

KP-1...72S
Series



Normally Open Fire-Resisting Duct Damper with Mechanical Drive Mechanism

■ **Application**

Fire dampers are intended for automatic blocking of process openings and the those of air duct ducts 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

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



Normally Open Fire-Resisting Duct Damper with Electric Drive Mechanism

fire safety category A and B and in flammable and explosive mixture intakes. KP-1 Fire-Resisting Duct Dampers are capable of resisting fire for at least 60 minutes (EI 60) at the temperature of 600 °C.

■ **Design**

KP-1 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-1 series dampers are characterised by a simplified design and the absence of a hot and cold zone baffle. Depending on the design variant KP-1 series dampers are equipped with:

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

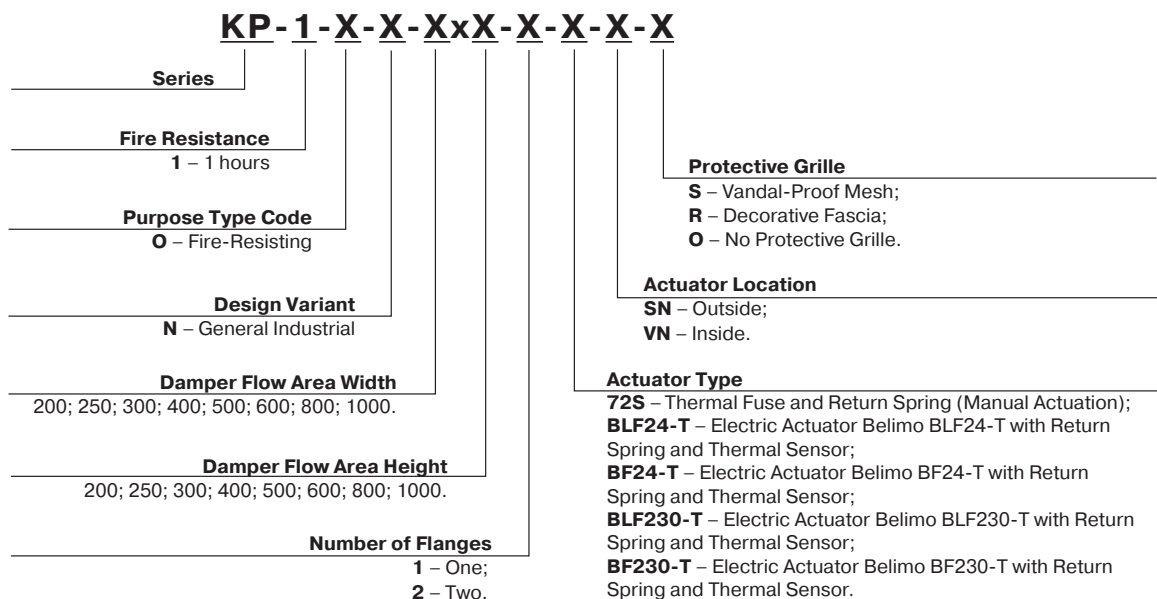
The damper is set to the operating position upon the thermal fuse breakdown resulting from a temperature increase.

Emergency Damper Actuation: The flap remains in the protective position (damper unaffected by fire) and is fixed by a thermal fuse (the return spring is cocked upon setting the damper to the protective position). Upon emergency actuation (damper directly affected by fire) the thermal fuse breaks down and the return spring sets the flap to the operating condition.

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

Damper Setting to Operating Position (Direct Fire Contact): Remotely, Via Electric Wire. 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

Conventional Designation:



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.

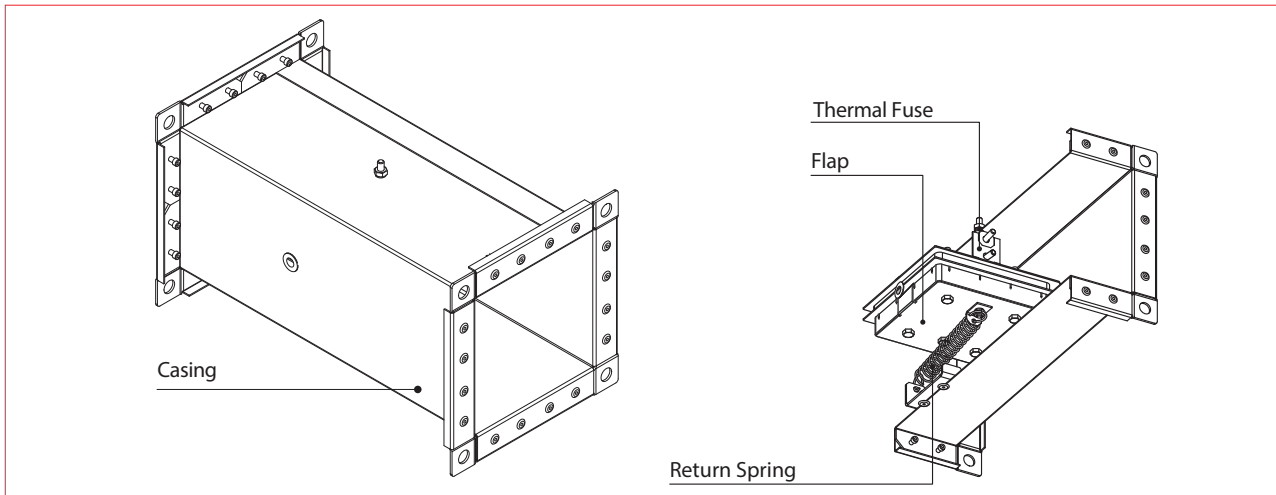
Emergency Damper Actuation: The damper flap is

automatically set to the protective position (damper unaffected by fire). The electric actuator remains energized at all times.

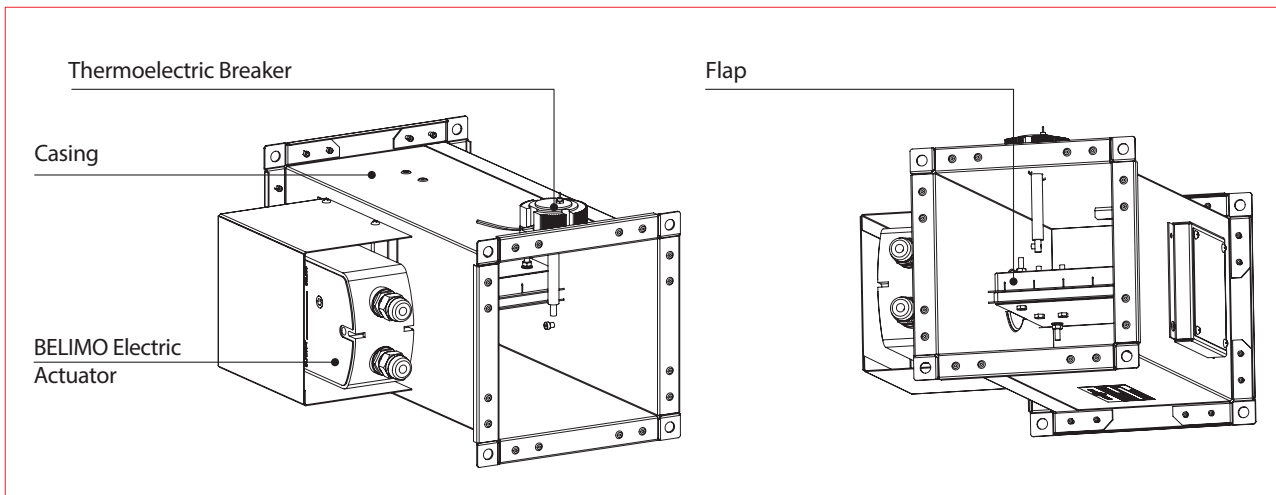
In case of an emergency actuation (direct fire contact): The electric actuator equipped with a return spring is de-energized and the damper flap is

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-1...72S Fire-Safety Damper with Mechanical Actuating Unit, Thermal Fuse and Return Spring



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



FIRE-RESISTING DAMPER

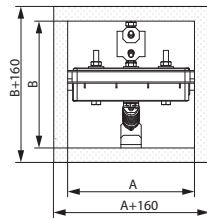
■ Installation

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 mind 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 separation structure plane. If such installation is not possible, the damper casing part between the fire-protection separation structure and the damper flap must be insulated with a suitable material pursuant to the applicable standards.

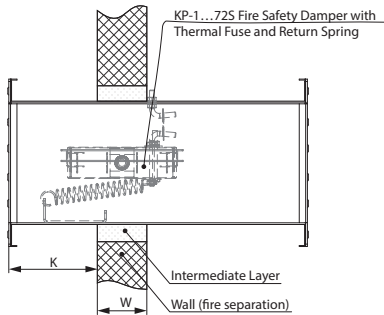
The damper control mechanism must be protected against damage and contamination. The damper casing must not deform any deformation during embedding. After the installation the flap must not catch against the damper casing while opening or closing. The fire-safety damper can be integrated into a tight 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-1...72S Dampers with Thermal Fuse and Return Spring:

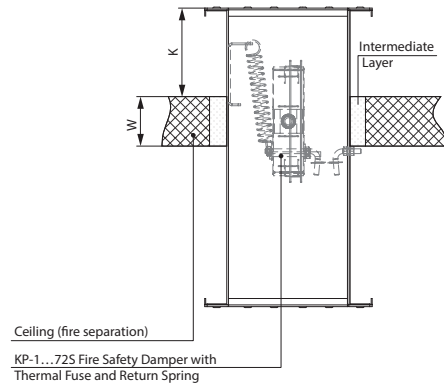


For Sizes A and B please refer to the dimension chart

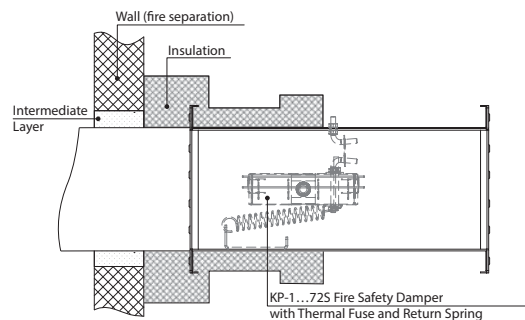
– In vertical building structures



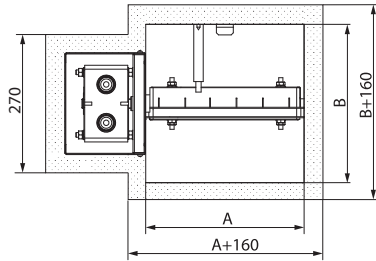
– In horizontal building structures



– Duct variant with an air duct

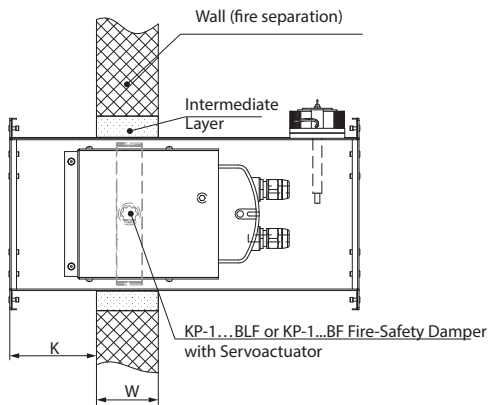


■ Installation Recommendations for KP-1...BLF and KP-1...BF Fire-Safety Dampers with Belimo Electric Actuator and Thermoelectric Breaker:

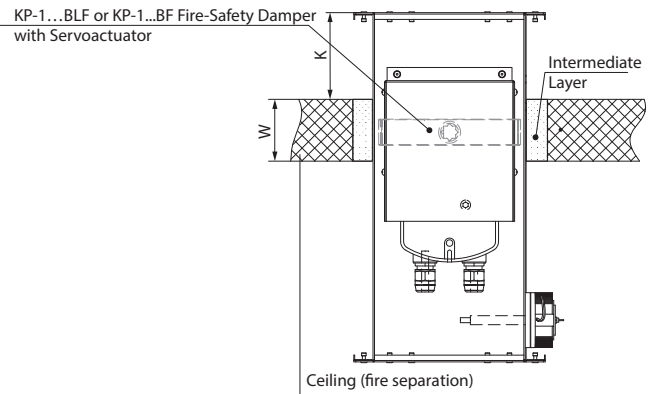


For Sizes A and B please refer to the dimension chart

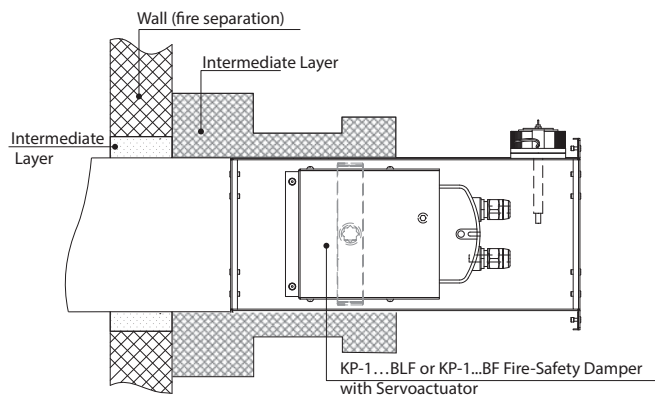
- In vertical building structures



- In horizontal building structures



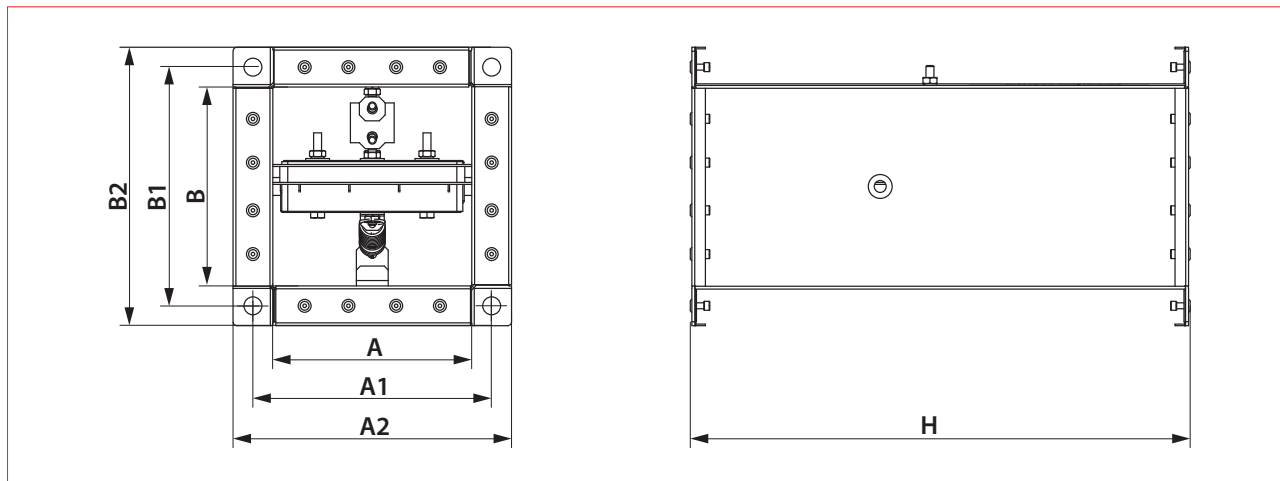
- Duct variant with an air duct



FIRE-RESISTING DAMPER

■ Outside and Connecting Dimensions of KP-1...72S with a Mechanical Actuator:

Channel Cross-Section	Dimensions [mm]							Weight [kg]
	A	A1	A2	B	B1	B2	H	
KP-1-0-N-200x200-2-72S-SN-0	200	220	240	200	220	240	350	7.5
KP-1-0-N-250x200-2-72S-SN-0	250	270	290	200	220	240	350	8.1
KP-1-0-N-300x200-2-72S-SN-0	250	270	290	250	270	290	350	8.7
KP-1-0-N-250x250-2-72S-SN-0	300	320	340	200	220	240	350	8.6
KP-1-0-N-300x250-2-72S-SN-0	300	320	340	250	270	290	350	9.34
KP-1-0-N-400x250-2-72S-SN-0	300	320	340	300	320	340	350	10
KP-1-0-N-300x300-2-72S-SN-0	400	420	440	250	270	290	350	10.6
KP-1-0-N-400x300-2-72S-SN-0	400	420	440	300	320	340	350	11.3
KP-1-0-N-500x300-2-72S-SN-0	400	420	440	400	420	440	350	12.8
KP-1-0-N-400x400-2-72S-SN-0	500	520	540	300	320	340	350	12.6
KP-1-0-N-500x400-2-72S-SN-0	500	520	540	400	420	440	350	14.2
KP-1-0-N-600x400-2-72S-SN-0	500	530	560	500	530	560	350	15.9
KP-1-0-N-500x500-2-72S-SN-0	600	620	640	400	420	440	350	15.7
KP-1-0-N-600x500-2-72S-SN-0	600	630	660	500	530	560	350	17.5
KP-1-0-N-600x600-2-72S-SN-0	600	630	660	600	630	660	350	19.2

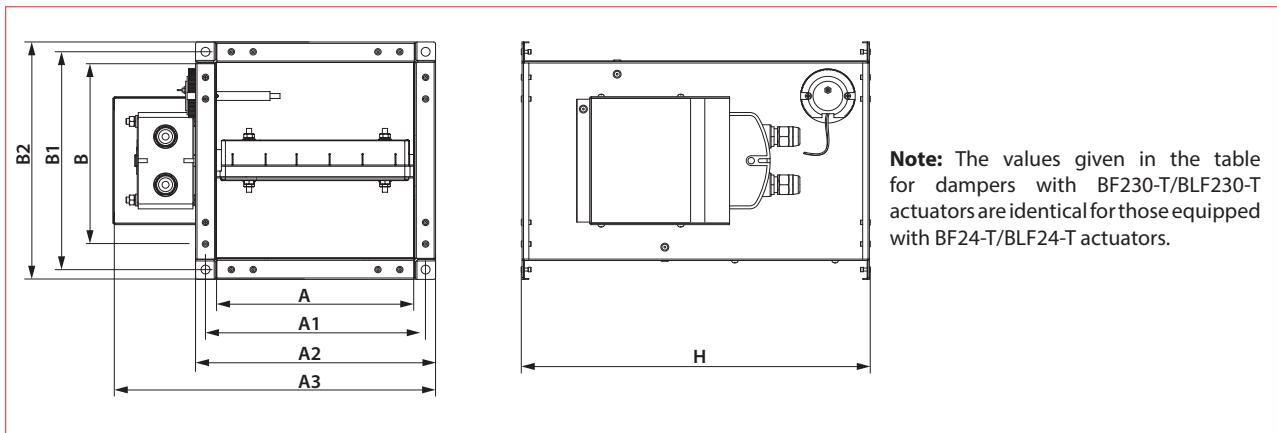


Flow Area of Fire-Resisting Duct Damper with Mechanical Actuator, m²

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-1....BLF and KP-1...BF Dampers with Electric Actuators:

Channel Cross-Section	Dimensions [mm]									Weight [kg]
	A	B	C	D	E	F	S	S1	S2	
КП-1-0-N-200x200-2-BLF230-T-SN-0	280	280	240	240	220	220	322.5	200	200	10.75
КП-1-0-N-250x200-2-BLF230-T-SN-0	280	330	240	290	220	270	372.5	200	250	11.6
КП-1-0-N-300x200-2-BLF230-T-SN-0	280	380	240	340	220	320	422.5	200	300	12.45
КП-1-0-N-250x250-2-BLF230-T-SN-0	330	330	290	290	270	270	372.5	250	250	12.5
КП-1-0-N-300x250-2-BLF230-T-SN-0	330	380	290	340	270	320	422.5	250	300	13.4
КП-1-0-N-400x250-2-BLF230-T-SN-0	330	480	290	440	270	420	522.5	250	400	15.2
КП-1-0-N-300x300-2-BLF230-T-SN-0	380	380	340	340	320	320	422.5	300	300	14.3
КП-1-0-N-400x300-2-BLF230-T-SN-0	380	480	340	440	320	420	522.5	300	400	16.2
КП-1-0-N-500x300-2-BLF230-T-SN-0	380	580	340	540	320	520	622.5	300	500	18.1
КП-1-0-N-400x400-2-BLF230-T-SN-0	480	480	440	440	420	420	522.5	400	400	18.3
КП-1-0-N-500x400-2-BLF230-T-SN-0	480	580	440	540	420	520	622.5	400	500	20.4
КП-1-0-N-600x400-2-BLF230-T-SN-0	480	680	440	640	420	620	722.5	400	600	22.5
КП-1-0-N-500x500-2-BF230-T-SN-0	580	580	540	540	520	520	622.5	500	500	22.6
КП-1-0-N-600x500-2-BF230-T-SN-0	580	680	540	640	520	620	722.5	500	600	25
КП-1-0-N-800x500-2-BF230-T-SN-0	580	880	540	840	520	820	922.5	500	800	29.5
КП-1-0-N-600x600-2-BF230-T-SN-0	680	680	640	640	620	620	722.5	600	600	27.4
КП-1-0-N-800x600-2-BF230-T-SN-0	680	880	640	840	620	820	922.5	600	800	32.4
КП-1-0-N-1000x600-2-BF230-T-SN-0	680	1080	640	1040	620	1020	1122.5	600	1000	37.2
КП-1-0-N-800x800-2-BF230-T-SN-0	880	880	840	840	820	820	922.5	800	800	38.1
КП-1-0-N-1000x800-2-BF230-T-SN-0	880	1080	840	1040	820	1020	1122.5	800	1000	43.9
КП-1-0-N-1000x1000-2-BF230-T-SN-0	1080	1080	1040	1040	1020	1020	1122.5	1000	1000	52.2



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.

FIRE-RESISTING DAMPER

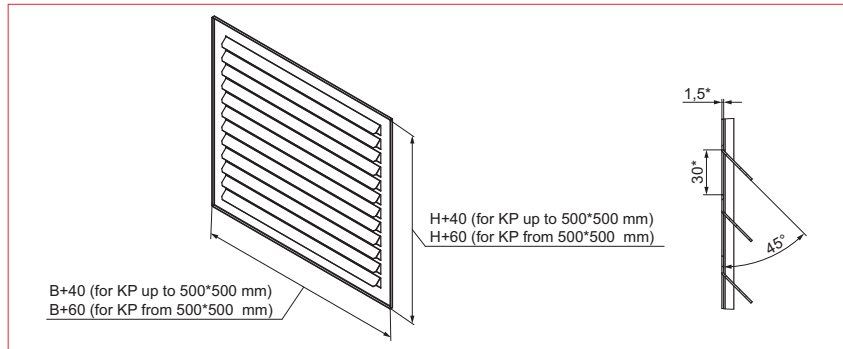
▶ RD Smoke Exhaust Grille



KP-1 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 H [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

Zn – Galvanized Steel;
M – Carbon Steel with
Special Coating;

Material:
N – Stainless Steel;
A – Aluminium.

Effective Damper Cross-Section:
BxH (B – Width, mm; H – Height, mm)
Damper Type:
KP

■ 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	During Motor Operation During Retention	5 W 2,5 W	6 W 3 W
Connection	Power Auxiliary Switches	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:	Motor Spring	Min. 6 Nm Min. 4 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 Pointer	
Damper Swing		Via a 12 mm Transmission Link (10 mm with an adapter - optional)	
Swing Time:	Motor Spring	40...75 s (0...6 Nm) ≈20 s at -20...+50°C / max. 60 s at -30 °C	
Noise Level:	Motor Spring	max 45 dB ≈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	
Technical Maintenance		Not Required	
Weight [g]	1630	1730	

■ Electrical Connection

Electrical Connections Diagram

Примечание

- BLF24-T: Connected via transformer
- BLF230-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

FIRE-RESISTING DAMPER

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 макс. 500 mA at t = 5 ms
Rated Power Input	During Motor Operation During Retention	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

