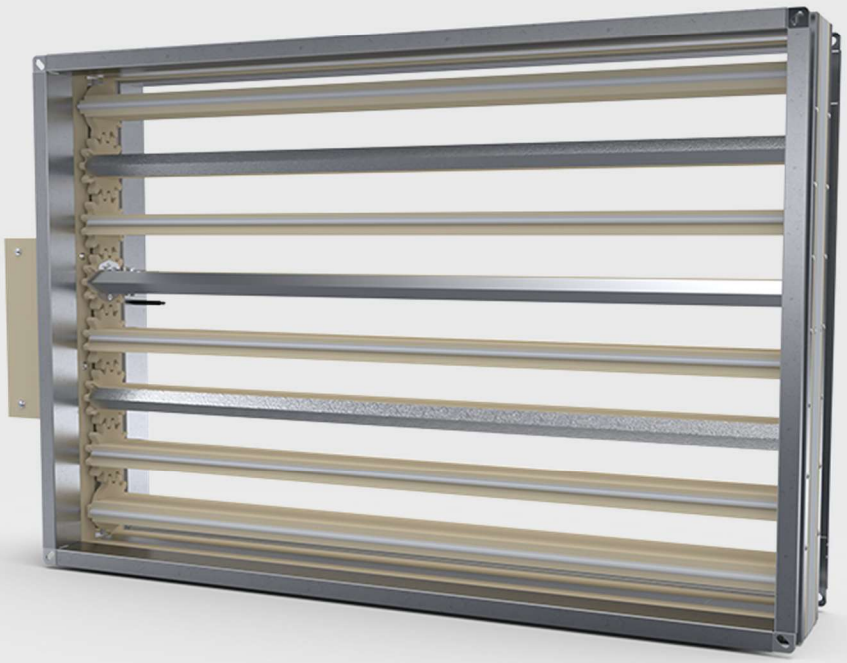
WKP-O

Fire damper - rectangular

Technical Documentation



https: // www.smay.eu

CE **2434**	
SMAY Sp. z o.o. **22** **2434-CPR-0283**	
EN 15650:2010 **Fire damper** type: WKP-O	
Nominal activation conditions/sensitivity: **Closing/opening during the test at the right time**	Pass
Response time/Closure time:	Pass
Reliability:	300 cycles – pass
Fire resistance:	
Fire integrity - E **Fire insulation - I** **Smoke leakage - S** **Mechanical stability (under E)** **Maintenance of the cross section (under E)**	EI 120 (ve h_o i↔o) S EI 90 (ve i↔o) S E 120 (ve i↔o) S EI 120 (ve i↔o) S
Durability:	
Response delay: **Operating reliability:**	Pass

Version 6.2

SMAY reserves the right to make changes to this document.

TABLE OF CONTENT

1. INTRODUCTION

The purpose of technical documentation is to familiarize the user with the intended use, design, operation principle, installation, periodic maintenance and operation of product.

2. LEGAL REGULATIONS

The WKP-O dampers are certified by CTO Gdańsk, Certificate of Constancy of Performance no. **2434-CPR-0283**.

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

The effectiveness of the dampers is confirmed by tests according to **PN-EN 1366-2** "Fire resistance tests for service installations – Part 2: Fire dampers." The WKP-O fire damper is classified as tightness class C (housing tightness) on the basis of tests carried out according to **PN-EN 1751** "Ventilation for buildings. Air terminal devices. Aerodynamic testing of dampers and valves."

3. INTENDED USE

WKP-O fire dampers are classified in the following fire resistance range and can be mounted in the following building partitions:

a. **EI 120 (ve i↔o) S** – horizontal axis of rotation of damper blades. In rigid walls with low density (650±200) kg/m2 or more, with 125 mm thickness or more and with fire resistant class EI 120 or higher (e.g. concrete, masonry of solid brick, cellular concrete blocks or airbricks and prefabricated boards),

b. **EI 90 (ve i↔o) S, E 120 (ve i↔o) S** – horizontal or vertical axis of rotation of damper blades. In rigid walls with low density (650±200) kg/m2 or more, with 120 mm thickness or more and with fire resistant class EI90 or higher (for dampers with horizontal or vertical axis of rotation of damper blades), EI120 or higher (for dampers with horizontal axis of rotation of damper blades).(e.g. concrete, masonry of solid brick, cellular concrete blocks or airbricks and boards),

c. **EI 120 (ve o→i) S** – horizontal axis of rotation of damper blades. In standard walls with 125 mm thickness or more and with fire resistant class EI 120 or higher

where:
E – fire integrity,
I – fire insulation,
S – smoke leakage,
120/90– duration of fulfilment of E, I and S criteria, expressed in minutes,
ve – damper mounted directly in the wall,
ho – damper mounted directly in the ceiling,
i↔o – operating effectiveness criteria are fulfilled from the inside to the outside (fire inside), and from the outside to the inside (fire outside).
o→i – operating effectiveness criteria are fulfilled from the outside to the inside (fire outside)

WKP-O fire dampers may be installed without ventilation duct, from one or two sides with mounted honeycomb mesh cover.

WKP-O fire dampers may be installed in vertical building partitions with both **horizontal and vertical rotation axis** of baffle, with any actuator location.
WKP-O fire dampers are intended for installation on internal and external building partition as also at a distance from them. In case of external wall installation, use of finishing element is required (intake or exhaust) which will protect from influence of atmospheric factors. Drive system (actuator) should be installed inside facility. It is recommended to use dampers in special execution (impregnated fireproof boards, anti-corrosive steel elements).

WKP-O fire dampers may also be installed in building partition of a smaller fire resistance. In this case, the damper`s fire resistance is equal to the building partition fire resistance, considering the smoke leakage criterion.

WKP-O			
Construction type	**Minimum thickness of the building partitions mm**	**Fire resistance class**	**Sealing type**
Rigid wall	≥125 mm	EI 120 (ve i↔o) S	MORTAR
	≥125 mm	EI 120 (ve o→i) S	MINERAL WOOL
	≥120 mm	E 120 (ve i↔o) S	MORTAR
	≥120 mm	EI 90 (ve i↔o) S	MORTAR
Flexible wall	≥125 mm	EI 120 (ve o→i) S	MINERAL WOOL

4. TECHNICAL DESCRIPTION

The WKP-O dampers are made up of a rectangular housing, movable blades and a drive system.

The dampers' housing is made of fire-rated boards and steel structural members. Both sides of the housing are equipped with steel connection spigots, which enable easy connection of a duct.

Movable blades, made of mineral silicate composite, are fastened to the housing by means of metal pins.

There are intumescent seals mounted on the inner side of the housing and on the blades. Their characteristic feature is the volume increase at high temperatures, tightly filling all leaks between the baffle and the body. A bubble seal ensures the leak tightness at ambient temperature.

The WKP damper is provided with an innovative actuating mechanism, which ensures the counter rotation of the blades. The mechanism is made up of, among other things, gears made of fire-rated materials, blades and an electric actuator.

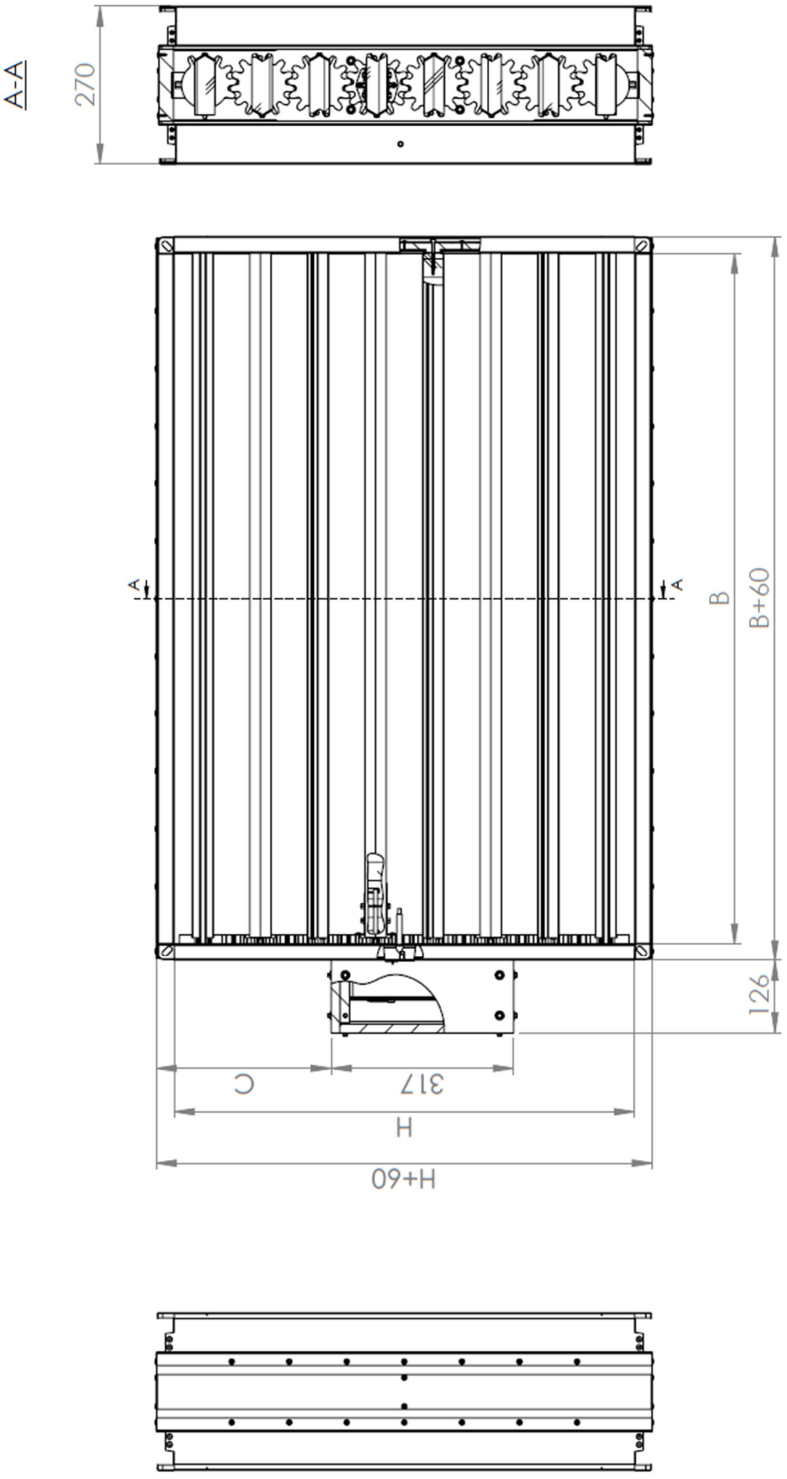
During normal operation of the system, the blades are in the open position. The permissible air velocity for the WKP-O damper in a B x H connection duct is 12 m/s.

The WKP-O damper is equipped with an electric spring return actuator of BF or BFN series by BELIMO and a BAT or BAE thermal fuse (72 ° C) (optionally 95 ° C), which is the damper's drive system with AC 230 V or AC / DC 24V

The range of dampers covers the following dimensions: a clear damper width from 200 to 1200 mm (10 mm intervals) and clear damper height from 200 to 800 mm (100 mm intervals).

Table 1.WKP-O weight [kg]

		Width B [mm]										
		200	300	400	500	600	700	800	900	1000	1100	1200
Height H [mm]	200	12	14	16	17	19	20	22	24	26	28	29
	300	13	15	17	19	20	22	25	26	28	30	32
	400	14	16	18	20	22	25	27	29	31	32	34
	500	15	18	20	22	25	27	29	31	33	35	37
	600	17	19	21	24	27	29	31	33	35	38	40
	700	18	20	23	26	28	31	33	36	38	40	43
	800	19	22	25	27	30	33	35	38	40	43	46

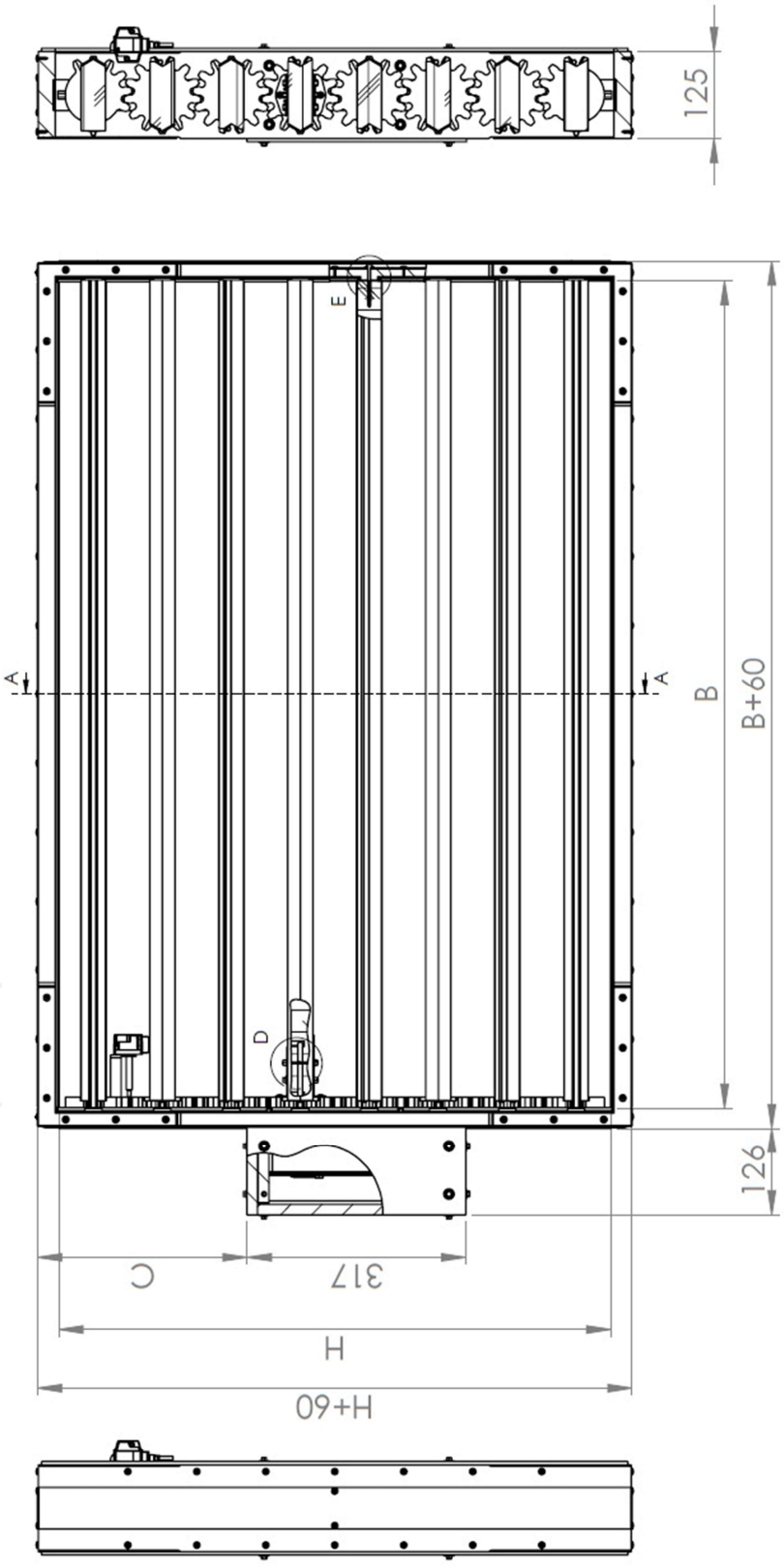


H	C
200	0
300	100
400	100
500	200
600	200
700	300
800	300

Actuators used:
BFN230-T; BFN24-T;
BF230-T; BF24-T

NOTES:
B – clear damper width;
H – clear damper height;
N – number of damper blades
C - parameter, select according to the table

Figure 1. WKP-O-E-K damper



H	C
200	0
300	100
400	100
500	200
600	200
700	300
800	300

Actuators with thermoelectric tripping device used:
BFN230-T; BFN24-T;
T-BAT 72 or BAT 95 (optional)
BF230-T; BF24-T;
T- BAE 72 or BAE 95 (optional)

NOTES:
B – clear damper width (min. 200 max. 1200);
H – clear damper height (min. 200 max. 800);
N – number of damper blades
C - parameter, select according to the table

Figure 2. WKP-O-E-T damper

5. BELIMO ELECTRIC ACTUATORS USED IN WKP-O

Spring-return 90° actuator BFN series, combined with thermoelectric tripping device BAT:

- BFN230-T,
- BFN24-T,

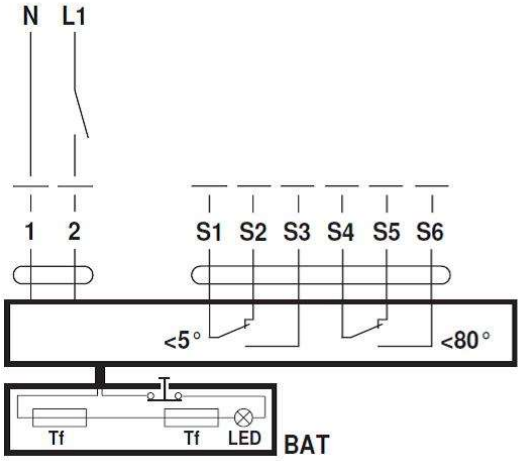
where:
ST - connection plug.

Spring-return 90° actuator BF series, combined with thermoelectric tripping device BAE:

- BF230-TN,
- BF24-T

Wiring diagram BFN230-T

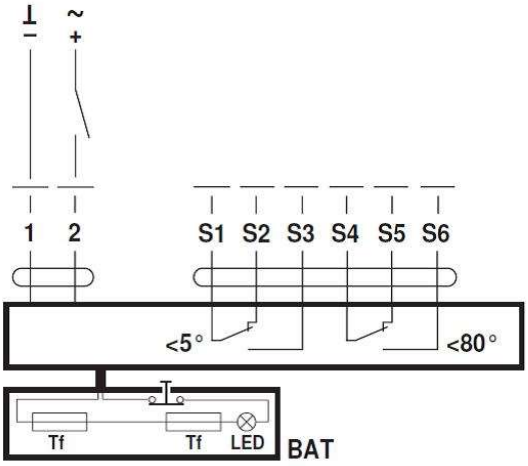
AC 230 V, open-close



Cable colours:
1 = blue
2 = brown
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey
Tf: Thermal fuse (see “Technical data”)

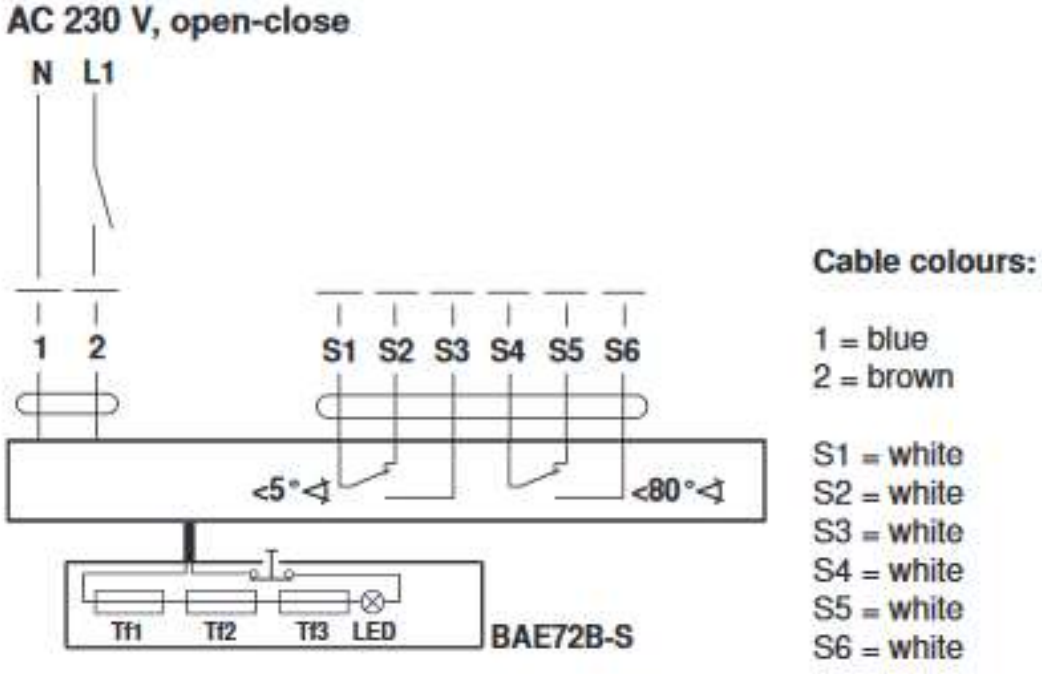
Wiring diagram BFN24-T

AC/DC 24 V, open-close

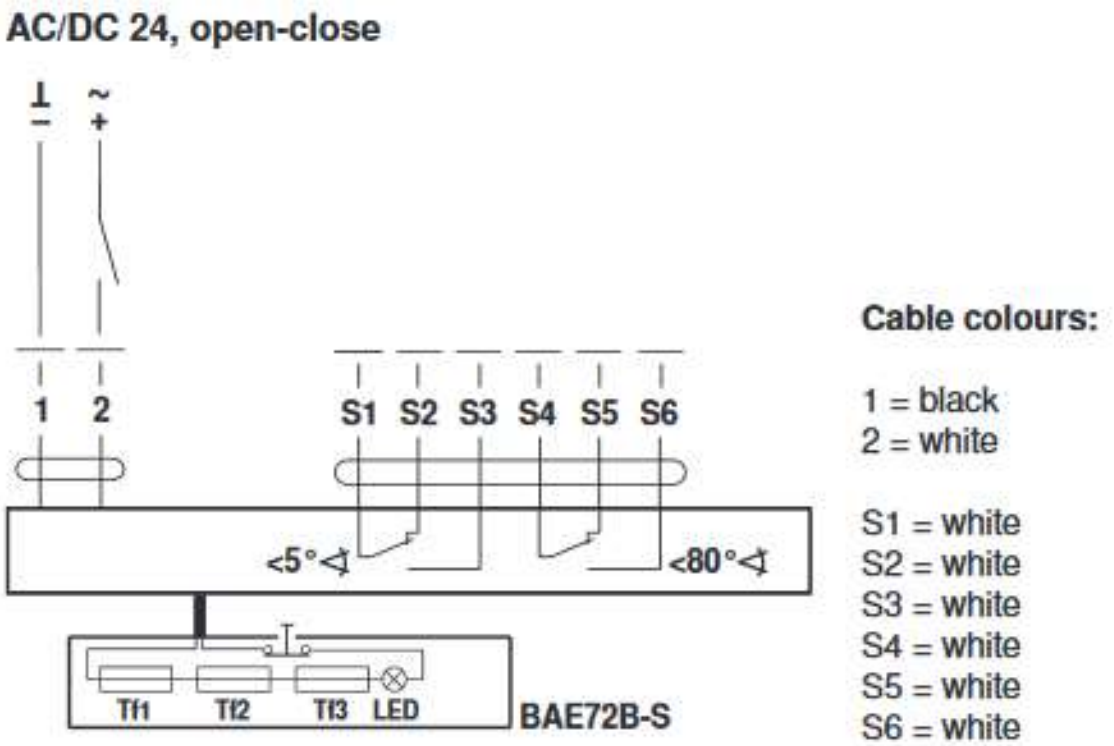


Cable colours:
1 = black
2 = red
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey
Tf: Thermal fuse (see “Technical data”)

Wiring diagram BF230-T



Wiring diagram BF24-T



	Technical data:	BFN230-T
Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 198...264 V
	Power consumption in operation	5 W
	Power consumption in rest position	2.1 W
	Power consumption for wire sizing	10 VA
	Power consumption for wire sizing note	Imax 4 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V
	Switching points auxiliary switch	5° / 80°
	Connection supply / control	Cable 1 m, 2 x 0.75 mm² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm² (halogen-free)
	Cable length thermoelectric tripping device	1 m
Functional data	Torque motor	Min. 9 Nm
	Torque spring return	Min. 7 Nm
	Direction of rotation motor	Can be selected by mounting L/R
	Manual override	With position stop
	Angle of rotation	Max. 95°
	Running time motor	<60 s / 90°
	Running time spring-return	20 s @ -10...55°C / <60 s @ -30...-10°C
	Sound power level motor	<55 dB(A)
	Sound power level spring-return	<67 dB(A)
	Spindle driver	Form fit 12x12 mm, Continuous hollow shaft
	Position indication	Mechanically, with pointer
	Service life	Min. 60,000 safety positions
Safety	Response temperature thermal fuse	Duct outside temperature 72°C Duct inside temperature 72°C
	Protection class IEC/EN	II Protective insulated
	Protection class auxiliary switch IEC/EN	II Protective insulated
	Degree of protection IEC/EN	IP54 in all mounting positions
	EMC	CE according to 2014/30/EU
	Low voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	4 kV
	Control pollution degree	3
	Ambient temperature normal operation	-30...55°C
	Ambient temperature safety operation	The safety position will be attained up to max. 75°C
	Non-operating temperature	-40...55°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight	1.5 kg

	Technical data:	BFN24-T
Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	4 W
	Power consumption in rest position	1.4 W
	Power consumption for wire sizing	6 VA
	Power consumption for wire sizing note	Imax 8.3 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V
	Switching points auxiliary switch	5° / 80°
	Connection supply / control	Cable 1 m, 2 x 0.75 mm² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm² (halogen-free)
	Cable length thermoelectric tripping device	1 m
Functional data	Torque motor	Min. 9 Nm
	Torque spring return	Min. 7 Nm
	Direction of rotation motor	Can be selected by mounting L/R
	Manual override	With position stop
	Angle of rotation	Max. 95°
	Running time motor	<60 s / 90°
	Running time spring-return	20 s @ -10...55°C / <60 s @ -30...-10°C
	Sound power level motor	<55 dB(A)
	Sound power level spring-return	<67 dB(A)
	Spindle driver	Form fit 12x12 mm, Continuous hollow shaft
	Position indication	Mechanically, with pointer
	Service life	Min. 60,000 safety positions
Safety	Response temperature thermal fuse	Duct outside temperature 72°C Duct inside temperature 72°C
	Protection class IEC/EN	III Safety extra-low voltage
	Protection class auxiliary switch IEC/EN	II Protective insulated
	Degree of protection IEC/EN	IP54 in all mounting positions
	EMC	CE according to 2014/30/EU
	Low voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	3
	Ambient temperature normal operation	-30...55°C
	Ambient temperature safety operation	The safety position will be attained up to max. 75°C
	Non-operating temperature	-40...55°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight	1.5 kg

	Technical data:	BF230-T
Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 198 V ... 264 V
	Power consumption in operation	8.5 W
	Power consumption at rest	3 W
	Power consumption for wire sizing	11 VA
	Power consumption for wire sizing note	Imax 0.5 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	Contact gold-plated silver: 1 mA ... 3 (0.5) A, DC 5 V ... AC 250 V (II Totally insulated)
	Switching points auxiliary switch	5° / 80°
	Connection supply	Cable 1 m, 2 x 0.75 mm² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm² (halogen-free)
	Cable length thermoelectric tripping device	1 m
Functional data	Torque motor	Min. 18 Nm
	Torque spring-return	Min. 12 Nm
	Direction of rotation motor	Can be selected by mounting L / R
	Angle of rotation	Max. 95° (incl. 5° initial spring tension)
	Running time motor	<120 s / 90°
	Running time spring-return	16 s (tamb = 20°C)
	Sound power level motor max.	45 dB (A)
	Sound power level spring-return max.	63 dB (A)
	Damper rotation	Form fit 12 mm (10 mm with enclosed adapter)
	Position indication	Mechanically, with pointer
	Service life	Min. 60,000 safety positions
Safety	Response temperature thermal fuse	Tf1: Duct outside temperature 72°C Tf2 and Tf3: Duct inside temperature 72°C
	Protection class IEC/EN	II Totally insulated
	Degree of protection IEC/EN	IP54 in all mounting positions
	EMC	CE according to 2014/30/EU
	Low-voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	Certified according to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	4 kV
	Control pollution degree	3
	Ambient temperature normal duty	-30°C ... 50°C
	Ambient temperature safety duty	The safety position will be attained up to max. 75°C when triggered by a thermal fuse
	Non-operating temperature	-40°C ... 50°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	3.1 kg

	Technical data:	BF24-T
Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2 V ... 28.8 V / DC 21.6 V ... 28.8 V
	Power consumption in operation	7 W
	Power consumption at rest	2 W
	Power consumption for wire sizing	10 VA
	Power consumption for wire sizing note	Imax 8.3 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	Contact gold-plated silver: 1 mA ... 6 (3) A, DC 5 V ... AC 250 V (II Totally insulated)
	Switching points auxiliary switch	5° / 80°
	Connection supply	Cable 1 m, 2 x 0.75 mm² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm² (halogen-free)
	Cable length thermoelectric tripping device	1 m
Functional data	Torque motor	Min. 18 Nm
	Torque spring-return	Min. 12 Nm
	Direction of rotation motor	Can be selected by mounting L / R
	Angle of Rotation	max. 95° (incl. 5° initial spring tension)
	Running time motor	<120 s / 90°
	Running time spring-return	16 s (tamb =20°C)
	Sound power level motor max.	45 dB (A)
	Sound power level spring-return max.	63 dB (A)
	Damper rotation	Form fit 12 mm (10 mm with enclosed adapter)
	Position indication	Mechanically, with pointer
	Service life	Min. 60,000 safety positions
Safety	Response temperature thermal fuse	Tf1: Duct outside temperature 72°C Tf2 and Tf3: Duct inside temperature 72°C
	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54 in all mounting positions
	EMC	CE according to 2014/30/EU
	Low-voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	Certified according to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	3
	Ambient temperature normal duty	-30°C ... 50°C
	Ambient temperature safety duty	The safety position will be attained up to max. 75°C
	Non-operating temperature	-40°C ... 50°C
	Ambient humidity range	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	2.8 kg

6. ACCESSORIES FOR WKP DAMPERS

WKP-O dampers can be used as transfer dampers with use of KST type grilles with horizontal or vertical lamellas or with use of MKW flat or convex honeycomb mesh cover.
Both products are used to prevent the damper from colliding with unwanted objects, covering sensitive moving parts.
Application, structure and parameters of the KST grilles are described in the documentation on the website: https://www.smay.pl/pl/product/kratki-wentylacyjne-transferowe-kst/

MKW mesh covers have openings similar to a honeycomb. There are two types of mesh cover (honeycomb mesh cover):

a. MKW-B – short (flat) installed in wall on the side of thermal fuse
b. MKW-D – tall (convex), installed in wall on the side of the protruding thermal fuse.

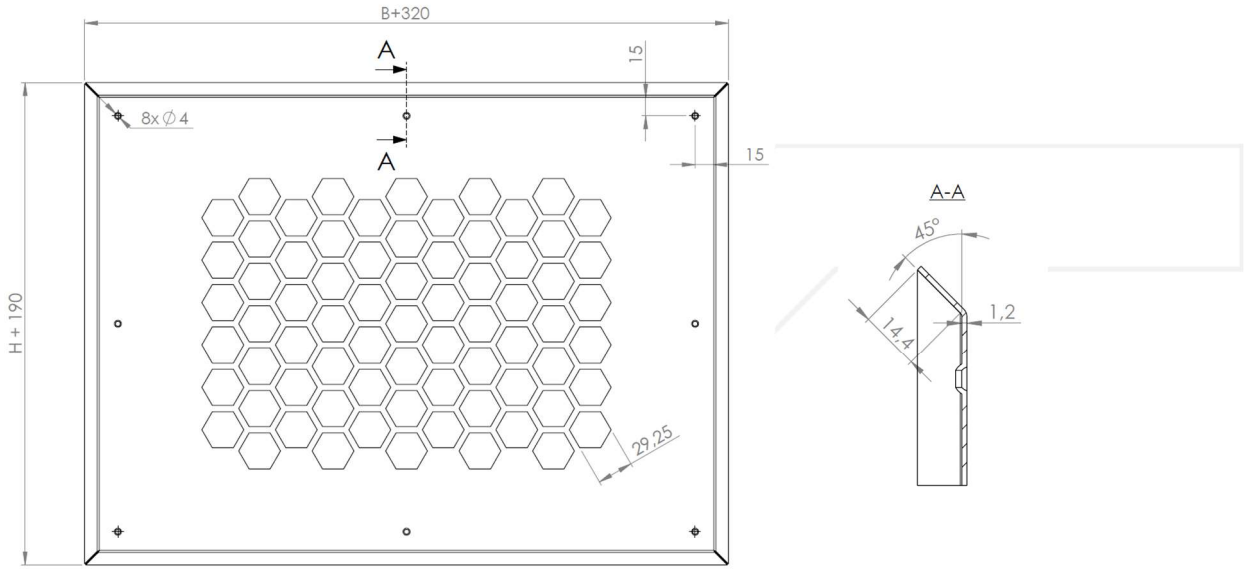


Figure 3. MKW-B (flat) honeycomb mesh cover

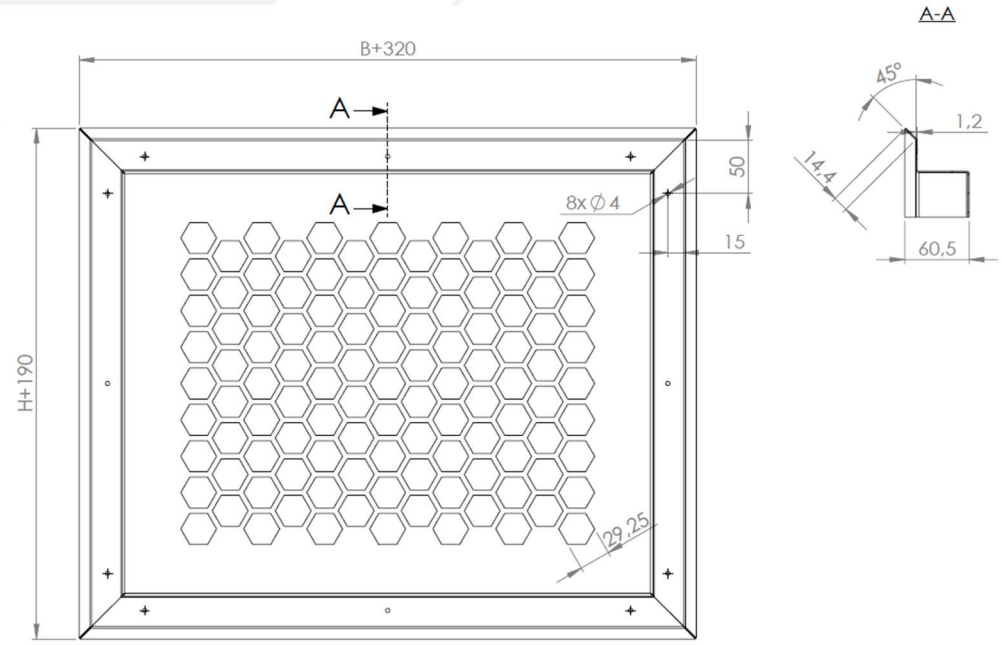


Figure 4. MKW-D (convex) honeycomb mesh cover

The honeycomb mesh cover are made in the following series of types according to their width*

B of the damper	B of the mesh cover
200-250	570
251-300	620
301-350	670
351-400	720
401-450	770
451-500	820
501-550	870
551-600	920
601-650	970
651-700	1020

B of the damper	B of the mesh cover
701-750	1070
751-800	1120
801-850	1170
851-900	1220
901-950	1270
951-1000	1320
1001-1050	1370
1051-1100	1420
1101-1150	1470
1151-1200	1520

* In a special version, the honeycomb mesh cover can be made with dimensions different from the typical ones.

7. CONDITIONS OF TRANSPORT AND STORAGE

WKP-O should be stored in cardboard boxes and/or on pallets. WKP-O should have a pre-protected actuator cardboard box. Fire dampers should be stored indoors, providing protection against atmospheric agents, at a minimum temperature of +5°C.
Do not allow mechanical damage of damper, that may be caused e.g. blows or dropping.
During the transport the dampers should be package in cardboard, and/or put on a pallets and should be secured before relocating, and against weather conditions. Be especially careful particularly with the WKP-O-E-T type dampers. After each transport, visual inspection of each fire damper must be carried out.

8. INSTALLATION TECHNOLOGY

Before installing the fire dampers, make sure that there are no damage, during transport or storage, that could block the baffle.
Check that the baffle can be opened and closed (full opening and closing position). To open fire dampers WKP-O use the actuator key.
The opening and closing must proceed smoothly (not stepwise).
Do not pull by baffle to open or close fire damper, it may cause permanent damage, not covered by the warranty.
Before installation verify dimensions of the gap between bottom blade and inside part of the housing under the blade, and between top blade and inside part of housing above blade. The dimension of the gap cannot be lower than 4 mm.
Before installing, secure the fire damper, by dust and dirt, using a foil or other screening material. It can prevent components of fire damper by damage.
Dampers to preserve of the declared resistance, insulation and smoke leakage EIS120, EIS90, should be installed on wall, which was classified as EIS120, EIS90.
It is allowed to install WKP-O dampers in wall with other fire-resistance, should be remembered that fire-resistance in this situation is resistance of lowest classified (in this regard) element in this system.
Ducts made of flammable and non-flammable materials can be connected to the damper. Ducts should be installed that they cannot load the damper during fire. Ducts lengthening during fire can be compensated by support and knee.
ATTENTION: Distance between fire dampers or fire damper and construction elements must be compatible with standard 1366-2:

a. Minimal 200 mm between fire damper, which are installed in different ventilating wires, and between flaps and openings in the building partition;
b. Minimal 75 mm between fire damper and construction element (wall/ceiling).

8.1. INSTALLATION TECHNOLOGY – RIGID WALL

a. Make an opening in the wall 230 [mm] (acceptable 210 ÷ 250 [mm]) greater than the dimension B and 100 [mm] (acceptable 80 ÷ 120 [mm]) greater than the dimension H, that is B+230 and H+100.
b. For the dampers which have height H=200 mm and H=300 mm installation opening should have height H+160 [mm] (acceptable 140÷180 [mm]).
c. Put the closed fire damper into the installation opening and support or suspend, in this way that the axis of the fire damper baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening. The damper should be protected against possible undesirable stresses, which could lead to deflection of the housing, e.g. by using assembly struts.
d. After setting the fire damper as described, fill the gap between the fire damper and the wall with cement, cement-lime mortar or concrete.
e. After drying of the mortar (approx. 48 hours), remove used supports or suspensions, check the fire damper correct operation and leave it in fully open position.

In order to avoid filling the holes above and below the actuator housing, the opening for the WKP damper can be made as shown in the figure below.

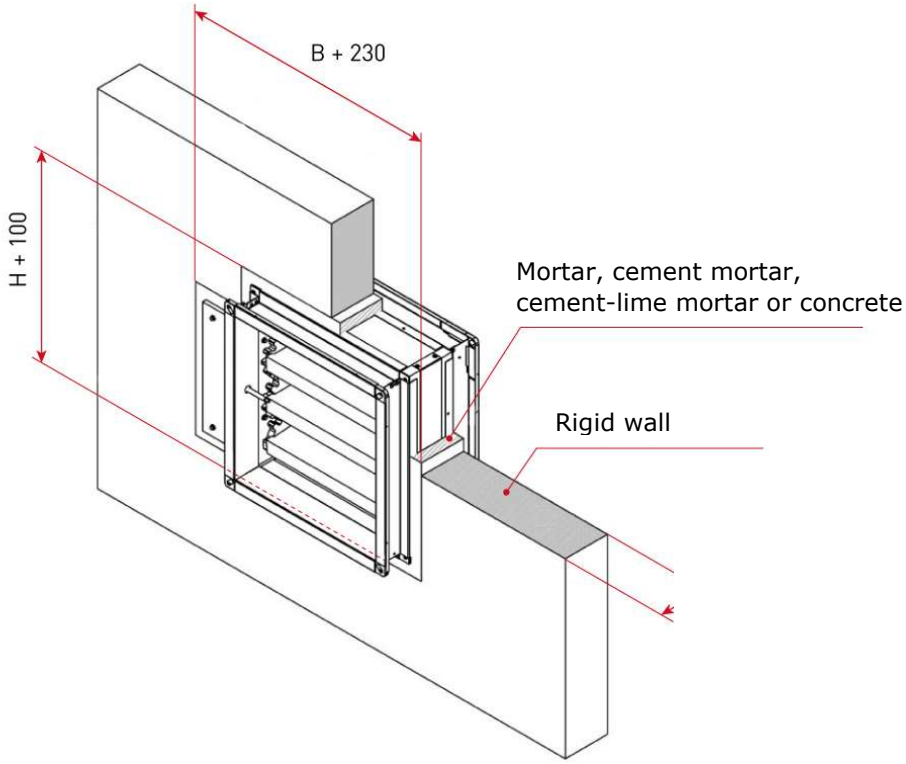


Figure 5. Dimensions of the installation opening of the WKP-O dampers in rigid wall with a horizontal and with vertical axis of rotation of the baffle, with planned cut for actuator housing. The C dimension is given in the table.

H	C
200	0
300	100
400	100
500	200
600	200
700	300
800	300

H – nominal height of the damper

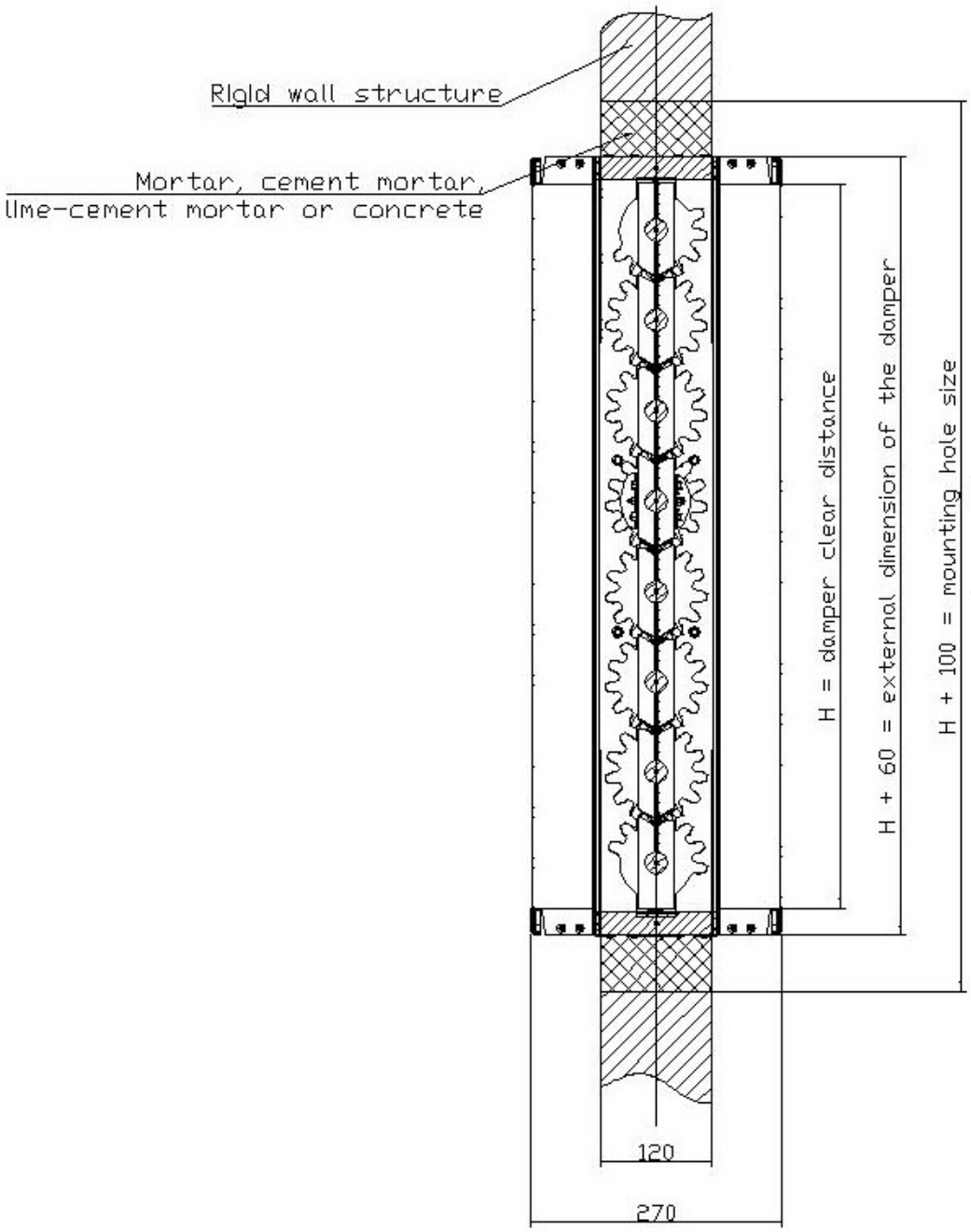


Figure 6. Installing method of WKP-O fire dampers in rigid wall.

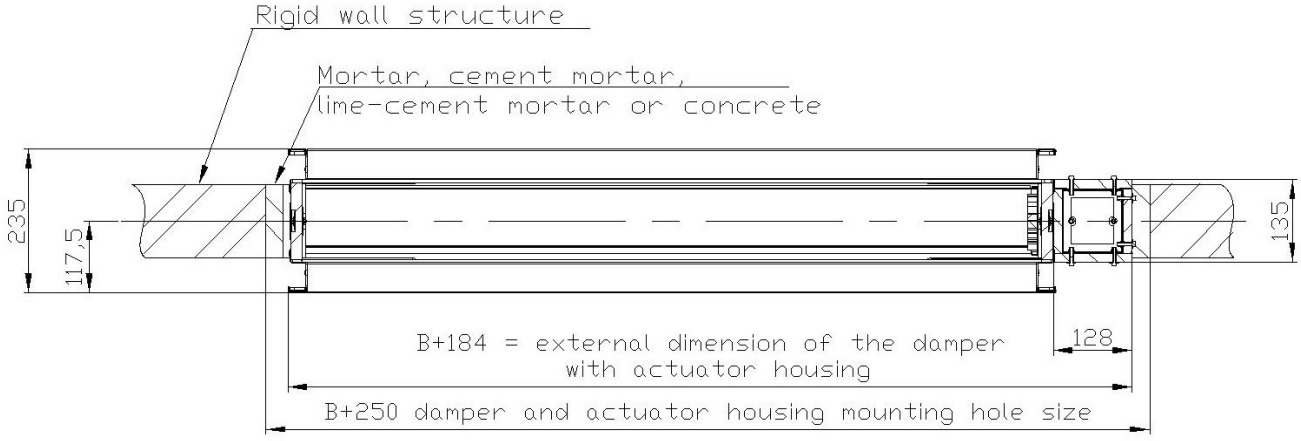


Figure 7. Installing method of WKP-O fire dampers in rigid wall

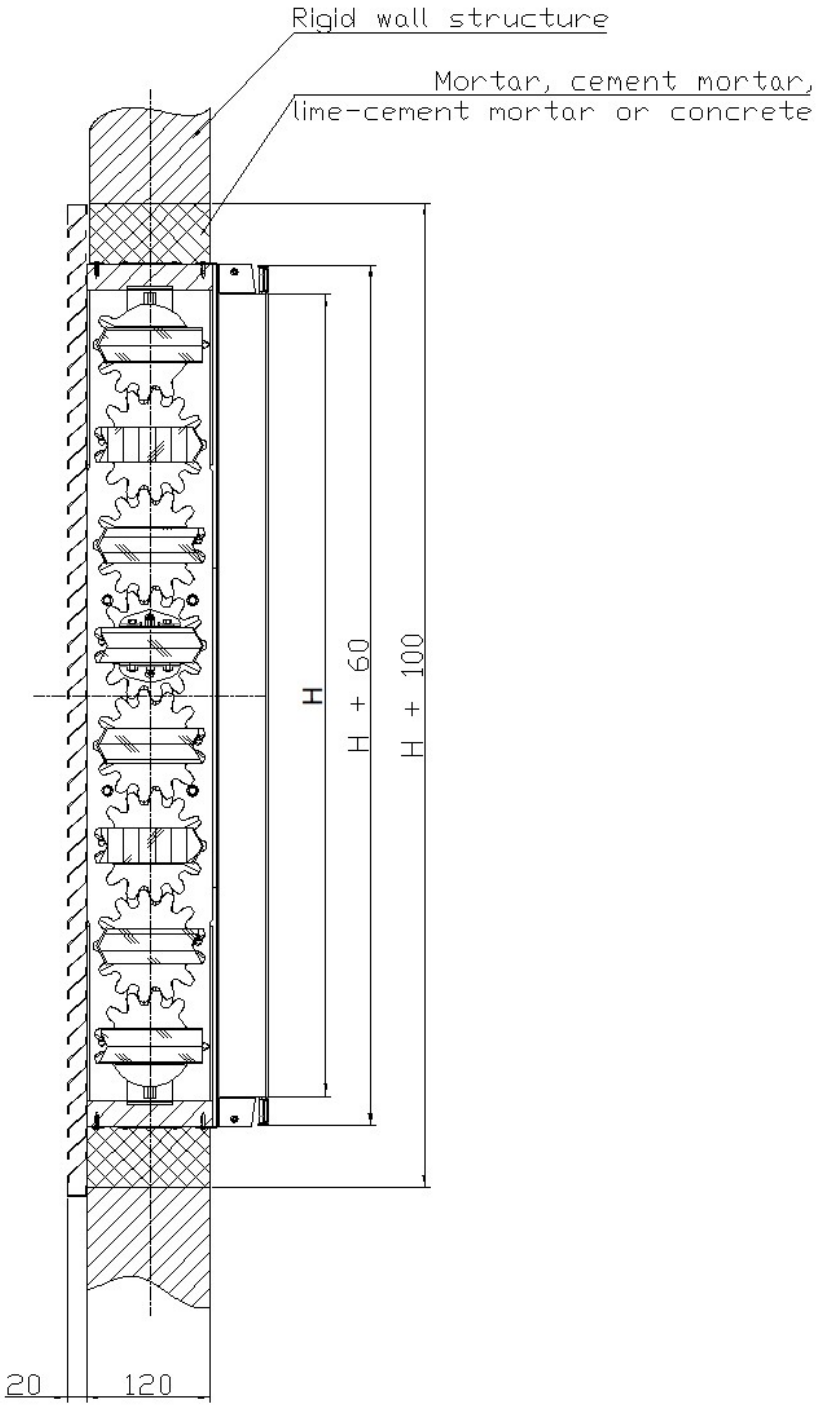


Figure 8. Installing method of WKP-O fire dampers in rigid wall with KST grille in rigid wall structure.

8.1.1. PROMADUCT CHANNEL

After setting the fire damper as described, and build it in wall, duct made of PROMATECT-L500 boards with 50 mm thickness must be installed. The band around the duct must be made by PROMATECT-L500, with 50 mm thickness and 60 mm width. Connection of damper and the wall, and damper with the band must be made by K84 glue. The sides of the duct and the band must be connected by using 4,2x90 – 4,8x120 screws.

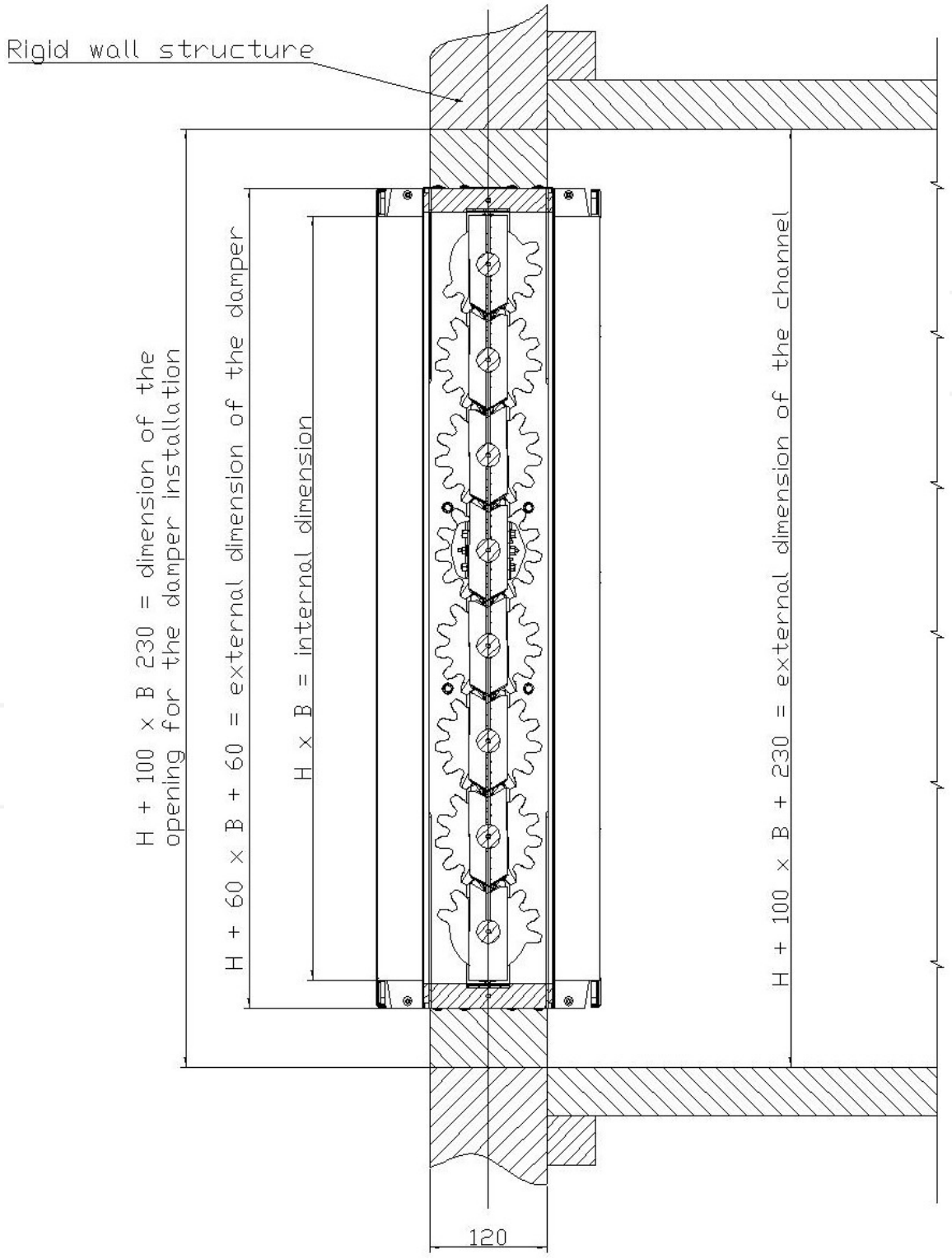


Figure 9. Installing method of WKP-O fire dampers with PROMAT boards duct.

8.2. INSTALLATION TECHNOLOGY – STRUCTURES THICKER THAN 125 mm

In rigid walls, with thickness less than or equal to 125 mm, WKP-O fire dampers are installed in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.

In case when wall have more than 125 mm thickness: WKP-O fire dampers are installed in this way that the damper border is flush with the wall surface (Fig. 10).

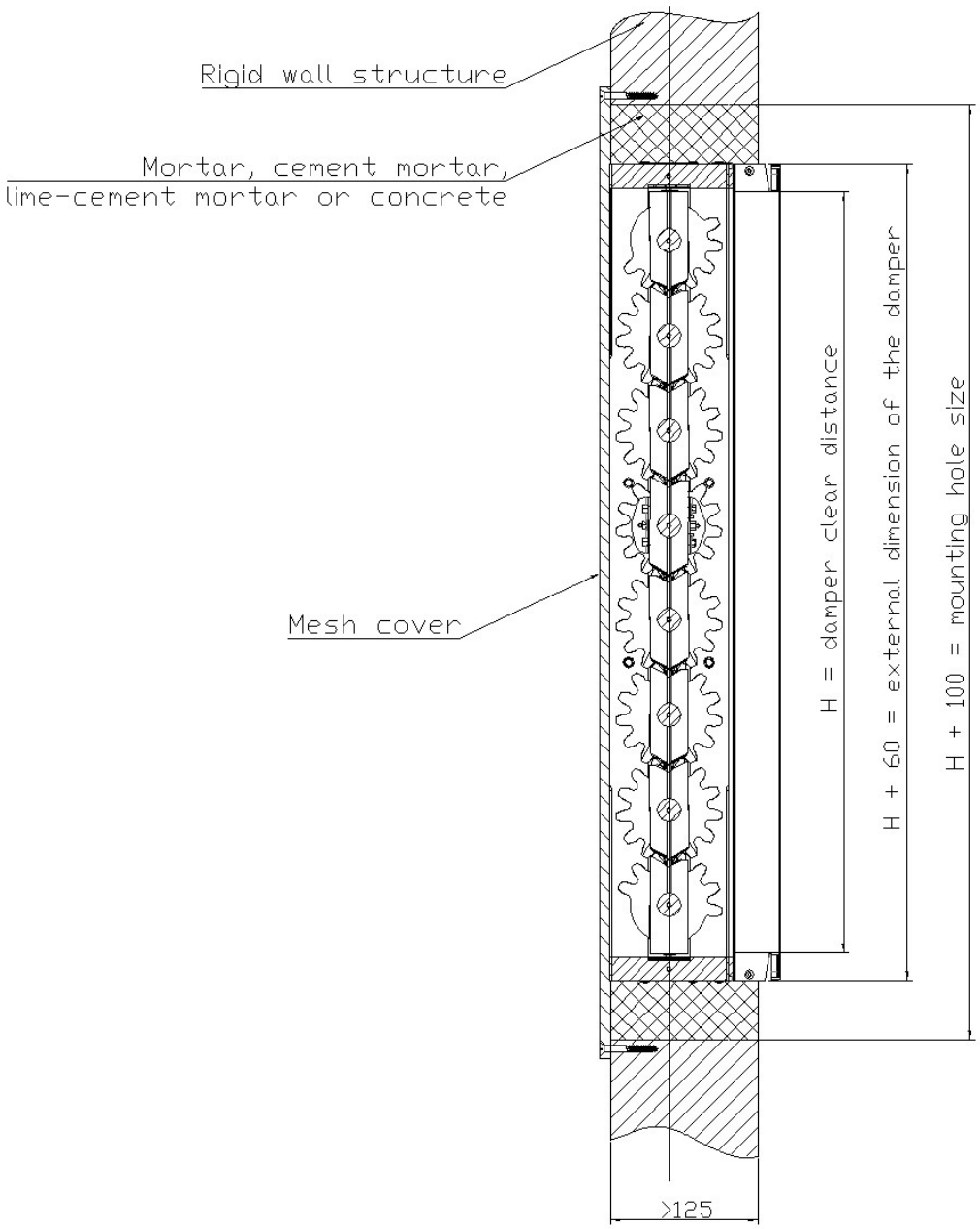


Figure 10. Installation method of fire dampers WKP-O in structures thicker than 125 mm

8.3. INSTALLATION TECHNOLOGY – LIGHT WALL

a. Make an opening in the wall with the dimensions 230 [mm] (acceptable 210 ÷ 250 [mm]) greater than the dimension B and 100 [mm] (acceptable 80 ÷ 120 [mm]) greater than the heigh H, That is B+230 i H+100.
b. For the dampers which have height H=200 mm and H=300 mm installation opening should have height H+160 [mm] (acceptable 140÷180 [mm]).
c. Make a frame of two layers of GKF boards 15 mm thick and the width relative to the width of opening, mounting by screws remembering to carefully seal the contact edges with a mastic: Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.
d. Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire baffle matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.
e. After setting the fire damper as described, fill the gap between the fire damper and the wall with non-flammable mineral wool of high density, 100 kg/m3 or more.
f. Seal the place of filling with mineral wool using the sealing compounds given in pts.2
g. Mount collar, both side of wall, made of GKF boards, 15 mm thick and 150 mm wide, using screws,
h. After mounting the collar, remove the supports or suspensions, check the fire damper correct operation and leave it in open position.

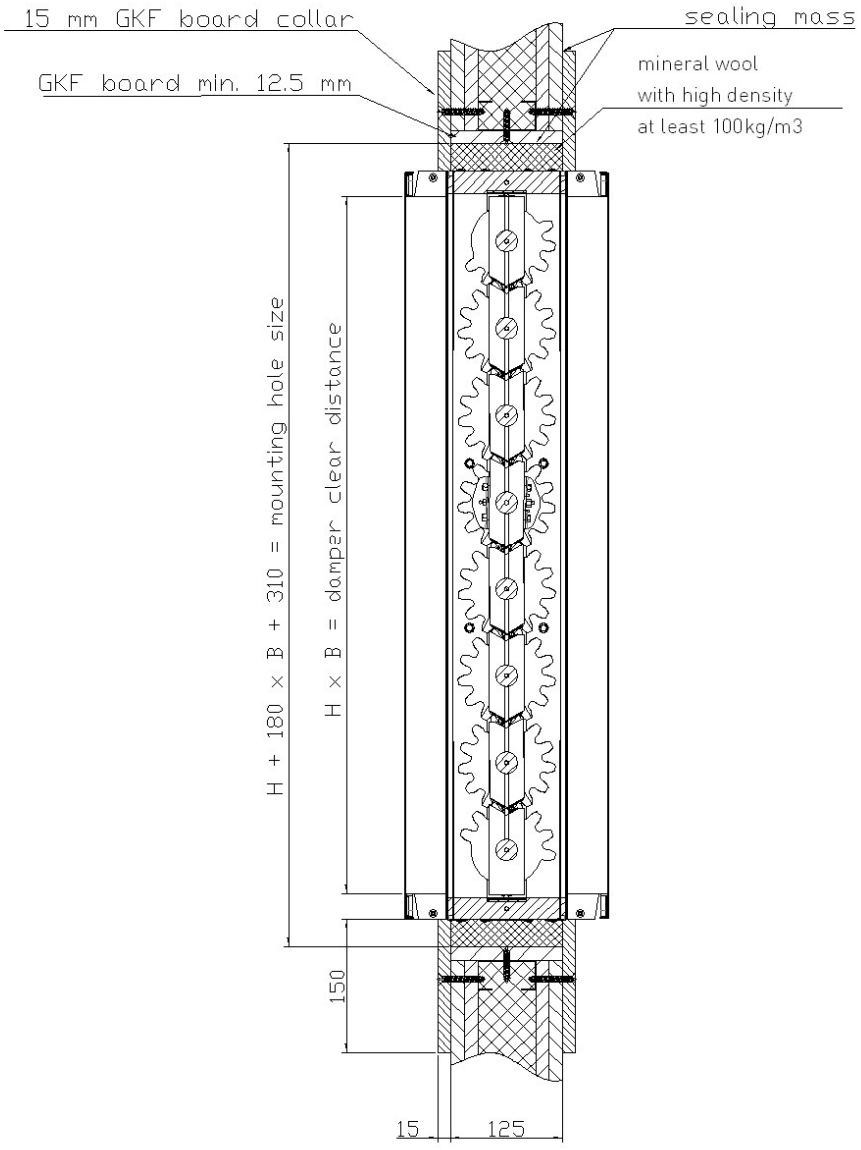


Figure 9. Installation method of fire dampers WKP-O in standard wall with 125 mm thick

Figure 102. Installation method of fire dampers WKP-O in standard wall

8.4. INSTALLATION TECHNOLOGY – MKW HONEYCOMB MESH COVER AND KST GRILLE

a. Before installing honeycomb mesh cover/grille, glue self-adhesive ceramic gasket 5x10 on inner surface of mesh cover/grille along the bend edge around all perimeter.

b. Mount the honeycomb mesh cover to the wall using metal pins for gas-concrete and 5x40 screws.

   Mount the grille to the wall using metal pins for gas-concrete and 3x40 screws.

c. Honeycomb mesh cover/grille install in this way as shown in the figure below. Outer edges of openings on left side of mesh cover and on a top and on a bottom must be in line with inner edges of the damper.

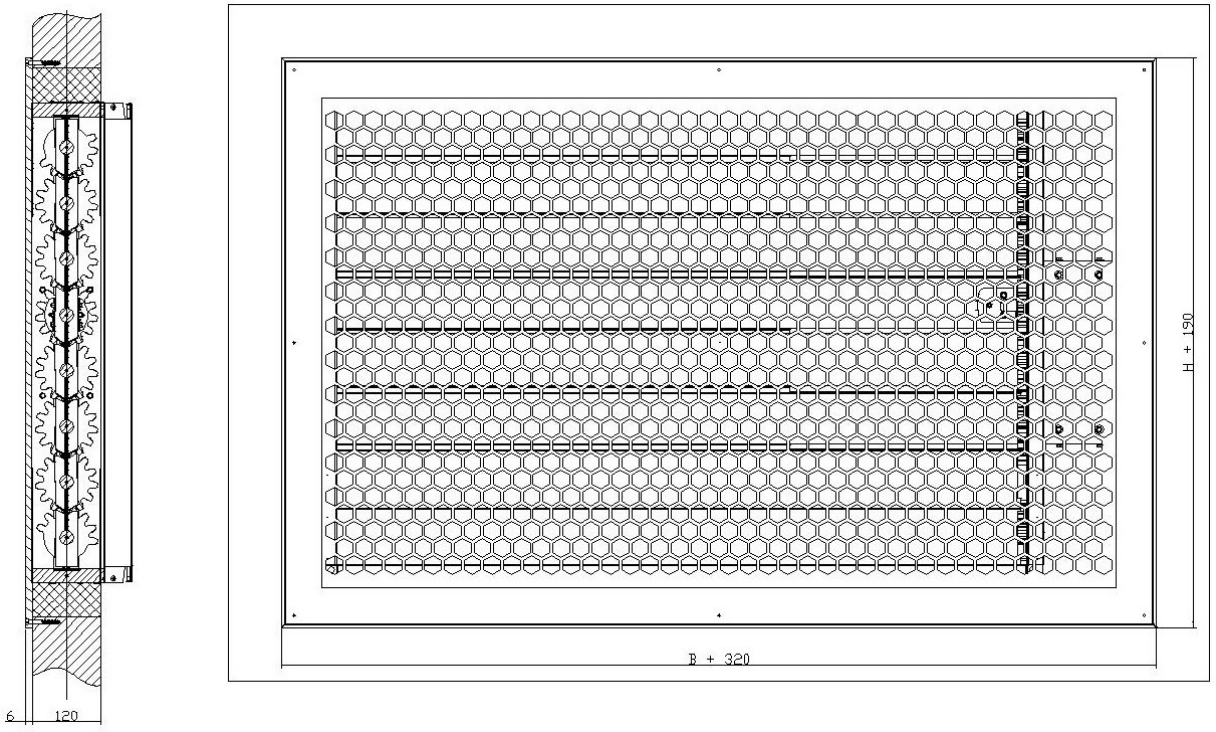


Figure 13. Installation method of MKW-B honeycomb mesh cover

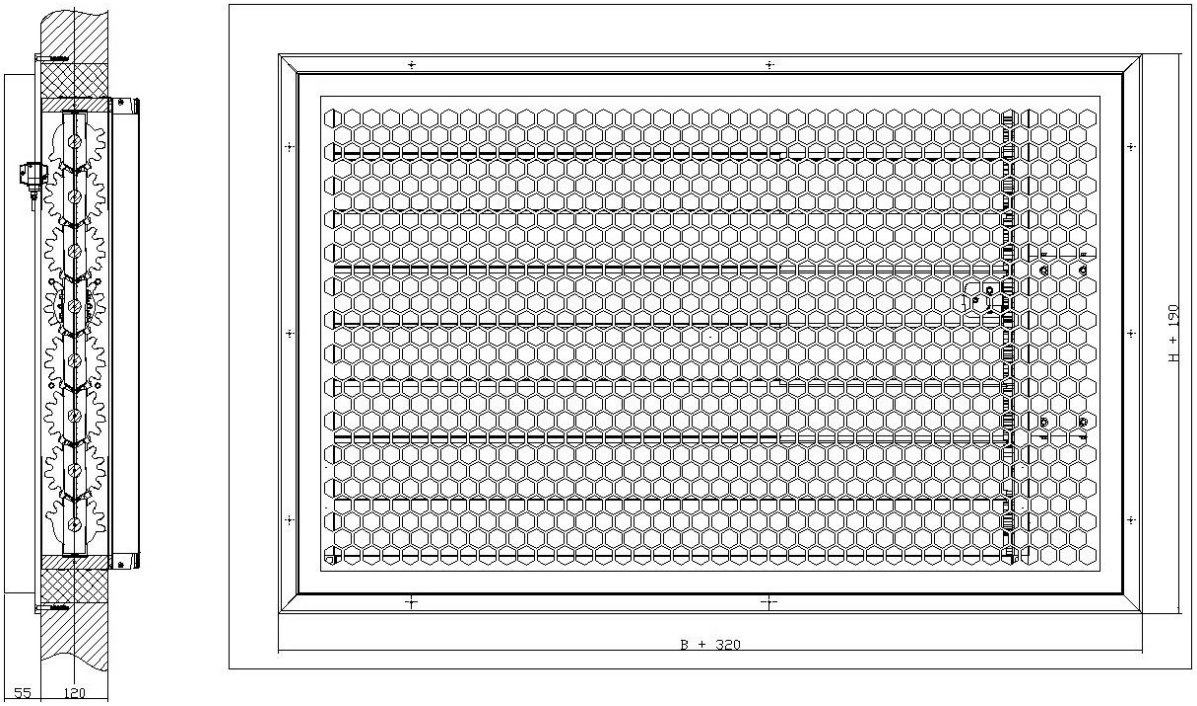


Figure 114. Installation method of MKW-D honeycomb mesh cover

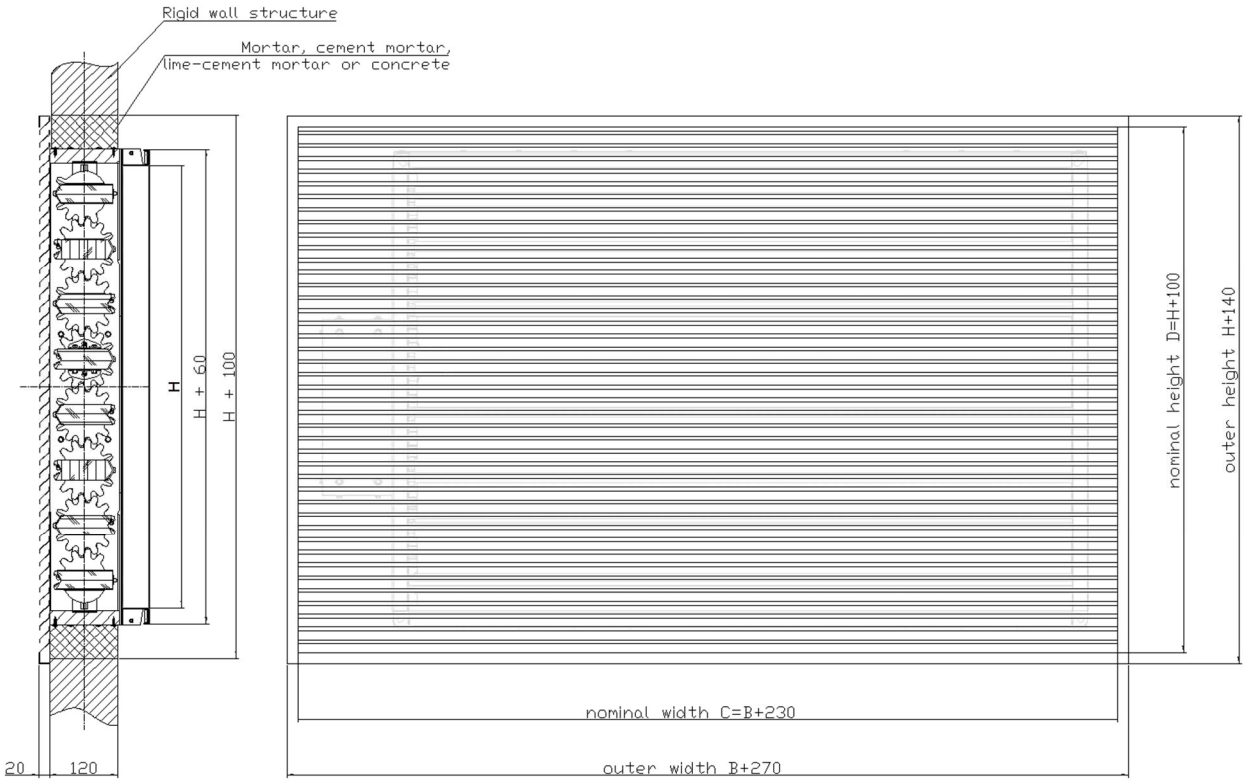


Figure 125. Installation method of KST grille

9. COMMISSIONING

After assembling the device and installation into the control system, before putting the smoke control damper into operation, the following actions should be carried out and recorded:

- verify the correct assembly of the damper according to this Technical Documentation;
- check the correctness of the electrical installation in terms of power supply parameters and quality of execution;
- ensure that the damper has not been mechanically damaged during installation;
- verify the correct opening/closing of the damper, with the opening/closing time being maintained below 60 seconds;
- check the cleanliness of the device and ensure that there are no foreign elements present that could damage the device;
- ensure proper accessibility to the drive mechanism and thermal trigger mechanism - required for service and maintenance purposes;
- check the availability and legibility of labeling stickers.

After the installation of the WKP-O damper, before putting it into operation, a document must be prepared: 'Installation and Commissioning Protocol - Smoke control dampers'. This protocol should be signed by a person holding a current, personalized certificate or certificate issued by Smay Sp. z o. o. authorizing the installation of WKP-O dampers. A copy of this document should be sent electronically to the manufacturer (www.smay.pl → SERVICE AND WARRANTY tab → ADD START-UP PROTOCOL) within 30 days from the commissioning date (date indicated in the Installation and Commissioning Protocol for the WKP-O damper). Failure to comply with this formality will result in the loss of warranty for the device.

Installation and Commissioning Protocol - Smoke control dampers (universal for all dampers in the SMAY offer) is outlined below:

INSTALLATION AND COMMISSIONING PROTOCOL - SMOKE CONTROL DAMPERS	
Data of the company performing the installation and commissioning (seal)	**Device manufacturer**
OBJECT / INSTALLATION LOCATION	**INSTALLATION AND COMMISSIONING EXECUTION**
Object Name: …… …… …… …… …… Object Address:…… …… …… ……	Damper Type: ☐ KTM-O ☐ KTS-O ☐ KWP-O ☐ KWP-P ☐ KWP-Ex ☐ KWP-L ☐ WKP-O ☐ WKP-P ☐ WKZ-O ☐ WKS-P Commissioning Date …… …… ……

SCOPE OF CONTROL AFTER INSTALLATION AND COMMISSIONING

A - Correctness of damper assembly according to the Technical Documentation Record (DTR);
B - Correctness of the electrical installation in terms of power supply parameters and quality of execution;
C - Damper has not been mechanically damaged during installation;
D - Correct opening/closing of the damper, with the opening/closing time being maintained below 60 seconds;
E - Cleanliness of the device, and absence of foreign elements that could lead to device damage;
F - Maintenance of proper accessibility to the drive mechanism and thermal trigger - required for service and maintenance purposes;
G - Availability and legibility of labeling stickers.

N – negative result
P – positive result

DAMPERS				**CHECKLIST OF ACTIVITIES**													
No.	**Identification**	**Type**	**Serial Number**	**A**		**B**		**C**		**D**		**E**		**F**		**G**	
				P	**N**	**P**	**N**	**P**	**N**	**P**	**N**	**P**	**N**	**P**	**N**	**P**	**N**
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Remarks:

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Contractor's Declaration

We confirm the execution of the protocol in accordance with the guidelines and Technical Documentation of the manufacturer and the manufacturer's instructions from the assembly manual.

Control Result: **Positive / Negative**

Recommendations: None / as per the remarks above

Review Contractor		**Authorization Number** (issued by Smay company)	**Signature**	**Client Confirmation:**
1.				
2.				

10. PERIODIC MAINTENANCE AND SERVICING RULES

Before starting any operational and maintenance work, you must familiarize yourself with this documentation. This obligation particularly falls on individuals responsible for operating the device or equipment within the scope of operation, maintenance, and service. In the absence of technical personnel with qualifications specified by the manufacturer, the inspection/maintenance of current devices should be carried out by the SMAY Manufacturer's Service or an Authorized SMAY Service/SMAY Service Partner.
Damage to the WKP-O damper resulting from failure to comply with the guidelines contained in the documentation will not be covered by warranty repairs.

After installing WKP-O smoke control dampers and with the system activated, it is necessary to conduct regular inspections and record them as presented in the Annual Inspection Protocol - Smoke control dampers (included below) **no less frequently than every 12 months or in periods resulting from local legislation. If necessary, inspections should be conducted more frequently.**

The fact of inspecting the technical condition and servicing of the device should be documented by an inspection protocol, the template of which has been included in this documentation.

Failure to implement the above guidelines regarding periodic inspection results in the device not being allowed for further operation. Simultaneously such a device loses the manufacturer's warranty protection in accordance with the OWG

All activities related to the replacement or modification of device components can only be carried out by the SMAY Manufacturer's Service or an Authorized SMAY Service/SMAY Service Partner. Elements that have been factory sealed should have intact original seals applied by the SMAY Manufacturer's Service or an Authorized SMAY Service/SMAY Service Partner.

The WKP-O damper does not require any protective measures other than regular maintenance/technical inspections and proper care, including keeping the damper elements clean. The damper can be cleaned using a dry cloth or brush. Dirt and other contaminants can be removed using commonly available cleaning agents. Do not use aggressive, corrosive, or sharp tools.

Below is a list of recommended periodic inspection activities along with possible faults (universal for all dampers in the SMAY offer).

ANNUAL INSPECTION PROTOCOL - SMOKE CONTROL DAMPERS

Company performing the inspection (seal)	**Device manufacturer**

OBJECT / INSTALLATION LOCATION	**INSPECTION EXECUTION**	
Nazwa obiektu: ……..……..….. ……..……..…… ……..……..…… Adres obiektu: ……..……..…… ……..……..…… ……	Date of execution:	…… …
	Subject of review / Damper type:	☐ KTM-O ☐KTS-O ☐KWP-O ☐ KWP-P ☐ KWP-Ex ☐KWP-L ☐ WKP-O ☐ WKP-P ☐WKZ-O ☐ WKS-P
	Total number of devices:	…… …

SCOPE OF THE REVIEW PERFORMED

	Inspection activities (in accordance with the attachment)	**Status of inspection activities**		
		Performed (Yes/No)	Evaluation (Positive/Negative)	Issue number (Describe below on the page)
1	Visual inspection of dampers			
2	Control of damper actuator			
3	Trigger inspection			
4	Inspection of smoke control damper operation			
5	Leaving dampers in operational position			

A detailed list of devices subjected to inspection is presented in Attachment No. 1: 'List of Devices,' which is an integral part of this inspection protocol.

REMARKS / RECOMMENDATIONS
(enumerate from consecutive numbers)

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Contractor's Statement

We confirm the execution of the inspection in accordance with the guidelines and manufacturer's technical documentation. Based on the aforementioned regulation, we inform about the obligation to perform annual inspections of smoke control dampers as part of the fire protection system.

Result of the inspection:	**Positive / Negative**
Recommendations:	None / as per remarks above

The next inspection should be performed before ……..……..…….. 20…….. r.
(Month)

	Inspection contractor	License number (issued by Smay company)	Signature	Confirmation by the Client:
1.				
2.				

Checklist of activities:			Legend for remarks: Remarks with the symbol (K) denote critical remarks that result in a negative control outcome for the damper.
Visual inspection of the damper	**A.**	Reading data from the nameplate sticker of the damper	**1. (K)** lack of access to the damper for inspection; **2.** absence of a visible nameplate sticker; **3.** illegible data on the sticker;;
	B.	Assessment of the condition of the damper enclosure	**4. (K)** absence or severely damaged enclosure of the damper in the wall; absence or severely damaged fire insulation of the damper installed on the duct; **5.** minor damage to the damper enclosure or suspicion of enclosure not compliant with manufacturer's guidelines;
	C.	Assessment of the condition of the damper casing	**6.** damage to casing, perforation, bending, corrosion;
	D.	Assessment of the condition of the partition and drive transmission	**7. (K)** lack of access to inspect the inside of the damper; **8. (K)** damage to the partition or gears*, cracking, delamination; **9. (K)** damage to the partition bearings or drive transmission mechanisms;
	E.	Assessment of the condition of the swelling seal and ventilation	**10. (K)** damage to the swelling seal, noticeable loss, lack of continuity around the partition; **11.** damage to the ventilation seal, noticeable loss, detachment from the mounting location;
	F.	Assessment of damper cleanliness, cleaning	**12. (K)** severe soiling of damper components impossible to remove;
Control of damper actuator	**G.**	Assessment of manual mechanism*	**13. (K)** damage to manual mechanism (e.g., rotating or loose spring); **14.** lack of indication of damper position status;
	H.	Assessment of the actuator* (compliance of the symbol with the nameplate, warranty seal)	**15. (K)** lack of actuator response to power supply; **16. (K)** actuator spring damage; **17. (K)** actuator symbol not matching the nameplate; **18.** warranty seal broken; **19.** noticeable mechanical damage to actuator; **20.** lack of service access to actuator; **21.** improper manual actuation of the actuator;
	I.	Assessment of damper electrical connection*	**22. (K)** damage to power supply cable; **23.** lack of access to junction box;
Trigger control	**J.**	Inspection of mechanical trigger*	**24. (K)** lack of a fusible link element; 25. (K) non-factory method of holding the damper in the open position; 26. (K) trigger embedded in the wall;
	K.	Inspection of electrical trigger*	**27. (K)** lack of response to pressing the test button on the trigger; 28. (K) unscrewed or improperly mounted trigger; 29. trigger embedded in the wall;
Damper operation control	**L.**	Opening and closing of the damper	**30. (K)** inability to fully transition the partition from closed to open position and vice versa; 31. (K) rubbing of the partition against the enclosure during position change;
	M.	Assessment of maintaining the open position	**32.** lack of damper retention in the open position;
	N.	Assessment of proper closure of the damper	**33. (K)** lack of full closure of the partition;
	O.	Assessment of proper response to control signal from SAP or voltage loss	**34.** lack of or improper response to control signal; **35. (K)** no response to power loss (applies to shut-off dampers); **36. (K)** operation not in accordance with control matrix (applies to fire ventilation dampers); **37.** lack of feedback on damper status to SAP;;
			99. Other

* If they occur in the controlled type of damper

No.	Dampers			Power supply voltage [V]	Visual inspection of the damper (A-F)		Damper actuator check (G-I)		Trigger control check (J-K)		Damper operation check (L-O)		Location	Remarks
	Labeling	Type	Serial number		Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative		
					☐	☐	☐	☐	☐	☐	☐	☐		
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11. CLASSIFICATION OF DAMPERS FOR REPAIR

The authorized service personnel of the manufacturer or trained companies authorized by them are responsible for removing any detected damages during the periodic inspection. In case of malfunction or damage, the user is obliged to notify the manufacturer or an authorized service company.

After each activation of the damper as a result of a fire action at the facility, it is necessary to assess its technical condition, and consequently qualify it for repair or replacement with a new one. The assessment can only be carried out by the manufacturer's service personnel. Repair work or replacement of the damper after activation due to a fire action at the facility is not covered by the warranty.

12. WARRANTY CONDITIONS

The manufacturer provides a warranty for the delivered products, on the terms set forth in the Agreement or the General Warranty Conditions of Smay, Sp. z o.o. The warranty does not cover defects resulting from improper storage, transportation, installation, and commissioning, operation, periodic maintenance, service, especially mechanical damage and damage to anti-corrosive coatings.

The manufacturer is exempt from warranty obligations if the user introduces structural changes independently, installs the product by the purchaser contrary to the Installation Instructions and Technical Conditions of Sale (DTR), exceeds the declared durability of the damper, defects due to improper periodic maintenance, and when there is permanent removal of the product nameplate or lack of legibility and verification of the device type.

The General Warranty Conditions (OWG) and General Sales Conditions (OWS) documents are available on the website www.smay.pl

ATTENTION!

Installation and Commissioning Protocol - Fire Dampers:

- **The protocol should be signed by a person holding a valid, personalized certificate or authorization issued by Smay Sp. z o. o., authorizing the installation of fire dampers.**
- **A copy of this document must be sent to the manufacturer electronically (www.smay.pl → SERVICE AND WARRANTY tab → *ADD COMMISSIONING PROTOCOL*).**
- **A copy of this document must be sent within 30 days from the date of commissioning (date specified in the Installation and Commissioning Protocol - Fire Dampers).**

The template of the Installation and Commissioning Protocol - Fire Dampers is available in the Technical Documentation

ATTENTION!

Annual Inspection Protocol - Fire Dampers:

- **The protocol should be signed by a person holding a valid, personalized certificate or authorization issued by Smay Sp. z o. o., authorizing inspections of fire dampers.**
- **In order to maintain the warranty, the employee conducting inspections of SMAY fire dampers is required, upon completion of such inspection, to submit the Annual Inspection Protocol to the manufacturer electronically (www.smay.pl → SERVICE AND WARRANTY tab → *ADD COMMISSIONING PROTOCOL*)**

The template of the Annual Inspection Protocol - Fire Dampers is located at the end of the Technical Documentation.

ATTENTION!

The templates of forms attached to this Technical Documentation (related to installation, commissioning, inspections) are the intellectual property of Smay sp. z o.o. Copying, duplicating, and using them for purposes other than those specified in this Technical and Operating Documentation is prohibited. To maintain the warranty, it is required to fill them out and deliver them to SMAY sp. z o.o. within 30 days from the date of installation/commissioning and inspection (other forms will not be accepted).