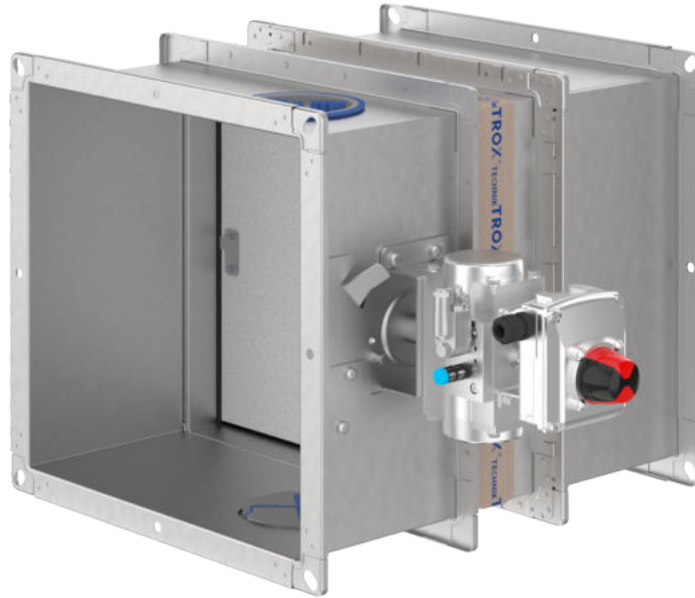




Tested to VDI 6022

Pressure relief dampers for fire protection applications

FK2-DV



For diverse applications

Pressure relief dampers Type FK2-DV for use in gaseous fire suppression systems, with 6 bar pneumatic actuator (no thermal release)

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General information

Application

The construction of the FK2-DV pressure relief damper is based on the FK2-EU fire damper. This damper is **not** a fire damper with thermal release mechanism, but a pressure relief damper for use in gaseous fire suppression systems (used primarily for server rooms and other IT rooms).

Special features

- Pressure relief dampers do not require a building certificate, and they have no rating plate or CE marking
- Approval of this pressure relief damper has to be covered by the approval of the gaseous fire suppression system; in other words, whoever builds or designs the gaseous fire suppression system has to make sure that the required pressure relief damper is included in the design and in the approval procedure
- To ensure that the required fire resistance is achieved, the pressure relief damper has to be installed in compliance with the installation and operating manual for the FK2-EU fire damper
- 2 inspection accesses with bayonet fixing for single hand operation
- Meets the hygiene requirements of VDI 6022-1, VDI 3803-1, DIN 1946-4, EN 3779, of Ö-Norm H 6020 and H 6021, and of SWKI
- 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; $(B + H) \leq 700$, class B
- Low differential pressure and sound power level
- Any airflow direction

Classification

There is no building certificate for the pressure relief damper. If the installation is carried out according to the FK2-EU installation and operating manual, the stated fire resistance class applies to the closed pressure relief damper.

Nominal sizes

- B × H: 200 × 100 – 1500 × 800 mm (in increments of 1 mm)
- L: 305 mm or 500 mm

Attachments

- Pneumatic actuator, 6 bar, including limit switch subassembly for damper blade positions OPEN and CLOSED

Accessories

- Installation kit ES for dry mortarless installation in lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structure or steel support structure and cladding on both sides
- Installation kit ES for dry mortarless installation in timber stud walls, half-timbered constructions, solid wood walls and CLT walls
- Installation kit ES for dry mortarless installation in shaft walls with metal support structure or steel support structure as well as in shaft walls without metal support structure
- Installation kit ES for dry mortarless installation in wooden beam ceilings and solid wood ceilings
- Installation kit E3 for dry mortarless installation in solid walls in an existing FK-K90 or FK-EU installation subframe E1/E2
- Installation kit EW for dry mortarless installation with installation subframe in solid walls
- Installation kit GM for installation into solid non-load-bearing walls with flexible ceiling joint
- Installation kit WA for dry mortarless installation on the face of solid walls and ceiling slabs
- Installation kit WE for dry mortarless installation remote from solid walls and ceiling slabs, also remote from lightweight partition walls with metal support structure and cladding on both sides
- Installation kit GL for dry mortarless installation in lightweight partition walls with metal support structure, cladding on both sides and a flexible ceiling joint
- Cover grille
- Flexible connectors
- Circular spigots
- Connecting subframe

Construction features

- Rectangular or square construction, rigid casing, both flanges with fixing holes
- Suitable for the connection of ducts, cover grilles, spigots, flexible connectors or a connecting subframe
- The actuator is accessible and can be tested from the outside
- Two inspection access panels, Ø110 mm, which can be opened without any tools

Materials and surfaces

Casing:

- Galvanised sheet steel

Damper blade:

- Special insulation material
- Special insulation material with impregnation

Other components:

- Damper blade shafts and drive linkage made of galvanised steel
- Plastic plain bearings
- EPDM and TPE seals

Supply package

Attachments and accessories that are factory mounted and supplied together with these pressure relief dampers have already been included in the order code. Depending on the installation situation, additional materials such as mortar, screws or mineral wool may be required for correct installation. Such materials are not usually included in the supply package (unless stated otherwise). Attachments and accessories have to be selected by people involved in the building project; these people also have to select and provide any additionally required installation or fixing materials and make sure that the required classifications are met.

Maintenance

General

Regular care and maintenance ensure operational readiness, functional reliability and long service life of the pressure relief dampers. The system owner is responsible for the maintenance of the dampers. The system owner is responsible for creating a maintenance plan, for defining the maintenance goals, and for the functional reliability of the equipment.

Functional test

The functional reliability of the pressure relief damper should be tested at least every six months; this has to be arranged by the system owner. If two consecutive tests, one 6 months after the other, are successful, the next test can be conducted one year later. The functional test should be done with compressed air (6 bar), not with fire suppression gas.

Maintenance

The pressure relief damper and the pneumatic actuator are not subject to wear and hence maintenance-free, but the damper should still be cleaned if necessary.

Cleaning

Pressure relief dampers may be cleaned with a dry or damp cloth. Sticky dirt or contamination may be removed with a commercial, non-aggressive cleaning agent. Do not use abrasive cleaners or tools (e.g. brushes).

Inspection

Pressure relief dampers should be inspected before commissioning. This should be followed by regular functional tests; the tests should be arranged by the system owner and should be documented. If the requirements are not fully met, suitable remedial action must be taken.

Repair

For safety reasons, repair work must only be carried out by expert qualified personnel or the manufacturer. Only original replacement parts are to be used. A functional test is required after any repair.

For more information on maintenance see the FK2-EU installation and operating manual.

Technical data

- Nominal sizes: 200 × 100 to 1500 × 800 mm
- Casing lengths: 305 and 500 mm
- Volume flow rate range: up to 12000 l/s (43200 m³/h)
- Differential pressure range: up to 2000 Pa
- Temperature range: -20 to 50 °C
- Upstream velocity*: ≤ 10 m/s

* Applies to uniform upstream and downstream conditions for the pressure relief damper

Function

The construction of the FK2-DV pressure relief damper is based on the FK2-EU fire damper.

The pressure relief damper is fitted with a single acting pneumatic actuator without thermal release mechanism. The damper is normally closed. If fire suppression is required, first the

suppression gas pressure is reduced to 6 bar with a pressure regulator, then the gas is applied to the pneumatic actuator. The damper opens so that when the fire suppression gas is released, the excess air can escape. Two limit switches (supply package) can be used for indicating end positions OPEN and CLOSED.

Functional description

Nominal sizes

H [mm]	B [mm]													
	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
100														
150														
200														
250														
300														
350														
400														
450														
500														
550														
600														
650														
700														
750														
800														

Sizes

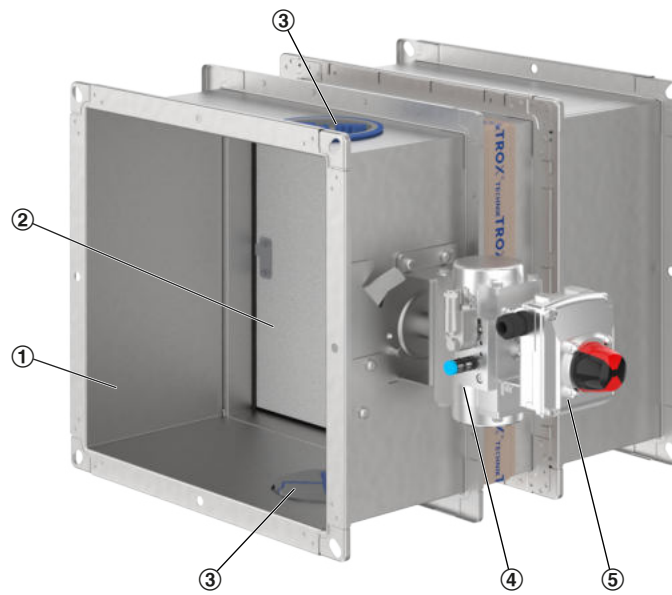
1
2
3

Damper blade (30 mm thick) with lip seal for sizes 1 and 2, damper blade (40 mm thick) with travel stop seal for size 3.

Size 1: pneumatic actuator fitted horizontally.

Sizes 2 and 3: pneumatic actuator fitted vertically.

Construction (size 2 shown)



- ① Casing
- ② Damper blade
- ③ Inspection access
- ④ Pneumatic actuator, 6 bar (vertical in this illustration)
- ⑤ Limit switch subassembly with position indicator

Principle of operation:

1. Fire suppression – the damper opens

First the suppression gas pressure is reduced to 6 bar with a pressure regulator, then the gas is applied to the pneumatic actuator so that the damper opens. Opening takes 2 to 3 seconds. The pressure relief damper remains open as long as

there is pressure.

2. Closure

If the pressure in the fire suppression system decreases, the pressure on the pneumatic actuator is also reduced by means of a quick exhaust valve. As a result, the pressure relief damper is closed by the spring return of the rotary actuator.

Technical data

Nominal sizes	200 × 100 – 1500 × 800 mm ³
Casing lengths	305 and 500 mm
Volume flow rate range	Up to 12000 l/s or 43200 m ³ /h
Differential pressure range	Up to 2000 Pa
Temperature range ²	-20 – 50 °C
Upstream velocity ¹	≤ 10 m/s

¹ * Applies to uniform upstream and downstream conditions for the pressure relief dampers.

² Condensation and the intake of humid air have to be avoided as otherwise operation will be impaired or not possible.

³ Damper blade with lip seal for sizes 1 and 2, damper blade with travel stop seal for size 3.

For sizes see the functional description.

Free area and resistance coefficient, width 200 – 800 mm

H	(1)	B												
		200	250	300	350	400	450	500	550	600	650	700	750	800
100	A [m ²]	0.013	0.016	0.02	0.023	0.027	0.03	0.034	0.037	0.041	0.044	0.048	0.051	0.055
100	ζ	1.05	0.96	0.88	0.83	0.78	0.75	0.71	0.69	0.66	0.64	0.62	0.61	0.59
125	A [m ²]	0.0175	0.0222	0.027	0.0317	0.0365	0.0412	0.046	0.0507	0.0555	0.0602	0.065	0.0697	0.0745
125	ζ	0.93	0.85	0.78	0.73	0.69	0.66	0.63	0.61	0.59	0.57	0.55	0.54	0.52
150	A [m ²]	0.0221	0.0281	0.0341	0.0401	0.0461	0.0521	0.0581	0.0641	0.0701	0.0761	0.0821	0.0881	0.0941
150	ζ	0.85	0.77	0.71	0.67	0.63	0.6	0.58	0.55	0.54	0.52	0.5	0.49	0.48
160	A [m ²]	0.024	0.03	0.037	0.043	0.05	0.056	0.063	0.069	0.076	0.082	0.089	0.095	0.102
160	ζ	0.66	0.6	0.55	0.52	0.49	0.47	0.45	0.43	0.41	0.4	0.39	0.38	0.37
200	A [m ²]	0.031	0.04	0.048	0.057	0.065	0.074	0.082	0.091	0.099	0.108	0.116	0.125	0.133
200	ζ	0.74	0.67	0.62	0.58	0.55	0.52	0.5	0.48	0.47	0.45	0.44	0.43	0.41
250	A [m ²]	0.0397	0.0507	0.0617	0.0727	0.0837	0.0947	0.1057	0.1167	0.1277	0.1387	0.1497	0.1607	0.1717
250	ζ	0.67	0.61	0.56	0.53	0.5	0.47	0.45	0.44	0.42	0.41	0.4	0.38	0.37
300	A [m ²]	0.0489	0.0624	0.0759	0.0894	0.1029	0.1164	0.1299	0.1434	0.1569	0.1704	0.1839	0.1974	0.2109
300	ζ	0.62	0.56	0.52	0.49	0.46	0.44	0.42	0.4	0.39	0.38	0.36	0.35	0.34
350	A [m ²]	0.0581	0.0741	0.0901	0.1061	0.1221	0.1381	0.1541	0.1701	0.1861	0.2021	0.2181	0.2341	0.2501
350	ζ	0.58	0.52	0.48	0.45	0.43	0.41	0.39	0.38	0.36	0.35	0.34	0.33	0.32
400	A [m ²]	0.0673	0.0858	0.1043	0.1228	0.1413	0.1598	0.1783	0.1968	0.2153	0.2338	0.2523	0.2708	0.2893
400	ζ	0.54	0.49	0.46	0.43	0.4	0.39	0.37	0.35	0.34	0.33	0.32	0.31	0.3
450	A [m ²]	0.0765	0.0975	0.1185	0.1395	0.1605	0.1815	0.2025	0.2235	0.2445	0.2355	0.2548	0.2741	0.2934
450	ζ	0.57	0.51	0.47	0.43	0.41	0.39	0.37	0.35	0.34	0.33	0.32	0.31	0.3
500	A [m ²]	0.0857	0.1092	0.1327	0.1562	0.1797	0.2032	0.2267	0.2502	0.2737	0.266	0.2878	0.3096	0.3314
500	ζ	0.54	0.48	0.44	0.41	0.39	0.37	0.35	0.34	0.33	0.31	0.3	0.3	0.29
550	A [m ²]			0.1264	0.1507	0.175	0.1993	0.2236	0.2479	0.2722	0.2965	0.3208	0.3451	0.3694
550	ζ			0.42	0.4	0.37	0.35	0.34	0.32	0.31	0.3	0.29	0.28	0.28
600	A [m ²]			0.1394	0.1662	0.193	0.2198	0.2466	0.2734	0.3002	0.327	0.3538	0.3806	0.4074
600	ζ			0.41	0.38	0.36	0.34	0.32	0.31	0.3	0.29	0.28	0.27	0.27
650	A [m ²]			0.1524	0.1817	0.211	0.2403	0.2696	0.2989	0.3282	0.3575	0.3868	0.4161	0.4454
650	ζ			0.39	0.37	0.35	0.33	0.31	0.3	0.29	0.28	0.27	0.26	0.26
700	A [m ²]			0.1654	0.1972	0.229	0.2608	0.2926	0.3244	0.3562	0.388	0.4198	0.4516	0.4834
700	ζ			0.38	0.35	0.33	0.32	0.3	0.29	0.28	0.27	0.26	0.25	0.25
750	A [m ²]			0.1784	0.2127	0.247	0.2813	0.3156	0.3499	0.3842	0.4185	0.4528	0.4871	0.5214
750	ζ			0.37	0.34	0.32	0.31	0.29	0.28	0.27	0.26	0.25	0.25	0.24
800	A [m ²]			0.1914	0.2282	0.265	0.3018	0.3386	0.3754	0.4122	0.449	0.4858	0.5226	0.5594
800	ζ			0.36	0.33	0.32	0.3	0.29	0.27	0.26	0.26	0.25	0.24	0.23

(1) Parameters

Free area and resistance coefficient, width 850 – 1500 mm

H	(1)	B						
		900	1000	1100	1200	1300	1400	1500
200	A [m ²]	0.117	0.1665	0.1442	0.1578	0.1714	0.185	0.1986
200	ζ	0.44	0.42	0.4	0.39	0.38	0.36	0.35
250	A [m ²]	0.16	0.2157	0.1972	0.2158	0.2344	0.253	0.2716
250	ζ	0.39	0.37	0.35	0.34	0.33	0.32	0.31
300	A [m ²]	0.203	0.2649	0.2502	0.2738	0.2974	0.321	0.3446
300	ζ	0.35	0.34	0.32	0.31	0.3	0.29	0.28
350	A [m ²]	0.246	0.2746	0.3032	0.3318	0.3604	0.389	0.4176
350	ζ	0.32	0.31	0.3	0.29	0.28	0.27	0.26
400	A [m ²]	0.289	0.3226	0.3562	0.3898	0.4234	0.457	0.4906
400	ζ	0.3	0.29	0.28	0.27	0.26	0.25	0.25
450	A [m ²]	0.332	0.3706	0.4092	0.4478	0.4864	0.525	0.5636
450	ζ	0.29	0.28	0.26	0.26	0.25	0.24	0.23
500	A [m ²]	0.375	0.4186	0.4622	0.5058	0.5494	0.593	0.6366
500	ζ	0.27	0.26	0.25	0.24	0.24	0.23	0.22
550	A [m ²]	0.418	0.4666	0.5152	0.5638	0.6124	0.661	0.7096
550	ζ	0.26	0.25	0.24	0.23	0.23	0.22	0.21
600	A [m ²]	0.461	0.5146	0.5682	0.6218	0.6754	0.729	0.7826
600	ζ	0.25	0.24	0.23	0.22	0.22	0.21	0.2
650	A [m ²]	0.504	0.5626	0.6212	0.6798	0.7384	0.797	0.8556
650	ζ	0.24	0.23	0.22	0.22	0.21	0.2	0.2
700	A [m ²]	0.547	0.6106	0.6742	0.7378	0.8014	0.865	0.9286
700	ζ	0.24	0.23	0.22	0.21	0.2	0.2	0.19
750	A [m ²]	0.59	0.6586	0.7272	0.7958	0.8644	0.933	1.0016
750	ζ	0.23	0.22	0.21	0.2	0.2	0.19	0.19
800	A [m ²]	0.633	0.7066	0.7802	0.8538	0.9274	1.01	1.0746
800	ζ	0.22	0.21	0.2	0.2	0.19	0.19	0.18

(1) Parameters

Quick sizing

Quick sizing tables provide a good overview of the volume flow rates with different sound power levels as well as of differential pressures of up to 35 Pa. Approximate intermediate values can be interpolated. Precise intermediate values can be calculated with our Easy Product Finder design program. You will find the Easy Product Finder on our website: www.trox.de/mytrox/auslegungsprogramm-easy-product-finder-182e16348fac3d33

Volume flow rate q_v in [m³/h] at differential pressure $\Delta p_{st} < 35$ Pa
200 – 650 mm

H	LWA [dB(A)]	B									
		200	250	300	350	400	450	500	550	600	650
100	35	390	484	577	668	759	849	938	1027	1116	1205
125	35	507	627	745	862	978	1093	1208	1322	1435	1548
150	35	619	764	907	1048	1188	1326	1464	1601	1737	1873
160	35	728	897	1063	1227	1390	1550	1710	1869	2027	2185
200	35	835	1028	1216	1402	1586	1769	1950	2130	2309	2487
250	35	1026	1264	1496	1725	1951	2174	2396	2616	2835	3053
300	35	1232	1512	1786	2056	2321	2584	2844	3103	3360	3615
350	35	1434	1757	2071	2379	2683	2984	3281	3577	3870	4161
400	35	1634	1997	2351	2698	3039	3377	3710	4041	4369	4696
450	35	1474	1856	2225	2585	2938	3286	3629	3969	4305	4640
500	35	1647	2071	2480	2878	3269	3652	4031	4406	4778	5146
550	35			2733	3169	3595	4015	4429	4838	5243	5645
600	35			2983	3456	3919	4374	4823	5266	5704	6139
650	35			3232	3742	4241	4730	5213	5689	6160	6627
700	35			3479	4026	4560	5084	5600	6109	6613	7112
750	35			3725	4308	4877	5435	5984	6526	7062	7592
800	35			3970	4589	5193	5784	6367	6941	7508	8070

Volume flow rate q_v in [m³/h] at differential pressure $\Delta p_{st} < 35$ Pa
700 – 1500 mm

H	LWA [dB(A)]	B									
		700	750	800	900	1000	1100	1200	1300	1400	1500
100	35	1293	1380	1468							
125	35	1660	1772	1883							
150	35	2008	2142	2276							
160	35	2341	2497	2653							
200	35	2664	2841	3017	2633	2915	3196	3476	3754	4031	4308
250	35	3270	3486	3701	3422	3785	4147	4506	4864	5221	5576
300	35	3869	4122	4374	4172	4611	5048	5482	5915	6345	6774
350	35	4451	4739	5027	4895	5406	5914	6419	6922	7423	7922
400	35	5020	5343	5664	5597	6177	6753	7327	7897	8465	9031
450	35	4972	5302	5630	6282	6929	7572	8211	8847	9480	10110
500	35	5512	5875	6237	6955	7667	8374	9077	9776	10471	11164
550	35	6044	6440	6834	7616	8392	9162	9926	10687	11444	12198
600	35	6570	6998	7424	8269	9107	9938	10763	11584	12401	13214
650	35	7091	7551	8008	8914	9813	10704	11589	12469	1334	14216
700	35	7606	8098	8585	9553	10511	11461	12405	13343	14276	15204
750	35	8118	8640	9159	10186	11203	12211	13213	14208	15197	16181
800	35	8626	9178	9727	10813	11889	12955	14013	15064	16109	17149

Volume flow rate q_v in [m³/h] at differential pressure $\Delta p_{st} < 35$ Pa
200 – 650 mm

H	LWA [dB(A)]	B									
		200	250	300	350	400	450	500	550	600	650
100	45	525	690	841	975	1107	1239	1369	1499	1629	1758
125	45	710	870	1088	1258	1427	1595	1762	1928	2094	2258
150	45	880	1115	1323	1529	1733	1935	2136	2336	2534	2732
160	45	1063	1309	1552	1791	2028	2262	2496	2727	2958	3188
200	45	1219	1499	1775	2046	2314	2580	2845	3107	3368	3628
250	45	1498	1844	2183	2517	2846	3173	3496	3818	4137	4455
300	45	1797	2207	2607	2999	3387	3770	4150	4527	4902	5274
350	45	2092	2563	3022	3472	3915	4354	4788	5218	5646	6071
400	45	2384	2915	3431	3937	4435	4927	5413	5896	6375	6851
450	45	2151	2709	3247	3772	4287	4794	5295	5790	6282	6769
500	45	2404	3022	3619	4200	4769	5329	5882	6429	6971	7508
550	45			3987	4623	5246	5858	6462	7059	7650	8237
600	45			4353	5043	5718	6382	7036	7683	8322	8957
650	45			4715	5460	6187	6902	7605	8300	8988	9669
700	45			5076	5874	6653	7418	8170	8913	9648	10376
750	45			5435	6286	7116	7930	8731	9522	10303	11077
800	45			5792	6695	7576	8440	9289	10127	10954	11774

Volume flow rate q_v in [m³/h] at differential pressure $\Delta p_{st} < 35$ Pa
700 – 1500 mm

H	LWA [dB(A)]	B									
		700	750	800	900	1000	1100	1200	1300	1400	1500
100	45	1886	2014	2142							
125	45	2422	2585	2748							
150	45	2929	3126	3322							
160	45	3416	3644	3871							
200	45	3887	4145	4402	3842	4254	4663	5071	5477	5882	6285
250	45	4771	5086	5400	4993	5523	6050	6575	7097	7617	8136
300	45	5645	6014	6382	6088	6728	7365	7999	8630	9258	9884
350	45	6494	6915	7334	7142	7888	8629	9366	10100	10830	11558
400	45	7324	7795	8264	8166	9012	9853	10690	11522	12351	13177
450	45	7254	7735	8214	9166	10110	11048	11980	12908	13831	14751
500	45	8042	8572	9100	10147	11186	12217	13243	14263	15278	16289
550	45	8818	9397	9971	11113	12244	13367	14483	15593	16697	17797
600	45	9586	10211	10832	12065	13287	14499	15704	16902	18093	19280
650	45	10345	11016	11683	13006	14317	15617	16908	18192	19470	20741
700	45	11098	11814	12526	13938	15336	16722	18099	19467	20828	22183
750	45	11844	12606	13362	14861	16345	17816	19277	20729	22172	23609
800	45	12586	13391	14191	15777	17346	18901	20444	21978	23503	25020

The Easy Product Finder allows you to size products using your project-specific data. You will find the Easy Product Finder on our website.

Specification text

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

Specification text

Pressure relief damper for use in gaseous fire suppression systems, construction based on the construction of FK2-EU fire dampers, square or rectangular, with two large inspection access panels that can be opened without a tool.

Pressure relief damper for installation in fire-resistant walls or ceilings, to prevent the penetration of heat, flames and smoke for up to 240 minutes.

Ready-for-operation unit, which contains a fire-resistant damper blade and a 1.2 bar pneumatic actuator (pressure off to close), without a thermal release mechanism and without building certificate. If the installation is carried out according to the FK2-EU installation and operating manual, the stated fire resistance class applies to the closed pressure relief damper.

Suitable for:

Mortar-based installation

- In solid walls, walls made from gypsum wall boards, lightweight partition walls, compartment walls, safety partition walls and walls to provide radiation protection
- In solid walls with partial mortaring
- In solid walls with installation kit for flexible ceiling joints in solid walls
- In lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structure or steel support structure
- In shaft walls with metal support structure or steel support structure
- In timber stud walls, half-timbered constructions, solid wood walls and CLT walls
- In and on solid ceiling slabs and in conjunction with wooden beam ceilings, solid wood ceilings and modular ceilings (Cadolto system)
- In solid wood ceilings, wooden beam ceilings and historic wooden beam ceilings
- Mortar-based installation into a concrete base on solid ceiling slabs
- In hollow concrete block ceilings, hollow core slabs, ribbed ceilings and composite ceilings

Dry mortarless installation

- In lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structure or steel support structure
- In lightweight partition walls with metal support structure and cladding on both sides, and with flexible ceiling joint
- In timber stud walls, half-timbered constructions, solid wood walls and CLT walls
- In solid walls with installation kit E3 in an existing FK-K90 or FK-EU installation subframe E1/E2
- In solid walls with installation kit EW and installation subframe
- With fire-rated gypsum board or plasterboard in lightweight partition walls with metal support structure

- With mineral wool in lightweight partition wall with metal support structure, timber stud walls, half-timbered constructions and solid wood walls
- In shaft walls with metal support structure or steel support structure as well as in shaft walls without metal support structure
- In solid wood ceilings and wooden beam ceilings
- On the face of and remote from solid walls and ceiling slabs, with an installation kit
- Remote from lightweight partition walls (wall penetration)

Fire batt installation

- In solid walls and ceiling slabs
- In lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structure or steel support structure
- In timber stud walls, half-timbered constructions, solid wood walls and CLT walls

Sizes (B × H) from 200 mm × 100 mm to 1500 mm × 800 mm, intermediate sizes in increments of 1 mm. Optimised low-leakage casing, up to leakage class C to EN 1751 with low differential pressure and low sound power level.

Casing made of galvanised sheet steel.

Damper blade made of special insulation material; impregnated as an option.

Corrosion protection according to EN 15650 in connection with EN 60068-2-52 Meets the hygiene requirements of VDI 6022-1, VDI 3803-1, DIN 1946-4, EN 13779, of Ö-Norm H 6020 and H 6021, and of SWKI.

Casing length 305 mm or 500 mm with 30 mm (L = 500 mm) flange for the connection to ducts made of non-combustible or combustible materials.

Technical data

- Nominal sizes: 200 × 100 to 1500 × 800 mm
- Casing lengths: 305 and 500 mm
- Volume flow rate range: up to 12000 l/s (43200 m³/h)
- Differential pressure range: up to 2000 Pa
- Temperature range: -20 to 50 °C
- Upstream velocity: ≤ 10 m/s

Materialien

Casing

- Galvanised sheet steel

Damper blade

- Special insulation material
- Special insulation material with impregnation

Other components

- Damper blade shafts and drive linkage made of galvanised steel
- Plastic plain bearings
- EPDM and TPE seals

Technical data

- Pressure relief damper for use in gas fire extinguishing systems, construction based on the construction of FK2-EU fire dampers
- Meets the hygiene requirements of VDI 6022-1, VDI 3803-1, DIN 1946-4, EN 13779, of Ö-Norm H 6020 and H 6021, and of SWKI
- Mortar-based installation with ≥ 60 mm gap between two fire dampers (flange-to-flange installation)
- Can be installed together with FKRS-EU and FKR-EU in solid walls and ceiling slabs, lightweight partition walls, shaft walls, timber stud walls and half-timbered constructions up to 1.2 m² total fire damper surface area
- Two inspection access panels, Ø110 mm, with bayonet fixing (can be opened without any tools)

Order code

FK2-DV – 7 / DE / 600 × 400 × 500 / ES / A0 / Z38DV
 | | | | | | |
 1 2 3 4 5 6 7

1 Type

FK2-DV Pressure relief damper

2 Construction

No entry: standard construction

7 Galvanised casing, impregnated damper blade

3 Country of destination

DE Germany

Other destination countries upon request

4 Nominal size [mm]

Specify width × height × length

5 Accessories 1

No entry: without accessories

ES²

E3¹

Order example: FK2-DV-7/DE/600×200×500/ES/A0/Z38DV

Type	FK2-DV
Construction	Galvanised casing, impregnated damper blade
Country of destination	Germany
Nominal size [mm]	Width 600, height 400, length 500
Accessories 1	ES
Accessories 2	A0
Attachment	Pneumatic spring return actuator, 6 bar

EW²

GM²

WA²

WE²

GL100²

GL125²

GL150²

GL175²

6 Accessories 2

No entry: without accessories

0A – FR

7 Attachments

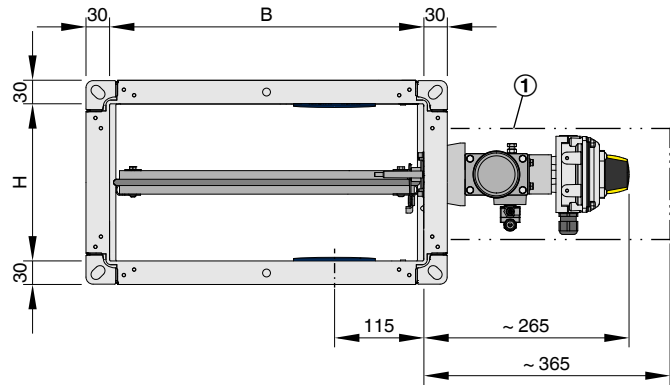
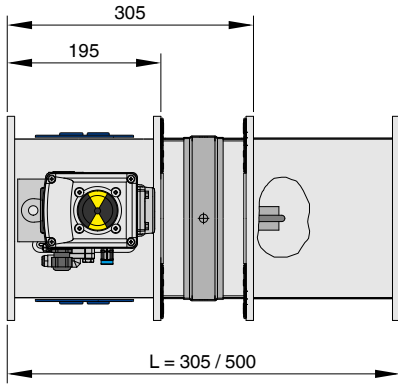
Z38DV Pneumatic spring return actuator, 6 bar

¹ Only for FK2-DV with L = 305 mm

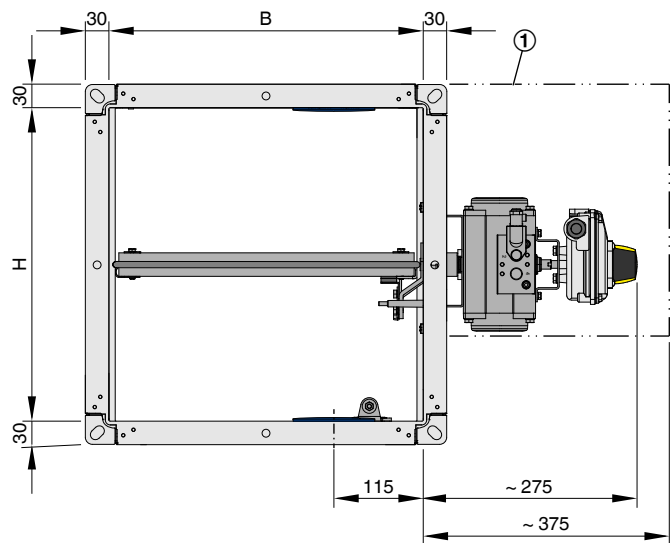
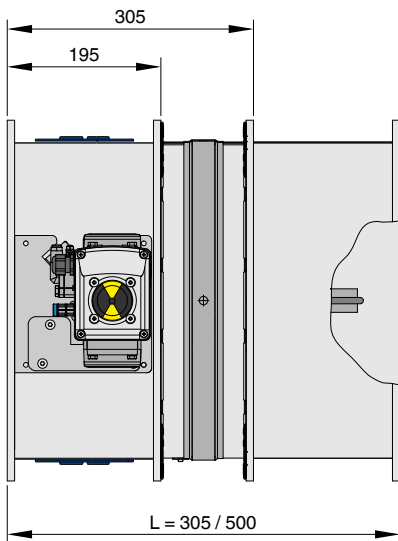
² Only for FK2-DV with L = 500 mm

Dimensions

Size 1



Sizes 2 and 3



① Keep clear to provide access to the actuator For sizes 1 to 3 see the functional description.



Weight [kg] of casing length L = 305 [mm]/L = 500 [mm]

H	B													
	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
100	6/7	7/8	8/10	9/11	10/13	11/14	12/15	-	-	-	-	-	-	-
150	6/8	7/9	9/11	10/12	11/14	12/15	13/17	-	-	-	-	-	-	-
200	7/9	8/10	9/12	11/14	12/15	13/17	14/18	17/22	18/23	23/29	25/31	26/33	28/34	29/36
250	9/11	10/12	12/14	13/16	14/18	16/20	17/21	18/23	20/25	26/31	27/33	29/35	31/37	32/40
300	10/12	11/14	13/16	14/17	15/19	17/21	18/23	20/25	21/27	28/34	30/36	32/38	34/41	35/43
350	10/13	12/15	13/17	15/19	17/20	18/22	20/24	26/31	28/34	30/36	32/39	34/41	36/44	38/46
400	11/13	13/15	14/18	16/20	18/22	19/24	21/26	28/33	30/36	33/39	35/41	37/44	39/47	41/49
450	12/14	13/16	15/19	17/21	19/23	25/30	28/33	30/36	32/38	35/41	37/44	40/47	42/50	45/52
500	12/15	14/17	16/20	18/22	20/24	27/32	29/35	32/38	35/41	37/44	38/47	42/50	45/53	48/56
550	-	17/21	20/24	23/28	26/30	28/34	31/37	34/40	37/43	39/46	42/49	45/53	48/56	51/59
600	-	18/22	21/25	24/29	27/32	30/35	33/39	36/42	39/45	42/49	45/52	48/55	51/59	54/62
650	-	19/23	22/27	25/30	29/34	32/37	35/41	38/44	41/48	44/51	47/55	50/58	53/62	57/65
700	-	20/24	23/28	27/32	30/35	33/39	37/43	40/46	43/50	46/54	50/57	53/61	56/65	60/69
750	-	21/25	24/29	28/33	31/37	35/41	38/45	42/49	45/52	49/56	52/60	56/64	59/68	63/72
800	-	22/26	26/30	29/35	33/38	36/42	40/46	44/51	47/55	51/59	55/63	58/67	62/71	66/75

Accessories 1 – Installation kits

Installation kit ES

Application

Universal installation kit for dry mortarless installation

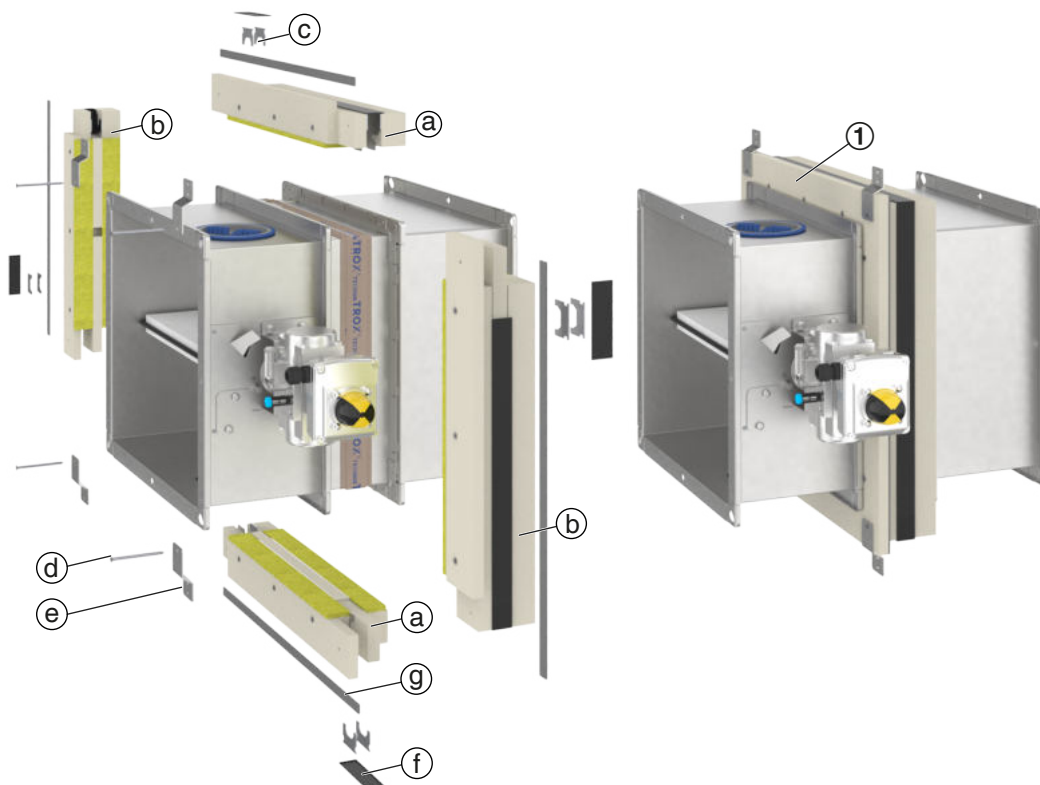
- In lightweight partition walls, compartment walls, safety partition walls and radiation protection walls with metal support structure or steel support structure
- In timber stud walls, half-timbered constructions, solid wood walls and CLT walls
- In shaft walls with metal support structure or steel support structure as well as in shaft walls without metal support structure
- In solid wood ceilings and wooden beam ceilings

Notes:

- Pressure relief damper with installation kit only with casing length L = 500 mm
- The installation kit has to be attached to the pressure relief damper by others
- The installation kit can also be ordered and supplied separately
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

L	Order code
500	ES

Installation kit ES



Installation kit ES supply package

1 Installation kit ES consists of:

- a B section with intumescent seal and mineral wool (2 x)
- b H section with intumescent seal and mineral wool (2 x)
- c Connecting clip (8 clips)

- d Chipboard screw 5 × 50 mm (4 – 8 screws, depending on damper size)
- e Bracket (4 – 8 brackets, depending on damper size)
- f Intumescent seal (4 x)
- g Kerafix 2000 sealing tape

Installation kit E3

Application:

- FK2-DV with installation kit E3 to replace an existing FK-K90 or FK-EU with mortared-in installation subframe E1 or E2

Prerequisite:

- Installation subframe E1 or E2 has been installed in the solid wall according to the general building inspectorate licence (FK-K90) or the installation and operating manual (FK-EU)

Notes:

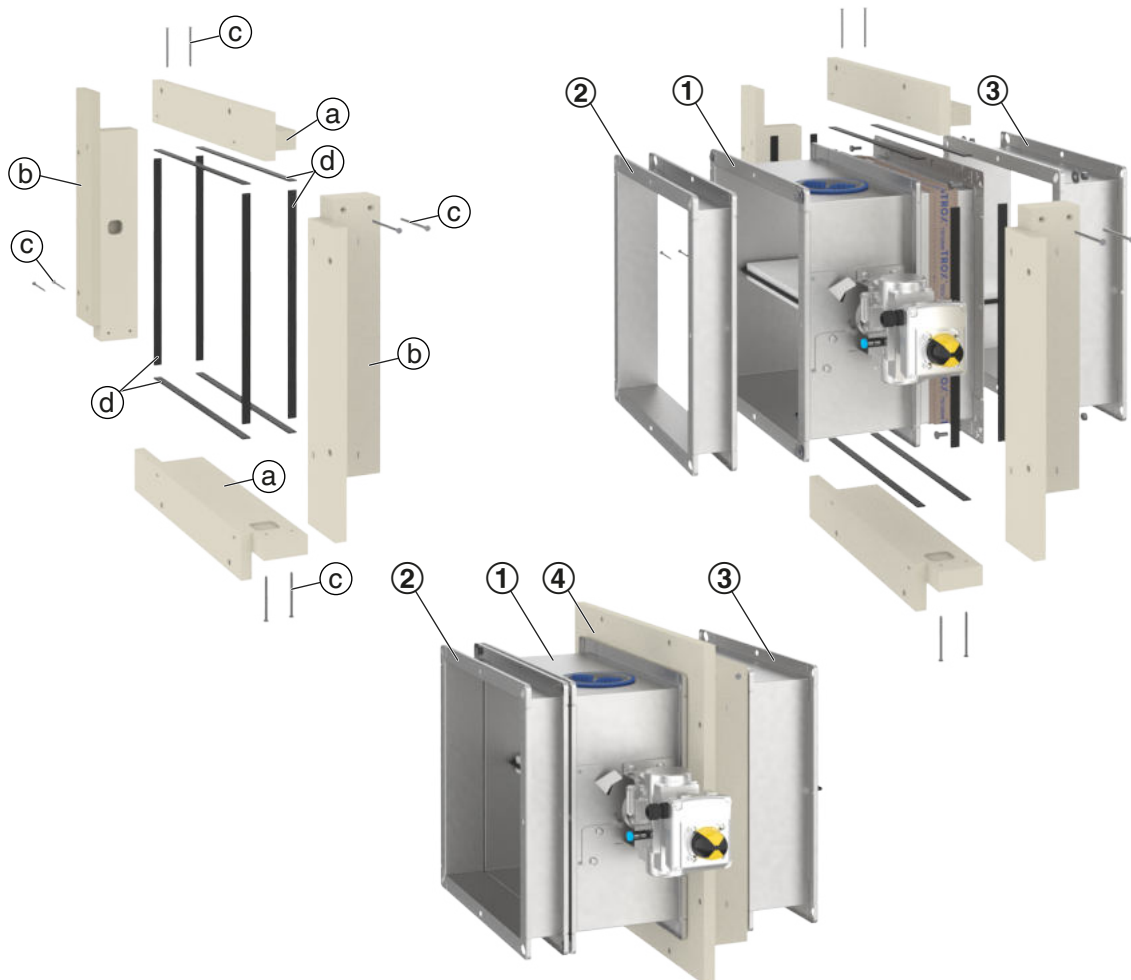
- Pressure relief damper FK2-DV and installation kit E3 have to be ordered together. FK2-DV (length 305 mm) is supplied with 2 extension pieces (70 and 125 mm) so that an FK-K90

or FK-EU can be replaced without any changes to the connected ducts.

- The installation kit has to be attached to the fire damper by others.
- Installation kit E3 can also be ordered and supplied separately, in which case the extension pieces on the pressure relief damper (70 and 125 mm) have to be provided and attached by others
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

L	Order code
305 mm with extension pieces (500 mm in total)	E3

Installation kit E3



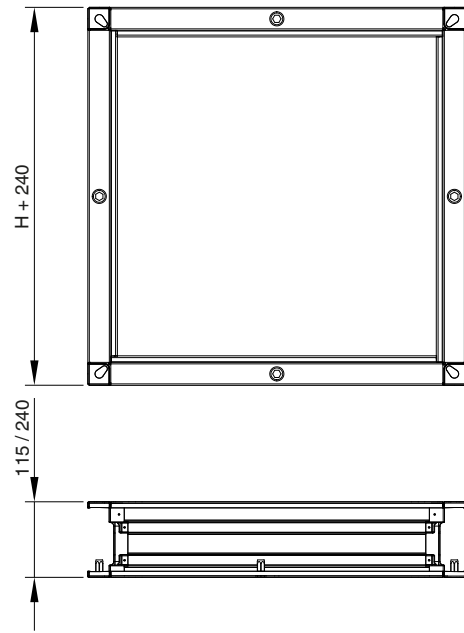
Installation kit E3 supply package

Installation kit E3 consists of:

- FK2-DV (L = 305 mm)
- Extension piece (70 mm, factory mounted to FK2-DV)
- Extension piece (125 mm, factory mounted to FK2-DV)

- Installation kit E3:
 - Installation kit B section (2×)
 - Installation kit H section (2×)
 - Chipboard screw, 5 × 80 mm (8 screws)
 - Kerafix 2000 sealing tape (4× B section, 4× H section)

Installation subframe E1 or E2 of FK-K90 / FK-EU



- 1 Existing and installed
installation subframe E1 (L = 115 mm)/E2 (L = 240 mm)

Installation kit EW

Application

- Installation kit EW for dry mortarless installation in a mortared-in installation subframe

Requirement

- The installation subframe has been installed in the solid wall with a perimeter mortar infill

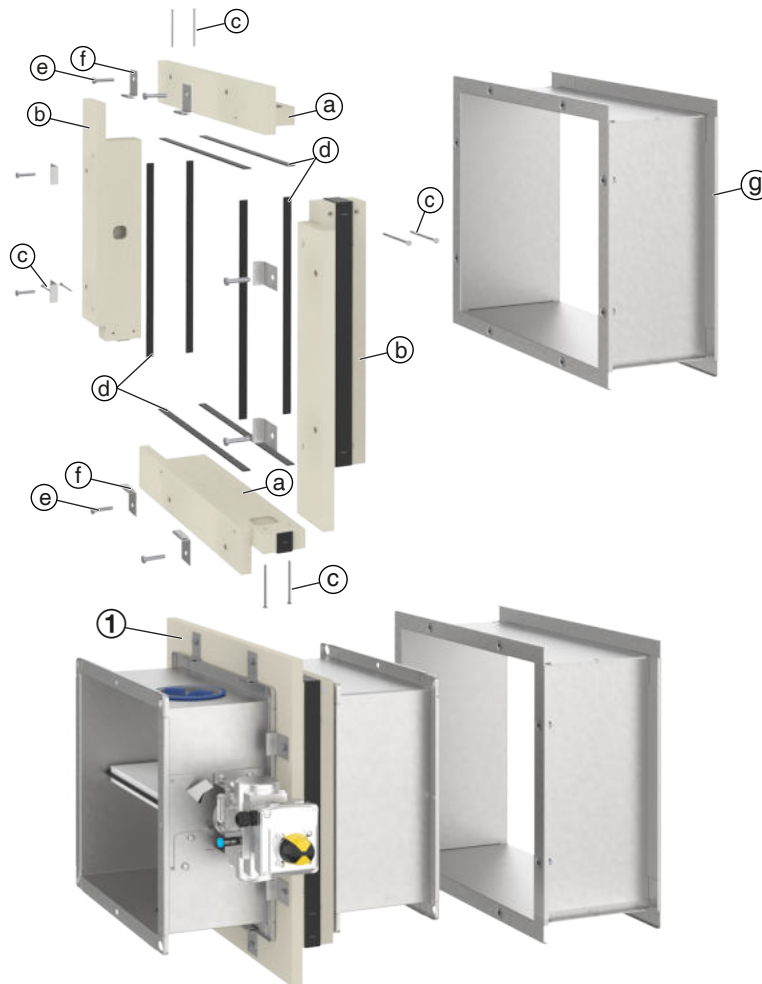
Note

- Pressure relief damper with installation kit only with casing length L = 500 mm

- The installation kit has to be attached to the pressure relief damper by others
- Installation kit and installation subframe can also be ordered and supplied separately
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

L	Order code
500	EW

Installation kit EW



Installation kit EW supply package

1 Installation kit EW consists of:

- a Installation kit B section (2×)
- b Installation kit H section (2×)
- c Chipboard screw, 5 × 80 mm (8 screws)

- d Kerafix 2000 sealing tape (4× B section, 4× H section)
- e Hexagon head screw, M8 × 35 mm (4 – 16 screws, depending on damper size)
- f Bracket (4 – 16 brackets, depending on damper size)
- g Installation subframe

Installation kit GM

Application

- Installation kit for installation into solid non-load-bearing internal walls with flexible ceiling joint. With the installation kit the pressure relief damper may be installed just below the movement joint; the joint is not interrupted by the installation kit

Note

- Pressure relief dampers with installation kit only with casing length L = 500 mm

- Installation only with horizontal damper blade
- The installation kit can also be ordered and supplied separately
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

L	Order code
500	GM

FK2-DV with installation kit GM



Installation kit GM supply package

1 Installation kit GM consists of:

- a Filler strips made of mineral wool

- b Fixing tabs made of galvanised steel
- c U-channels made of galvanised steel
- d Cover section made of special insulation material and with intumescent seal

Installation kit WA**Application**

- Installation kit for Installation on the face of solid walls and ceiling slabs

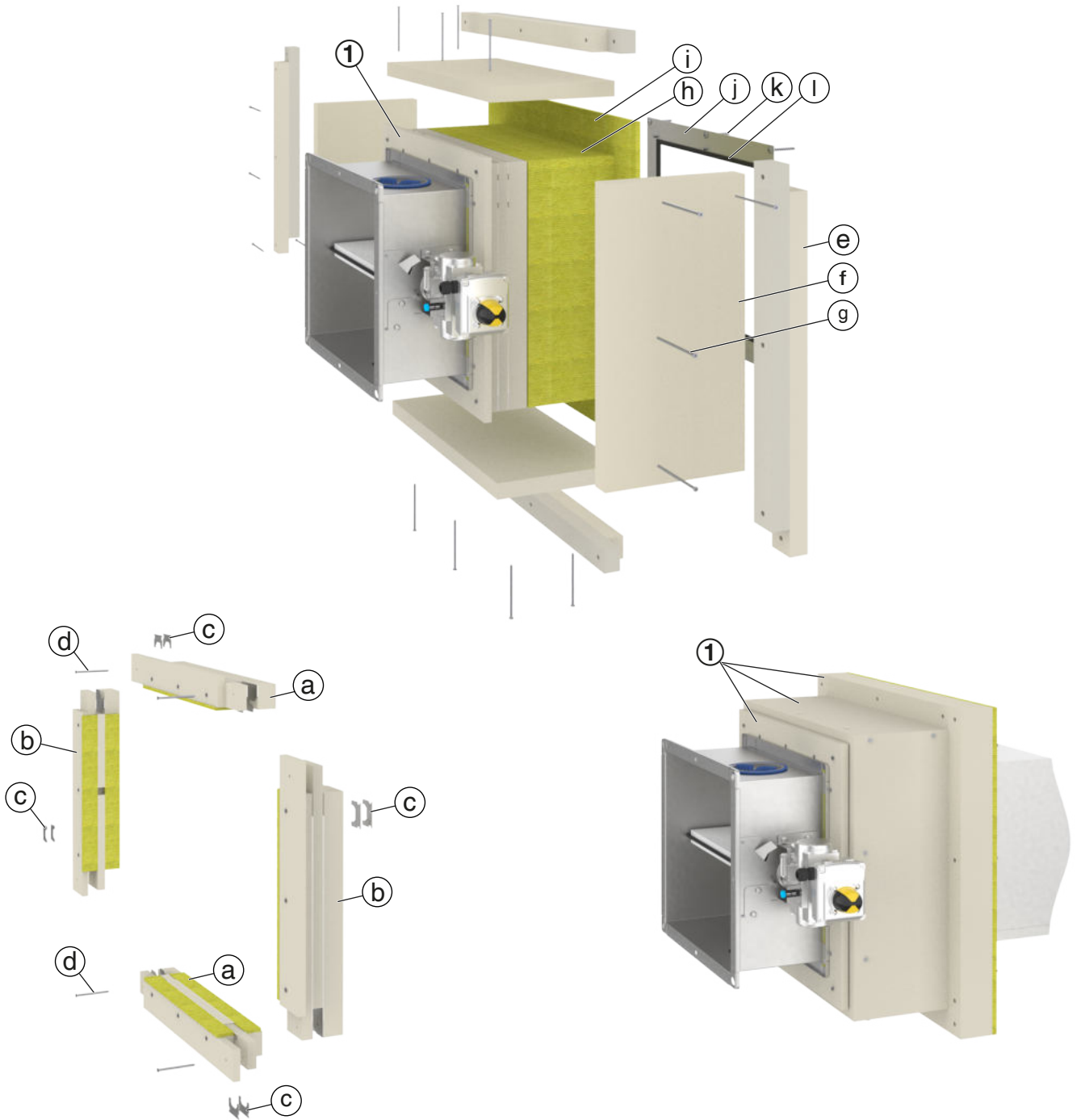
Note

- Pressure relief damper with installation kit only with casing length L = 500 mm
- The installation kit has to be attached to the pressure relief damper by others
- The installation kit can also be ordered and supplied separately

- Enough clear space is required for installation
- The supplied anchors are suitable for solid concrete walls and ceiling slabs. As an alternative, equivalent fire-rated anchors with suitability certificate (by others) that are suitable for the wall or ceiling slab can also be used; push through installation is also possible.
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

L	Brief description
500	WA

Installation kit WA



Installation kit WA supply package

1 Installation kit WA consists of:

a B section with mineral wool (2 ×)

b H section with mineral wool (2 ×)

c Connecting clip (8 clips)

d Chipboard screw 5 × 90 mm (4 screws)

e Multilayer section (2 × B section, 2 × H section)

f Cover (2 × B section, 2 × H section)

g Chipboard screw 5 × 70 mm

(16 – 28 screws, depending on damper size)

h Cut mineral wool parts (2 × B section, 2 × H section, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 80\text{ kg/m}^3$)

i Mineral wool strips (2 × B section, 2 × H section, $\geq 1000\text{ }^{\circ}\text{C}$, $\geq 40\text{ kg/m}^3$, 10 mm thick)

j Wall face frame with Kerafix seal

k Anchor bolt with pan head 6 × 60 mm (4 – 16 bolts, depending on damper size)

l Kerafix 2000 sealing tape

Installation kit WE**Application**

- Installation kit for installation remote from solid walls and ceiling slabs, also remote from lightweight partition walls with cladding on both sides

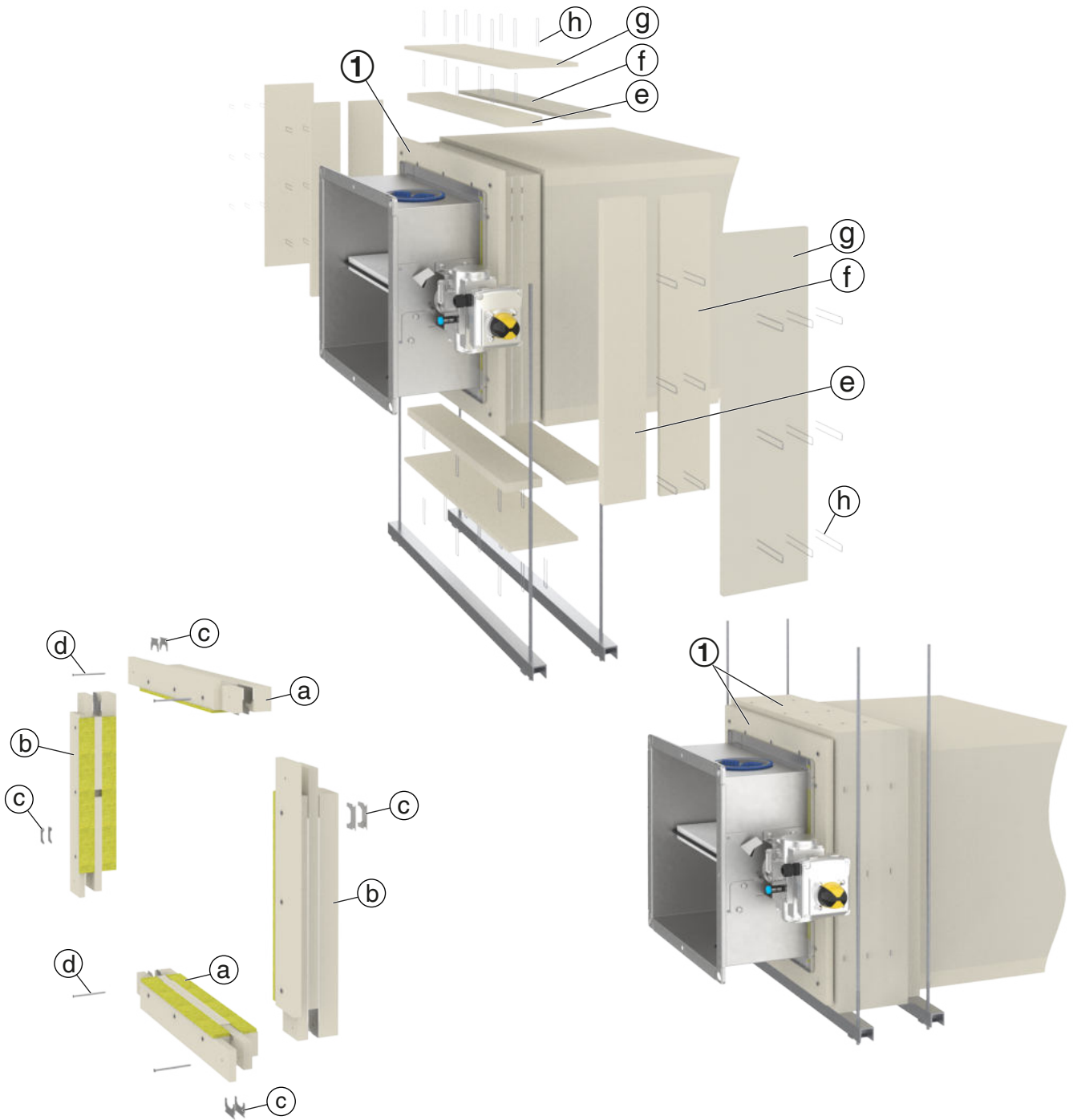
Note

- Pressure relief damper with installation kit only with casing length L = 500 mm
- The installation kit has to be attached to the pressure relief damper by others

- The installation kit can also be ordered and supplied separately
- Pressure relief damper to be connected to ducts made of galvanised or stainless steel (by others)
- Fire-resistant cladding made of panel material (provided by others)
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

L	Order code
500	WE

Installation kit WE



Installation kit WE supply package

1 Installation kit WE consists of:

- a B section with mineral wool (2 ×)
- b H section with mineral wool (2 ×)
- c Connecting clip (8 clips)

- d Chipboard screw 5 × 90 mm (4 screws)
- e Cover 1 (2 × B section, 2 × H section)
- f Cover 2 (2 × B section, 2 × H section)
- g Cover 3 (2 × B section, 2 × H section)
- h Steel wire clip, 63 mm (by others)

Installation kit GL

Application

- Installation kit for installation in lightweight partition walls with metal support structure with cladding on both sides and flexible ceiling joint (dry mortarless installation) directly underneath solid ceiling slabs

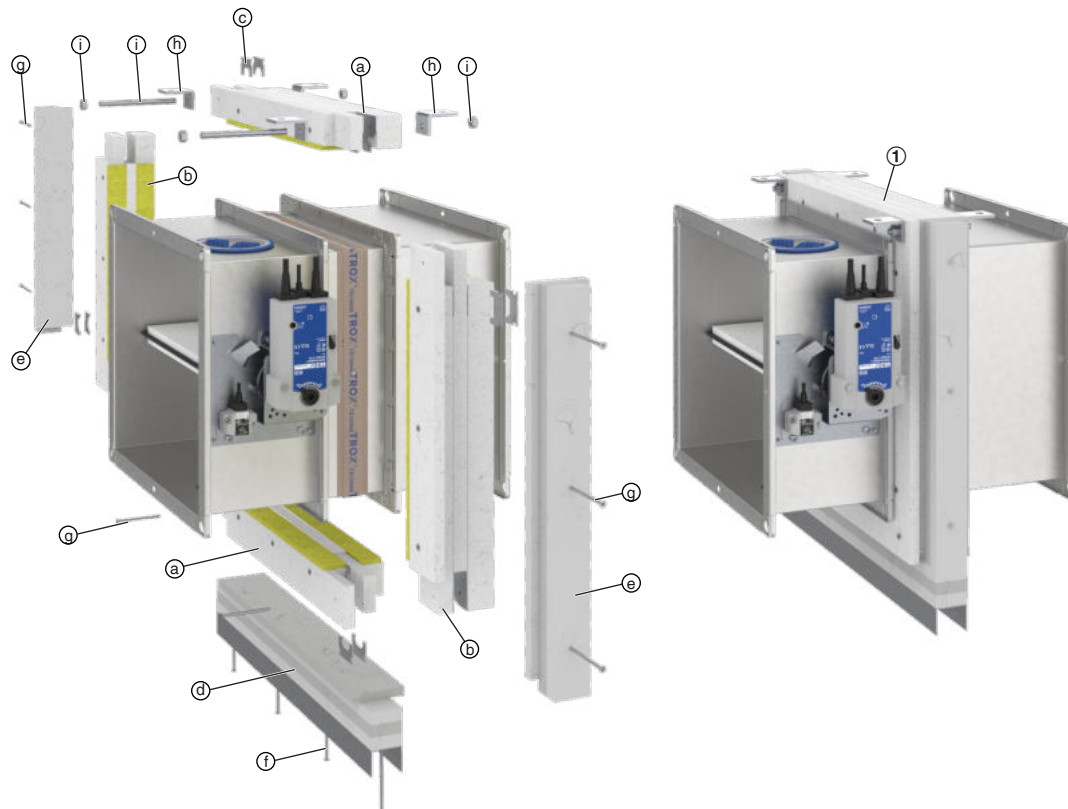
Note

- Pressure relief damper with installation kit only with casing length $L = 500$ mm
- The installation kits are adapted to the wall thickness or the width of the metal stud system
- GL100 for wall thickness 100 mm when 50 mm sections are used
- GL125 for wall thickness 125 mm when 75 mm sections are used

- GL150 for wall thickness 150 mm when 100 mm sections are used
- GL175 for wall thickness 175 mm when 125 mm sections are used
- Drive side on the right (details for a different installation orientation are available upon request)
- The installation kit has to be attached to the pressure relief damper by others
- The installation kit can also be ordered and supplied separately
- Enough clear space is required for installation
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

L	Order code
500	GL 100
500	GL 125
500	GL 150
500	GL 175

Installation kit GL



Installation kit GL supply package

1 Installation kit GL consists of:

- a B section, top
- b B section, bottom
- c H section (2 ×)
- d Multilayer section with metal channel at the bottom (depending on wall thickness)

- e Multilayer H section, right side (depending on wall thickness)
- f Multilayer section, left side (depending on wall thickness)
- g Chipboard screw 5 × 80 mm
- h Chipboard screw 5 × 100 mm
- i Threaded rod M10, approx. 130 mm long, with nut
- j Steel bracket, approx. 50 × 40 × 5 mm
- k Connecting clip

Accessories 2 – Cover grilles

Application

- If only one end is to be ducted on site, the other end must have a cover grille. If no end is to be ducted, cover grilles are required on both sides.

Note

- Heights > 400 mm require extension pieces
- Pressure relief damper, cover grille and, if applicable, extension pieces 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 the extension piece match those in the flanges of the pressure relief damper
- Cover grilles are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

Materials and surfaces

- Cover grilles and extension pieces (if any) are made of galvanised sheet steel
- Mesh aperture 10 mm × 10 mm, wire width 2 mm

Operating side	Installation side	Order code	Casing length
Cover grille	–	A0	305/500
–	Cover grille	0A	500
Cover grille	Cover grille	AA	500
Cover grille	Flexible connector	AS	500
Flexible connector	Cover grille	SA	500
Cover grille	Circular spigot	AR	500
Circular spigot	Cover grille	RA	500
Cover grille	Connecting subframe	AF	305/500
Connecting subframe	Cover grille	FA	500

Cover grille



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

Accessories 2 – Flexible connector

Application

- As ducts may expand and walls may become deformed in the event of a fire, we recommend using flexible connectors for the following applications: installation in lightweight partition walls, in lightweight shaft walls, in lightweight compartment walls and with a fire batt

Note

- Be sure to comply with the relevant national guidelines and regulations regarding load limits.
- Flexible connectors should be installed in such a way that both ends can absorb both tension and compression

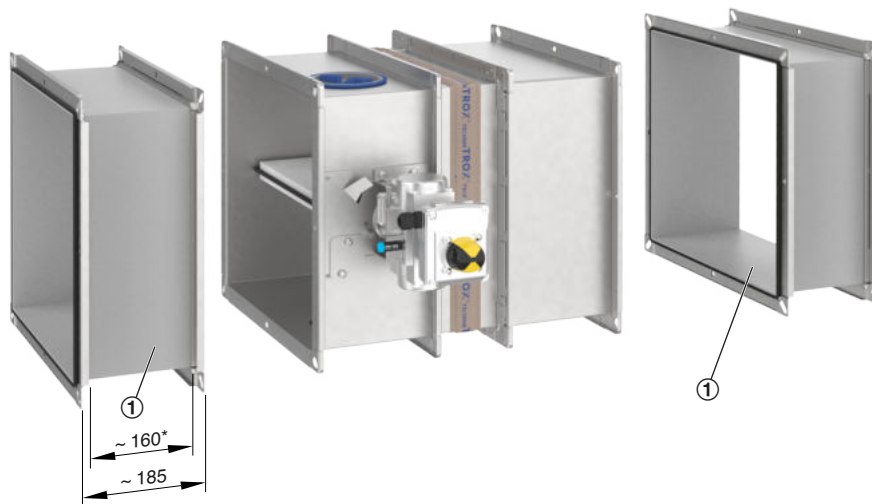
- Heights > 400 mm require an extension piece
- The fixing holes in flexible connectors and extension pieces match those in the flanges of the pressure relief damper
- Flexible connectors are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

Materials and surfaces

- Flexible connectors are made of fibre-reinforced plastic (fire resistance properties to DIN 4102; B2) and galvanised steel
- Extension pieces (if any) are made of galvanised sheet steel

Operating side	Installation side	Order code	Casing length
Flexible connector	–	S0	305/500
–	Flexible connector	0S	500
Flexible connector	Flexible connector	SS	500
Flexible connector	Cover grille	SA	500
Cover grille	Flexible connector	AS	500
Flexible connector	Circular spigot	SR	500
Circular spigot	Flexible connector	RS	500
Flexible connector	Connecting subframe	SF	305/500
Connecting subframe	Flexible connector	FS	500

Flexible connector



① Flexible connector

Accessories 2 – Connecting subframe

Application

- Connecting ducts with clamps requires a connecting subframe
- Ducts and connecting subframes are to be connected with screws (one per corner) and also with clamps.

Note

- Connecting subframes usually result in lower leakage than flange connections
- Connecting subframes have folded edges so that clamps can be fitted.

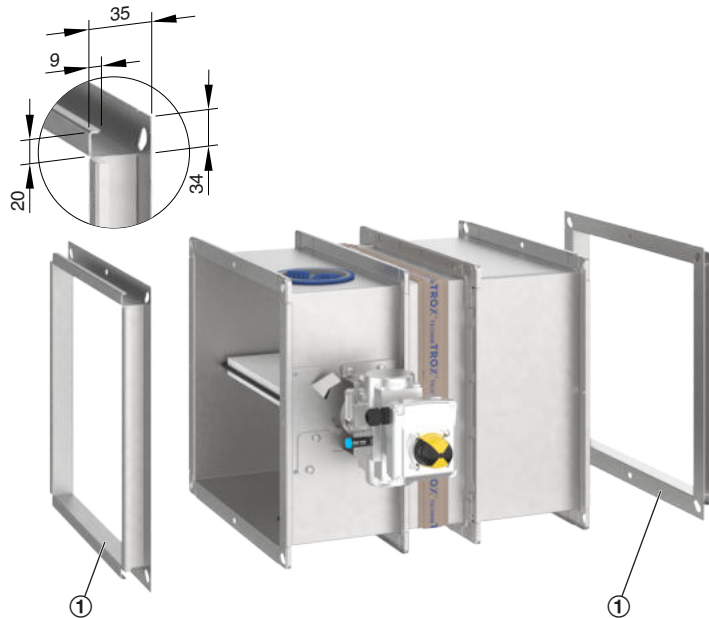
- The fixing holes in connecting subframes match those in the flanges of the pressure relief damper
- Connecting subframes are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

Materials and surfaces

- Connecting subframes made of galvanised steel

Operating side	Installation side	Order code	Casing length
Connecting subframe	–	F0	305/500
–	Connecting subframe	0F	305/500
Connecting subframe	Connecting subframe	FF	305/500
Connecting subframe	Flexible connector	FS	500
Flexible connector	Connecting subframe	SF	305/500
Connecting subframe	Cover grille	FA	500
Cover grille	Connecting subframe	AF	305/500
Connecting subframe	Circular spigot	FR	500
Circular spigot	Connecting subframe	RF	305/500

Connecting subframe



① Connecting subframe

Accessories 2 – Circular spigot

Application

- Circular spigots for rectangular FK2-DV facilitate the direct connection of circular ducts

Note

- Heights > 400 mm require extension pieces
- Circular spigots and, if applicable, extension pieces are factory assembled to form a unit

- The fixing holes in circular spigots match those in the flanges of the pressure relief damper
- Circular spigots are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

Materials and surfaces

- Circular spigot made of galvanised sheet steel

Operating side	Installation side	Order code	Casing length
Circular spigot	–	R0	305/500
–	Circular spigot	0R	500
Circular spigot	Circular spigot	RR	500
Circular spigot	Flexible connector	RS	500
Flexible connector	Circular spigot	SR	500
Circular spigot	Cover grille	RA	500
Cover grille	Circular spigot	AR	500
Circular spigot	Connecting subframe	RF	305/500
Connecting subframe	Circular spigot	FR	500

Circular spigot



① Circular spigot

**Dimensions [mm]**

Nominal size	B × H	øD
200	200 × 200	198
250	250 × 250	248
300	300 × 300	248
350	350 × 350	313
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

Accessories 2 – Extension pieces

Application

- When there are cover grilles, circular spigots, flexible connectors, circular duct bends, etc., you may have to use an extension piece for certain heights

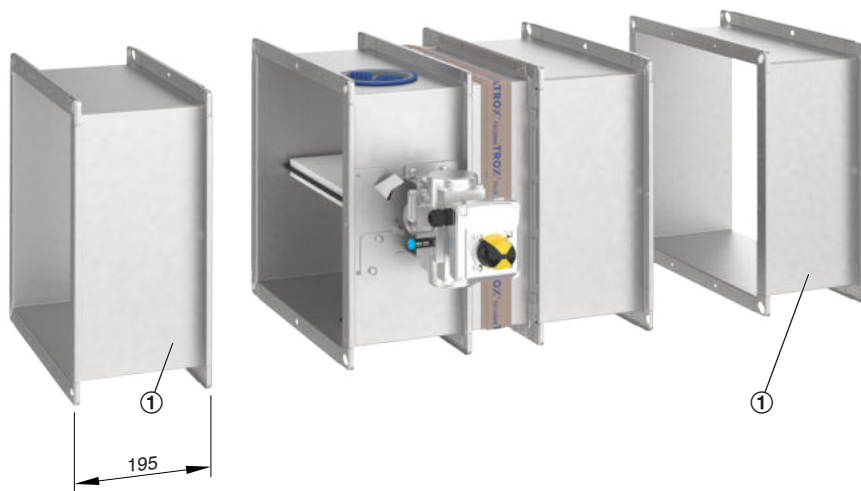
Note

- The movement of the damper blade must not be obstructed by any accessory. The distance between the tip of the open damper blade and any accessory must be at least 50 mm.
- Pressure relief dampers with flexible connectors, cover grilles and circular spigots are supplied with extension pieces if extension pieces are required

- The fixing holes in extension pieces match those in the flanges of the pressure relief damper
- Extension pieces are also available separately
- For further information relevant to design, in particular information on installation situations, please refer to the FK2-EU operating and installation manual.

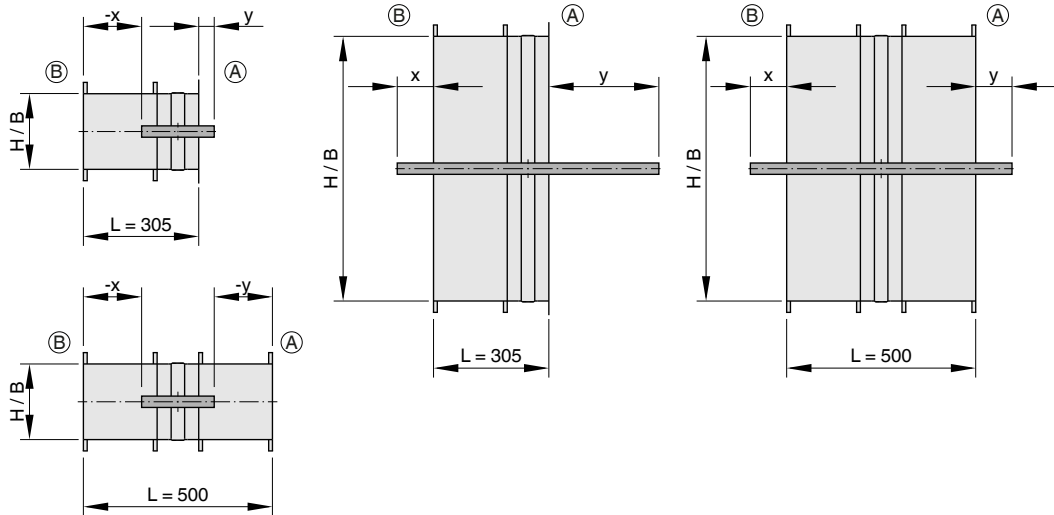
Materials and surfaces

- Extension pieces (if any) are made of galvanised sheet steel, length 195 mm



① Extension pieces

Open blade protrusion



A Installation side
B Operating side

Note
The movement of the damper blade must not be obstructed by any accessory. The distance between the tip of the open damper blade and any accessory must be at least 50 mm.

H	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
x	-204	-179	-154	-129	-104	-79	-54	-29 *	-4 *	21 *	46 *	71 *	96 *	121 *	146 *
y (1)	-8 *	17 *	42 *	67 *	92 *	117 *	142 *	167 **	192 **	217**	242 **	267 **	292 **	317**	342 **
y (2)	-204	-179	-154	-129	-104	-79	-54	-29 *	-4 *	21 *	46 *	71 *	96 *	121 *	146 *

*1 extension piece required
**2 extension pieces required
(1) L = 305 mm
(2) L = 500 mm

L	H	Operating side	Installation side
305	100 – 400	–	195
305	405 – 800	195	2 × 195
500	100 – 400	–	–
500	405 – 800	195	195

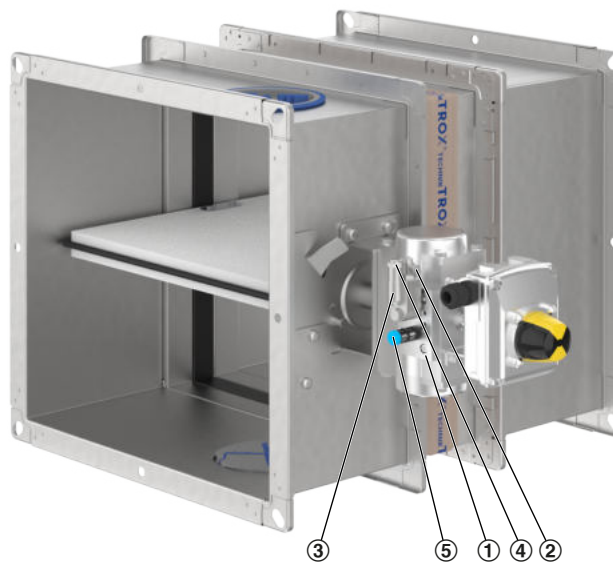
Anbauteil – Pneumatiktrieb

FK2-DV with pneumatic actuator

- Pressure relief damper with a single acting pneumatic rotary actuator (6 bar) without a thermal release mechanism.
- The damper is normally closed. If fire suppression is required, first the suppression gas pressure is reduced to 6 bar with a pressure regulator, then the gas is applied to the pneumatic actuator so that the damper opens.
- The limit switches (sensorbox) with volt-free contacts can indicate the damper blade positions OPEN and CLOSED

Attachment	Order code
Pneumatic actuator, 6 bar, with limit switches (subassembly) for indicating damper blade positions OPEN and CLOSED	Z38DV

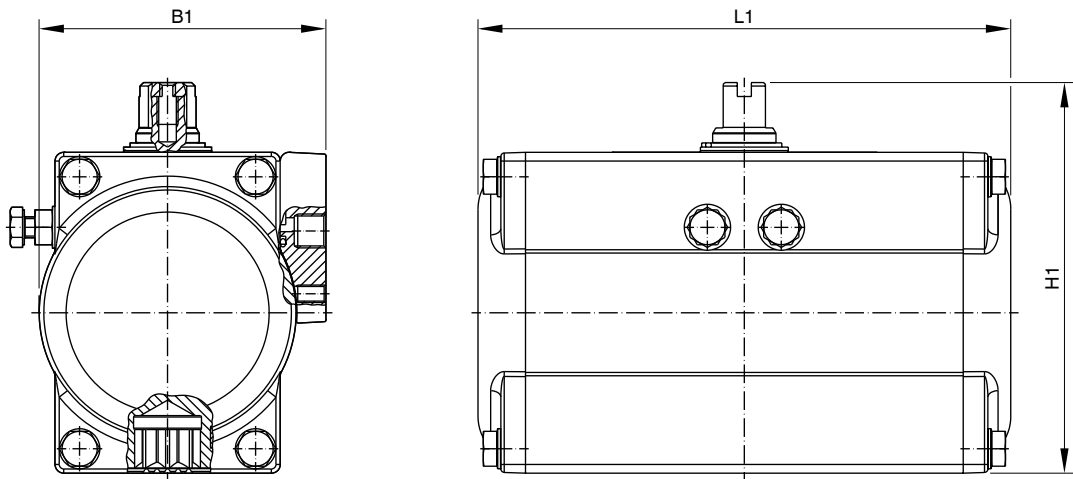
FK2-DV with pneumatic actuator (size 2 shown)



- ① Pneumatic actuator, 6 bar (single acting)
- ② Pressure reducing valve (factory set), R 1/8" connection for compressed air
- ③ Quick exhaust valve
- ④ Pressure reducing valve, quick exhaust (factory set)
- ⑤ Sound attenuator

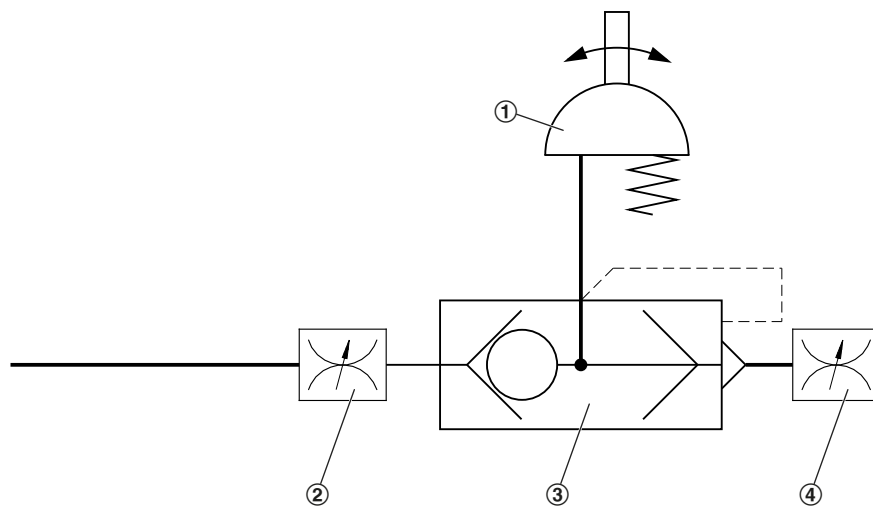
Pneumatic actuator attachment

Pneumatic rotary actuator, 6 bar



Dimensions [mm]

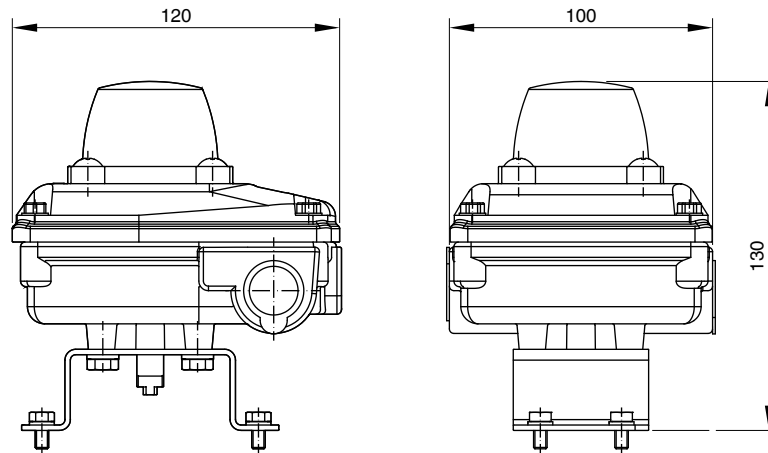
Size	B1	H1	L1
1	69	100	146
2 and 3	82	112	171



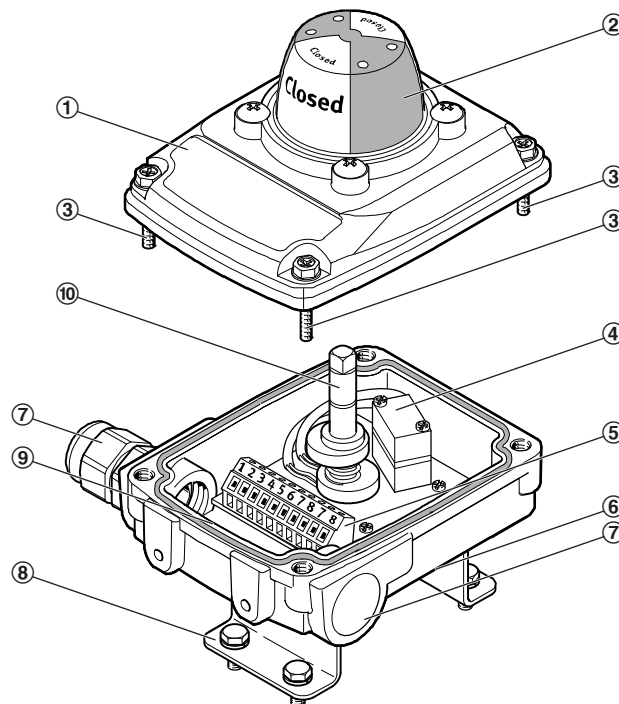
- ① Pneumatic actuator, 6 bar (single acting)
- ② Pressure reducing valve (factory set), R 1/8" connection for compressed air
- ③ Quick exhaust valve
- ④ Extract air pressure reducing valve with integral sound attenuator

Pneumatic actuator attachment

Limit switch subassembly with position indicator



Structure



- | | |
|----------------------|---|
| ① Cover | ⑥ Shaft |
| ② Position indicator | ⑦ Cable entry point with cable gland or stopper |
| ③ Casing screws | ⑧ Fixing bracket with screws M5 × 10 |
| ④ Proximity sensor | ⑨ Earth connection (PE) on the inside of the casing |
| ⑤ Terminal strip | ⑩ Camshaft with spring |

Nomenclature

NS [mm]

Nominal size of fire damper

L [mm]

Length of the fire damper

q_v [m³/h]; [l/s]

Volume flow rate

L_{WA} [dB(A)]

A-weighted sound power level of air-regenerated noise for the fire damper

A [m²]

Free area

ζ

Resistance coefficient (fully ducted)

B [mm]

Width of the fire damper

H [mm]

Height of the fire damper

v [m/s]

Airflow velocity based on the upstream cross section (B × H or diameter)

Δp_{st} [Pa]

Static differential pressure

Lengths

All lengths are given in millimetres [mm] unless stated otherwise.