

## RECTANGULAR SMOKE CONTROL DAMPER



### Characteristics:

A smoke control damper for fire ventilation and mixed ventilation systems, with an electric actuator without a return spring.

SO

SL

RAL

version: 15/03/24

### Intended use

The KWP-P-E smoke control dampers are used in fire ventilation systems to prevent the spread of fire, heat and smoke.

he KWP-P-E smoke control dampers are certified by the Building Research Institute (ITB – Instytut Techniki Budowlanej). Certificate of Constancy of Performance No. **1488-CPR- 0437/W**. The set of dampers has been awarded the National Technical Assessment No. **ITB-KOT-2020/1398**.

During the normal operation of the system, the isolating baffle of the KWP-P-E dampers is in the open or closed position. In case of fire, the actuating system opens the dampers that operate the fire detection zone (dampers in other zones are closed).

The dampers are designed, manufactured and tested in accordance with the following standards: **PN-EN 12101-8** "Smoke and heat control systems – Part 8: Smoke control dampers" and **PN-EN 13501-4** "Fire classification of construction products and building elements – Part 4: Classification using data from fire resistance tests on components of smoke control systems."

The effectiveness of the dampers is confirmed by tests according to **PN-EN 1366-2** and **PN-EN 1366-10** "Fire resistance tests for service installations – Part 2: Fire dampers, Part 10: Smoke control dampers."

The KWP-P-E smoke control dampers are classified as tightness class C (housing tightness) devices on the basis of tests carried out according to **PN-EN 1751** "Ventilation for buildings. Air terminal devices. Aerodynamic testing of dampers and valves."

### Classification

KWP-P-E dampers installed individually:

EI 120 ( $v_{ew-h_{ow-i}}$ ) S1500C<sub>10 000</sub>AAmulti

EI 120 ( $v_{ed-i}$ ) S1000C<sub>10 000</sub>AAmulti

KWP-P-E dampers installed in sets:

EI 120 ( $v_{edw-i}$ ) S1000C<sub>10 000</sub>AAmulti

It means that the automatically controlled damper installed in building partition or in a duct outside the building partition keeps integrity, insulating and smoke leakage properties for at least 120 minutes; the class above also means that the damper may be operated remotely for at least 2 minutes from the moment of receiving the signal from the fire detector.

The KWP smoke control dampers can be installed in vertical and horizontal building partitions, with either a horizontal or a vertical rotation axis, with any actuator position, or in a duct outside a building partition, with a horizontal rotation axis, with any actuator position.

The dampers may be mounted individually or in sets (16 pcs max., up to 10 m<sup>2</sup>) in rigid walls or in a duct (shaft).

### Description

The damper consists of two housings made of a galvanized metal sheet, separated with insulating separators made of a 40 mm thick fire-rated material. There is a baffle inside the damper. The movement of the baffle into the closed position by means of a set of tie rods is limited by a buffer. The axes of the baffle are embedded by slide bearings in the insulating separators. The baffle is closed by means of a set of tie rods.

The KWP-P-E smoke control dampers may optionally be equipped with two inspection openings, at the top and at the bottom, thus there is no necessity of installing inspection openings in the ducts close to the dampers in order to carry out periodic inspections and tests. There is also no need to determine the servicing side.

The permissible air velocity in a BxH connection duct for KWP-P-E dampers is 12 m/s.

### Manufacturing versions

**KWP-P-E** – a smoke control damper (normally closed or open). The BEN, BEE or BE electric actuators of BELIMO form the drive system. Switching between open and closed position of the damper (and vice versa) takes place after the power supply has been applied to the proper actuator contacts. There are microswitches permanently installed in the actuator for indicating the open/closed position of the damper. The KWP-P-E dampers have no thermal switches, and the electric actuators used in the dampers have no return springs (voltage loss do not cause the movement of the damper isolating baffle).

The range of the dampers covers the following dimensions: a clear damper width from 200 to 1,500 mm (10 mm intervals) and a clear damper height from 200 to 1,500 mm (10 mm intervals), and is limited to the gross surface area of 1.5 m<sup>2</sup>. Above this size the dampers are manufactured as sets (batteries). The damper batteries are delivered disassembled into single dampers and prepared for assembly on site.

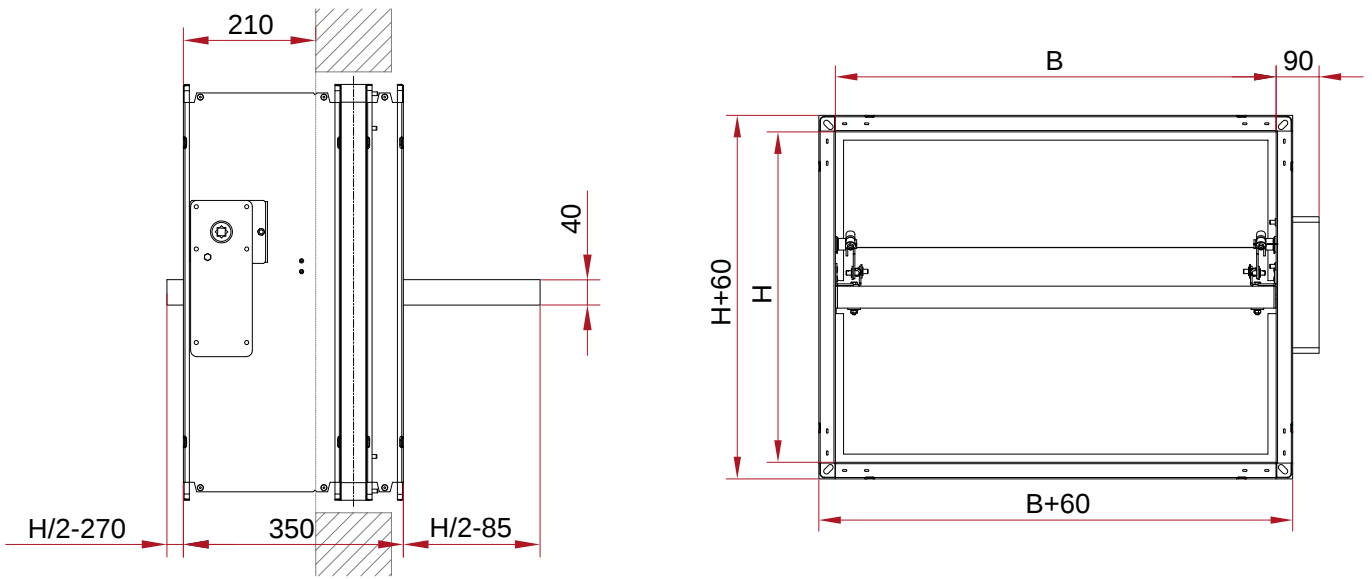
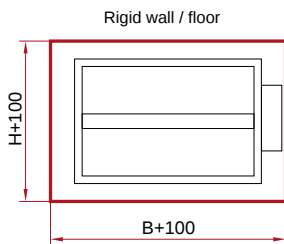


Figure 1. Figure 1. KWP-P-E damper (with an electric actuator without a return spring).



When mounting the damper with an actuator on the opposite side of the body, rotate the damper 180 degrees – cables will go up from the actuator.

## Installation



Permissible range:  $B + (80 \div 120)$  mm /  $H + (80 \div 120)$  mm

Figure 2. Openings required for the KWP-P damper mounted separately.

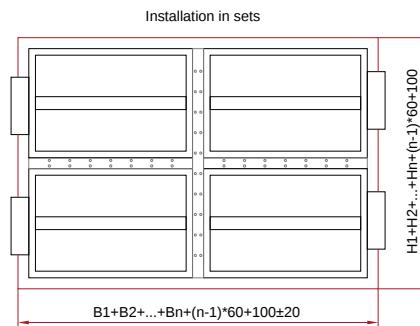


Figure 3. Openings required for the KWP-P dampers installed in sets.

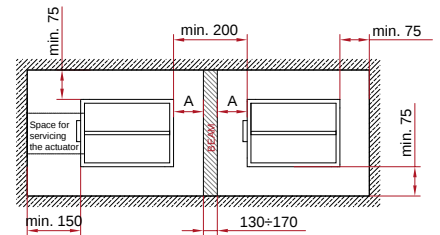


Figure 4. Spacing required between dampers installed individually.

# Technical data

Table 1. The net surface area and the range of actuators used for the KWP-P damper.

KWP-P	Width B [mm]																										
	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
200	0,027	0,035	0,042	0,049	0,056	0,064	0,071	0,078	0,085	0,093	0,100	0,107	0,114	0,122	0,129	0,136	0,143	0,151	0,158	0,165	0,172	0,180	0,187	0,194	0,201	0,209	0,216
250	0,037	0,046	0,056	0,066	0,076	0,085	0,095	0,105	0,115	0,124	0,134	0,144	0,154	0,163	0,173	0,183	0,193	0,202	0,212	0,222	0,232	0,241	0,251	0,261	0,271	0,280	0,290
300	0,046	0,058	0,070	0,083	0,095	0,107	0,119	0,132	0,144	0,156	0,168	0,181	0,193	0,205	0,217	0,230	0,242	0,254	0,266	0,279	0,291	0,303	0,315	0,328	0,340	0,352	0,364
350	0,055	0,070	0,085	0,099	0,114	0,129	0,144	0,158	0,173	0,188	0,203	0,217	0,232	0,247	0,262	0,276	0,291	0,306	0,321	0,335	0,350	0,365	0,380	0,394	0,409	0,424	0,439
400	0,064	0,082	0,099	0,116	0,133	0,151	0,168	0,185	0,202	0,220	0,237	0,254	0,271	0,289	0,306	0,323	0,340	0,358	0,375	0,392	0,409	0,427	0,444	0,461	0,478	0,496	0,513
450	0,074	0,093	0,113	0,133	0,153	0,172	0,192	0,212	0,232	0,251	0,271	0,291	0,311	0,330	0,350	0,370	0,390	0,409	0,429	0,449	0,469	0,488	0,508	0,528	0,548	0,567	0,587
500	0,083	0,105	0,127	0,150	0,172	0,194	0,216	0,239	0,261	0,283	0,305	0,328	0,350	0,372	0,394	0,417	0,439	0,461	0,483	0,506	0,528	0,550	0,572	0,595	0,617	0,639	0,661
550	0,092	0,117	0,142	0,166	0,191	0,216	0,241	0,265	0,290	0,315	0,340	0,364	0,389	0,414	0,439	0,463	0,488	0,513	0,538	0,562	0,587	0,612	0,637	0,661	0,686	0,711	0,736
600	0,101	0,129	0,156	0,183	0,210	0,238	0,265	0,292	0,319	0,347	0,374	0,401	0,428	0,456	0,483	0,510	0,537	0,565	0,592	0,619	0,646	0,674	0,701	0,728	0,755	0,783	0,810
650	-	0,140	0,170	0,200	0,230	0,259	0,289	0,319	0,349	0,378	0,408	0,438	0,468	0,497	0,527	0,557	0,587	0,616	0,646	0,676	0,706	0,735	0,765	0,795	0,825	0,854	0,884
700	-	0,152	0,184	0,217	0,249	0,281	0,313	0,346	0,378	0,410	0,442	0,475	0,507	0,539	0,571	0,604	0,636	0,668	0,700	0,733	0,765	0,797	0,829	0,862	0,894	0,926	0,958
750	-	0,164	0,199	0,233	0,268	0,303	0,338	0,372	0,407	0,442	0,477	0,511	0,546	0,581	0,616	0,650	0,685	0,720	0,755	0,789	0,824	0,859	0,894	0,928	0,963	0,998	1,033
800	-	-	0,213	0,250	0,287	0,325	0,362	0,399	0,436	0,474	0,511	0,548	0,585	0,623	0,660	0,697	0,734	0,772	0,809	0,846	0,883	0,921	0,958	0,995	1,032	1,070	1,107
850	-	-	0,227	0,267	0,307	0,346	0,386	0,426	0,466	0,505	0,545	0,585	0,625	0,664	0,704	0,744	0,784	0,823	0,863	0,903	0,943	0,982	1,022	1,062	1,102	1,141	1,181
900	-	-	0,241	0,284	0,326	0,368	0,410	0,453	0,495	0,537	0,579	0,622	0,664	0,706	0,748	0,791	0,833	0,875	0,917	0,960	1,002	1,044	1,086	1,129	1,171	1,213	1,255
950	-	-	-	0,300	0,345	0,390	0,435	0,479	0,524	0,569	0,614	0,658	0,703	0,748	0,793	0,837	0,882	0,927	0,972	1,016	1,061	1,106	1,151	1,195	1,240	1,285	1,330
1000	-	-	-	0,317	0,364	0,412	0,459	0,506	0,553	0,601	0,648	0,695	0,742	0,790	0,837	0,884	0,931	0,979	1,026	1,073	1,120	1,168	1,215	1,262	1,309	1,357	1,404
1050	-	-	-	0,334	0,384	0,433	0,483	0,533	0,583	0,632	0,682	0,732	0,782	0,831	0,881	0,931	0,981	1,030	1,080	1,130	1,180	1,229	1,279	1,329	1,379	-	-
1100	-	-	-	-	0,403	0,455	0,507	0,560	0,612	0,664	0,716	0,769	0,821	0,873	0,925	0,978	1,030	1,082	1,134	1,187	1,239	1,291	1,343	1,396	-	-	-
1150	-	-	-	-	0,422	0,477	0,532	0,586	0,641	0,696	0,751	0,805	0,860	0,915	0,970	1,024	1,079	1,134	1,189	1,243	1,298	1,353	1,408	-	-	-	-
1200	-	-	-	-	0,441	0,499	0,556	0,613	0,670	0,728	0,785	0,842	0,899	0,957	1,014	1,071	1,128	1,186	1,243	1,300	1,357	1,415	-	-	-	-	-
1250	-	-	-	-	-	0,520	0,580	0,640	0,700	0,759	0,819	0,879	0,939	0,998	1,058	1,118	1,178	1,237	1,297	1,357	1,417	-	-	-	-	-	-
1300	-	-	-	-	-	0,542	0,604	0,667	0,729	0,791	0,853	0,916	0,978	1,040	1,102	1,165	1,227	1,289	1,351	1,414	-	-	-	-	-	-	-
1350	-	-	-	-	-	0,564	0,629	0,693	0,758	0,823	0,888	0,952	1,017	1,082	1,147	1,211	1,276	1,341	1,406	-	-	-	-	-	-	-	-
1400	-	-	-	-	-	-	0,653	0,720	0,787	0,855	0,922	0,989	1,056	1,124	1,191	1,258	1,325	1,393	-	-	-	-	-	-	-	-	-
1450	-	-	-	-	-	-	0,677	0,747	0,817	0,886	0,956	1,026	1,096	1,165	1,235	1,305	1,375	-	-	-	-	-	-	-	-	-	-
1500	-	-	-	-	-	-	0,701	0,774	0,846	0,918	0,990	1,063	1,135	1,207	1,279	1,352	1,424	-	-	-	-	-	-	-	-	-	-

ATTENTION - the maximum gross area (BxH) is 1.5 m<sup>2</sup>.

0.123 - actuator **BEN** (BxH ≤ 1,21 m<sup>2</sup> and H≤1100 mm)

0.123 - actuator **BEE** (1,21 m<sup>2</sup> < BxH ≤ 1,30 m<sup>2</sup> and H≤1200 mm)

0.123 - actuator **BE** (BxH > 1,30 m<sup>2</sup> or H>1200 mm)



Max BxH gross surface area is 1.5 m<sup>2</sup>.

Table 2. Pressure drop on KWP-P damper,  $\Delta p$  [Pa].

KWP-P	v [m/s]	Width B [mm]														
		200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
Height H [mm]	200	4	12	12	10	10	10	10	8	8	8	7	7	7	6	6
		6	25	25	22	22	22	22	20	20	20	19	18	18	17	17
		8	45	46	40	40	40	40	38	38	36	36	35	34	33	33
		10	68	68	60	60	60	60	56	56	56	52	52	52	50	48
	300	4	8	8	7	7	7	7	7	6	6	5	5	4	4	4
		6	18	18	15	15	15	15	15	13	13	11	11	10	8	8
		8	32	32	27	27	27	27	27	24	24	22	22	20	20	18
		10	48	48	41	41	41	41	41	35	35	30	30	26	26	24
	400	4	7	7	6	6	6	5	5	5	5	5	5	5	5	4
		6	15	15	13	13	13	11	11	11	11	11	11	11	11	9
		8	27	27	24	24	24	20	20	20	20	20	20	20	20	17
		10	41	41	35	35	35	30	30	30	30	30	30	30	30	26
	500	4	7	7	6	5	5	5	5	4	4	4	4	4	4	4
		6	14	13	13	11	11	11	11	9	9	9	9	9	9	9
		8	25	24	24	20	20	20	20	16	16	16	16	18	18	18
		10	38	35	35	30	30	30	30	24	24	24	24	24	24	24
	600	4	7	6	5	5	4	4	4	4	3	3	3	3	4	4
		6	14	13	11	11	9	9	9	9	7	7	7	7	9	9
		8	26	24	20	20	16	16	16	16	12	12	12	14	18	18
		10	40	35	30	30	24	24	24	24	18	18	18	18	24	24
	700	4	-	5	5	4	4	4	3	3	3	3	3	3	3	3
		6	-	11	11	9	9	9	7	7	7	7	7	7	7	7
		8	-	20	20	16	16	16	12	12	12	12	12	14	14	14
		10	-	30	30	24	24	24	18	18	18	18	18	18	18	18
	800	4	-	5	5	4	4	4	3	3	3	3	3	2	3	3
		6	-	11	11	9	9	9	7	7	7	7	7	5	7	7
		8	-	20	20	16	16	16	12	12	12	12	12	10	14	14
		10	-	30	30	24	24	24	18	18	18	18	18	12	18	18
	900	4	-	5	4	4	4	3	3	3	3	3	2	2	2	2
		6	-	11	9	9	9	7	7	7	7	7	5	5	5	5
		8	-	20	16	16	16	12	12	12	12	12	8	10	10	10
		10	-	30	24	24	24	18	18	18	18	18	12	12	12	12
	1000	4	-	-	4	4	3	3	3	3	3	2	2	2	2	2
		6	-	-	9	9	7	7	7	7	7	5	5	5	5	5
		8	-	-	16	16	12	12	12	12	12	8	8	10	10	10
		10	-	-	24	24	18	18	18	18	18	12	12	12	12	12
	1100	4	-	-	4	3	3	3	3	3	3	2	2	2	-	-
		6	-	-	9	7	7	7	7	7	7	5	5	5	-	-
		8	-	-	16	12	12	12	12	12	12	8	8	10	-	-
		10	-	-	24	18	18	18	18	18	18	12	12	12	-	-
1200	4	-	-	3	3	3	3	3	3	2	2	2	-	-	-	
	6	-	-	7	7	7	7	7	7	5	5	5	-	-	-	
	8	-	-	12	12	12	12	12	12	8	8	8	-	-	-	
	10	-	-	18	18	18	18	18	18	12	12	12	-	-	-	

	1300	4	-	-	-	3	3	3	2	2	2	2	-	-	-	-
		6	-	-	-	7	7	7	5	5	5	5	-	-	-	-
		8	-	-	-	12	12	12	8	8	8	8	-	-	-	-
		10	-	-	-	18	18	18	12	12	12	12	-	-	-	-
	1400	4	-	-	-	3	2	2	2	2	2	-	-	-	-	-
		6	-	-	-	7	5	5	5	5	5	-	-	-	-	-
		8	-	-	-	12	8	8	8	8	8	-	-	-	-	-
		10	-	-	-	18	12	12	12	12	12	-	-	-	-	-
	1500	4	-	-	-	2	2	2	2	2	2	-	-	-	-	-
		6	-	-	-	5	5	5	5	5	5	-	-	-	-	-
		8	-	-	-	8	8	8	8	8	8	-	-	-	-	-
		10	-	-	-	12	12	12	12	12	12	-	-	-	-	-

v [m/s] - air flow velocity in the BxH connection duct

Table 3. Sound power level emitted by the KWP-P damper to the duct,  $L_{WA}$  [dB(A)].

KWP-P	v	Width B [mm]														
	[m/s]	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
Height H [mm]	200	4	13	16	19	20	21	22	23	24	25	26	27	29	30	30
		6	21	24	27	28	30	30	32	33	34	35	35	36	37	37
		8	30	33	35	37	38	39	41	43	44	45	46	47	49	49
		10	38	41	43	45	46	47	49	51	53	54	55	57	58	59
	300	4	17	20	23	24	26	27	28	29	29	30	31	32	33	33
		6	25	29	31	32	34	35	36	37	37	38	40	42	44	45
		8	34	37	39	41	42	43	44	45	46	47	48	49	49	50
		10	42	45	47	49	50	51	52	53	54	55	57	58	59	60
	400	4	20	23	25	27	28	29	30	31	32	32	33	34	35	35
		6	28	31	33	35	36	38	39	39	40	41	41	42	43	43
		8	36	40	42	43	45	46	47	47	48	49	49	50	51	52
		10	45	48	50	51	53	54	55	55	56	57	57	58	59	59
	500	4	22	25	27	29	30	31	32	33	34	34	35	36	37	38
		6	30	33	35	37	38	39	40	41	42	43	43	44	44	46
		8	37	41	44	45	46	48	48	49	50	51	51	52	51	53
		10	45	49	52	53	54	56	56	57	58	59	59	59	60	61
	600	4	23	26	28	30	31	33	33	34	35	36	36	37	39	39
		6	31	34	37	38	40	41	42	43	44	44	45	45	45	48
		8	40	43	45	47	48	49	50	51	51	52	53	53	53	55
		10	48	51	53	55	56	57	58	59	59	60	61	60	60	63
	700	4	-	28	30	31	33	34	35	36	36	37	38	38	40	40
		6	-	36	38	40	41	42	43	44	45	45	46	46	46	49
		8	-	44	46	48	49	50	51	52	53	53	54	54	54	56
		10	-	52	54	56	57	58	59	60	60	61	62	61	62	64
	800	4	-	29	31	32	34	35	36	37	37	38	39	39	41	41
		6	-	37	39	41	42	43	44	45	46	46	47	47	47	50
		8	-	45	47	49	50	51	52	53	54	54	55	55	55	57
		10	-	53	55	57	58	59	60	61	61	62	63	62	63	65
	900	4	-	29	31	33	34	36	37	37	38	39	40	40	42	42
		6	-	38	40	42	43	44	45	46	47	47	48	48	48	51
		8	-	46	48	50	51	52	53	54	54	55	56	56	56	58
		10	-	54	56	58	59	60	61	62	62	63	64	63	64	66
	1000	4	-	-	33	34	36	37	37	38	39	40	41	41	43	43
		6	-	-	41	42	44	45	46	47	47	48	49	49	49	52
		8	-	-	49	50	52	53	54	54	55	56	57	57	57	60
		10	-	-	57	58	60	61	62	62	63	64	65	65	66	67
	1100	4	-	-	33	35	37	38	38	39	40	41	42	42	-	-
		6	-	-	42	43	45	46	46	47	48	49	50	50	-	-
		8	-	-	50	51	53	54	54	55	56	57	58	58	-	-
		10	-	-	58	59	61	62	62	63	64	65	66	66	-	-
	1200	4	-	-	34	36	38	39	39	40	41	42	43	-	-	-
		6	-	-	43	44	46	47	47	48	49	50	51	-	-	-
		8	-	-	51	52	54	55	55	56	57	58	59	-	-	-
		10	-	-	59	60	62	63	63	64	65	66	67	-	-	-

	1300	4	-	-	-	37	39	40	40	41	42	43	-	-	-	-
		6	-	-	-	44	46	47	47	48	49	50	-	-	-	-
		8	-	-	-	52	54	55	55	56	57	58	-	-	-	-
		10	-	-	-	60	62	63	63	64	65	66	-	-	-	-
	1400	4	-	-	-	37	39	40	40	41	42	-	-	-	-	-
		6	-	-	-	45	47	48	48	49	50	-	-	-	-	-
		8	-	-	-	54	56	57	57	58	59	-	-	-	-	-
		10	-	-	-	61	63	64	64	65	66	-	-	-	-	-
	1500	4	-	-	-	38	40	41	41	42	43	-	-	-	-	-
		6	-	-	-	46	48	49	49	50	51	-	-	-	-	-
		8	-	-	-	54	56	57	57	58	59	-	-	-	-	-
		10	-	-	-	62	64	65	65	66	67	-	-	-	-	-

**v [m/s] - air flow velocity in the BxH connection duct**

Table 4. Weight of KWP-P-E damper, m [kg].

KWP-P-E		Width B [mm]													
		200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
Height H [mm]	200	12,4	14,6	16,8	19,0	21,2	23,4	25,6	27,8	30,0	32,2	34,4	41,4	44,0	46,5
	300	14,4	17,0	19,7	22,2	24,9	27,5	30,1	32,7	35,4	38,0	40,6	48,3	51,2	54,2
	400	16,6	19,6	22,6	25,6	28,6	31,6	34,7	37,7	40,7	43,8	46,8	55,2	58,6	61,9
	500	18,7	22,1	25,6	29,0	32,4	35,8	39,3	42,7	46,1	49,5	52,9	62,2	65,9	69,6
	600	20,7	24,6	28,5	32,2	36,1	39,9	43,8	47,6	51,4	55,2	59,1	69,0	73,2	77,3
	700	-	27,1	31,4	35,5	39,8	44,0	48,3	52,5	56,7	61,0	65,2	75,9	80,4	85,0
	800	-	29,6	34,3	38,8	43,5	48,1	52,8	57,4	62,1	66,7	71,3	82,8	87,7	92,7
	900	-	32,1	37,1	42,1	47,2	52,2	57,3	62,3	67,4	72,4	77,5	89,6	96,2	101,5
	1000	-	-	40,1	45,5	51,0	56,4	61,9	67,4	72,8	78,2	83,7	97,8	103,6	109,3
	1100	-	-	43,2	48,9	54,8	60,7	66,5	72,4	78,2	84,1	90,2	104,6	-	-
	1200	-	-	46,2	52,3	58,7	64,9	71,1	77,5	83,7	90,0	104,5	-	-	-
	1300	-	-	-	61,6	68,6	75,6	82,6	89,6	97,8	104,4	-	-	-	-
	1400	-	-	-	65,3	72,8	80,1	87,5	96,2	103,6	-	-	-	-	-
	1500	-	-	-	69,0	76,9	84,7	92,5	101,5	109,3	-	-	-	-	-

# KWP-P - Rectangular smoke control damper

When ordering, please provide information in accordance with the following pattern:

**KWP-P-<F> - <B> x <H> - <L> - <S> - <M> - <Q> - <P> - <RAL>**

Where:

<b>F</b>	type of the actuation system used	
	E - electric actuator without a return spring	
<b>B</b>	damper clear width [mm]	
<b>H</b>	damper clear height [mm]	
<b>L</b>	damper length in mm, 350 by default (600 mm optionally)	
<b>S</b>	type of actuator used	
	BEN - for $B \times H \leq 1,21 \text{ m}^2$ and $H \leq 1100 \text{ mm}$	<b>Product marking:</b>
	BEE - for $1,21 \text{ m}^2 < B \times H \leq 1,30 \text{ m}^2$ and $H \leq 1200 \text{ mm}$	<b>24/230</b> – supply voltage
	BE - for $B \times H > 1,30 \text{ m}^2$ or $H > 1200 \text{ mm}$	<b>ST</b> – connection socket
<b>M</b>	installation in sets*	
	<b>none</b> - installation in sets not possible	
	M - damper adapted to installation in sets	
<b>Q</b>	inspection opening*	
	<b>none</b> - no inspection opening	
	R - inspection opening	
<b>P</b>	finishing*	
	<b>none</b> - galvanized steel	
	SL - coated steel	
<b>RAL</b>	colour as per RAL code (for SL finishing)*	

\* optional items – if not indicated, default values will be used

Order example: **KWP-P-E-600x400-350-BEN24**