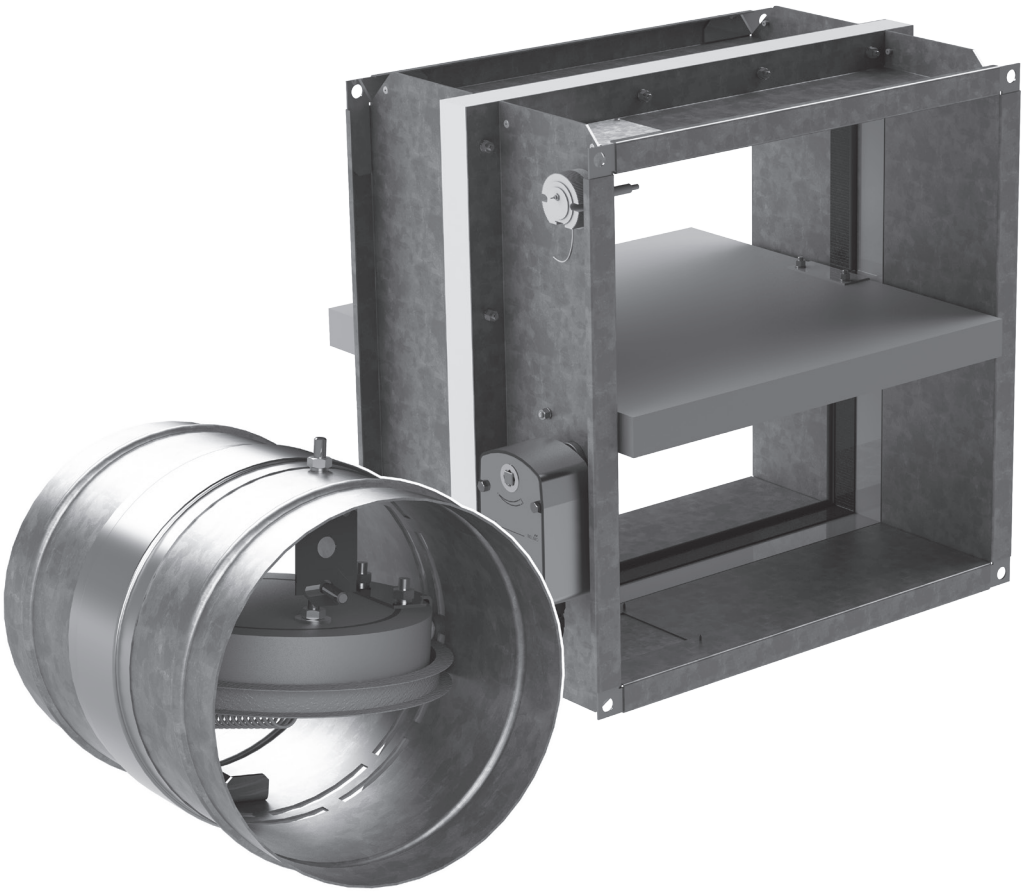
USER'S MANUAL

KP, PL



FIRE-RESISTING DUCT DAMPER

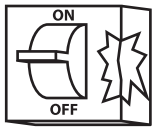
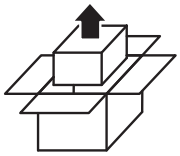
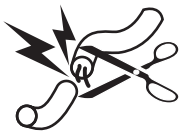
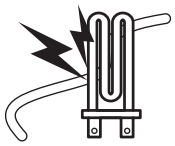
CONTENTS

- Read the User's Manual carefully prior to operating and installing the fire-safety damper (hereinafter "Damper").
- Installation and operation of the unit must be performed in accordance with the present User's Manual as well as the provisions of all the applicable local and national construction, electrical and technical codes and standards.
- The warnings contained in the present User's Manual must be considered most seriously since they contain vital personal safety information.
- Failure to follow the safety regulations may result in an injury or damper damage.
- Upon familiarization keep the User's Manual for the entire service life of the damper.
- While transferring equipment control the User's Manual must be turned over to the receiving operator.

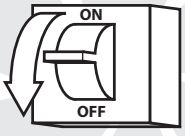
The symbols used in the present User's Manual have the following meanings:

	**ATTENTION!**
	**RESTRICTIONS**

SAFETY PRECAUTIONS TO BE FOLLOWED WHILE INSTALLING THE DAMPER

	The damper must be disconnected from the power mains prior to installation or repair.		Do not use damaged equipment or conductors to connect the damper to the power mains.
	While installing the damper follow the safety regulations specific to the use of power tools.		Unpack the damper with care.
	Do not change the power cable length at your own discretion. Do not bend the power cable. Avoid damaging the power cable.		Do not position any heating devices or other equipment in close proximity to the damper power cable.

SAFETY PRECAUTIONS TO BE FOLLOWED WHILE OPERATING THE DAMPER

	Avoid damaging the power cable while operating the damper. Do not put any foreign objects on top of the power cable.		Do not wash the damper with water. Avoid penetration of water onto the electric parts of the damper.
	Do not sit on the damper or put any foreign objects on top of it.		Disconnect the damper from the power mains prior to any technical maintenance.
	Should the damper generate any unusual sounds, smells or smoke disconnect it from the power mains and contact the service centre.		Check the damper for secure installation from time to time in case of prolonged operation.

INTRODUCTION

The present operation manual consisting of technical details, operating instructions and technical specification applies to KP and PL fire-resisting duct dampers.

PURPOSE

The normally open fire-resisting duct dampers are designed to block the spread of fire and combustion products through the ventilation and air-conditioning ducts, channels and shafts of various-purpose buildings, spaces and structures.

The KP dampers are compatible with square and rectangular air ducts whereas the PL dampers are designed for round ones.

The dampers is designed for extended periods of continuous operation without disconnection from the power mains.

Being a component unit, the dampers may not be commissioned for standalone operation.

The handled air must not contain flammable or explosive mixtures, chemically active vapours, coarse dust, soot, fats or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs), sticky substances and fibrous materials.

THE DAMPER IS NOT INTENDED FOR OPERATION BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL OR SENSORY CAPACITIES, OR LACKING THE APPROPRIATE TRAINING. THE DAMPER MUST BE HANDLED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING. THE CHOICE OF DAMPER INSTALLATION LOCATION MUST PREVENT UNAUTHORIZED ACCESS BY UNATTENDED CHILDREN.

DELIVERY PACKAGE

- Damper — 1 piece
- User's Manual — 1 piece
- Shipping Box — 1 piece
- Hex Wrench — 1 piece

DESIGNATION KEY

KP-X-X-X-XxX-X-X-X-X-X

Unit Designation

KP - Fire-Resisting Damper, for Square and Rectangular Ventilation Ducts

Fire Resistance, hours

1, 2.

Purpose

O – Fire-Resisting

Version

N - General-Purpose Industrial

Damper Flow Area Width, mm

200, 250, 300, 400, 500, 600, 800, 1000.

Damper Flow Area Height, mm

200, 250, 300, 400, 500, 600, 800, 1000.

Number of Flanges

1, 2.

Actuation Mechanism

72S – Thermal Link and Return Spring (Manual Actuation);
BLF24-T - Electric Actuator with Return Spring and Thermal Sensor; Belimo BLF24-T;
BF24-T- Electric Actuator with Return Spring and Thermal Sensor; BelimoBF24-T;
BLF230-T- Electric Actuator with Return Spring and Thermal Sensor; BelimoBLF230-T;
BF230-T- Electric Actuator with Return Spring and Thermal Sensor; BelimoBF230-T.

Actuator Position

VN - Internal;
SN - External.

Protective Grille

S – Vandal-Proof Mesh;
R - Decorative Grille;
O - No Grille.

Design Variant

1 - Light-Weight Damper Version;

PL-10 - X- DNX/X

Unit Designation

PL-10 - Fire-Safety Damper for Round Ventilation Ducts

Actuator Type

1A – Thermal Link (72 °C), Return Spring (manual actuation);
2-BLF230-T – Electric Actuator (with Return Spring and Thermal Sensor);
2-BLF24-T – Electric Actuator (with Return Spring and Thermal Sensor).

Nominal Damper Diameter [mm]

100, 125, 150, 160, 180, 200, 250, 315.

Fire Resistance

EI 120 – 2 hours;
EI 60 – 1 hour.

TECHNICAL SPECIFICATIONS

The dampers are designed for operation in spaces with non-aggressive environment, the air temperature ranging from -30°C to +45°C and relative humidity up to 80%.

The dampers are compliant with IP X4 standard (hazardous parts access and water ingress protection).

In terms of electric shock hazard the products belong to the following categories of electrical appliances:

- Class III (low voltage) for the dampers with 24 V electric actuator power supply;
- Class II (complete insulation) for the dampers with 230 V electric actuator power supply.

The dampers may not be integrated:

- Into air ducts and on premises rated explosion and fire safety category A and B;
- Into air ducts of local intakes for flammable and explosive mixtures;
- Into systems which do not undergo periodic cleaning pursuant to an approved schedule to prevent the build-up of combustible deposits.

The damper undergoes continuous improvement. Therefore, some models may slightly differ from the ones described herein.

TECHNICAL SPECIFICATIONS: ELECTRIC ACTUATORS

Table 1. 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 at 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 mm² 1 m, 6 x 0,75 mm²	
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 the optional adapter)	
Swing Time: Motor Spring	 40…75 c (0…6 Nm) ≈20 s at –20…+50 °C / max. 60 s at –30 °C	
Noise Level: Motor Spring	 max 45 dB(A) ≈62 dB(A)	
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 [kg]	1,6	1,7

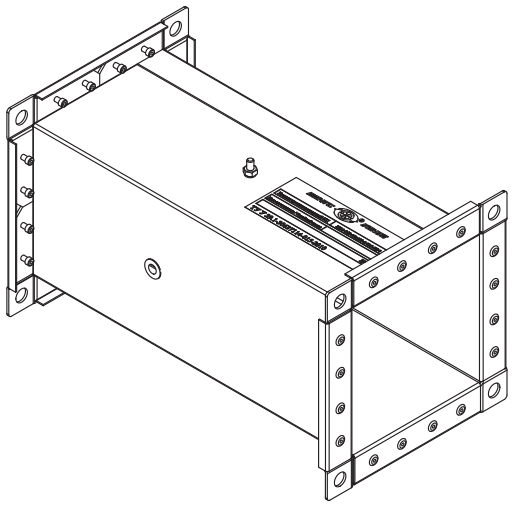
Table 2. Main Technical Specifications of BLF24-T and BLF230-T Electric Actuators

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 Power Auxiliary Switches	Cable: 1 m, 2 x 0,75 mm² 1 m, 6 x 0,75 mm²	
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 Pointer	
Damper Swing	Via a 12 mm Transmission Link (10 mm with the optional adapter)	
Swing Time: Motor Spring	 140 s ≈16 s (at ambient t° = 20 °C)	
Noise Level: Motor Spring	 Макс. 45 dB(A) ≈62 dB(A)	
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 [kg]	2,8	3,1

The manufacturer reserves the right to equip the dampers with various actuators at its own discretion as long as it does not affect their original technical parameters.

OVERALL DAMPER DIMENSIONS

KP-1 DAMPER
WITH THERMAL LINK AND RETURN SPRING



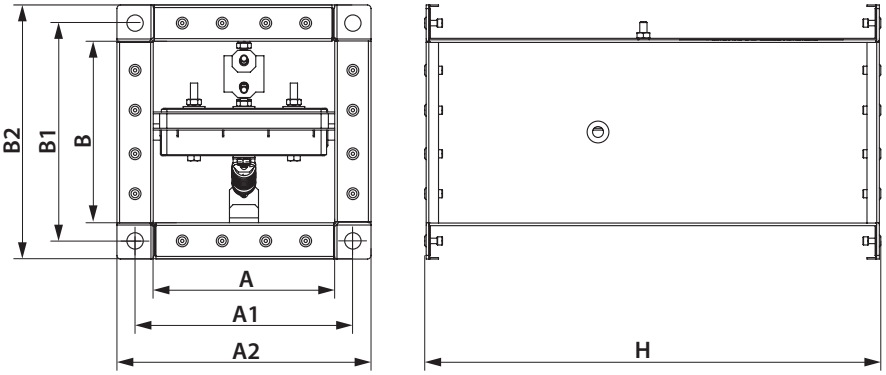


Table 3.

Model	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-250x250-2-72S-SN-0	250	270	290	250	270	290	350	8,7
KP-1-0-N-300x200-2-72S-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-300x300-2-72S-SN-0	300	320	340	300	320	340	350	10
KP-1-0-N-400x250-2-72S-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-400x400-2-72S-SN-0	400	420	440	400	420	440	350	12,8
KP-1-0-N-500x300-2-72S-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-500x500-2-72S-SN-0	500	530	560	500	530	560	350	15,9
KP-1-0-N-600x400-2-72S-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

KP-1 DAMPER
WITH ELECTRICAL ACTUATOR

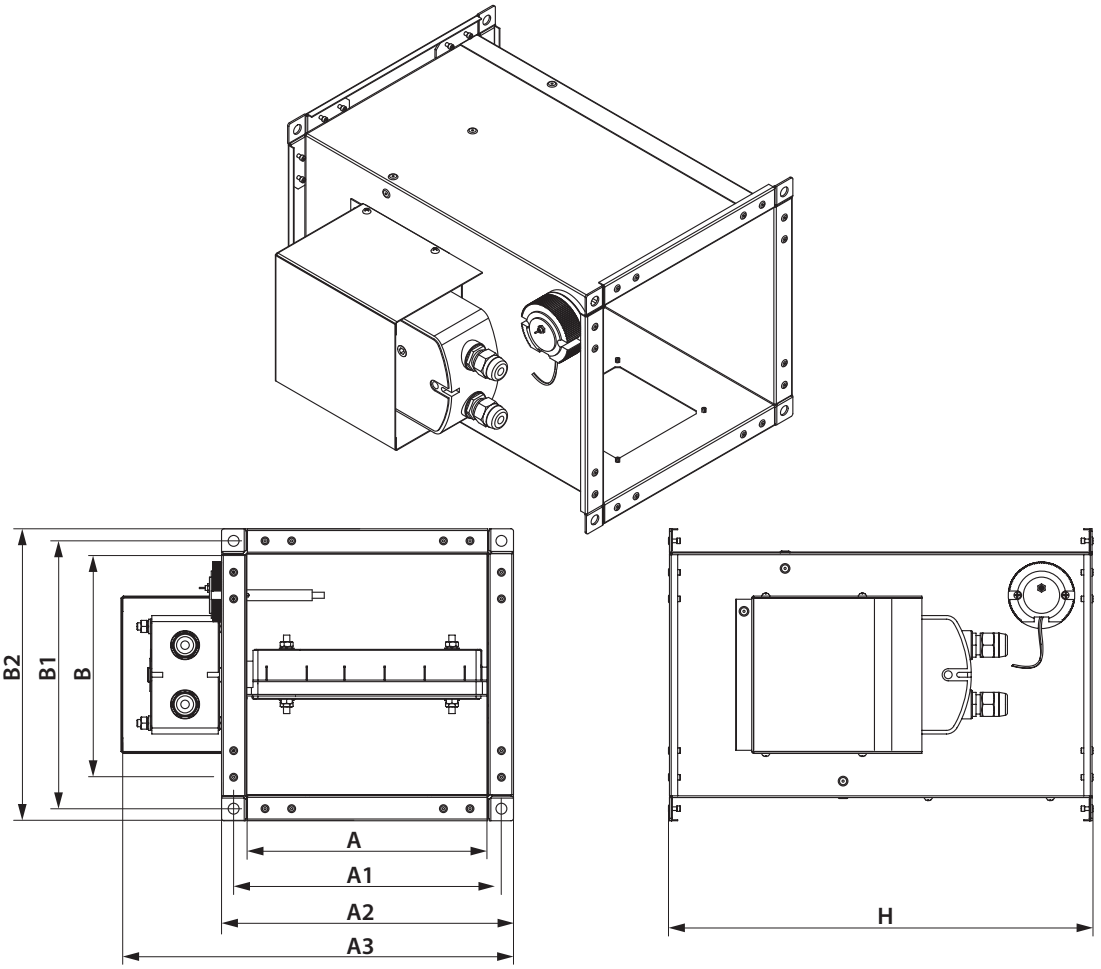
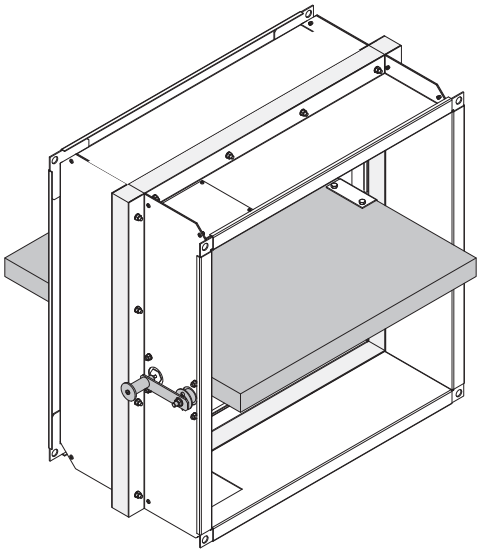


Table 4.

Model	Dimensions [mm]								Weight [kg]
	A	A1	A2	A3	B	B1	B2	H	
KP-1-O-N-200x200-2-BLF230-T-SN-O	200	220	240	340	200	220	240	350	7,5
KP-1-O-N-250x200-2-BLF230-T-SN-O	250	270	290	390	200	220	240	350	8,1
KP-1-O-N-250x250-2-BLF230-T-SN-O	250	270	290	390	250	270	290	350	8,7
KP-1-O-N-300x200-2-BLF230-T-SN-O	300	320	340	440	200	220	240	350	8,6
KP-1-O-N-300x250-2-BLF230-T-SN-O	300	320	340	440	250	270	290	350	9,34
KP-1-O-N-300x300-2-BLF230-T-SN-O	300	320	340	440	300	320	340	350	10
KP-1-O-N-400x250-2-BLF230-T-SN-O	400	420	440	540	250	270	290	350	10,6
KP-1-O-N-400x300-2-BLF230-T-SN-O	400	420	440	540	300	320	340	350	11,3
KP-1-O-N-400x400-2-BLF230-T-SN-O	400	420	440	540	400	420	440	350	12,8
KP-1-O-N-500x300-2-BLF230-T-SN-O	500	520	540	640	300	320	340	350	12,6
KP-1-O-N-500x400-2-BLF230-T-SN-O	500	520	540	640	400	420	440	350	14,2
KP-1-O-H-500x500-2-BF230-T-SN-O	500	530	560	650	500	530	560	350	15,9
KP-1-O-N-600x400-2-BLF230-T-SN-O	600	620	640	740	400	420	440	350	15,7
KP-1-O-N-600x500-2-BF230-T-SN-O	600	630	660	750	500	530	560	350	17,5
KP-1-O-N-600x600-2-BF230-T-SN-O	600	630	660	750	600	630	660	350	19,2
KP-1-O-N-800x500-2-BF230-T-SN-O	800	830	860	950	500	530	560	350	20,6
KP-1-O-N-800x600-2-BF230-T-SN-O	800	830	860	950	600	630	660	350	22,6
KP-1-O-N-800x800-2-BF230-T-SN-O	800	830	860	950	800	830	860	350	26,6
KP-1-O-N-1000x600-2-BF230-T-SN-O	1000	1030	1060	1150	600	630	660	350	26
KP-1-O-N-1000x800-2-BF230-T-SN-O	1000	1030	1060	1150	800	830	860	350	30,6
KP-1-O-N-1000x1000-2-BF230-T-SN-O	1000	1030	1060	1150	1000	1030	1060	350	36,4

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

KP-2 DAMPER
WITH THERMAL LINK AND RETURN SPRING



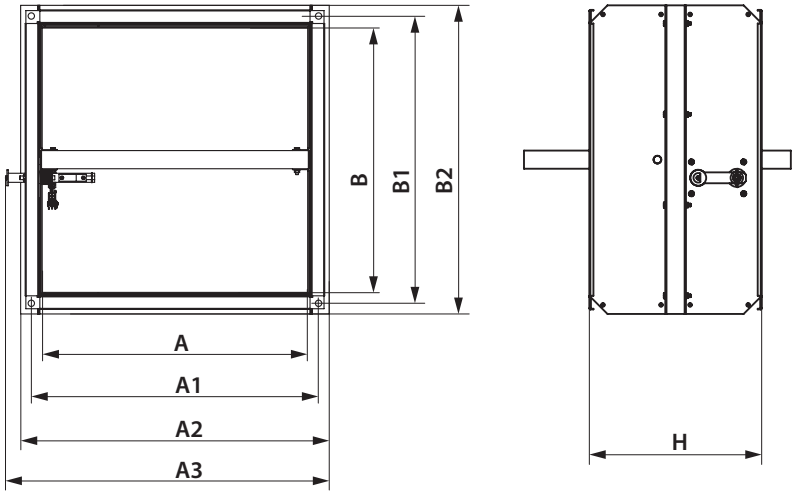
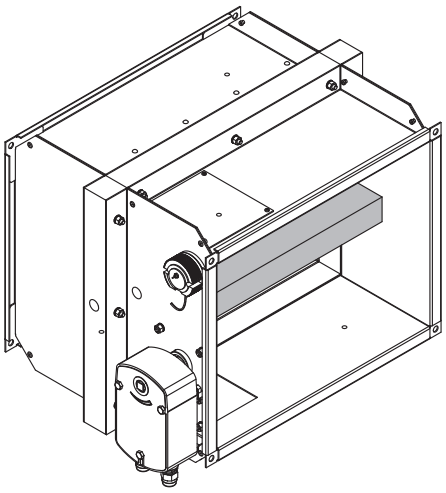


Table 5.

Model	Dimensions [mm]								Weight [kg]
	A	A1	A2	A3	B	B1	B2	H	
KP-2-0-N-200x200-2-72S-SN-0	200	220	280	313,5	200	220	280	380	10
KP-2-0-N-250x200-2-72S-SN-0	250	270	330	363,5	200	220	280	380	11
KP-2-0-N-300x200-2-72S-SN-0	300	320	380	413,5	200	220	280	380	12
KP-2-0-N-250x250-2-72S-SN-0	250	270	330	363,5	250	270	330	380	12,1
KP-2-0-N-300x250-2-72S-SN-0	300	320	380	413,5	250	270	330	380	13,25
KP-2-0-N-400x250-2-72S-SN-0	400	420	480	513,5	250	270	330	380	15,5
KP-2-0-N-300x300-2-72S-SN-0	300	320	380	413,5	300	320	380	380	14,5
KP-2-0-N-400x300-2-72S-SN-0	400	420	480	513,5	300	320	380	380	16,9
KP-2-0-N-500x300-2-72S-SN-0	500	520	580	613,5	300	320	380	380	19,4
KP-2-0-N-400x400-2-72S-SN-0	400	420	480	513,5	400	420	480	380	19,9
KP-2-0-N-500x400-2-72S-SN-0	500	520	580	613,5	400	420	480	380	22,7
KP-2-0-N-600x400-2-72S-SN-0	600	620	680	713,5	400	420	480	380	25,5
KP-2-0-N-500x500-2-72S-SN-0	500	520	580	613,5	500	520	580	380	27,8
KP-2-0-N-600x500-2-72S-SN-0	600	620	680	713,5	500	520	580	380	31,25
KP-2-0-N-600x600-2-72S-SN-0	600	620	680	713,5	500	640	580	380	35

KP-2 DAMPER
WITH ELECTRICAL ACTUATOR



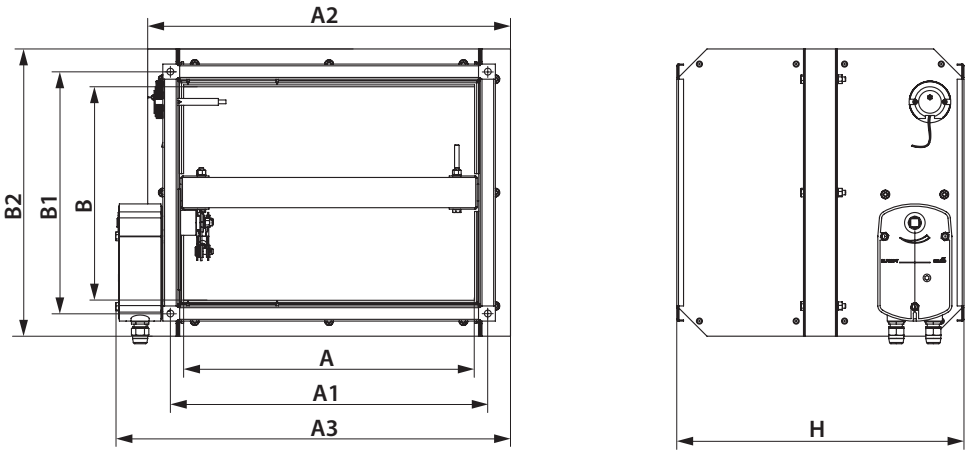


Table 6.

Model	Dimensions [mm]								Weight [kg]
	A	A1	A2	A3	B	B1	B2	H	
KP-2-O-N-200x200-2-BLF230-T-SN-O	200	220	280	322,5	200	220	280	380	10,75
KP-2-O-N-250x200-2-BLF230-T-SN-O	250	270	280	372,5	200	220	280	380	11,6
KP-2-O-N-300x200-2-BLF230-T-SN-O	300	320	280	422,5	200	220	280	380	12,45
KP-2-O-N-250x250-2-BLF230-T-SN-O	250	270	330	372,5	250	270	330	380	12,5
KP-2-O-N-300x250-2-BLF230-T-SN-O	300	320	380	422,5	250	270	330	380	13,4
KP-2-O-N-400x250-2-BLF230-T-SN-O	400	420	480	522,5	250	270	330	380	15,2
KP-2-O-N-300x300-2-BLF230-T-SN-O	300	320	380	422,5	300	320	380	380	14,3
KP-2-O-N-400x300-2-BLF230-T-SN-O	400	420	480	522,5	300	320	380	380	16,2
KP-2-O-N-500x300-2-BLF230-T-SN-O	500	520	580	622,5	300	320	380	380	18,1
KP-2-O-N-400x400-2-BLF230-T-SN-O	400	420	480	522,5	400	420	480	380	18,3
KP-2-O-N-500x400-2-BLF230-T-SN-O	500	520	580	622,5	400	420	480	380	20,4
KP-2-O-N-600x400-2-BLF230-T-SN-O	600	620	680	722,5	400	420	480	380	22,5
KP-2-O-H-500x500-2-BF230-T-SN-O	500	520	580	622,5	500	520	580	380	22,6
KP-2-O-N-600x500-2-BF230-T-SN-O	600	620	680	722,5	500	520	580	380	25
KP-2-O-N-800x500-2-BF230-T-SN-O	800	820	880	922,5	500	520	580	380	29,5
KP-2-O-N-600x600-2-BF230-T-SN-O	600	620	680	722,5	600	620	680	380	27,4
KP-2-O-N-800x600-2-BF230-T-SN-O	800	820	880	922,5	600	620	680	380	32,4
KP-2-O-N-1000x600-2-BF230-T-SN-O	1000	1020	1080	1122,5	600	620	680	380	37,2
KP-2-O-N-800x800-2-BF230-T-SN-O	800	820	880	922,5	800	820	880	380	38,1
KP-2-O-N-1000x800-2-BF230-T-SN-O	1000	1020	1080	1122,5	800	820	880	380	43,9
KP-2-O-N-1000x1000-2-BF230-T-SN-O	1000	1020	1080	1122,5	1000	1020	1080	380	52,2

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

KP-2-1 DAMPER
WITH ELECTRICAL ACTUATOR

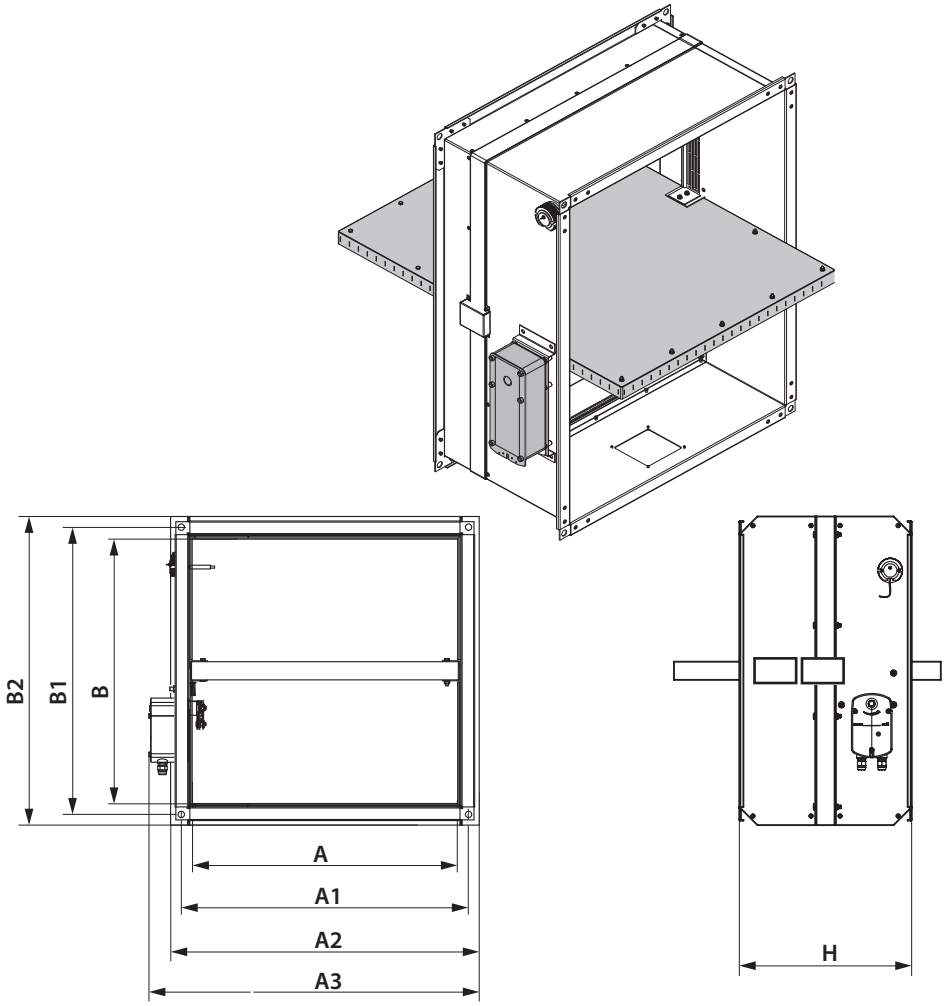


Table 7.

Model	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	10,0
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	21,0
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	28,0
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

Note: Thetable values for the dampers equipped with BF230-T/BLF230-T actuators are identical to those equipped with BF24-T/BLF24-T actuators.

PL DAMPER
WITH THERMAL LINK AND RETURN SPRING

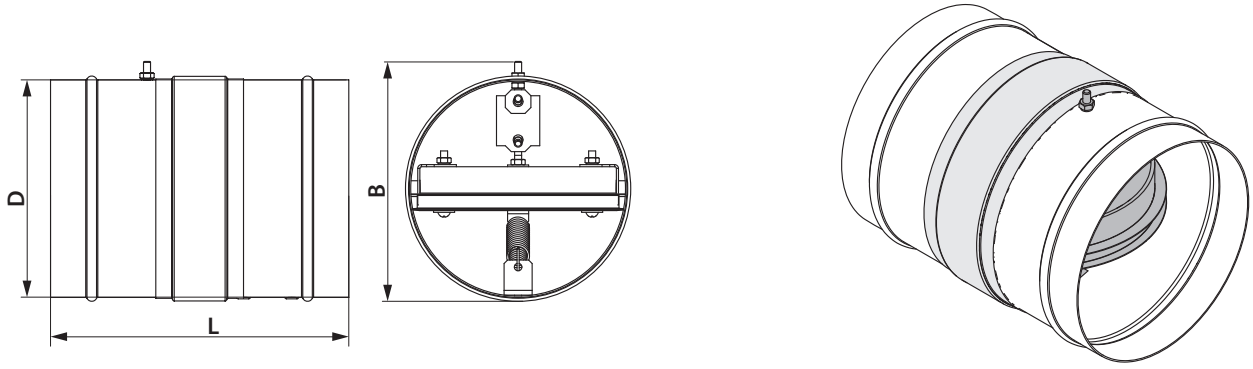


Table 8.

Model	Dimensions [mm]			Weight [kg]
	ØD	L	B	
PL-10-1A-DN100	99	170	112	1,0
PL-10-1A-DN125	124	170	137	1,2
PL-10-1A-DN150	149	170	162	1,5
PL-10-1A-DN160	159	170	172	1,6
PL-10-1A-DN180	179	170	192	1,8
PL-10-1A-DN200	199	170	212	2,0
PL-10-1A-DN250	249	190	262	2,5
PL-10-1A-DN315	314	190	327	3,3

PL DAMPER
WITH ELECTRIC ACTUATOR, RETURN SPRING AND THERMALLY SENSITIVE BREAKER

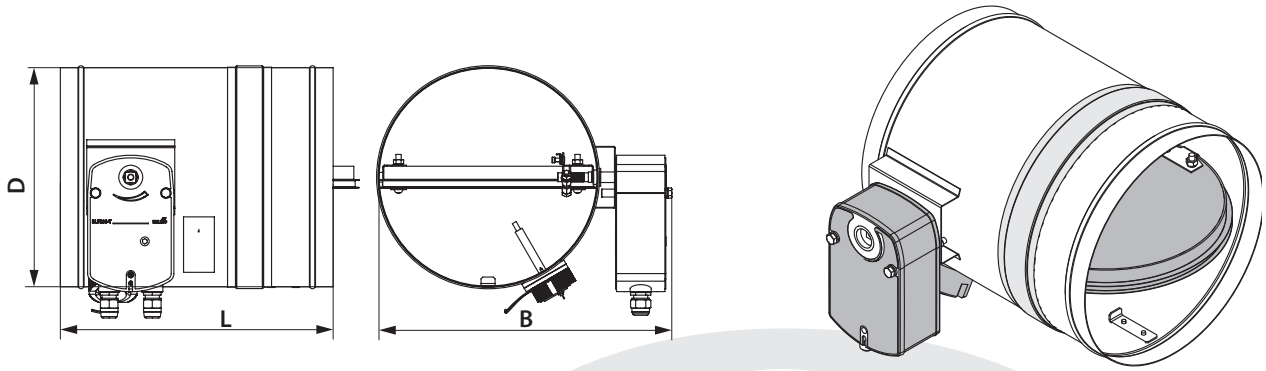


Table 9.

Model	Dimensions [mm]			Weight [kg]
	ØD	L	B	
PL-10-2-BLF230-T (BLF24-T)-DN100	99	300	185	2,9
PL-10-2-BLF230-T (BLF24-T)-DN125	124	300	205	3,1
PL-10-2-BLF230-T (BLF24-T)-DN150	149	300	240	3,4
PL-10-2-BLF230-T (BLF24-T)-DN160	159	300	245	3,5
PL-10-2-BLF230-T (BLF24-T)-DN180	179	300	255	3,8
PL-10-2-BLF230-T (BLF24-T)-DN200	199	300	265	4,0
PL-10-2-BLF230-T (BLF24-T)-DN250	249	310	290	4,7
PL-10-2-BLF230-T (BLF24-T)-DN315	314	310	340	5,6

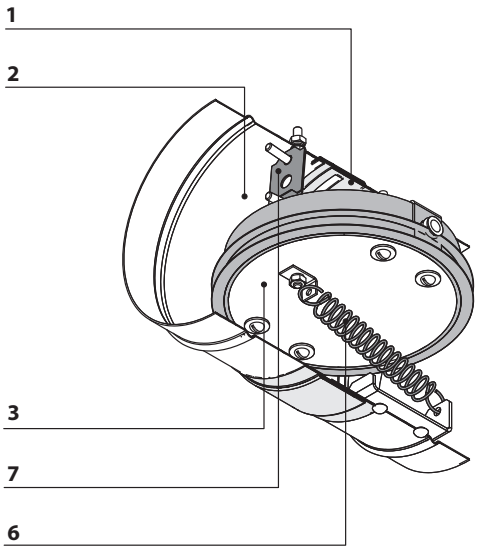
DESIGN AND OPERATING PRINCIPLE

Damper Components:
1 - Hot and Cold Zone Baffle;
2 - Galvanized Casing;
3 - Fire-Proof Material Damper;
4 - Thermally Sensitive Breaker;
5 - Electric Actuator;
6 - Return Spring Mechanism Handle;
7 - Thermal Link (manually actuated dampers);

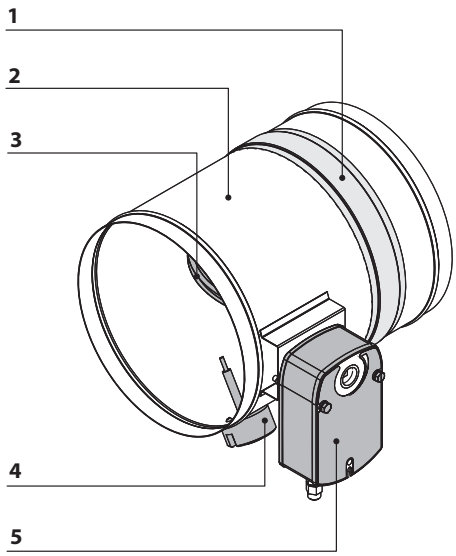
The hot and cold zone baffle (1) is absent in the KP1, PL1… EI60 (single-hour) series dampers.

The damper actuates in the event of fire shutting off the air duct. The damper is closed by an electric actuator triggered by an electric signal from a temperature transducer. The damper can also actuate upon a closing signal from a fire-protection switchboard after the fuse has burnt out.

PL DAMPER DESIGN

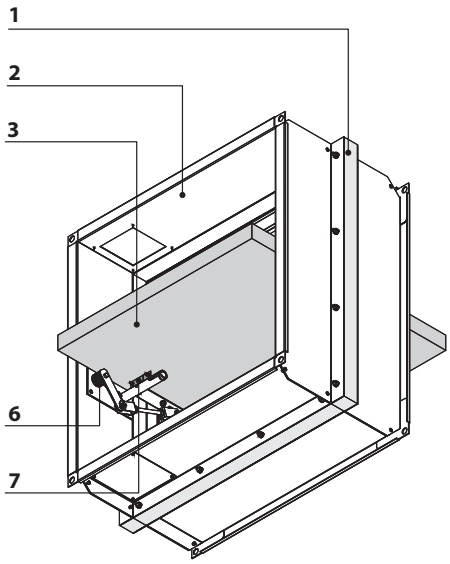


Manually Actuated Damper with Thermal Link and Return Spring for Round Ducts.

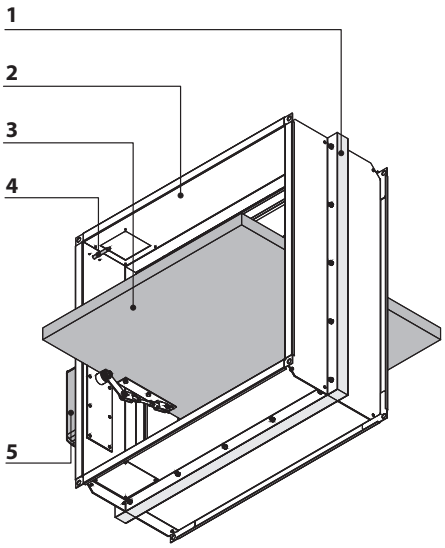


Electrically Actuated Damper for Round Ducts.

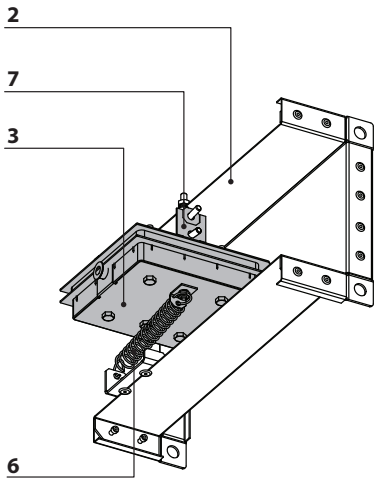
KP DAMPER DESIGN



Manually Actuated Damper with Thermal Link for Square and Rectangular Ducts.



Electrically Actuated Dampers for Square and Rectangular Ducts.



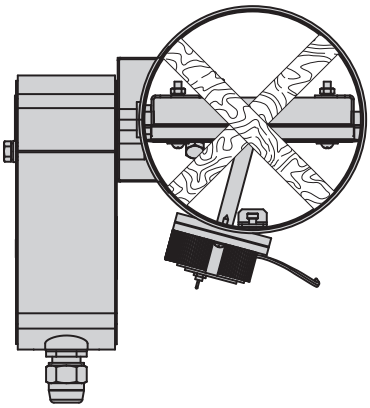
Manually Actuated Damper with Thermal Link and Return Spring for Square and Rectangular Ducts.

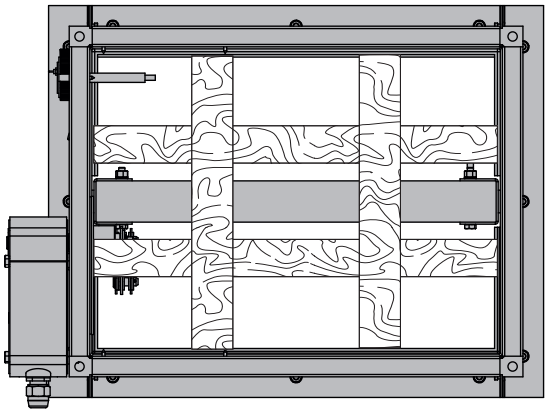
The dampers are installed into square or rectangular (KP series) and round (PL series) air ducts of ventilation systems, and the apertures of ventilation shafts, division walls and fire partitions.

The installation of the dampers into ventilation systems must be carried out in consideration of the air flow direction.

While installing electrically actuated dampers provide for sufficient space for the actuator inspection.

- When preparing the fire-safety dampers for installation the damper casing must be fitted with wooden spreader bars to prevent deformation, torsional twisting or geometry perturbation of the casing which may result in flap jamming and, eventually, loss of the damper functionality.





- Following the damper installation into the shaft, wall or ceiling filler structure section and upon complete curing (immobilization) of the mortar make sure to remove the wooden spreader bars. The damper must open and close freely without excessive friction.

- To install the dampers into the apertures of wall or ceiling slabs fill up the gaps between the damper casing and the aperture. The gaps are filled with fire-resistant mortar.

- The damper design enables its attachment to air ducts and other ventilation system components by means of flanges as well as its installation into filler structures. Under any installation scenario the mating structure fire-resistance level must be upgraded by using extra fire insulation to at least match that of the filler structure of the respective fire-safety zone.

KP DAMPER INSTALLATION

The dampers can be installed in any position into vertical and horizontal channels of fire-protection structures. The damper installation openings 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. There must be at least 350 mm of unrestricted clearance for accessing the control elements. 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 lies in the fire-protection divider structure plane while closed. 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.

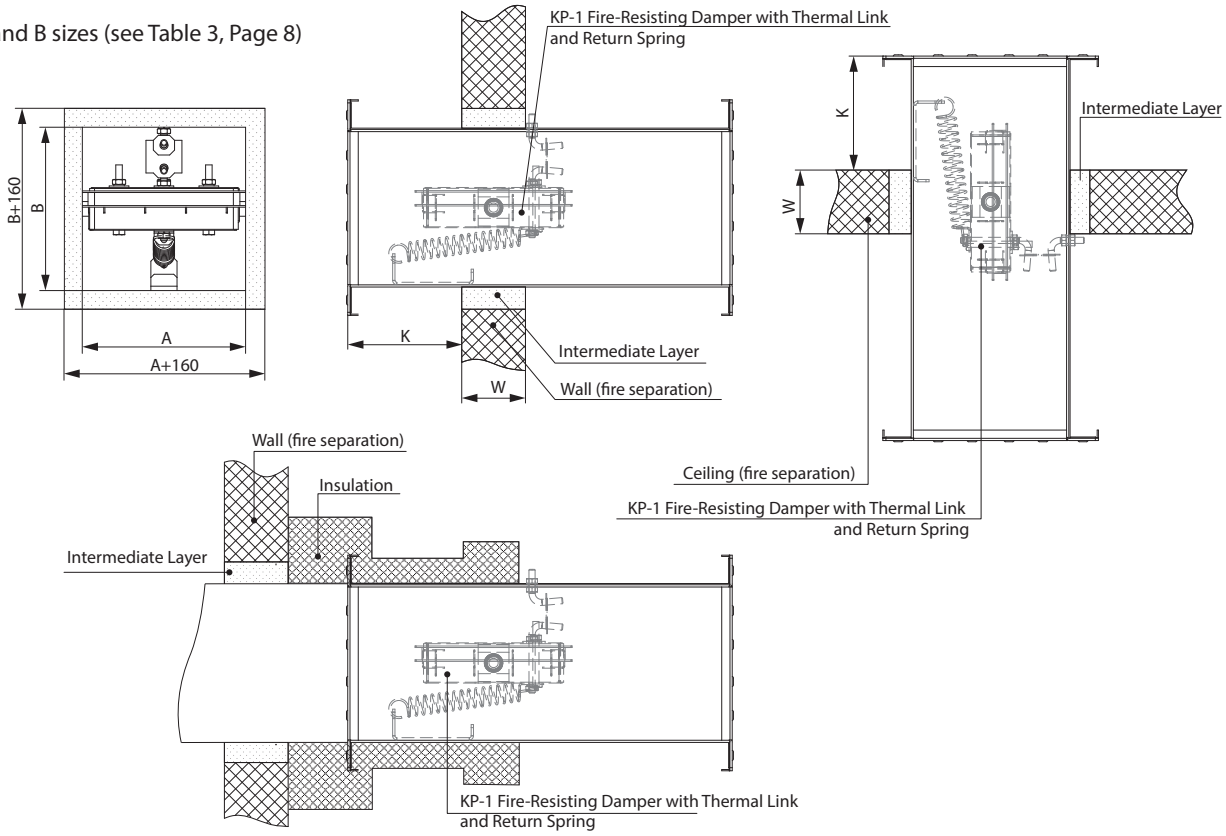
The damper control mechanism must be protected against damage and contamination. Avoid damper casing deformation during the embedding. After the installation the flap must not catch against the damper casing while opening or closing.

Fire-safety dampers 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.

The recommended values for construction openings are given below.

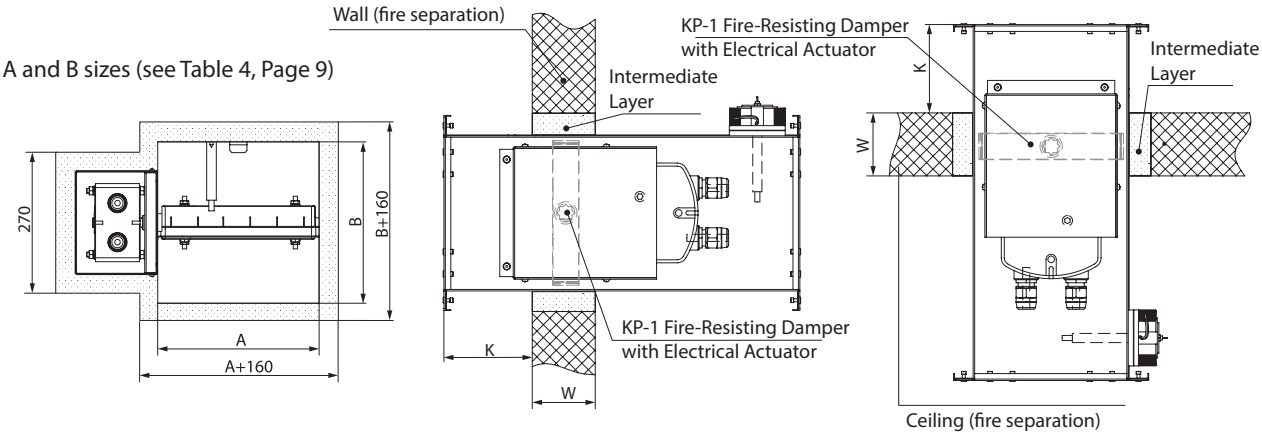
KP-1 DAMPER WITH THERMAL LINK AND RETURN SPRING

A and B sizes (see Table 3, Page 8)



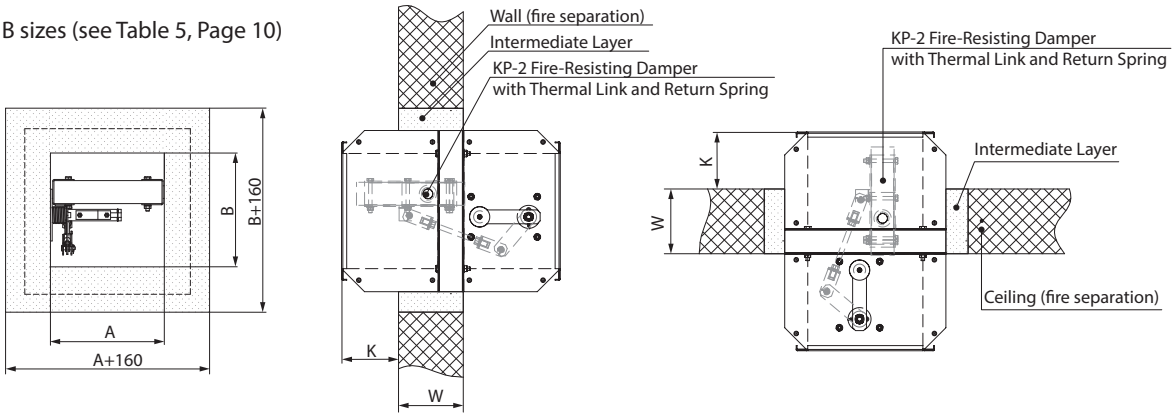
KP-1 DAMPER WITH ELECTRICAL ACTUATOR

A and B sizes (see Table 4, Page 9)

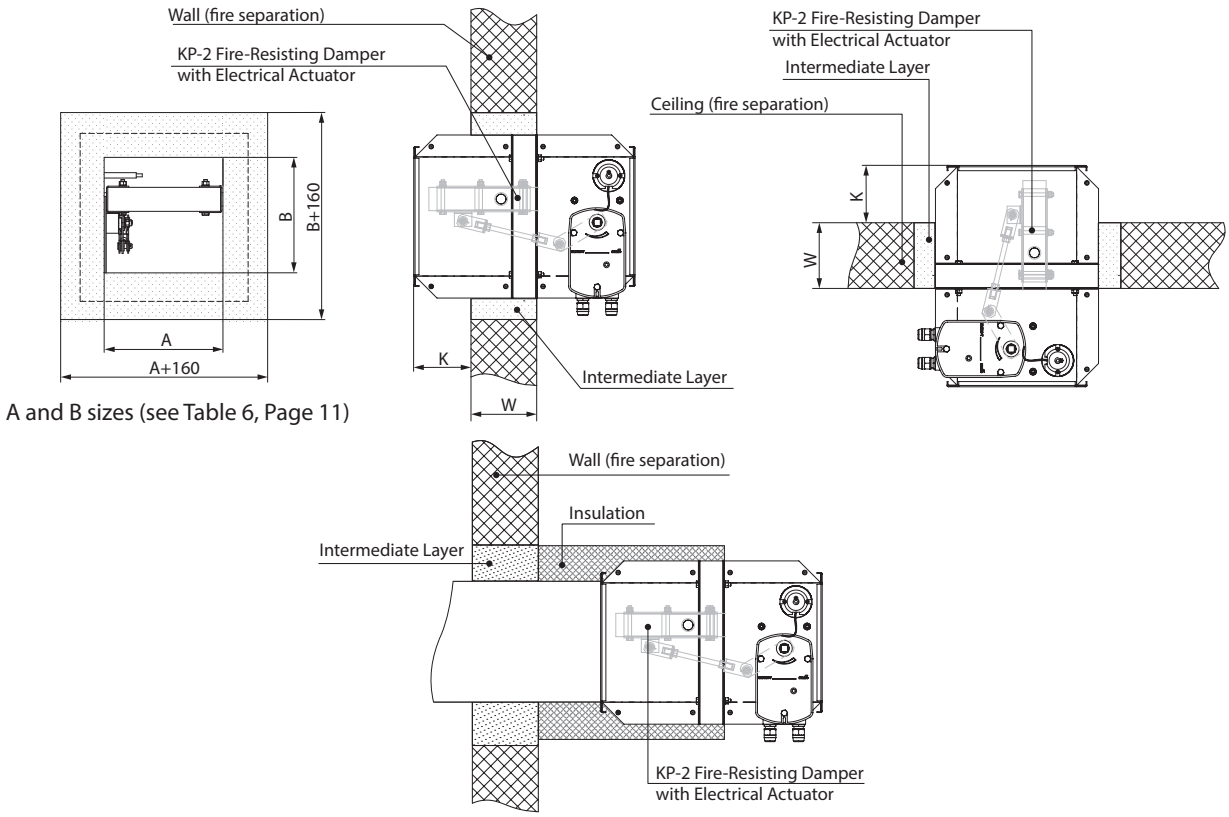


KP-2 DAMPER WITH THERMAL LINK AND RETURN SPRING

A and B sizes (see Table 5, Page 10)

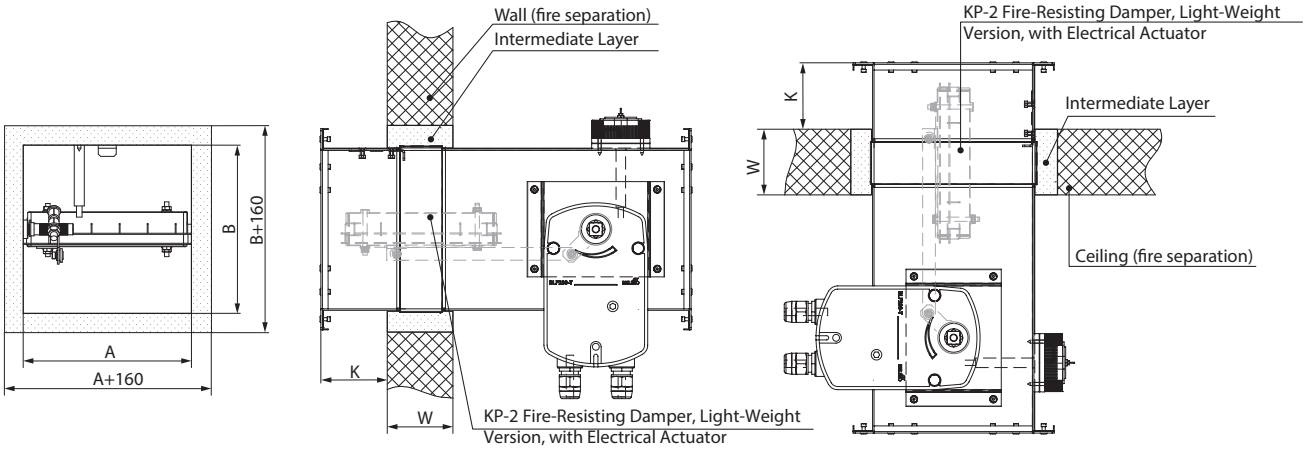


KP-2 DAMPER WITH ELECTRICAL ACTUATOR



A and B sizes (see Table 6, Page 11)

KP-2-1 DAMPER WITH ELECTRICAL ACTUATOR

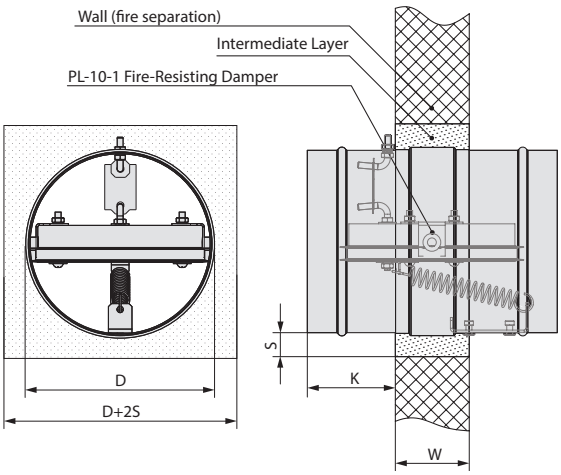


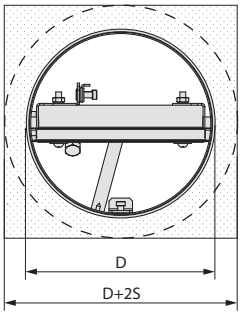
A and B sizes (see Table 7, Page 12)

PL DAMPER INSTALLATION

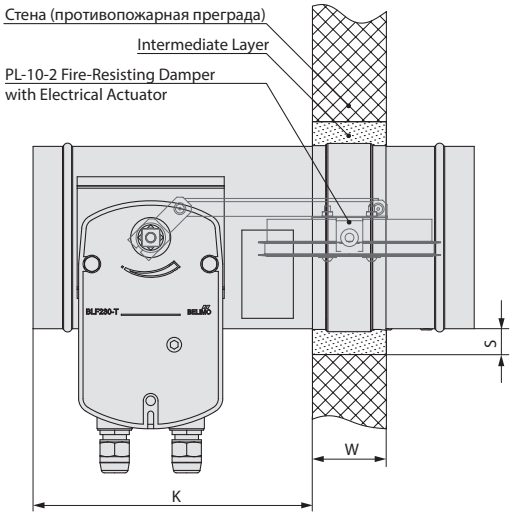
Fire-safety dampers can be installed into solid walls with the minimum width of W=100 mm, into both round and square apertures, minimum intermediate layer thickness S=50 mm. The walls can be made of concrete, brick or foam concrete blocks. The intermediate layer can be made of concrete or mortar. While carrying out the installation mind size K. When installing the dampers into thicker walls add an extender section on one of the damper sides.

The electric actuator can be positioned freely on either side of the fire control sector (space) wall.





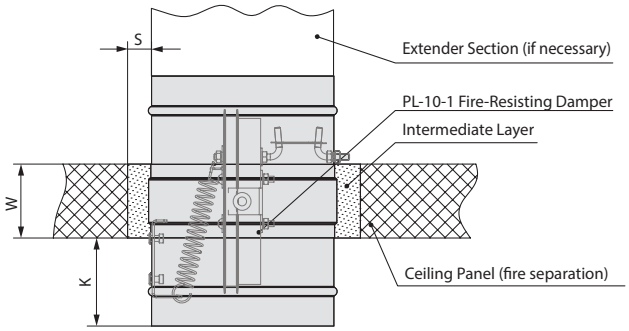
Size D (see Table on Page 13)

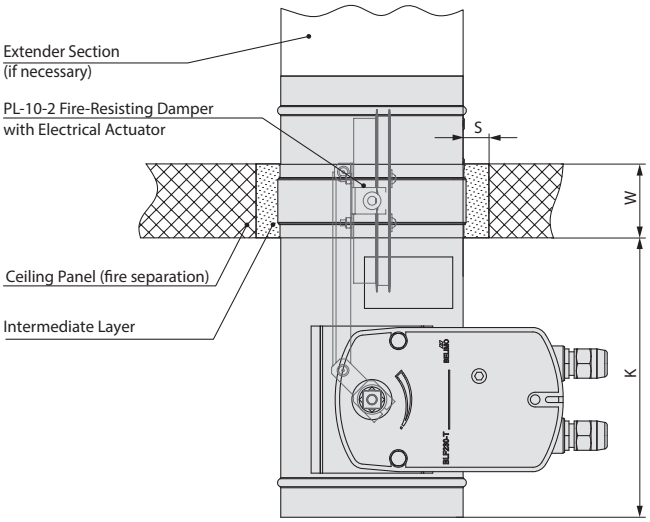


Fire-safety dampers can be installed into solid ceiling panels with the minimum thickness of W=150 mm, minimum intermediate layer thickness S=50 mm. The ceiling panels are made of concrete. The intermediate layer can be made of concrete or mortar. While carrying out the installation mind size K.

When installing the dampers into thicker walls add an extender section on one of the damper sides.

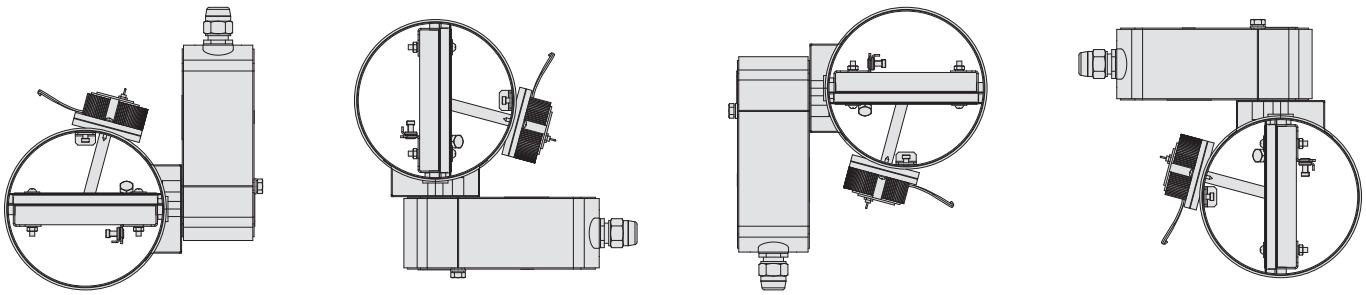
The electric actuator can be positioned freely above or below the ceiling panel of the fire control sector (space).





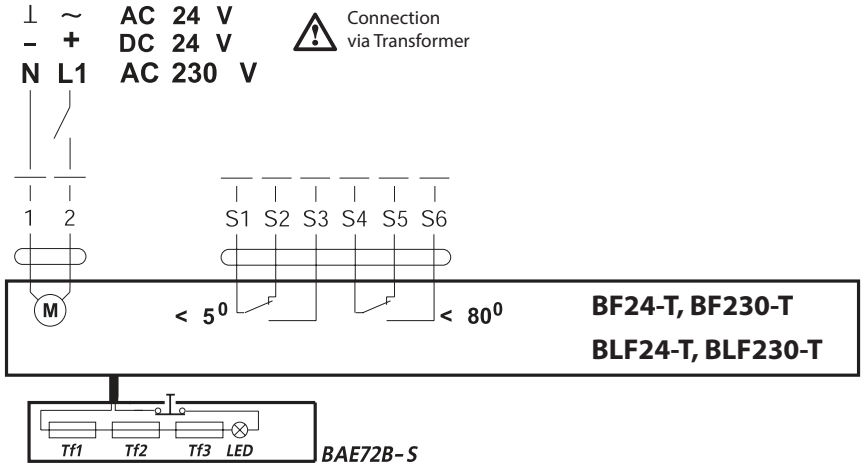
Permissible Positions for Fire-Safety Damper Installation.

The damper axle and actuation mechanism can be installed in any position - from horizontal to vertical.



POWER MAINS CONNECTION

DISCONNECT THE DAMPER FROM THE POWER SUPPLY PRIOR TO ANY WORK PERFORMED ON THE UNIT. ANY TAMPERING WITH THE INTERNAL CONNECTIONS IS PROHIBITED AND SHALL VOID THE WARRANTY.



1 - Blue Wire
2 - Brown Wire

The actuators featuring a return spring are designed to control fire-resisting dampers and smoke-extraction dampers installed in ventilation and air-conditioning systems.

The return spring is cocked upon setting the damper flap to the horizontal position. In case of a power failure the damper flap is re-set to the protective position by the energy stored in the spring.

The damper does not require any limit switches and is overload-proof.

The thermally sensitive breaker Tf1 actuates upon ambient temperature exceeding 72 °C. The renewable thermally sensitive breakers Tf2 and Tf3 actuate upon the air duct temperature exceeding 72 °C. The operation of the renewable thermally sensitive breakers interrupts the electric power supply in such a way that it prevents actuator re-activation without their replacement.

The button on the thermally sensitive breaker body enables testing the damper functionality.

The actuator is equipped with two fixed microswitches which signal the end positions.

Intermediate positions of the damper are shown by the mechanical indicator (needle).

The BF24-T and BLF24-T actuators are connected via an insulated transformer unit .

The damper can also be controlled manually and fixed in any position. The unit can be unlocked either manually using a hex wrench (included) or automatically upon power-up.

The actuator connections (cables and wires) must be durable, insulated and heat-resistant.

The recommended minimum conductor cross-section is 0.75 mm2. The conductor cross-section selection must account for the maximum permissible wire heating which depends on the wire type, its insulation, length and installation method (i.e. overhead, in cable channels or inside walls).

TECHNICAL MAINTENANCE

The damper technical maintenance includes routine inspections and functionality checks.

The damper technical maintenance frequency must comply with the established technical maintenance frequency of the fire safety equipment complex of the facility.

The routine inspections must include repair-and-renewal operations and cleaning the damper internals of any debris as necessary.

The damper functionality is checked by energizing the electric actuator. The damper must close on power-up. The data obtained in the course of the damper technical maintenance must be entered into the logbook. Combined logbooks may be kept for the entire fire-safety equipment complex of the facility.

TRANSPORTATION AND STORAGE REGULATIONS

The dampers must be transported fully assembled either separately or in batches. The transportation method must prevent the dampers from the effects of any significant vibrations or ingress of moisture. The damper must be stored in the original packing in a dry ventilated area at temperatures from +10 °C to +40 °C. The air in the storage space must not contain any vapours or admixtures which may lead to corrosion or compromise the insulation and seals. Use only suitable lifting equipment for handling operations to prevent damage to the damper. Follow the applicable moving regulations specific to the cargo type while loading and unloading. The unit can be carried in the original packing by any mode of transport without limitation provided proper protection against precipitation and mechanical damage. Avoid sudden jolts and impacts while transporting or handling the unit.

MANUFACTURER'S WARRANTY

The manufacturer hereby warrants normal operation (service life) of the damper over the period of 24 months from the retail sale date provided observance of the transportation, storage, installation and operation regulations.

Should any malfunctions occur in the course of the damper operation through the Manufacturer's fault during the guaranteed period of operation the user is entitled to elimination of faults by the manufacturer by means of warranty repair at the factory carried out free of charge.

The warranty repair shall include work specific to elimination of faults in the damper operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the damper components or a specific part of such damper component.

The warranty repair does not include:

- Routine technical maintenance;
- Damper installation/removal;
- Damper setup.

To benefit from warranty repair the user must submit the damper, the User's Manual with the sale date stamp and the payment document certifying the purchase.

The damper model must comply with the one stated in the User's Manual.

Please contact the damper vendor for any matters related to warranty service.

The manufacturer's warranty does not apply to the following cases:

- User's failure to submit the damper with the entire delivery package as stated in the User's Manual or with missing component parts previously dismounted by the user;
- Mismatch of the damper model and make with the respective details stated on the unit packaging and in the User's Manual;
- User's failure to ensure timely technical maintenance of the damper;
- External damage to the damper casing (excluding external modifications to the damper as required for installation) and internal components caused by the user;
- Alteration of the damper design or engineering changes to the product;
- Replacement and use of the such damper assemblies, parts and components not approved by the manufacturer;
- Damper misuse;
- User's violation of the damper storage regulations;
- User's violation of the damper operation regulations;
- Damper connection to the power mains with a voltage different from the one stated in the User's Manual;
- Damper failure due to voltage surges in the power mains;
- Discretionary repair of the unit damper the user;
- Damper repair by any persons without the manufacturer's authorization;
- Expiration of the damper warranty period;
- User's violation of the damper transportation regulations;
- User's violation of the damper storage regulations;
- Wrongful acts against the damper committed by a third party;
- Damper failure due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, or blockade);
- Missing seals if provided by the User's Manual;
- Failure to submit the User's Manual with the damper sale date stamp;
- Missing payment document certifying the damper purchase.

FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE DAMPER.
USERS' CLAIMS SHALL BE REVIEWED ONLY UPON PRESENTATION OF THE DAMPER, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE SALE DATE STAMP.

RECYCLING

The damper shall be recycled at the end of its service life. The unit shall be recycled pursuant to the standing norms and standards which may vary by region.

ACCEPTANCE CERTIFICATE

Product Type	Fire-Resisting Duct Damper
Model	
Serial Number	
Manufacture Date	
Is recognized as serviceable.	
Quality Inspector's Stamp	

SELLER INFORMATION

Outlet Name	
Address	
Phone Number	
E-mail	
Purchase Date	

This is to certify delivery of the complete damper with the User's Manual. The warranty terms are acknowledged and accepted.	
Buyer's Signature	

Vendor's Seal

INSTALLATION CERTIFICATE

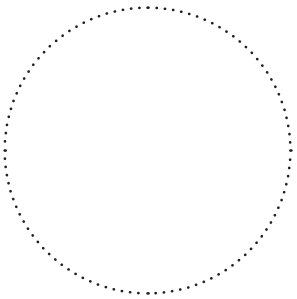
This is to certify that _____ Fire-Resisting Duct Damperhas been installed and connected to the power mains pursuant to the requirements stated in the present User's Manual.		
Company Name		
Address		
Phone Number		
Installation Technician's Full Name		
Installation Date:	**Signature:**	

The damper has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The damper operates normally without any flaws.
Signature:

Installation Technician's Company Seal

WARRANTY CARD

Product Type	Fire-Resisting Duct Damper
Model	
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Vendor Company	



Vendor's Seal

NOTES