35	667	964	1255	1542	1575	2106	2384	2661	2937	3211	3484	3757	4029
	45	948	1371	1784	2192	2594	2993	3389	3783	4175	4565	4954	5341	5727
1200	35	730	1056	1374	1687	1997	2304	2608	2911	3212	3512	3811	4108	4405
	45	1038	1501	1953	2398	2839	3275	3708	4138	4566	4993	5417	5840	6262
1300	35	793	1147	1492	1833	2169	2502	2832	3161	3487	3813	4136	4459	4781
	45	1128	1630	2121	2605	3083	3556	4026	4493	4958	5420	5880	6339	6796
1400	35	856	1238	1611	1978	2340	2699	3056	3410	3762	4113	4462	4810	5156
	45	1217	1760	2290	2811	3327	3838	4344	4848	5349	5847	6343	6838	7331
1500	35	919	1329	1729	2123	2512	2897	3279	3659	4037	4413	4787	5160	5532
	45	1307	1889	2458	3018	3571	4119	4662	5202	5739	6274	6806	7336	7864

Sizing example

Given data
$\dot{V}$ = 1000 l/s
Maximum width: 450 mm
Sound power level: 45 dB(A)

Quick sizing
EKA-EU/450×400×500

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Rectangular or square smoke control dampers to product standard EN 12101-8, tested to EN 1366-10 and EN 1366-2, for use in smoke extract systems.
Smoke control dampers not only prevent the spreading of smoke and combustion products between fire compartments, they also prevent the leakage of emitted, dangerous and poisonous fire suppression gases from the affected area, and they maintain positive pressure in pressurisation systems.
The EK-EU is suitable as a pressure relief damper for gas fire extinguishing systems.
For extracting smoke gases and for providing additional supply air to one or more fire compartments.
The EK-EU can be used in smoke extract systems which have been approved for extract ventilation.
The fire-resistant smoke control damper for multiple compartments is suitable for installation in solid walls.

Classification
– Class of performance to EI 120 (v_{ew} – i ↔ o) S 1500 C10000 AA multi to EN 13501-4

Special characteristics
– Declaration of performance according to Construction Products Regulation
– Classification to EN 13501-4, up to EI 120 (v_{ew} – i ↔ o) S 1500 C10000 AA multi
– Complies with the requirements of EN 12101-8
– Tested for fire resistance properties to DIN 1366-10 and EN 1366-2
– Hygiene complies with VDI 6022 part 1, VDI 3803, DIN 1946 part 4 and EN 13779
– Corrosion protection according to EN 15650 in connection with EN 60068-2-52
– Closed blade air leakage to EN 1751, class 2
– Casing air leakage to EN 1751, class C; (B + H) ≤ 700, class B
– Low differential pressure and sound power level
– Any airflow direction
– Integration into the central BMS with TROXNETCOM

Materials and surfaces
Casing:
– Galvanised sheet steel
– Galvanised sheet steel, powder-coated RAL 7001
– Stainless steel 1.4301

Damper blade:
– Special insulation material
– Special insulation material with impregnation

Other components:
– Damper blade shafts and drive linkage made of stainless steel
– Brass or stainless steel bearings
– Seals of polyurethane or elastomer

The construction variants with stainless steel or powder-coated casing meet even more critical requirements for corrosion protection. Detailed listing on request.

Technical data
– Nominal sizes: 400 × 200 to 1500 × 800 mm
– Casing lengths: 240 and 500 mm
– Volume flow rate range: Up to 12000 l/s or 43200 m^3/h
– Differential pressure range: Pressure level 3, –1500 to 500 Pa
– Temperature range: At least –30 to 50 °C
– Upstream velocity: ≤ 10 m/sec

Sizing data
– $\dot{V}$ _____ _____ [m^3/h]
– Δp_{st} _____ _____ [Pa]

Air-regenerated noise
– L_{PA} _____ _____ [dB(A)]

EKA-EU

EKA – EU – 1 / PL / 600×400×500 / A0 / Z28
1 2 3 4 5 6

1 Type
EKA-EU Smoke control damper

2 Construction
No entry: standard construction
1 Powder-coated casing, RAL 7001
2 Stainless steel casing
7 Impregnated damper blade
1 – 7 Powder-coated casing RAL 7001 and impregnated damper blade
2 – 7 Stainless steel casing and impregnated damper blade

3 Country of destination
PL Poland
Other destination countries upon request

4 Nominal size [mm]
B × H × L

5 Accessories
No entry: none
A0 – R0

6 Attachments
Z27 BLE.../ BE230-12, 230V AC/DC
Z28 BE24-12, 24V AC/DC
Z29 BE24-12 with BKNE 230/24

EKA-EU/PL/600×400×500/A0/Z43

Construction variant	Casing powder-coated, RAL 7001, silver grey
Nominal size	600 × 400 × 500 mm
Accessories	Cover grille on operating side
Attachment	Z27: BLE../ BE230-12, 230 V AC/DC; Z28: BLE.../ BE24-12, 24 V AC/DC; Z29: BLE.../ BE24-12 with BKNE 230/24

Note
For further information relevant to design, in particular information on installation situations, please refer to the operating and installation manual.

Cover grilles

Description

Cover grilles

Application

- If only one end is to be ducted on site, the other end must have a cover grille
- For certain heights extension pieces may be required, see table
- Smoke control damper, cover grille and, if applicable, extension piece are factory assembled to form a unit
- The free area of the cover grille is approx. 70%
- The fixing holes in the cover grilles and extension pieces match those in the smoke control damper flanges
- Cover grilles are also available separately

Materials and surfaces

- Cover grilles made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)

/ A0 /
/ 0A /
/ AA /
5

Order code detail

Cover grille for EKA-EU

Operating side	Installation side	Order code
Cover grille	–	A0
–	Cover grille	0A
Cover grille	Cover grille	AA

Technical data

Arrangement and length of extension pieces (dimensions in mm)

H	Operating side	Installation side	L	Order code
200 – 300	–	–	500	A0
350 – 550	120	–	500	A0
200 – 300	–	–	500	0A
350 – 550	–	–	500	0A
600 – 800	–	120	500	0A
200 – 300	–	–	500	AA
350 – 550	120	–	500	AA
600 – 800	260	120	500	AA

The distance »a« between the open damper blade and the spigot should be approx. 50 mm.

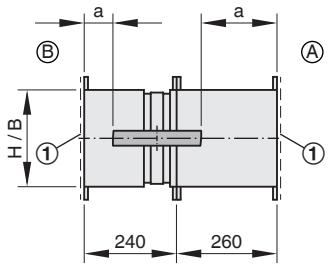
Cover grilles

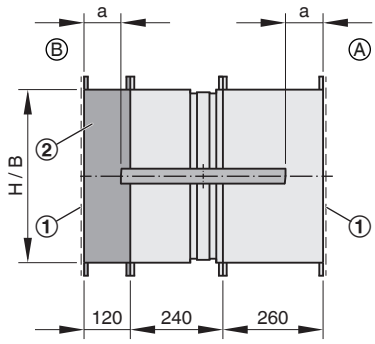
① Cover grille, mesh aperture 10 mm × 10 mm, wire width 2 mm

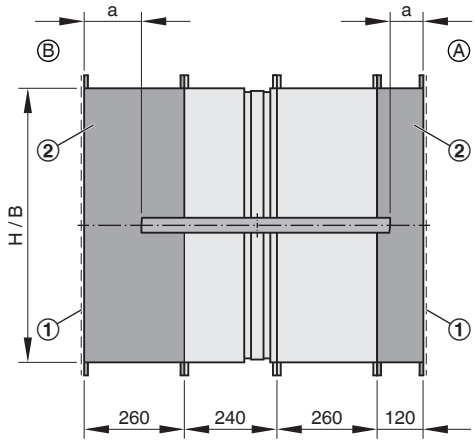
② Extension piece

The distance »a« between the open damper blade and the spigot should be approx. 50 mm.

Cover grilles







A Installation side
B Operating side

① Cover grille, mesh aperture 10 mm × 10 mm, wire width 2 mm

② Extension piece

Extension piece and cover grille are supplied factory assembled.

Circular spigot

Description

Application

- Circular spigots for rectangular EKA-EU fire dampers facilitate the direct connection of circular ducts
- For certain heights extension pieces may be required, see table
- Smoke control damper, spigot and, if applicable, extension piece are factory assembled to form a unit
- The fixing holes in the spigots and extension pieces match those in the smoke control damper flanges
- Spigots are also available separately.

Materials and surfaces

- Circular spigots made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)

/ **R0** /
/ **0R** /
/ **RR** /
5

Order code detail

Circular spigot for EKA-EU

Operating side	Installation side	Order code
Spigot	**–**	R0
–	**Spigot**	0R
Spigot	**Spigot**	RR

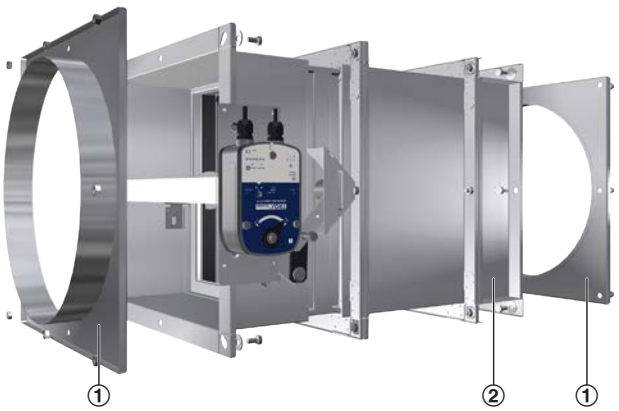
Technical data

Arrangement and length of extension pieces (dimensions in mm)

H	Operating side	Installation side	L	Order code
200 – 300	–	–	500	R0
350 – 550	120	–	500	R0
200 – 300	–	–	500	0R
350 – 550	–	–	500	0R
600 – 800	–	120	500	0R
200 – 300	–	–	500	RR
350 – 550	120	–	500	RR
600 – 800	260	120	500	RR

The distance »a« between the open damper blade and the spigot should be approx. 50 mm.

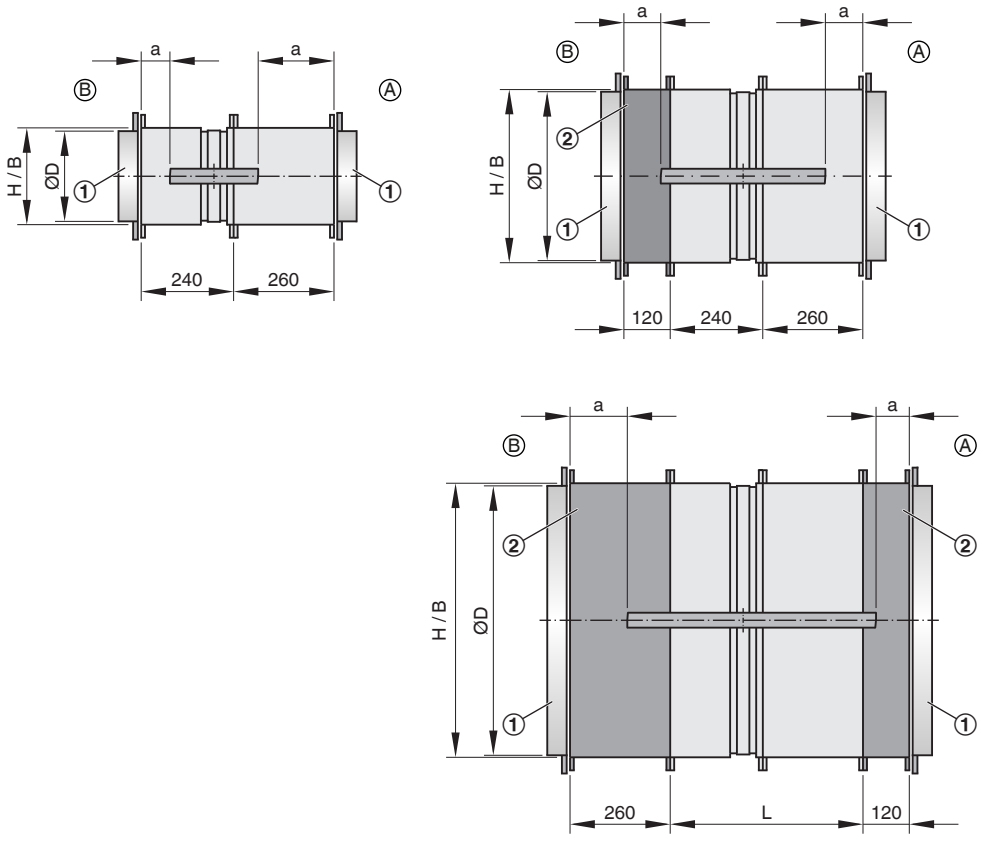
Circular spigot



① Circular spigot ② Extension piece

The distance »a« between the open damper blade and the spigot should be approx. 50 mm.

Circular spigot



A Installation side
B Operating side

① Circular spigot
② Extension piece

Extension piece and spigots are supplied factory assembled.

Dimensions [mm]

Nominal size	B × H	ØD
400	400 × 400	398
450	450 × 450	448
500	500 × 500	498
550	550 × 550	498
600	600 × 600	558
650	650 × 650	628
700	700 × 700	628
750	750 × 750	708
800	800 × 800	798

Extension piece

Description

Extension piece

Application

- Smoke control damper ordered with cover grille or circular spigot are supplied including extension pieces.
- Extension pieces are also available separately in the lengths 120 mm and 260 mm

Materials and surfaces

- Extension piece made of galvanised sheet steel (and powder-coated silver grey, RAL 7001, when used with powder-coated (1) and stainless steel (2) dampers)

Technical data

When using cover grilles or circular spigots you may have to use an extension piece for some nominal sizes.

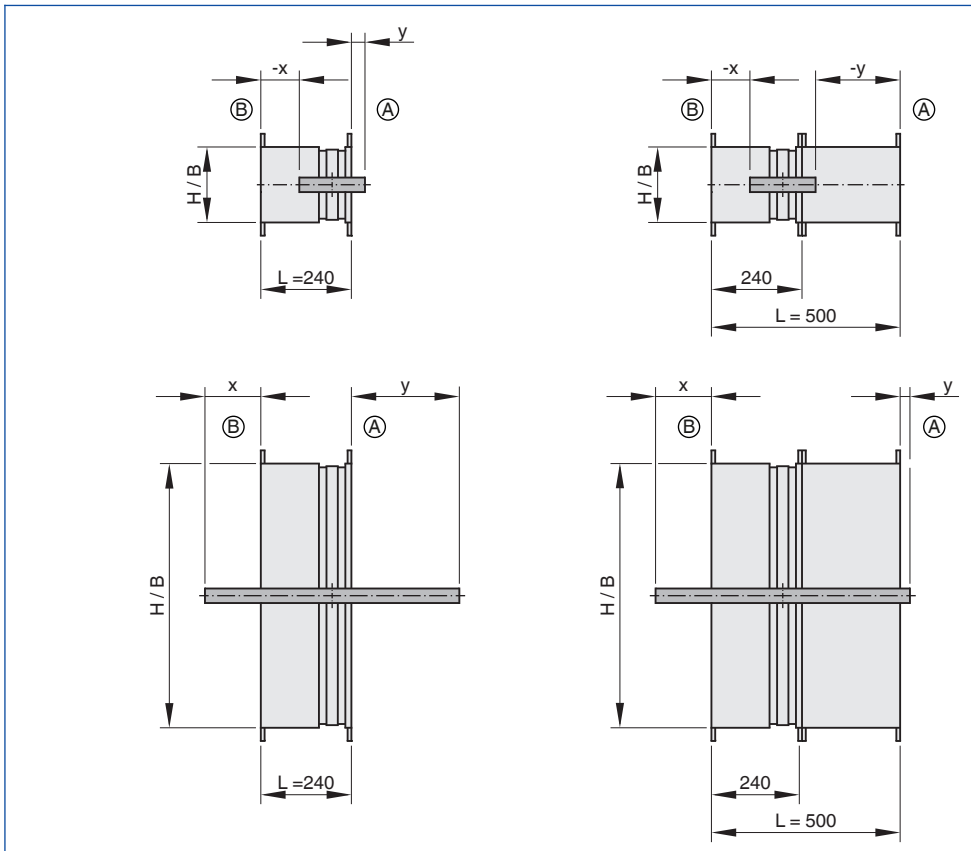
Dimensions [mm]

H	200	250	300	350	400	450	500	550	600	650	700	750	800
x	–103	–78	–53	–28*	–3*	22*	47*	72*	97*	122*	147*	172*	197*
y													
L = 240	35*	60*	85*	110*	135*	160*	185*	210*	235*	260*	285*	310*	335*
L = 500	–225	–200	–175	–150	–125	–100	–75	–50	–25*	0*	25*	50*	75*

*** Extension piece required**

Open blade protrusion

The distance »a« between the open damper blade and the cover grille should be approx. 50 mm.

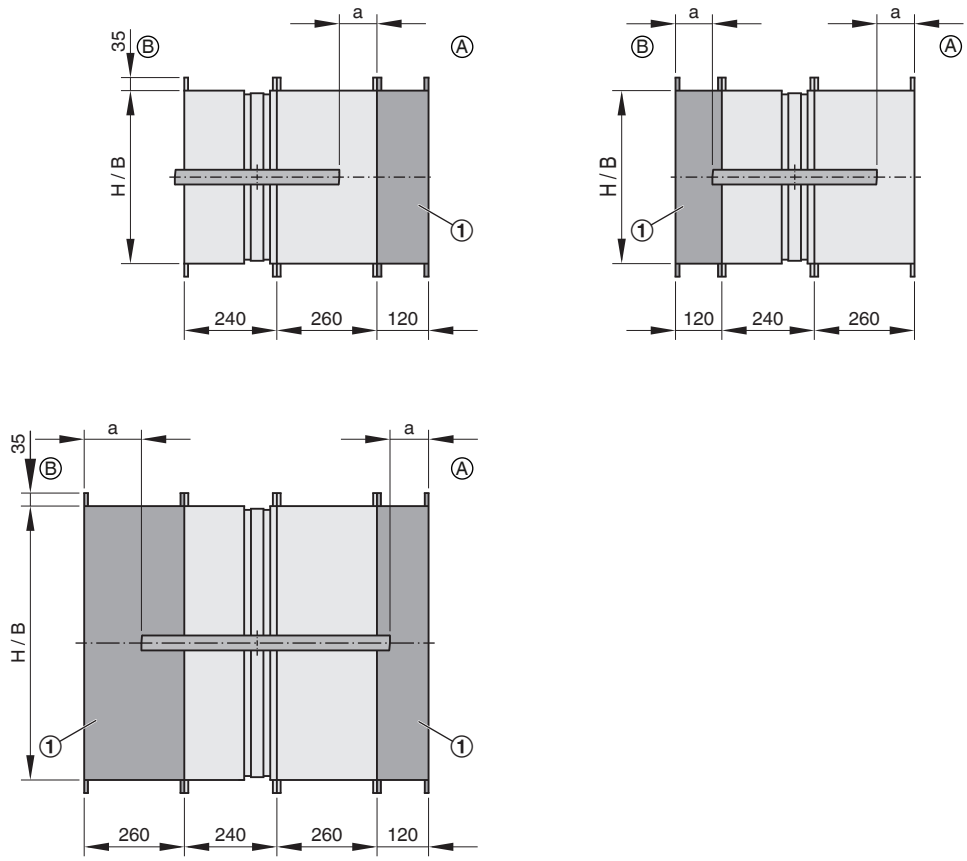


A Installation side

B Operating side

The distance »a« between the open damper blade and extension piece should be approx. 50 mm.

Extension piece



A Installation side
B Operating side

① Extension piece, on operating and/or installation side

Open/Close actuators

Description

EKA-EU with open/close actuator

EKA-EU with open/close actuator

- Opening and closing of Type EKA-EU smoke control dampers
- With integral limit switches for capturing the end positions
- An open/close actuator allows for remote control of the smoke control damper and/or release by a suitable duct smoke detector
- Ambient temperature, normal operation –30 to 50 °C
- Two integral limit switches with volt-free contacts can indicate the damper blade position (OPEN and CLOSED)
- The connecting cables of the 24 V spring return actuator are fitted with plugs, which ensure quick and easy connection to the TROX AS-i bus system

/ Z27
/ Z28
/ Z29
6

Order code detail

Attachments	Order code
BLE.../ BE230-12, 230 V AC/DC	Z27
BLE.../ BE24-12, 24 V AC/DC	Z28
BLE.../ BE24-12 with BKNE 230/24	Z29

Technical data

Open/Close actuator BLE...

Type		230-12 TR	24-12-ST TR
Supply voltage		230 V AC, 50/60 Hz	24 V AC, 50/60 Hz / 24 V DC
Power rating	Opening and closing	5 W	7.5 W
	Hold position	< 1 W	< 0,5 W
	Rating	12 VA	9 VA
Running time	Actuator / spring return	<30 s	
Limit switch	Type of contact	2 changeover contacts	
	Switching voltage	5 V DC / 250 V AC	
	Switching current	1 mA – 3 A	
IEC protection class		II (protective insulation)	III (protective extra-low voltage)
Protection level		IP 54	

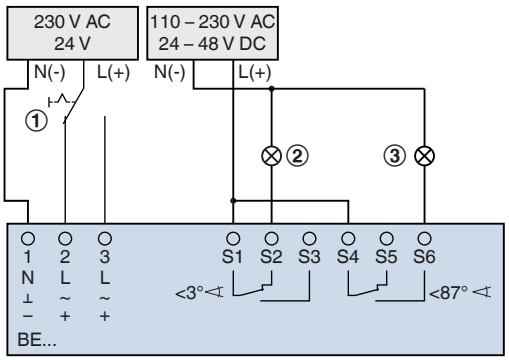
Technical data

Open/Close actuator BE...

Type		230-12 TR	24-12-ST TR
Supply voltage		230 V AC, 50/60 Hz	24 V AC, 50/60 Hz / 24 V DC
Power rating	Opening and closing	8 W	12 W
	Hold position	0.5 W	0.5 W
	Rating	15 VA	18 VA
Running time	Actuator / spring return	<60 s	
Limit switch	Type of contact	2 changeover contacts	
	Switching voltage	5 V DC / 250 V AC	
	Switching current	1 mA – 6 A	
IEC protection class		II (protective insulation)	III (protective extra-low voltage)
Protection level		IP 54	

Wiring example

Open/Close actuator



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

Duct smoke detectors

Description

Duct smoke detector RM-O-3-D

Duct smoke detector RM-O-VS-D

For detailed information on duct smoke detectors see Chapter 3

General

- To prevent smoke from spreading in buildings, it is extremely important that the smoke is detected at an early stage.
- Duct smoke detectors that operate on the principle of light scattering detect the smoke regardless of its temperature so that the fire dampers can be closed before the release temperature of 72 °C is reached
- If the air contains suspended particles, as is the case with smoke, beams of light are deflected off these. A sensor (photodiode), which does not receive light in clear air, is illuminated by the scattered light.
- The fire damper, smoke control damper or smoke protection damper blade is released when the brightness of the scattered light exceeds a certain threshold

Note

For details please refer to the technical leaflets for RM-O-3-D and RM-O-VS-D.

Application

RM-O-3-D:

- Duct smoke detector for smoke control dampers
- General building inspectorate licence Z-78.6-125
- For airflow velocities from 1 – 20 m/s
- Independent of the airflow direction
- Supply voltage 230 V AC, 50/60 Hz or 24 V DC with voltage monitoring module (VWM) (upon request)
- Volt-free signal and alarm relays
- Integral signal lamps
- Contamination level indicator
- Automatic adjustment of alarm threshold
- Long service life
- Temperature range 0 – 60 °C

RM-O-VS-D:

- Duct smoke detector for smoke control dampers
- General building inspectorate licence Z-78.6-67
- For airflow velocities from 1 – 20 m/s
- Independent of the airflow direction
- Airflow monitoring with warning for lower limit 2 m/s
- Supply voltage 230 V AC, 50/60 Hz
- Volt-free signal and alarm relays
- Integral signal lamps
- Contamination level indicator
- Automatic adjustment of alarm threshold
- Long service life
- Temperature range 0 – 60 °C

Attachments	Order code
Duct smoke detector	RM-O-3-D
	RM-O-VS-D

Duct smoke detectors are attachments and to be ordered separately.

Product examples

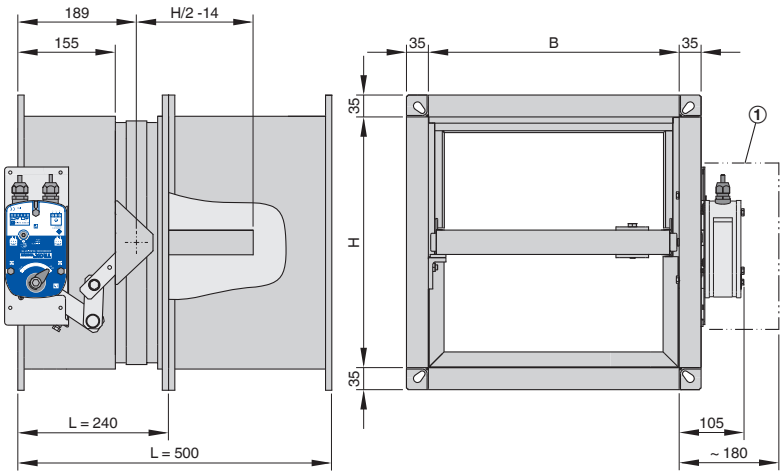
EKA-EU with cover grille

EKA-EU with circular spigot

Dimensions

EKA-EU with open/close actuator

EKA-EU with open/close actuator (EKA-EU/.../Z2*)



① Keep clear to provide access to open/close actuator

Dimensions in mm / Weight in kg for L = 240 mm / L = 500 mm

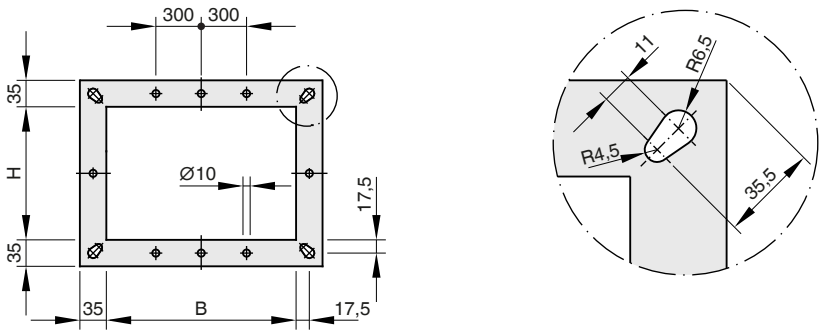
H	B					
	400	450	500	550	600	650
200	13/18	13/19	14/20	15/21	16/22	16/23
250	14/19	15/20	16/22	16/23	17/24	18/25
300	15/21	16/22	17/23	18/24	19/26	20/27
350	16/22	17/24	18/25	19/26	20/28	21/29
400	17/24	19/25	20/27	21/28	22/30	23/31
450	19/25	20/27	21/28	23/29	24/31	25/33
500	20/27	21/28	22/30	24/31	25/33	26/35
550	21/28	22/30	24/32	25/33	26/35	28/37
600	22/30	24/31	25/33	26/35	28/37	30/39
650	24/31	25/33	26/35	28/37	30/39	32/41
700	25/32	26/35	28/37	29/38	32/41	33/43
750	26/34	28/36	29/38	31/40	33/43	35/45
800	27/35	29/38	31/40	33/43	35/45	37/47

Dimensions in mm / Weight in kg for L = 240 mm / L = 500 mm

H	B									
	700	750	800	900	1000	1100	1200	1300	1400	1500
200	17/24	17/25	18/26	21/29	22/31	24/33	25/35	26/37	28/39	29/41
250	19/26	20/27	20/28	23/32	25/34	26/36	28/39	30/41	31/43	33/45
300	21/28	21/29	22/31	25/34	27/37	29/39	31/42	33/43	35/47	36/49
350	22/30	23/32	24/33	28/37	30/40	32/42	34/45	36/48	38/50	40/53
400	24/33	25/34	27/35	30/39	32/42	35/45	37/48	39/51	41/54	44/57
450	26/35	27/36	29/38	32/42	35/45	37/48	40/52	42/55	45/58	47/61
500	28/37	29/38	31/40	34/45	37/48	40/51	43/55	45/58	48/62	51/65
550	30/39	31/41	33/43	37/48	40/50	42/54	45/58	48/62	52/65	55/69
600	32/41	33/43	35/45	39/50	42/54	45/57	48/61	52/65	55/69	58/73
650	34/43	35/45	37/48	41/52	45/57	48/61	52/65	55/68	58/72	62/77
700	35/45	37/48	39/50	43/55	47/59	51/64	54/68	58/72	62/75	65/81
750	37/47	39/49	41/52	46/58	49/62	54/67	57/72	61/75	65/80	68/84
800	39/50	41/52	43/54	48/60	52/65	56/69	60/74	64/79	68/84	72/88

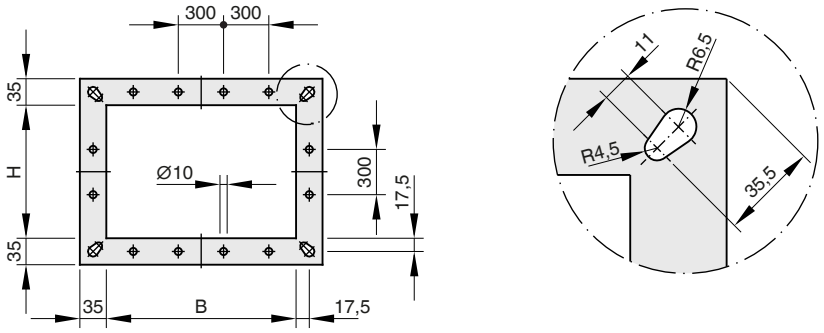
Dimensions

Flange – uneven number of holes



① Keep clear to provide access to open/close actuator

Even number of holes



① Keep clear to provide access to open/close actuator

Dimensions [mm]

B or H	200	300	400	500	600	650	750	900	1100	1300	1500
	250	350	450	550		700	800	1000	1200	1400	
No. of holes horizontally (B)*			1	1	1	2	2	3	3	4	4
No. of holes vertically (H)*			1	1	1	2	2				

* excluding corner holes

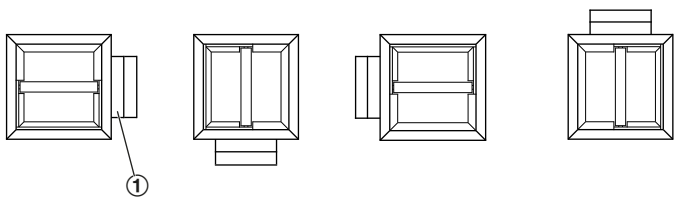
Design information

- Approved for use in mechanical smoke extract systems
- A cover grille may be attached directly to the damper
- If the damper is installed in a solid wall or in a fire-resistant smoke extract duct with a lower fire resistance class than that of the smoke control damper, the fire resistance class of the wall applies also to the EKA-EU (details upon request)
- Fire-resistant smoke extract ducts must be installed in such a manner that they do not impose any significant loads on the smoke control damper in the event of a fire
- Sheet steel smoke extract ducts to EN 1366-9 must be connected with flexible connectors according to the manufacturer's instructions for the sheet steel ducts
- Smoke control dampers must be installed, connected and attached according to the operating and installation manual

Essential characteristic: fire resistance — size [mm]: 400 × 200 to 1500 × 800, cross-sectional area [m^2]: 0,1 to 1,2				
Supporting construction	**Construction details**	**Installation location**	**Installation type**	**Class of performance (EI TT)**
 Solid wall	• d ≥ 115 mm • ρ ≥ 500 kg/m^3	in the wall	Mortar-based installation	EI 120 (v_{ew}, i↔o) S 1500 C_{10000} AA multi

Installation orientation

Installation orientation EKA-EU



① Actuator

Installation and commissioning
Installation is carried out according to the installation and operating manual.

Mortar-based installation:
– In solid walls

Principal dimensions

L [mm]
Length of the smoke control damper

B [mm]
Width of the smoke control damper

H [mm]
Height of the smoke control damper

Nomenclature

$\dot{V}$ [m³/h] and [l/s]
Volume flow rate

L_{WA} [dB(A)]
A-weighted sound power level of air-regenerated noise for the smoke control damper

A [m²]
Free area

Δp_t [Pa]
Total differential pressure

v [m/s]
Airflow velocity based on the upstream cross section (B × H)