

KP-2...72S
Series



Normally Open Fire-Resisting Duct Damper with Mechanical Drive Mechanism

KP-2...BLF
KP-2...BF
Series



Normally Open Fire-Resisting Duct Damper with Electric Drive Mechanism

KP-2...BLF...-1
KP-2...BF...-1
Series



Simplified Normally Open Fire-Resisting Duct Damper with Electric Drive Mechanism

■ **Application**

Fire safety dampers are intended for automatic blocking of process openings and the those of air duct channels in intermediate floors, walls and partitions as well as blocking the openings in supply and exhaust ducts of smoke ventilation systems. The dampers of this particular design are not suitable for installation in air ducts and channels of premises rated explosion and fire safety category A and B and in flammable and explosive mixture intakes. KP-2 Fire-Resisting Duct Dampers are capable of resisting fire for at least 120 minutes (EI 120) at the temperature of 600 °C.

■ **Design**

KP-2 series dampers are made in the general-purpose industrial version with a minimized variety of hardware components using low-alloy galvanized steel. The damper flap is made of fire-resistant material. The duct installation design results in two mounting flanges on the casing for integration into a ventilation ducts (air ducting) and external configuration of the drive mechanism for easier maintenance.

KP-2...BLF/KP-2...BF series dampers are equipped with a hot and cold zone baffle.

KP-2...BLF...-1/KP-2...BF...-1 series dampers have a

simplified construction:

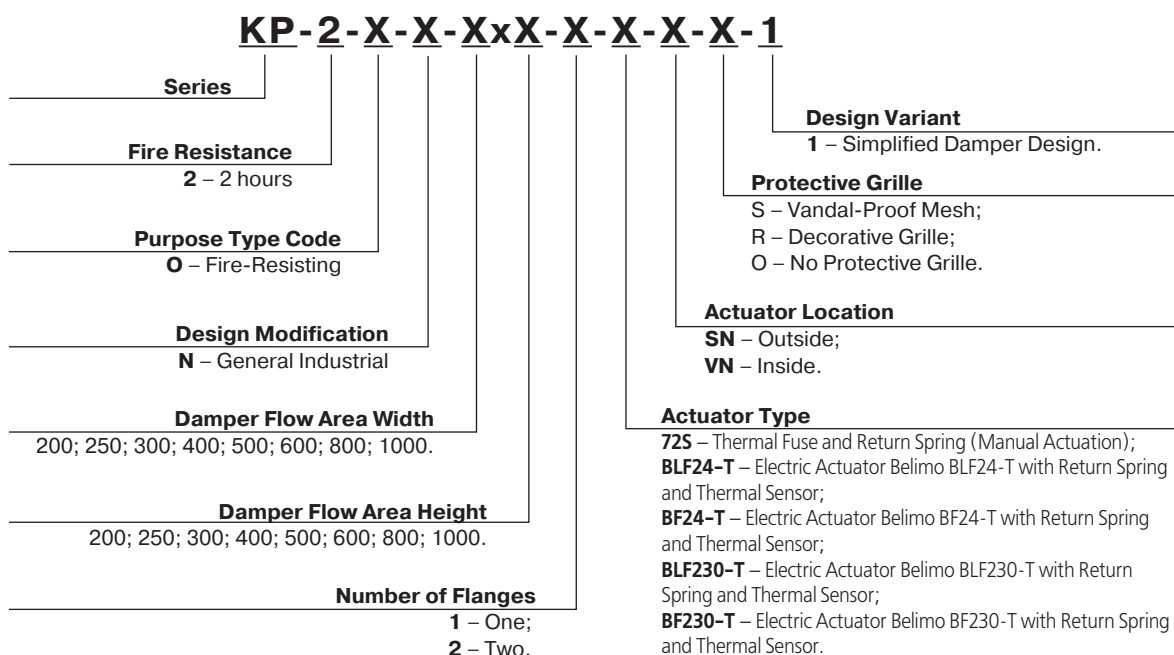
- Simplified damper swing mechanism;
- The zone baffle has been replaced by casing perforation covered with ceramic fibre material and aluminium foil tape;
- New material and altered flap thickness.

Depending on the design modification the dampers of this series are equipped with:

▶ **a mechanical actuating unit with a thermal fuse and a return spring.**

The damper is set to the operating position upon the thermal fuse breakdown resulting from a temperature increase.

Conventional Designation:



The damper can then be re-set to the protective position only manually by using a handle and by replacing the thermal fuse through the access hole.

Emergency Damper Actuation: The flap is set to the protective position (damper unaffected by fire) by means of the handle on the external side of the damper (the return spring is cocked upon setting the damper flap to the protective position) and the handle position is secured by the lock. Upon an emergency activation (direct damper contact with fire) the thermal fuse breaks down enabling the lock with releases the handle allowing the return spring to set the damper flap to the operating position.

► **Electric Actuator with Built-In Return Spring and Back-Up Thermal Breaker.**

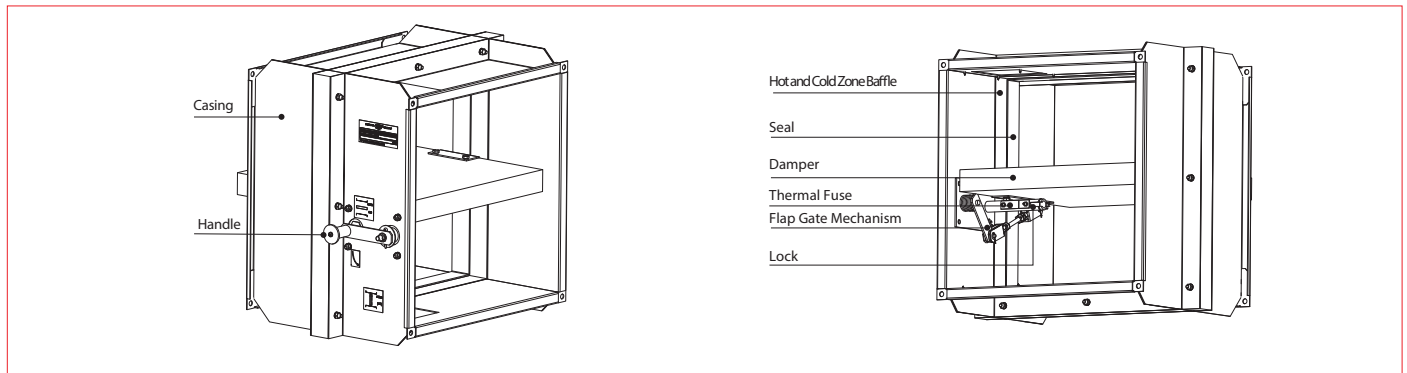
Damper Setting to Operating Position (Direct Fire Contact): Remotely, Via Electric Drive. The damper can be set to the operating or protective position either remotely via the control panel or manually using the manual cocking handle which is always included in the standard delivery package of the electric actuator.

In case of the remote control panel failure the back-up thermal breaker interrupts the power supply to the electric actuator and the return spring sets the damper to the operating position.

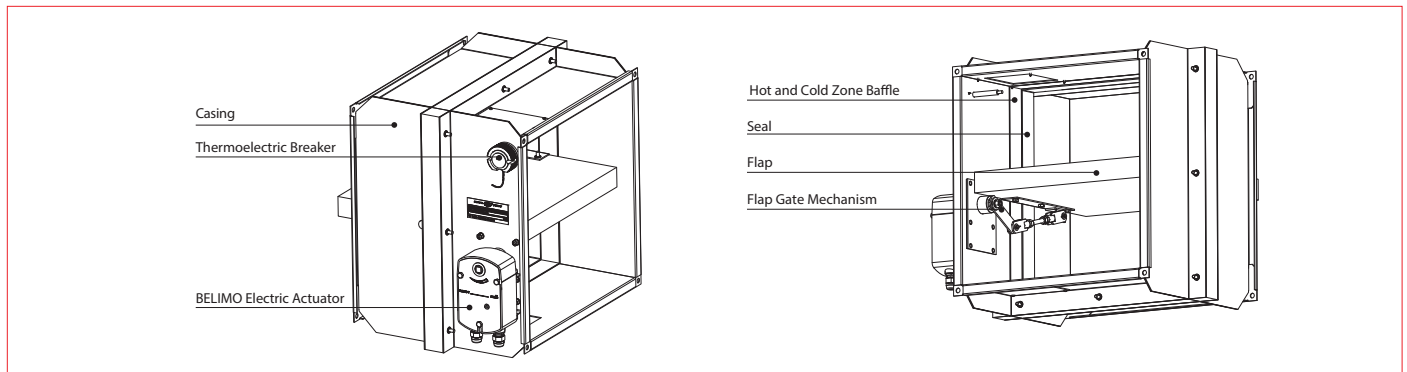
Emergency Damper Actuation: The damper flap is automatically set to the protective position (damper unaffected by fire). The electric actuator remains energized at all times.

In case of an emergency actuation (direct fire contact): The electric actuator equipped with a return spring is de-energized and the damper flap is set to the operating position by means of the spring energy. In case of a power failure not related to fire and subsequent restoration to damper equipped with a return spring the damper flap is re-set to the protective position.

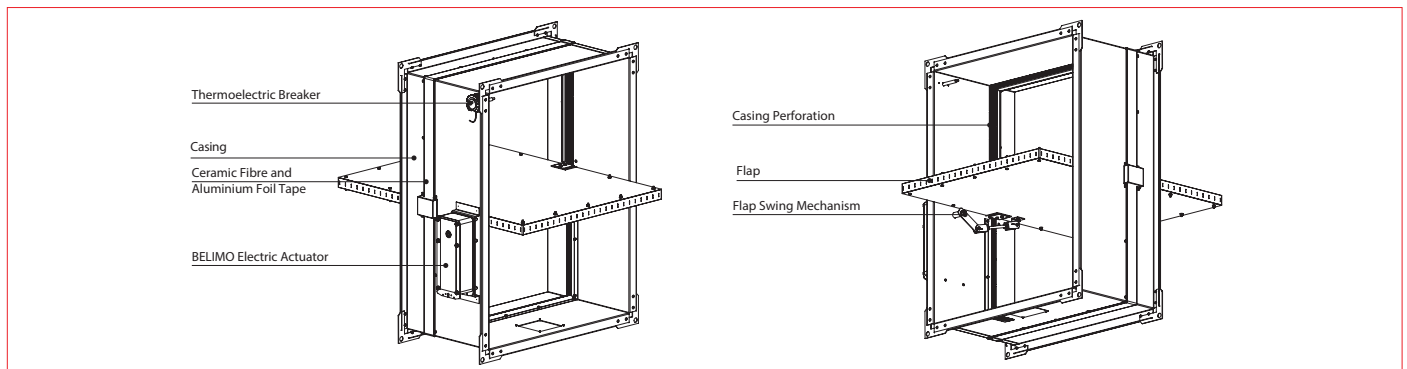
■ **KP-2...72S Fire-Safety Damper with Mechanical Actuating Unit, Thermal Fuse and Return Spring**



■ **KP-2....BLF and KP-2...BF Fire-Safety Damper with Belimo Electric Actuator and Thermoelectric Breaker**



■ **KP-2....BLF...-1 and KP-2...BF...-1 Fire-Safety Damper with Belimo Electric Actuator and Thermoelectric Breaker**



FIRE-RESISTING DAMPER

■ Installation

The damper must be installed into the building envelope structure in accordance with the applicable standards and regulations. The seal fire resistance must be at least equal to that of the building envelope. The dampers can be installed in any position in vertical and horizontal channels of fire-protection structures. The channels for damper installation must be made in such a way so as to prevent the transfer of loads caused by the fire-protection structures to the damper casing. The adjoining air duct must be suspended in such a way so as to prevent the transfer of air duct load to the damper flange. The minimum free space for accessing the control parts must be at

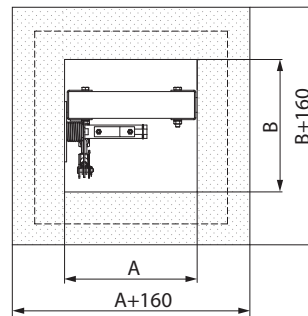
least 350 mm. Make sure to arrange an inspection hole. While carrying out the installation consider size K. When two or more dampers are installed into the same fire-protection separation structure the distance between the two adjacent dampers must be at least 200 mm.

The damper must be installed in such a way that the damper flap (in its closed position) lies in the fire-protection divider structure plane. If such installation is not possible, the damper casing part between the fire-protection separation space and the damper flap must be insulated with a suitable material pursuant to the applicable standards.

The damper control mechanism must be protected

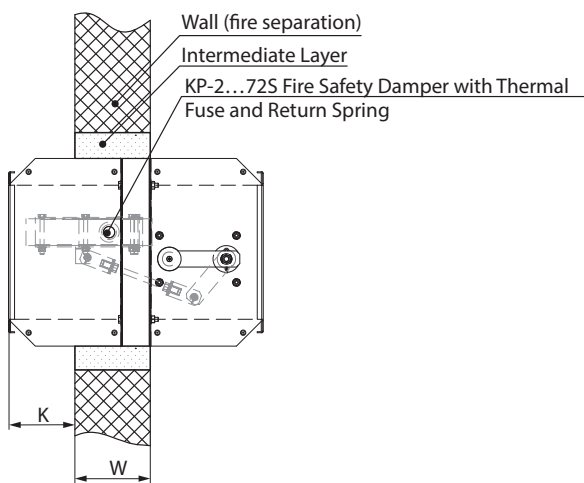
against damage and contamination. The damper casing must not deform any deformation during embedding. After the installation the flap must not catch against the damper casing while opening or closing. The fire-safety damper can be integrated into a tight wall structure - e.g. made of conventional concrete work of minimum width $W = 100$ mm or into a plasterboard wall of the necessary fire resistance class or into a tight ceiling structure - e.g. made of conventional concrete of minimum width $W = 150$ mm. Do not use any foaming substances for sealing the damper in the separation structure.

■ Installation Recommendations for KP-2...72S Dampers with Thermal Fuse and Return Spring:

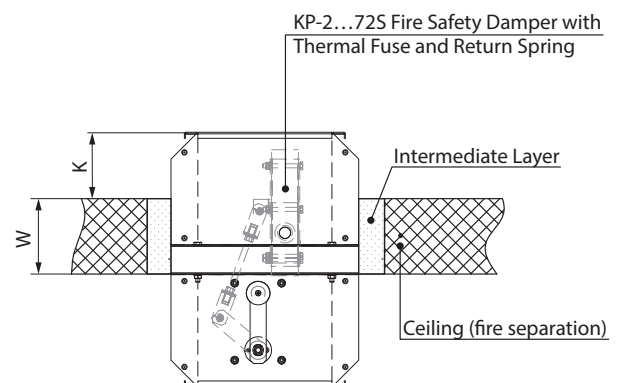


For Sizes A and B please refer to the dimension table

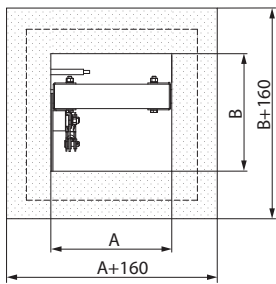
- In vertical building structures



- In horizontal building structures

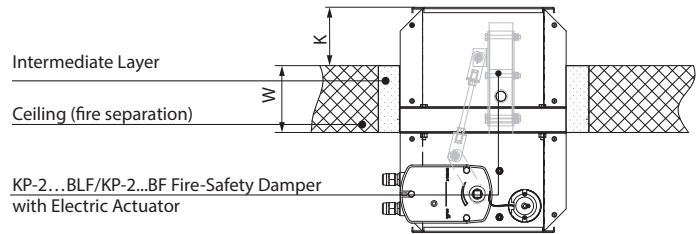


■ Installation Recommendations for KP-2...BLF and KP-2...BF Fire-Safety Dampers with Belimo Electric Actuator and Thermolectric Breaker:

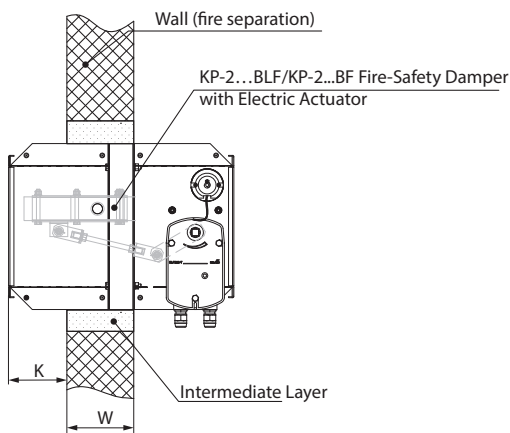


For Sizes A and B please refer to the dimension table

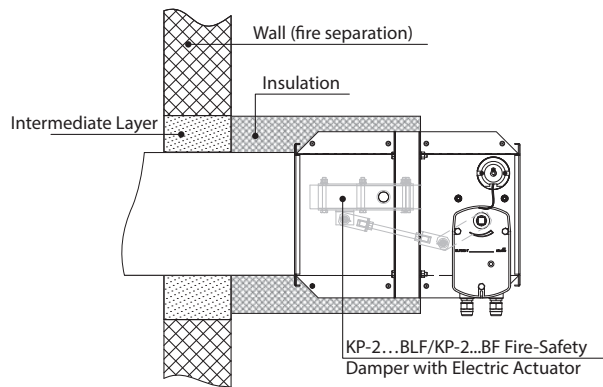
- In horizontal building structures



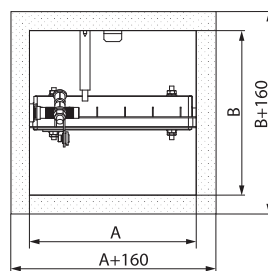
In vertical building structures



- Duct variant with an air duct

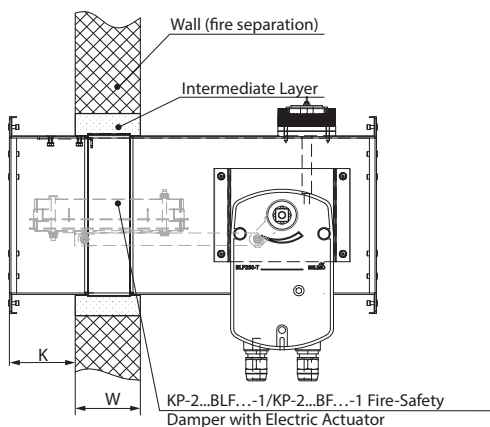


■ Installation Recommendations for KP-2...BLF and KP-2...BF Fire-Safety Dampers with Belimo Electric Actuator and Thermolectric Breaker:

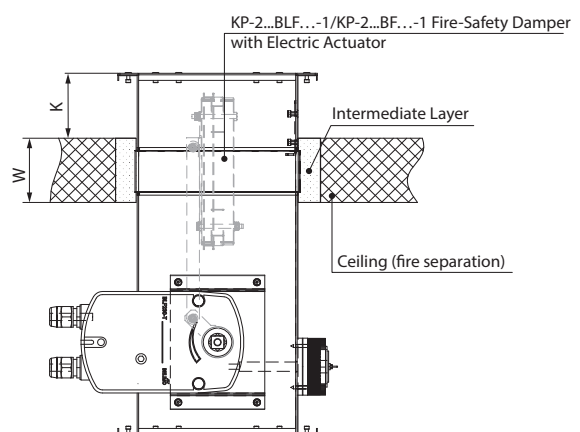


For Sizes A and B please refer to the dimension table

- In vertical building structures



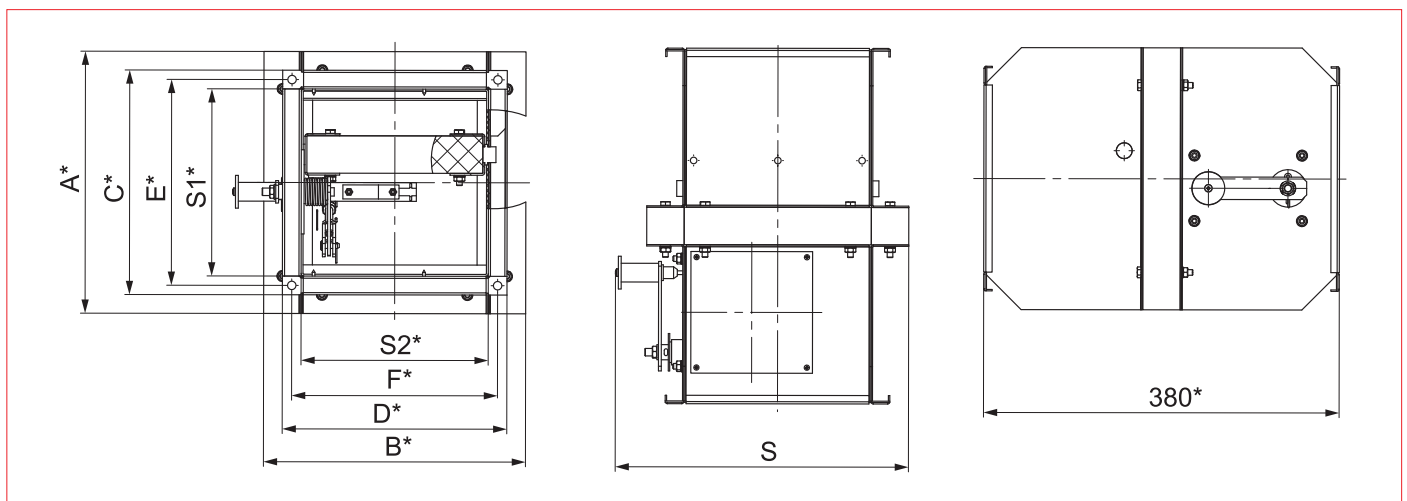
- Duct variant with an air duct



FIRE-RESISTING DAMPER

Outside and Connecting Dimensions of KP-2...72S with a Mechanical Actuator:

Channel Cross-Section	Dimensions [mm]									Weight [kg]
	A	B	C	D	E	F	S	S1	S2	
KP-2-0-N-200x200-2-72S-SN-0	280	280	240	240	220	220	313.5	200	200	10
KP-2-0-N-250x200-2-72S-SN-0	280	330	240	290	220	270	363.5	200	250	11
KP-2-0-N-300x200-2-72S-SN-0	280	380	240	340	220	320	413.5	200	300	12
KP-2-0-N-250x250-2-72S-SN-0	330	330	290	290	270	270	363.5	250	250	12.1
KP-2-0-N-300x250-2-72S-SN-0	330	380	290	340	270	320	413.5	250	300	13.25
KP-2-0-N-400x250-2-72S-SN-0	330	480	290	440	270	420	513.5	250	400	15.5
KP-2-0-N-300x300-2-72S-SN-0	380	380	340	340	320	320	413.5	300	300	14.5
KP-2-0-N-400x300-2-72S-SN-0	380	480	340	440	320	420	513.5	300	400	16.9
KP-2-0-N-500x300-2-72S-SN-0	380	580	340	540	320	520	613.5	300	500	19.4
KP-2-0-N-400x400-2-72S-SN-0	480	480	440	440	420	420	513.5	400	400	19.9
KP-2-0-N-500x400-2-72S-SN-0	480	580	440	540	420	520	613.5	400	500	22.7
KP-2-0-N-600x400-2-72S-SN-0	480	680	440	640	420	620	713.5	400	600	25.5
KP-2-0-N-500x500-2-72S-SN-0	580	580	540	540	520	520	613.5	500	500	27.8
KP-2-0-N-600x500-2-72S-SN-0	580	680	540	640	520	620	713.5	500	600	31.25
KP-2-0-N-600x600-2-72S-SN-0	580	680	640	640	640	620	713.5	500	600	35

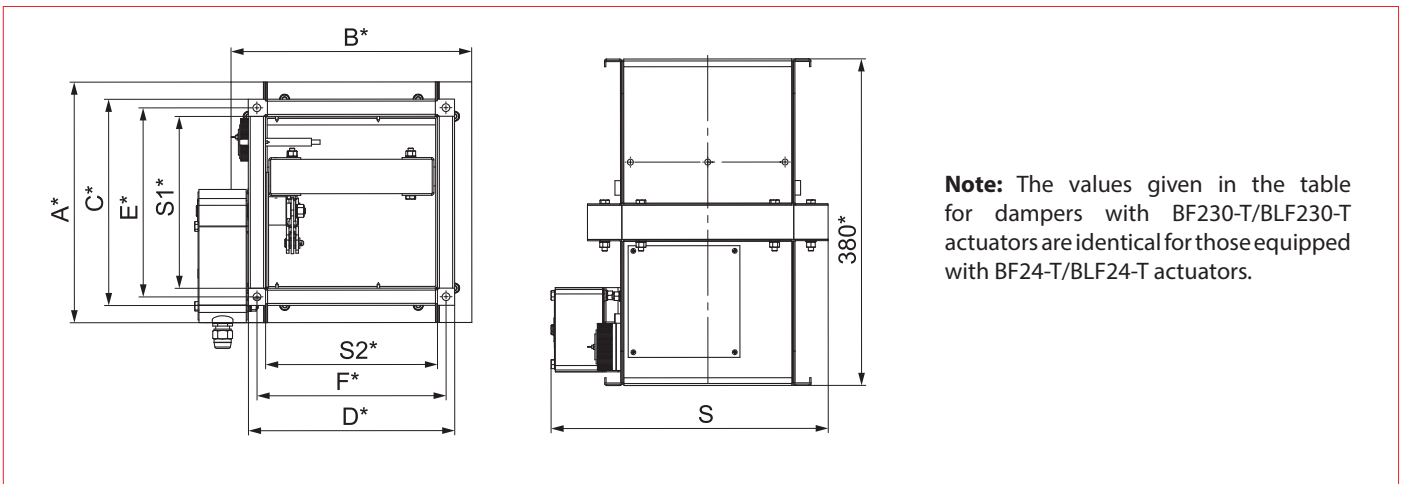


Flow Area of Fire-Resisting Duct Damper with Mechanical Actuator, m²

S2/S1	200	250	300	400	500	600
200	0.032					
250	0.04	0.053				
300	0.048	0.063	0.078			
400	0.064	0.084	0.104	0.144		
500	0.08	0.105	0.13	0.18	0.23	
600	0.096	0.126	0.156	0.216	0.276	0.336

■ Outside and Connecting Dimensions of KP-2....BLF and KP-2...BF Dampers with Electric Actuators:

Channel Cross-Section	Dimensions [mm]								Weight [kg]
	A	A1	A2	A3	B	B1	B2	H	
KP-2-O-N-200x200-2-BLF230-T-SN-O	200	220	240	340	200	220	240	350	7.5
KP-2-O-N-250x200-2-BLF230-T-SN-O	250	270	290	390	200	220	240	350	8.1
KP-2-O-N-250x250-2-BLF230-T-SN-O	250	270	290	390	250	270	290	350	8.7
KP-2-O-N-300x200-2-BLF230-T-SN-O	300	320	340	440	200	220	240	350	8.6
KP-2-O-N-300x250-2-BLF230-T-SN-O	300	320	340	440	250	270	290	350	9.34
KP-2-O-N-300x300-2-BLF230-T-SN-O	300	320	340	440	300	320	340	350	10
KP-2-O-N-400x250-2-BLF230-T-SN-O	400	420	440	540	250	270	290	350	10.6
KP-2-O-N-400x300-2-BLF230-T-SN-O	400	420	440	540	300	320	340	350	11.3
KP-2-O-N-400x400-2-BLF230-T-SN-O	400	420	440	540	400	420	440	350	12.8
KP-2-O-N-500x300-2-BLF230-T-SN-O	500	520	540	640	300	320	340	350	12.6
KP-2-O-N-500x400-2-BLF230-T-SN-O	500	520	540	640	400	420	440	350	14.2
KP-2-O-H-500x500-2-BF230-T-SN-O	500	530	560	650	500	530	560	350	15.9
KP-2-O-N-600x400-2-BLF230-T-SN-O	600	620	640	740	400	420	440	350	15.7
KP-2-O-N-600x500-2-BF230-T-SN-O	600	630	660	750	500	530	560	350	17.5
KP-2-O-N-600x600-2-BF230-T-SN-O	600	630	660	750	600	630	660	350	19.2
KP-2-O-N-800x500-2-BF230-T-SN-O	800	830	860	950	500	530	560	350	20.6
KP-2-O-N-800x600-2-BF230-T-SN-O	800	830	860	950	600	630	660	350	22.6
KP-2-O-N-800x800-2-BF230-T-SN-O	800	830	860	950	800	830	860	350	26.6
KP-2-O-N-1000x600-2-BF230-T-SN-O	1000	1030	1060	1150	600	630	660	350	26
KP-2-O-N-1000x800-2-BF230-T-SN-O	1000	1030	1060	1150	800	830	860	350	30.6
KP-2-O-N-1000x1000-2-BF230-T-SN-O	1000	1030	1060	1150	1000	1030	1060	350	36.4



Note: The values given in the table for dampers with BF230-T/BLF230-T actuators are identical for those equipped with BF24-T/BLF24-T actuators.

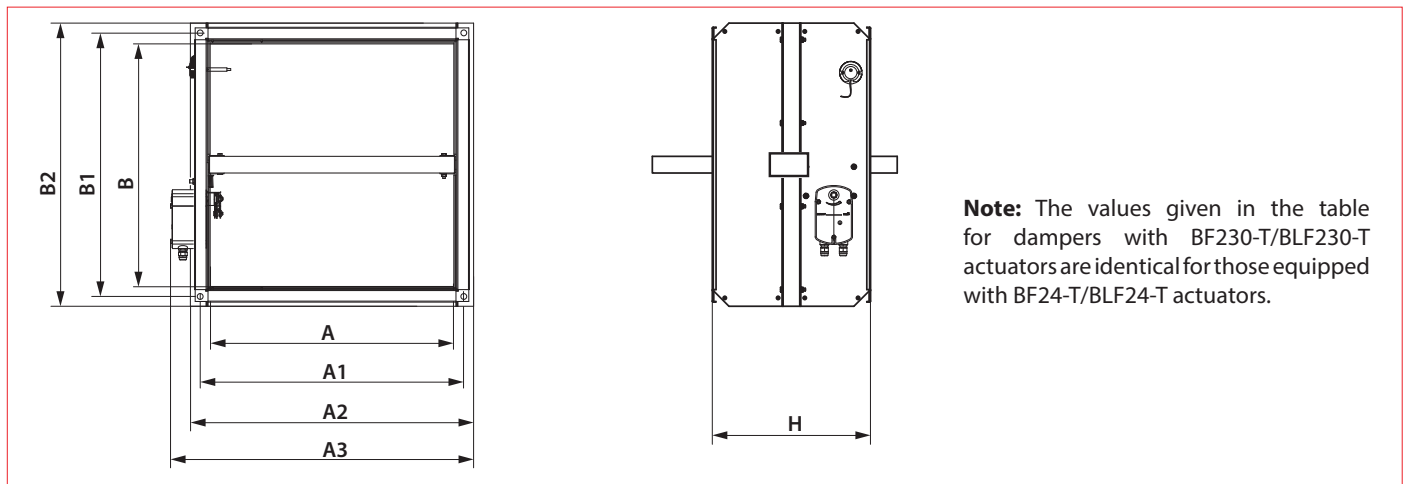
Flow Area of Fire-Resisting Duct Damper with External Belimo Electric Actuator, m²

S2/S1	200	250	300	400	500	600	800	1000
200	0.032							
250	0.04	0.053						
300	0.048	0.063	0.078					
400	0.064	0.084	0.104	0.144				
500	0.08	0.105	0.13	0.18	0.23			
600	0.096	0.126	0.156	0.216	0.276	0.336		
800	0.128	0.168	0.208	0.288	0.368	0.448	0.608	
1000	0.16	0.21	0.26	0.36	0.46	0.56	0.76	0.96

■ - BLF 230-T or BLF 24-T;
■ - BF 230-T or BF 24-T.

■ Outside and Connecting Dimensions of KP-2...BLF...-1 and KP-2...BF...-1 Dampers with Electric Actuators:

Duct Cross-Section	Dimensions [mm]								Weight [kg]
	A	A1	A2	A3	B	B1	B2	H	
KP-2-O-N-200x200-2-BLF230-T-SN-O-1	200	220	240	340	200	220	240	350	9.5
KP-2-O-N-250x200-2-BLF230-T-SN-O-1	250	270	290	390	200	220	240	350	10
KP-2-O-N-250x250-2-BLF230-T-SN-O-1	250	270	290	390	250	270	290	350	11.5
KP-2-O-N-300x200-2-BLF230-T-SN-O-1	300	320	340	440	200	220	240	350	11.45
KP-2-O-N-300x250-2-BLF230-T-SN-O-1	300	320	340	440	250	270	290	350	11.95
KP-2-O-N-300x300-2-BLF230-T-SN-O-1	300	320	340	440	300	320	340	350	12.8
KP-2-O-N-400x250-2-BLF230-T-SN-O-1	400	420	440	540	250	270	290	350	13.7
KP-2-O-N-400x300-2-BLF230-T-SN-O-1	400	420	440	540	300	320	340	350	14.7
KP-2-O-N-400x400-2-BLF230-T-SN-O-1	400	420	440	540	400	420	440	350	16.8
KP-2-O-N-500x300-2-BLF230-T-SN-O-1	500	520	540	640	300	320	340	350	16.6
KP-2-O-N-500x400-2-BLF230-T-SN-O-1	500	520	540	640	400	420	440	350	18.9
KP-2-O-N-500x500-2-BF230-T-SN-O-1	500	530	560	650	500	530	560	350	21.1
KP-2-O-N-600x400-2-BLF230-T-SN-O-1	600	620	640	740	400	420	440	350	21
KP-2-O-N-600x500-2-BF230-T-SN-O-1	600	630	660	750	500	530	560	350	23.5
KP-2-O-N-600x600-2-BF230-T-SN-O-1	600	630	660	750	600	630	660	350	25.9
KP-2-O-N-800x500-2-BF230-T-SN-O-1	800	830	860	950	500	530	560	350	28
KP-2-O-N-800x600-2-BF230-T-SN-O-1	800	830	860	950	600	630	660	350	30.9
KP-2-O-N-800x800-2-BF230-T-SN-O-1	800	830	860	950	800	830	860	350	36.6
KP-2-O-N-1000x600-2-BF230-T-SN-O-1	1000	1030	1060	1150	600	630	660	350	35.7
KP-2-O-N-1000x800-2-BF230-T-SN-O-1	1000	1030	1060	1150	800	830	860	350	42.4
KP-2-O-N-1000x1000-2-BF230-T-SN-O-1	1000	1030	1060	1150	1000	1030	1060	350	50.7



Flow Area of Fire-Resisting Duct Damper with External Belimo Electric Actuator, m²

S2/S1	200	250	300	400	500	600	800	1000
200	0.032							
250	0.04	0.053						
300	0.048	0.063	0.078					
400	0.064	0.084	0.104	0.144				
500	0.08	0.105	0.13	0.18	0.23			
600	0.096	0.126	0.156	0.216	0.276	0.336		
800	0.128	0.168	0.208	0.288	0.368	0.448	0.608	
1000	0.16	0.21	0.26	0.36	0.46	0.56	0.76	0.96

■ – BLF 230-T or BLF 24-T;
 ■ – BF 230-T or BF 24-T.

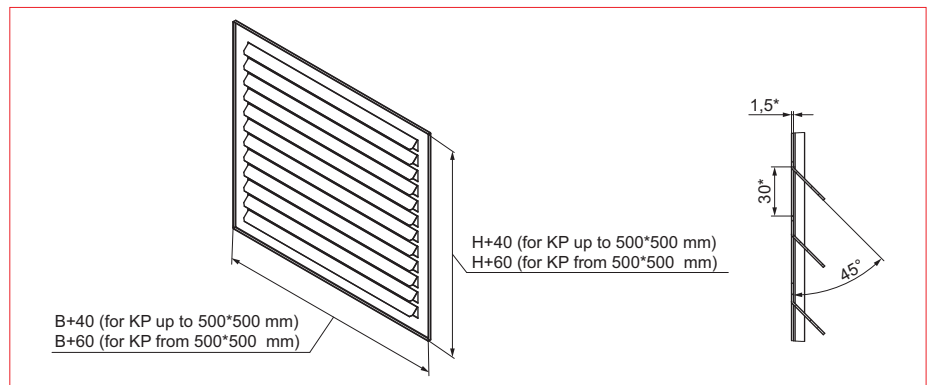
▶ **RD Smoke Exhaust Grille**



KP-2 Fire-Resisting Dampers can be additionally equipped with a smoke exhaust grille. The smoke exhaust grille is used to entirely block the external view of the damper internals in the absence of strict requirements to the unit appearance. The smoke exhaust grille also doubles as unauthorized access protection for the damper and its actuator. The grille has a single horizontal row of non-adjustable air flow

guides fixed at 45 degrees. The grille can be made of galvanized steel (Zn), carbon steel with a special coating (M), stainless steel (N) or aluminium (A). The grille is attached directly to the damper flange by means of self-tapping screws with the flaps facing outward and does not require any additional recessing of the damper.

RD Smoke Exhaust Grille



Effective Cross-Section Dimensions and Area [m²]

Width B [mm]	Height N [mm]														
	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
300	0.059														
350	0.069	0.079													
400	0.080	0.091	0.114												
450	0.090	0.103	0.129	0.142											
500	0.101	0.115	0.144	0.158	0.173										
550	0.111	0.127	0.159	0.175	0.191	0.207									
600	0.122	0.139	0.174	0.191	0.209	0.226	0.244								
650	0.132	0.151	0.189	0.208	0.227	0.246	0.265	0.284							
700	0.143	0.163	0.204	0.224	0.245	0.265	0.286	0.306	0.347						
750	0.153	0.175	0.219	0.241	0.263	0.285	0.307	0.329	0.372	0.394					
800	0.164	0.187	0.234	0.257	0.281	0.304	0.328	0.351	0.398	0.421	0.445				
850	0.174	0.199	0.249	0.274	0.299	0.324	0.349	0.374	0.423	0.448	0.473	0.498			
900	0.185	0.211	0.264	0.290	0.317	0.343	0.370	0.396	0.449	0.475	0.502	0.528	0.554		
950	0.195	0.223	0.279	0.307	0.335	0.363	0.391	0.419	0.474	0.502	0.530	0.558	0.586	0.614	
1000	0.206	0.235	0.294	0.323	0.353	0.382	0.412	0.441	0.500	0.529	0.559	0.588	0.617	0.647	0.676

■ – When ordering grilles for the dimensions given please add mounting inserts to the order.

Conventional Designation: _____

Smoke Exhaust Grille RD X - X - X

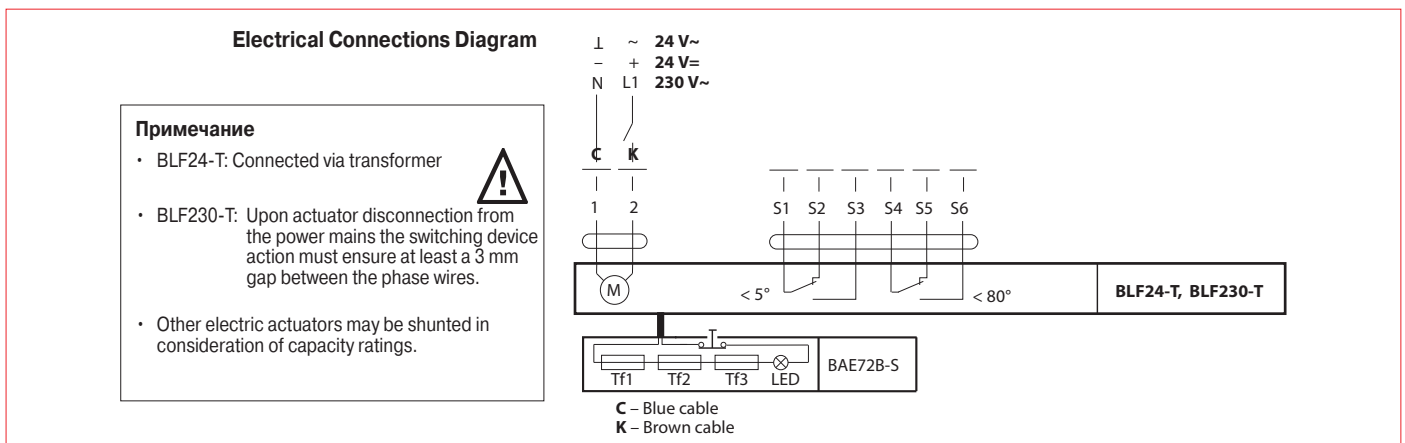
<p>Material:</p> <p>Zn – Galvanized Steel; M – Carbon Steel with Special Coating;</p>	<p>N – Stainless Steel; A – Aluminium.</p>	<p>Effective Damper Cross-Section: BxH (B – Width, mm; H – Height, mm)</p> <p>Damper Type: KP</p>
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FIRE-RESISTING DAMPER

Main Technical Specifications of BLF24-T and BLF230-T Electric Actuators

Technical Specifications		BLF24-T	BLF230-T
Rated Voltage		24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz
Rated Voltage Range		19,2...28,8 V~ 21,6...28,8 V=	198...264 V~
Design Capacity		7 VA I max. 5,8 A at t = 5 ms	7 VA I max 150 mA при t = 10 ms
Rated Power Input		5 W 2,5 W	6 W 3 W
Connection		Cable: 1 m, 2 x 0.75 mm ² 1 m, 6 x 0.75 mm ²	
Auxiliary Switches - Switching Points		2 single-pole with double switching 1 mA...3 A (0,5 A), 5 V=...250 V~ 5°<, 80°<	
Torque:		Min. 6 Nm Min. 4 Nm	
Motor Spring		Tf1: Outside Air Duct Temperature 72°C Tf2+ Tf3: Inside Air Duct Temperature 72°C	
Switch Actuation Temperature		Selected by L/R Setting	
Rotational Direction		Selected by L/R Setting	
Swing Angle		Max. 95°<, (including 5°< of factory spring pre-cocking)	
Position Indication		Mechanical Pointer	
Damper Swing		Via a 12 mm Transmission Link (10 mm with an adapter - optional)	
Swing Time:		40...75 s (0...6 Nm) ≈20 s at -20...+50°C / max. 60 s at -30 °C	
Motor Spring			
Noise Level:		max 45 dB ≈62 dB	
Motor Spring			
Protection Class		III (for low voltages)	II (complete insulation) <input type="checkbox"/>
Casing IP Code		IP 54	
Safe Temperature		The flap assumes the protective position at ambient temperatures above +75° C	
Ambient Temperature		-30° ... +50 °C	
Storage Temperature		-40° ... +50 °C	
Technical Maintenance		Not Required	
Weight [g]		1630	1730

Electrical Connection



■ Main Technical Specifications of BF24-T and BF230-T Electric Actuators

Technical Specifications	BF24-T	BF230-T
Rated Voltage	24 V~ 50/60 Hz 24=	230 V~ 50/60 Hz
Rated Voltage Range	19,2...28,8 V~ 21,6...28,8 V=	198...264 V~
Design Capacity	10 VA I max 8,3 A at t = 5 ms	12,5 VA I max. 500 mA at t = 5 ms
Rated Power Input During Motor Operation During Retention	7 W 2 W	8 W 3 W
Connection	Cable: 1 m, 2 x 0.75 mm ² 1 m, 6 x 0.75 mm ²	
Auxiliary Switches - Switching Points	2 single-pole with double switching 1 mA...6 A (3 A), 5 V=...250 V~ □ 5°<, 80°<	
Torque: Motor Spring	min. 18 Nm min. 12 Nm	
Switch Actuation Temperature	Tf1: Outside Air Duct Temperature 72°C Tf2+ Tf3: Inside Air Duct Temperature 72°C	
Rotational Direction	Selected by L/R Setting	
Swing Angle	Max. 95°<, (including 5°< of factory spring pre-cocking)	
Position Indication	Mechanical indicator	
Damper Swing	Via a 12 mm Transmission Link (10 mm with an adapter - optional)	
Swing Time: Motor Spring	140 c ≈ 16 s (at ambient t° = 20 °C)	
Noise Level: Motor Spring	Max. 45 dB Spring ≈ 62 dB	
Protection Class	III (for low voltages)	II (complete insulation) □
Casing IP Code	IP 54	
Safe Temperature	The flap assumes the protective position at ambient temperatures above +75° C	
Ambient Temperature	-30° ... +50 °C	
Storage Temperature	-40° ... +50 °C	
Weight [g]	2800	3100

■ Electrical Connection

Electrical Connections Diagram

Note:

- BF24-T: Connected via insulated transformer
- BF230-T: Upon actuator disconnection from the power mains the switching device action must ensure at least a 3 mm gap between the phase wires
- Other electric actuators may be shunted in consideration of capacity ratings

C – Blue cable
K – Brown cable