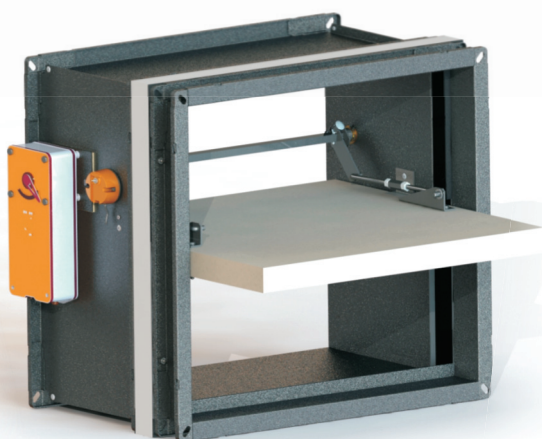


Fire damper for comfort ventilation



KWP-0-E KWP-0-S



Fulfills the requirements of the standards:

Certified according to **PN-EN 15650** (Ventilation for buildings – Fire dampers).

Classified according to **PN-EN 13501-3** (Fire classification of construction products and building elements – Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers).

Tested in accordance with **PN-EN 1366-2** (Fire resistance tests for service installations – Part 2: Fire dampers).

Intended use

KWP-O-E(S) type fire dampers are intended to installation in ventilation systems as cut-off baffles, separating the fire zone from the remaining part of the building. Therefore, the basic function of the KWP type fire dampers is to restrain the spreading of fire, temperature and smoke, and additionally, with use of appropriate actuators, to use in mixed ventilation systems (used not only in case of fire but for example: for periodic airing).

These fire dampers are nonsymmetrical, intended for vertical (in walls) and horizontal installation (in ceilings). They can be also installed in rigid building barriers.

Fire damper is constructed, manufactured and tested in accordance with the standards: **PN-EN 15650 "Ventilation for buildings – Fire dampers"** and **PN-EN 13501-3 "Fire classification of construction products and building elements- Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers"**.

Sensitivity of the fire dampers is confirmed by tests in accordance with the standard **PN-EN 1366-2 "Fire resistance tests for service installations- Part 1: Fire dampers"**.

Technical description of the device

Fire damper is composed of two bodies made of galvanized steel, which are separated with insulating dividers made of 40 [mm] thick, fire-resistant material. Inside the fire damper there is a flap, which movement in closed position is limited with stop bar. The axles of the flap cooperate with slide bearings built in the insulating dividers. The closing of the flap is realized by the system of the flexible connectors.

Fire dampers are also manufactured in the special version intended to use in the especially chemically aggressive environments. These fire dampers are used in chemical industry, food industry, laboratories etc. In this case all steel components are made of acid-resistant steel 1.4301. The bearings remain brazen and flap is coated with impregnant (non-solvent substance on the basis of silicates).

Versions of the device

KWP-O-E – fire damper for ventilation ducts (normally open) with actuator and return spring, providing both comfort and safety function.

In case of KWP-O-E fire dampers, the drive is electric actuator BLF or BF series from Belimo (power supply voltage is 24 [V] AC/DC or 230 [V] AC). After connecting the power supply to the actuator cables, the transition of the flap to open position occurs. Automatic transition of the flap to closed position occurs as a result of activating the thermal switch BAE-72 or BAE-72S type. On special order the KWP-O-E fire dampers are provided with thermal switch with 95°C activation temperature. The automatic closing of KWP-O-E dampers is realized by power supply disconnection (when voltage decay occurs, the return spring in the actuator, while returning to free position, causes the closing of the flap). The use of BLF actuators from Belimo is limited to the gross surface of the dampers not bigger than 0,40 [m²] and dimensions $B_{MAX}=800$, $H_{MAX}=500$ [mm].

In the actuator BF or BLF with return spring, there are two built-in micro switches, permanently set to indicate the flap position. The position of the flap can be read from the mechanical indicator of position.

During normal operation of the system , the flap of the KWP-O-E damper is in the open position. In case of fire, the transition of the flap to fully closed position occurs.

Dimensional series of the KWP-O-E type fire dampers is limited to the gross surface of 1,2 [m²]. Above this dimension, dampers are manufactured as set of dampers (batteries).

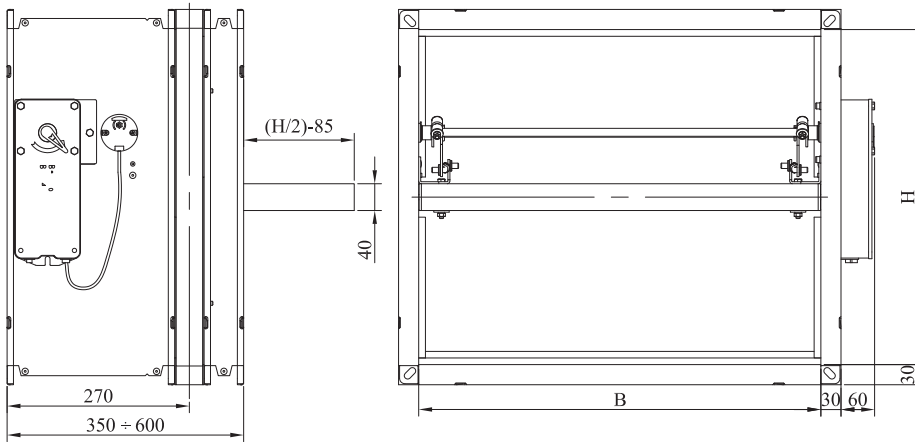


Fig. 1. KWP-0-E cut off fire damper.

KWP-0-S – fire damper for ventilation ducts (normally open) with spring without comfort function. The drive system is a spring mechanism blocked with a thermal fuse SMAY. While opening the flap with the key, the return spring is being tensed. The spring is made of stainless steel wire. After exceeding a certain temperature (standard $70 \pm 5^\circ\text{C}$) thermal fuse brakes, causing the release of the hook, and then closing of the flap.

The current position of the flap is indicated by the position of the lever in relation to the "open" and "closed" stickers on the damper housing. On request damper KWP-0-S can be provided with limit switch indicating the transition of the flap to the closed position. It is also possible to provide the damper with limit switch indicating the open position, as well as with both limit switches mentioned above.

During normal operation of the system the flap of the KWP-0-S damper is in the open position. In case of fire, the transition of the flap to fully closed position occurs.

Dimensional series of KWP-0-S type fire dampers is limited to the gross surface of $1,0 \text{ [m}^2\text{]}$.

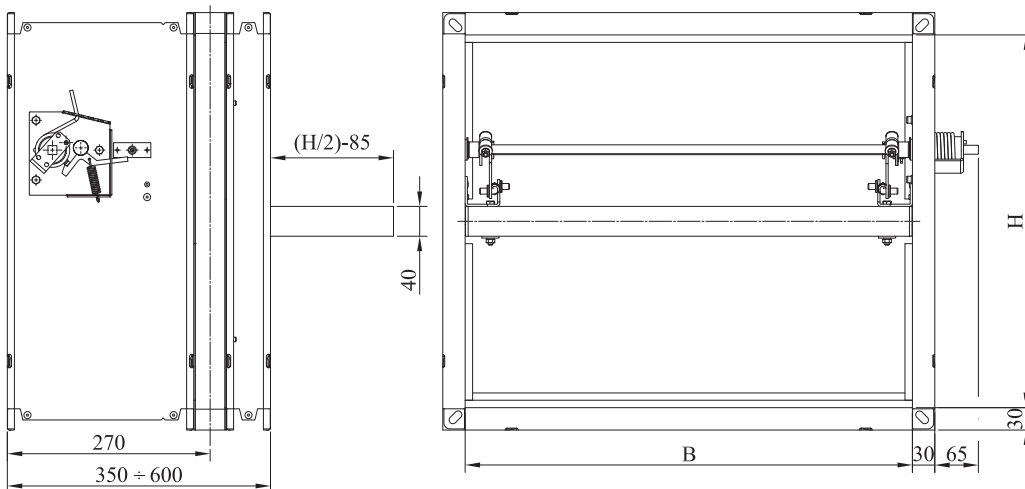


Fig. 2. KWP-0-S cut-off fire damper.

Special execution

In the version of damper with actuator, there is possible on request:

- Thermal fuse causing the closing of the damper at the temperature of $95\pm 5^{\circ}\text{C}$

In the version of damper intended to use in aggressive environment, on request:

- all steel components of the KWP type fire damper are replaced with the components made of acid-resistant steel 1.4301. The bearings remain brazen and flap is coated with Promat-SR-Impragnierung type impregnant - non-solvent substance made by PROMAT, on the basis of silicates.

Technical data

B / H	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Tab. 1. Free section area [m ²]																	
200	0,019	0,027	0,035	0,043	0,051												
250	0,025	0,035	0,046	0,056	0,067	0,077	0,088										
300	0,031	0,044	0,057	0,070	0,083	0,096	0,109	0,122	0,135								
350	0,037	0,052	0,068	0,083	0,099	0,114	0,130	0,145	0,161	0,176	0,192						
400	0,043	0,061	0,079	0,097	0,115	0,133	0,151	0,169	0,187	0,205	0,223	0,241	0,259				
450	0,049	0,069	0,090	0,110	0,131	0,151	0,172	0,192	0,213	0,233	0,254	0,274	0,295	0,315	0,336		
500	0,055	0,078	0,101	0,124	0,147	0,170	0,193	0,216	0,239	0,262	0,285	0,308	0,331	0,354	0,377	0,400	0,423
550	0,061	0,086	0,112	0,137	0,163	0,188	0,214	0,239	0,265	0,290	0,316	0,341	0,367	0,392	0,418	0,443	0,469
600	0,067	0,095	0,123	0,151	0,179	0,207	0,235	0,263	0,291	0,319	0,347	0,375	0,403	0,431	0,459	0,487	0,515
650		0,103	0,134	0,164	0,195	0,225	0,256	0,286	0,317	0,347	0,378	0,408	0,439	0,469	0,500	0,530	0,561
700		0,112	0,145	0,178	0,211	0,244	0,277	0,310	0,343	0,376	0,409	0,442	0,475	0,508	0,541	0,574	0,607
750		0,120	0,156	0,191	0,227	0,262	0,298	0,333	0,369	0,404	0,440	0,475	0,511	0,546	0,582	0,617	0,653
800			0,167	0,205	0,243	0,281	0,319	0,357	0,395	0,433	0,471	0,509	0,547	0,585	0,623	0,661	0,699
850			0,178	0,218	0,259	0,299	0,340	0,380	0,421	0,461	0,502	0,542	0,583	0,623	0,664	0,704	0,745
900			0,189	0,232	0,275	0,318	0,361	0,404	0,447	0,490	0,533	0,576	0,619	0,662	0,705	0,748	0,791
950				0,245	0,291	0,336	0,382	0,427	0,473	0,518	0,564	0,609	0,655	0,700	0,746	0,791	0,837
1000				0,259	0,307	0,355	0,403	0,451	0,499	0,547	0,595	0,643	0,691	0,739	0,787	0,835	0,883
1050				0,272	0,323	0,373	0,424	0,474	0,525	0,575	0,626	0,676	0,727	0,777	0,828	0,878	0,929
1100					0,339	0,392	0,445	0,498	0,551	0,604	0,657	0,710	0,763	0,816	0,869	0,922	0,975
1150					0,355	0,410	0,466	0,521	0,577	0,632	0,688	0,743	0,799	0,854	0,910	0,965	1,021
1200					0,371	0,429	0,487	0,545	0,603	0,661	0,719	0,777	0,835	0,893	0,951	1,009	1,067

Standard length of the fire dampers: L=350

On the special order we can manufacture every size of the fire damper within the dimensional series.

Tab. 2. Weight KWP [kg]		B [mm] – inside span width of KWP										
		200	300	400	500	600	700	800	900	1000	1100	1200
H [mm] – inside span height of KWP	200	11,0	13,1	15,2	17,5	19,6						
	300	13,1	15,5	17,8	20,3	22,7	25,0	27,6	30,0			
	400	15,2	17,8	20,4	23,2	25,9	30,0	31,1	33,7	36,5	39,2	41,7
	500		20,1	23,0	26,0	28,9	31,8	34,7	37,6	40,4	43,5	46,4
	600		22,5	25,7	28,8	32,0	35,2	38,3	41,5	44,6	47,7	50,9
	700		24,8	28,3	31,7	35,1	38,4	41,8	47,6	51,2	52,1	55,4
	800			30,8	34,6	38,1	41,8	45,5	49,0	52,8	56,4	60,0
	900			33,4	37,4	41,3	45,2	49,0	52,9	56,9	60,8	64,6
	1000			36,0	40,3	44,4	48,5	52,6	56,8	60,9	65,1	69,2

Classification in terms of fire resistance of the KWP type fire dampers

KWP-O-E and KWP-O-S fire dampers:

EI120 (vehoi ↔ o) S

this class means that the fire damper has integrity, insulation and smoke leakage not less than 120 min

Installation in walls

The standard rigid wall constructions classified to the fire resistance class EI120 e.g.: concrete, aerated concrete, brick wall, hollow brick wall, aerated concrete wall etc.

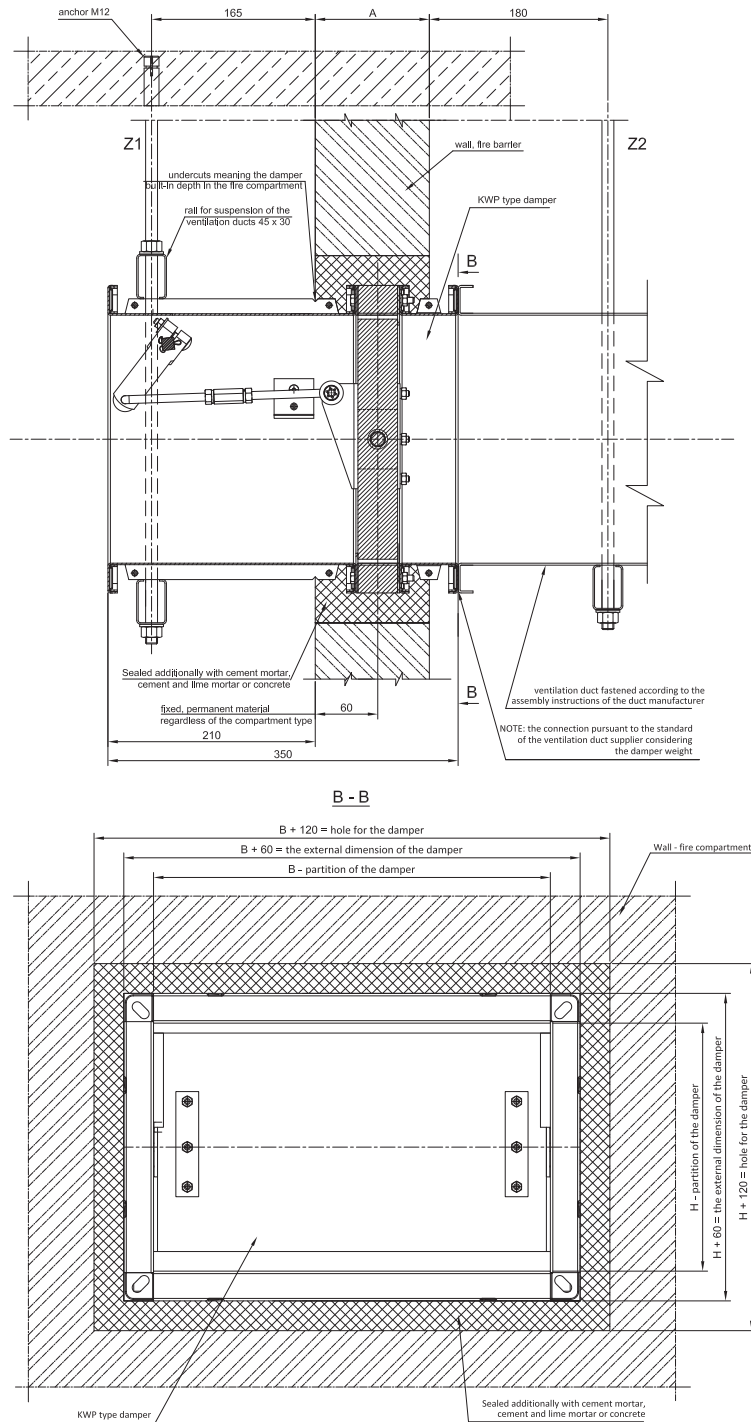


Fig 3. Installation of the dampers KWP in the wall partitions

Note:

Z1 and Z2 suspensions can be disassembled 48h after installation of fire damper.

Instead of Z1 and Z2 suspensions the other suspension and support systems can be used.

Installation in ceilings

Make the opening in the ceiling with dimensions 120mm bigger than the nominal dimensions of fire damper= $B+120$ and $H+120$.

Install the fire damper in the ceiling with use of assembling brackets and steel rawlbolts.

After setting the fire damper according to the description, seal the gap between fire damper and ceiling with cement mortar, cement and lime mortar or concrete.

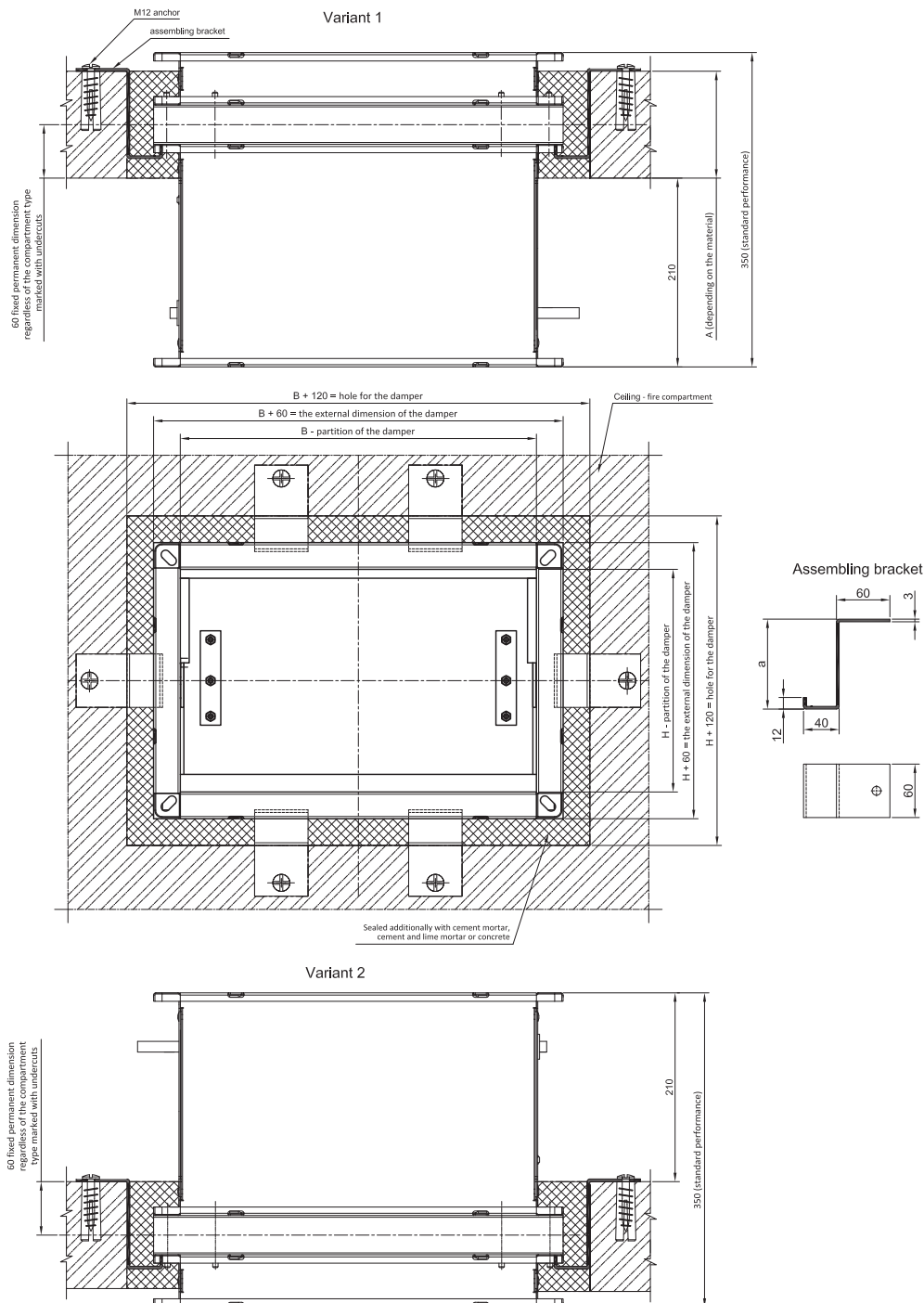


Fig 4. Installation of the dampers KWP in the ceilings

Apart from the installation of the single fire damper in building barrier, the fire dampers can also be installed in sets – batteries. The examples of such combinations are shown on the Figures 5,6,7,8. For combining the fire dampers with each other, the erecting scaffold made from C-section with dimensions 60x30x2,0 [mm] is used. The gaps between the fire dampers housing are tightly filled with boards of mineral wool with density not less than 60 [kg/m³]. Additionally, in the place of joint of the insulating dividers of the fire dampers, the PROMASEAL-PL PVC SK intumescent gasket with 20x2,0[mm] cross-sectional dimensions, mounted with steel staples, is used.

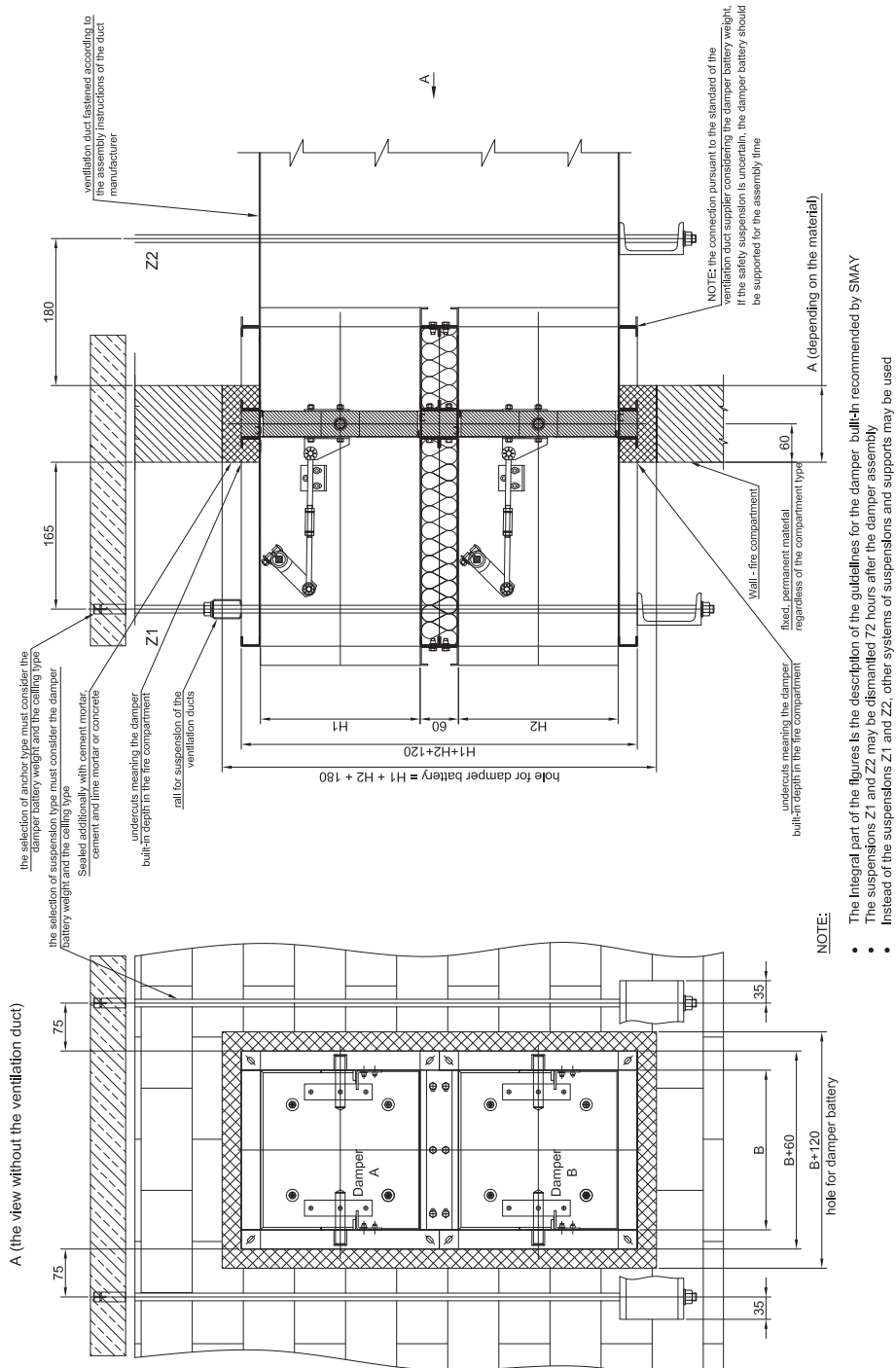
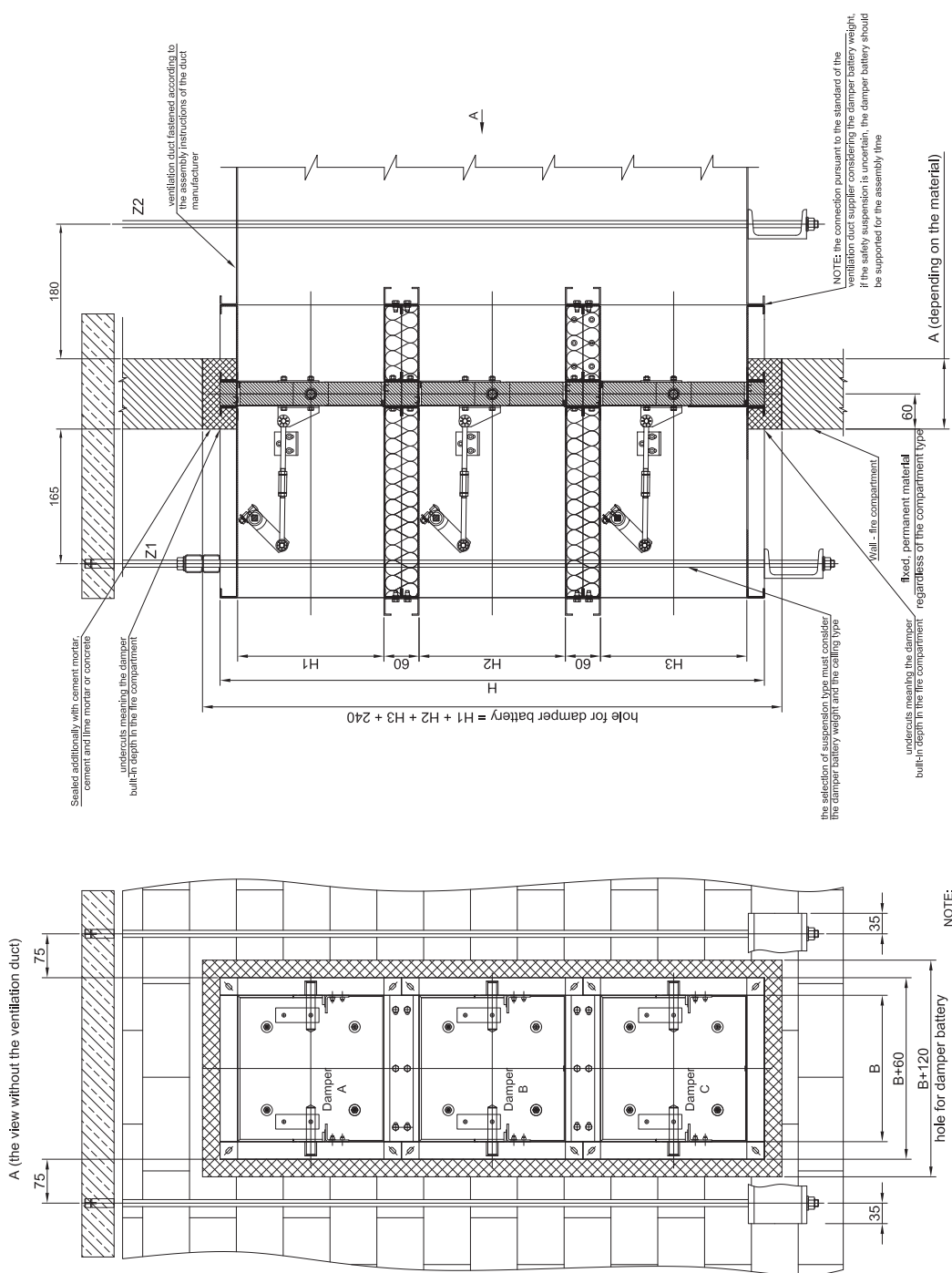


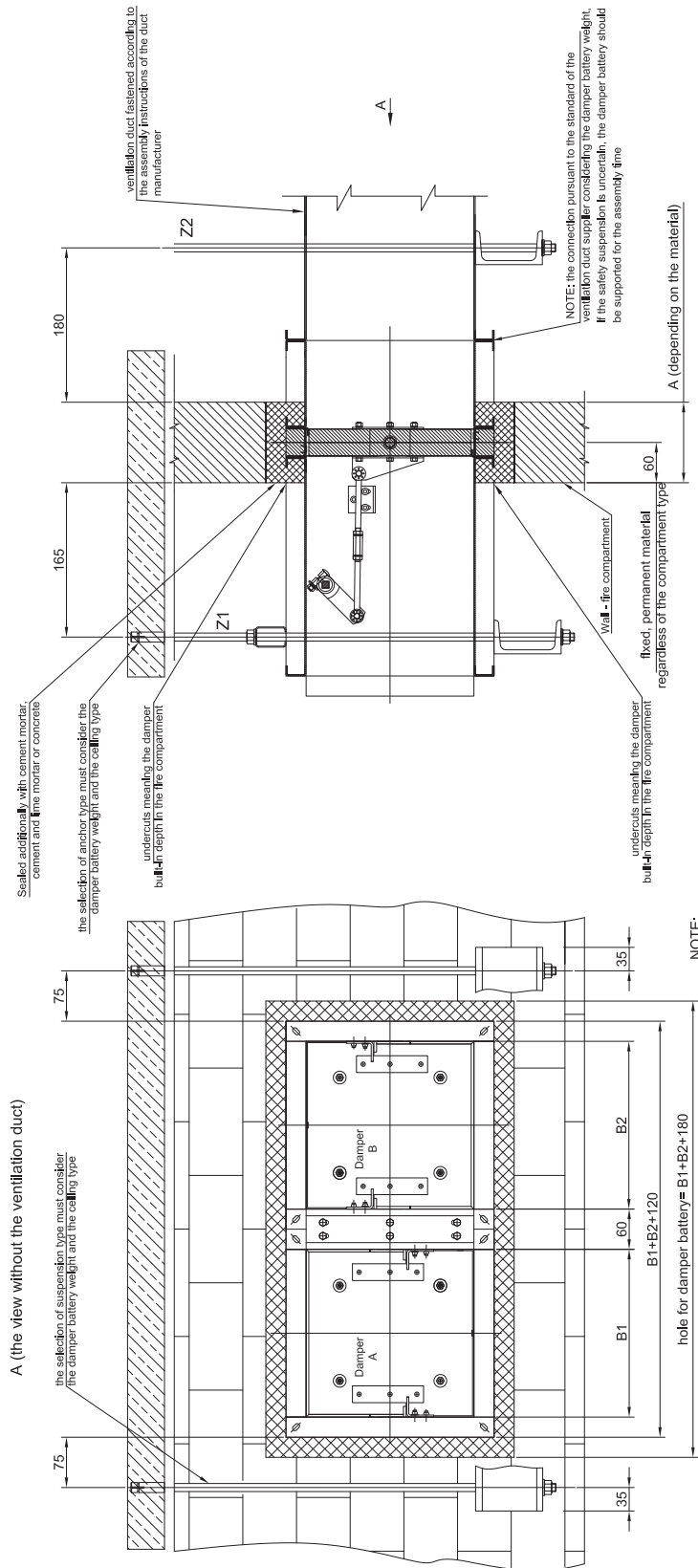
Fig. 5 Installation method of KWP damper batteries – variant I



The integral part of the figures is the description of the guidelines for the damper built-in recommended by SMAY

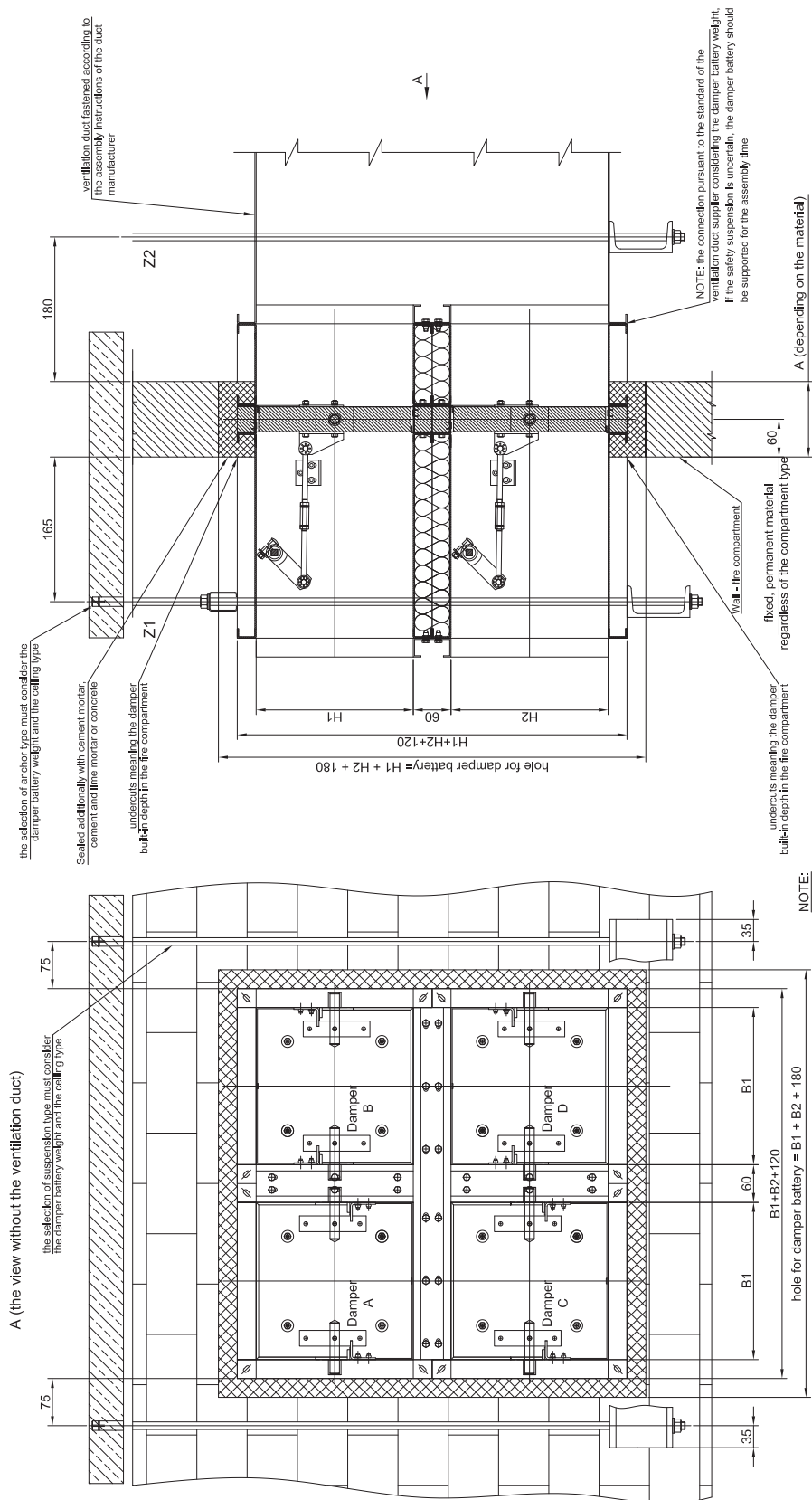
- The suspensions Z1 and Z2 may be dismantled 72 hours after the damper assembly
- Instead of the suspensions Z1 and Z2, other systems of suspensions and supports may be used

Fig. 6. Installation method of KWP damper batteries - variant II



- NOTE:**
- The integral part of the figures is the description of the guidelines for the damper built-in recommended by SMAY
 - The suspensions Z1 and Z2 may be dismantled 72 hours after the damper assembly
 - Instead of the suspensions Z1 and Z2, other systems of suspensions and supports may be used

Fig. 7. Installation method of KWP damper batteries - variant III



- The integral part of the figures is the description of the guidelines for the damper built-in recommended by SMAY
- The suspensions Z1 and Z2 may be dismantled 72 hours after the damper assembly
- Instead of the suspensions Z1 and Z2, other systems of suspensions and supports may be used

Fig. 8. Installation method of KWP damper batteries – variant IV

KWP-0-E(S)

The level of noise emitted by the fire damper to the duct

B	V [m/s]	H [mm]																
		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L _{WA} [dB(A)]																		
200	4	13	13	17	19	20												
	6	21	23	25	27	28												
	8	30	32	34	35	36												
	10	38	40	42	43	45												
250	4	15	17	19	20	21	23	23										
	6	23	25	27	29	30	31	32										
	8	32	34	36	37	38	39	40										
	10	40	42	44	45	46	47	48										
300	4	16	19	20	22	23	24	25	26	26								
	6	24	27	29	30	31	32	33	34	34								
	8	33	35	37	38	40	41	41	42	43								
	10	41	44	45	47	48	49	49	50	51								
350	4	17	20	22	23	24	25	26	27	27	28	29						
	6	26	28	30	31	32	33	34	35	36	36	37						
	8	34	37	38	40	41	42	43	43	44	45	45						
	10	42	45	46	48	49	50	51	51	52	53	53						
400	4	19	21	23	24	25	26	27	28	28	29	30	31	31	32	32	32	32
	6	27	29	31	32	33	34	35	36	37	37	38	38	39	39	40	40	41
	8	35	38	39	41	42	43	44	44	45	46	46	47	47	48	48	49	49
	10	43	46	47	49	50	51	52	52	53	54	54	55	55	56	56	57	57
450	4	19	22	23	25	26	27	28	29	29	30	31	31	32	32	33	33	34
	6	28	30	32	33	34	35	36	37	38	38	39	39	40	41	41	42	42
	8	36	38	40	42	43	44	44	45	46	46	47	47	48	48	49	49	50
	10	44	47	48	50	51	52	52	53	54	54	55	55	56	56	57	57	58
500	4	20	23	24	26	27	28	29	29	30	31	31	32	32	33	33	34	34
	6	28	31	32	34	35	36	37	38	38	39	40	40	41	41	42	42	43
	8	37	39	41	42	43	44	45	46	47	47	48	48	49	49	50	50	51
	10	45	47	49	50	51	52	53	54	55	55	56	56	57	57	58	58	59
550	4	21	23	25	26	28	29	29	30	31	31	32	33	33	34	34	35	35
	6	29	31	33	35	36	37	38	38	39	40	40	41	41	42	42	43	43
	8	38	40	42	43	44	45	46	47	47	48	48	49	49	50	50	51	51
	10	46	48	50	51	52	53	54	55	55	56	56	57	57	58	58	59	59
600	4	21	24	26	27	28	29	30	31	31	32	33	33	34	34	35	35	36
	6	30	32	34	35	36	37	38	39	40	40	41	42	42	43	43	44	44
	8	38	40	42	44	45	46	46	47	48	48	49	50	50	51	51	52	52
	10	46	49	50	52	53	54	54	55	56	56	57	57	58	58	59	59	60
650	4	24	26	28	29	30	31	31	32	33	33	34	34	35	35	36	36	37
	6	33	34	36	37	38	39	40	40	41	42	42	43	43	44	44	45	45
	8	41	43	44	45	46	47	48	48	49	50	50	51	51	52	52	53	53
	10	49	51	52	53	54	55	56	56	57	58	58	59	59	60	60	61	61
700	4	25	27	28	29	30	31	32	33	33	34	34	35	35	36	36	37	37
	6	33	35	36	38	39	39	40	41	42	42	43	43	44	44	45	45	46
	8	42	43	45	46	47	48	48	49	50	50	51	51	52	52	53	53	54
	10	50	51	53	54	55	56	56	57	58	58	59	59	60	60	61	61	62
750	4	25	27	29	30	31	32	32	33	34	34	35	35	36	36	37	37	38
	6	34	35	37	38	39	40	41	41	42	43	43	44	44	45	45	46	46
	8	42	44	45	46	47	48	49	49	50	51	51	52	52	53	53	54	54
	10	50	52	53	54	55	56	57	57	58	59	59	60	60	61	61	62	63
800	4	28	29	30	31	32	33	33	34	35	35	36	36	37	37	38	38	39
	6	36	37	39	40	40	41	42	43	43	44	44	45	45	46	46	47	47
	8	44	46	47	48	48	49	50	50	51	52	52	53	53	54	54	55	55
	10	52	54	55	56	56	57	58	58	59	59	60	60	61	61	62	62	63
850	4	28	29	31	32	32	33	34	35	35	36	36	37	37	38	38	39	39
	6	36	38	39	40	41	42	42	43	44	44	45	45	46	46	47	47	48
	8	45	46	47	48	49	50	50	51	51	52	52	53	53	54	54	55	55
	10	53	54	55	56	57	58	58	59	59	60	60	61	61	62	62	63	63
900	4	29	30	31	32	33	34	34	35	36	36	37	37	38	38	39	39	40
	6	37	38	39	40	41	42	43	43	44	44	45	45	46	46	47	47	48
	8	45	46	47	48	49	50	51	51	52	52	53	53	54	54	55	55	56
	10	53	54	55	56	57	58	59	59	60	60	61	61	62	62	63	63	64
950	4	30	31	32	33	34	34	35	36	36	37	37	38	38	39	39	40	41
	6	39	40	41	42	42	43	44	44	45	45	46	46	47	47	48	48	49
	8	47	48	49	50	50	51	52	52	53	53	54	54	55	55	56	56	57
	10	55	56	57	58	58	59	60	60	61	61	62	62	63	63	64	64	65
1000	4	31	32	33	34	34	35	36	36	37	37	38	38	39	39	40	40	41
	6	39	40	41	42	43	44	44	45	45	46	46	47	47	48	48	49	49
	8	47	48	49	50	51	51	52	53	53	54	54	55	55	56	56	57	57
	10	55	56	57	58	59	59	60	60	61	61	62	62	63	63	64	64	65
1050	4	31	32	33	34	35	35	36	37	37	38	38	39	39	40	40	41	41
	6	39	41	42	42	43	44	44	45	46	46	47	47	48	48	49	49	50
	8	47	49	50	50	51	52	52	53	53	54	54	55	55	56	56	57	57
	10	55	57	57	58	59	60	60	61	61	62	62	63	63	64	64	65	65
1100	4	32	33	34	35	36	36	37	37	38	38	39	39	40	40	41	41	42
	6	41	42	43	43	44	44	45	45	46	46	47	47	48	48	49	49	50
	8	49	50	51	51	52	52	53	53	54	54	55	55	56	56	57	57	58
	10	57	58	59	59	60	61	61	62	62	63	63	64	64	65	65	66	66
1150	4	33	34	35	35	36	37	37	38	38	39	39	40	40	41	41	42	42
	6	41	42	43	44	45	45	46	46	47	47	48	48	49	49	50	50	51
	8	49	50	51	52	52	53	53	54	54	55	55	56	56	57	57	58	58
	10	57	58	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66
1200	4	33	34	35	36	36	37	38	38	39	39	40	40	41	41	42	42	43
	6	41	42	43	44	45	45	46	46	47	47	48	48	49	49	50	50	51
	8	49	50	51	52	53	53	54	54	55	55	56	56	57	57	58	58	59
	10	57	58	59	60	61	61	62	62	63	63	64	64	65	65	66	66	67

Pressure loss Δp with reference to the flow velocity

B	V [m/s]	H [mm]																	
		200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	
		Δp [Pa]																	
200	4	12	10	8	8	7													
	6	25	22	18	18	15													
	8	45	40	32	32	27													
	10	68	60	48	48	41													
250	4	12	10	8	8	7	7	7											
	6	25	22	18	18	15	15	15											
	8	48	40	32	32	27	27	27											
	10	68	60	48	48	41	41	41											
300	4	12	9	8	8	7	7	6	6	6									
	6	25	20	18	18	15	15	13	13	13									
	8	46	35	32	32	27	27	24	24	24									
	10	68	55	48	48	41	41	35	35	35									
350	4	12	9	8	7	7	6	6	6	5	5								
	6	25	20	18	15	15	13	13	13	11	11	11							
	8	46	35	32	27	27	24	24	24	20	20	20							
	10	68	55	48	41	41	35	35	35	30	30	30							
400	4	10	9	7	7	6	6	6	5	5	5	5	5						
	6	22	20	15	15	13	13	13	11	11	11	11	11	11					
	8	40	35	27	27	24	24	24	20	20	20	20	20	20					
	10	60	55	41	41	35	35	35	30	30	30	30	30	30					
450	4	10	9	7	7	6	6	5	5	5	5	5	4	4	4	4			
	6	22	20	15	15	13	13	11	11	11	11	11	9	9	9	9			
	8	40	35	27	27	24	24	20	20	20	20	20	16	16	16	16			
	10	60	55	41	41	35	35	30	30	30	30	30	24	24	24	24	24		
500	4	10	8	7	6	6	5	5	5	4	4	4	4	4	4	4	4	4	
	6	22	18	15	13	13	11	11	11	9	9	9	9	9	9	9	9	9	
	8	40	32	27	24	24	20	20	20	16	16	16	16	16	16	16	16	16	
	10	60	48	41	35	35	30	30	30	24	24	24	24	24	24	24	24	24	
550	4	10	8	7	6	5	5	5	4	4	4	4	4	4	4	4	4	4	
	6	22	18	15	13	13	11	11	11	9	9	9	9	9	9	9	9	9	
	8	40	32	27	24	24	20	20	16	16	16	16	16	16	16	16	16	16	
	10	60	48	41	35	35	30	30	24	24	24	24	24	24	24	24	24	24	
600	4	10	8	7	6	5	5	5	4	4	4	4	4	4	4	4	4	3	
	6	22	18	15	13	13	11	11	11	9	9	9	9	9	9	9	9	9	
	8	40	32	27	24	24	20	20	16	16	16	16	16	16	16	16	16	16	
	10	60	48	41	35	35	30	30	24	24	24	24	24	24	24	24	24	24	
650	4	8	7	6	6	5	5	5	4	4	4	4	4	4	4	3	3	3	
	6	18	15	13	13	11	11	11	9	9	9	9	9	9	9	7	7	7	
	8	32	27	24	24	20	20	20	16	16	16	16	16	16	16	12	12	12	
	10	48	41	35	35	30	30	30	24	24	24	24	24	24	24	24	24	24	
700	4	8	6	6	5	5	5	5	4	4	4	4	4	4	4	3	3	3	
	6	18	13	13	11	11	11	11	9	9	9	9	9	9	9	7	7	7	
	8	32	24	24	20	20	20	20	16	16	16	16	16	16	16	12	12	12	
	10	48	35	35	30	30	30	30	24	24	24	24	24	24	24	24	24	24	
750	4	8	6	6	5	5	5	4	4	4	4	4	4	4	3	3	3	3	
	6	18	13	13	11	11	11	9	9	9	9	9	7	7	7	7	7	7	
	8	32	24	24	20	20	20	20	16	16	16	16	16	16	12	12	12	12	
	10	48	35	35	30	30	30	30	24	24	24	24	24	24	24	24	24	24	
800	4		6	6	5	5	5	4	4	4	3	3	3	3	3	3	3	3	
	6		13	13	11	11	11	9	9	9	7	7	7	7	7	7	7	7	
	8		24	24	20	20	20	20	16	16	16	16	16	16	12	12	12	12	
	10		35	35	30	30	30	30	24	24	24	24	24	24	24	24	24	24	
850	4		6	6	5	5	4	4	4	3	3	3	3	3	3	3	3	3	
	6		13	13	11	11	11	9	9	7	7	7	7	7	7	7	7	7	
	8		24	24	20	20	20	16	16	16	16	16	16	16	12	12	12	12	
	10		35	35	30	30	30	24	24	24	24	24	24	24	24	24	24	24	
900	4		6	6	5	5	4	4	3	3	3	3	3	3	3	3	3	3	
	6		13	13	11	11	11	9	9	7	7	7	7	7	7	7	7	7	
	8		24	24	20	20	20	16	16	16	16	16	16	16	16	16	16	16	
	10		35	35	30	30	30	24	24	24	24	24	24	24	24	24	24	24	
950	4			6	5	5	4	4	3	3	3	3	3	3	3	3	3	3	
	6			13	11	11	9	9	7	7	7	7	7	7	7	7	7	7	
	8			24	20	20	16	16	16	16	16	16	16	16	16	16	16	16	
	10			35	30	30	24	24	24	24	24	24	24	24	24	24	24	24	
1000	4				5	4	4	4	3	3	3	3	3	3	3	3	3	3	
	6				11	11	9	9	7	7	7	7	7	7	7	7	7	7	
	8				20	20	16	16	16	16	16	16	16	16	16	16	16	16	
	10				30	30	24	24	24	24	24	24	24	24	24	24	24	24	
1050	4				5	4	4	4	3	3	3	3	3	3	3	3	3	3	
	6				11	11	9	9	7	7	7	7	7	7	7	7	7	7	
	8				20	20	16	16	16	16	16	16	16	16	16	16	16	16	
	10				30	30	24	24	24	24	24	24	24	24	24	24	24	24	
1100	4				5	4	4	4	3	3	3	3	3	3	3	3	3	3	
	6				11	9	9	9	7	7	7	7	7	7	7	7	7	7	
	8				20	16	16	16	16	16	16	16	16	16	16	16	16	16	
	10				30	24	24	24	24	24	24	24	24	24	24	24	24	24	
1150	4				5	4	4	4	3	3	3	3	3	3	2				
	6				11	9	9	9	7	7	7	7	7	7	7	5			
	8				20	16	16	16	16	16	16	16	16	16	16	16	16	16	
	10				30	24	24	24	24	24	24	24	24	24	24	24	24	24	
1200	4				5	4	4	4	3	3	3	3	3	3					
	6				11	9	9	9	7	7	7	7	7	7					
	8				20	16	16	16	16	16	16	16	16	16	16	16	16	16	
	10				30	24	24	24	24	24	24	24	24	24	24	24	24	24	

KWP -O-E -600x400 - 350 -BF24-T

KWP - F - B x H - L - W - S - Q - P

F	application
O-E	fire damper with actuator with return spring
O-S	fire damper with return spring
B	width of inside span [mm]
H	height of inside span [mm]
L	length of the fire damper [mm], standard 350 (min 350 – max 600)
W	limit switch (only if F=O-S)
W1	indication of flap position – closed
W2	indication of flap position - opened
W12	indication of both flap positions
-	no limit switch
S	actuator
BLF24-T	(only if F=O-E for the surface $\leq 0,4m^2$ and dimensions $B_{MAX}=800, H_{MAX}=500$ [mm])
BLF24-T-ST	(only if F=O-E for the surface $\leq 0,4m^2$ and dimensions $B_{MAX}=800, H_{MAX}=500$ [mm])
BLF230-T	(only if F=O-E for the surface $\leq 0,4m^2$ and dimensions $B_{MAX}=800, H_{MAX}=500$ [mm])
BLF-230-T-ST	(only if F=O-E for the surface $\leq 0,4m^2$ and dimensions $B_{MAX}=800, H_{MAX}=500$ [mm])
BF24-T	(only if F=O-E)
BF24-T-ST	(only if F=O-E)
BF24TL-T-ST	(only if F=O-E)
Q	inspection*
R	inspection hole
-	no inspection hole
P	material*
SN	stainless steel
-	galvanized steel

* optional value – lack of them will cause the use of default value

