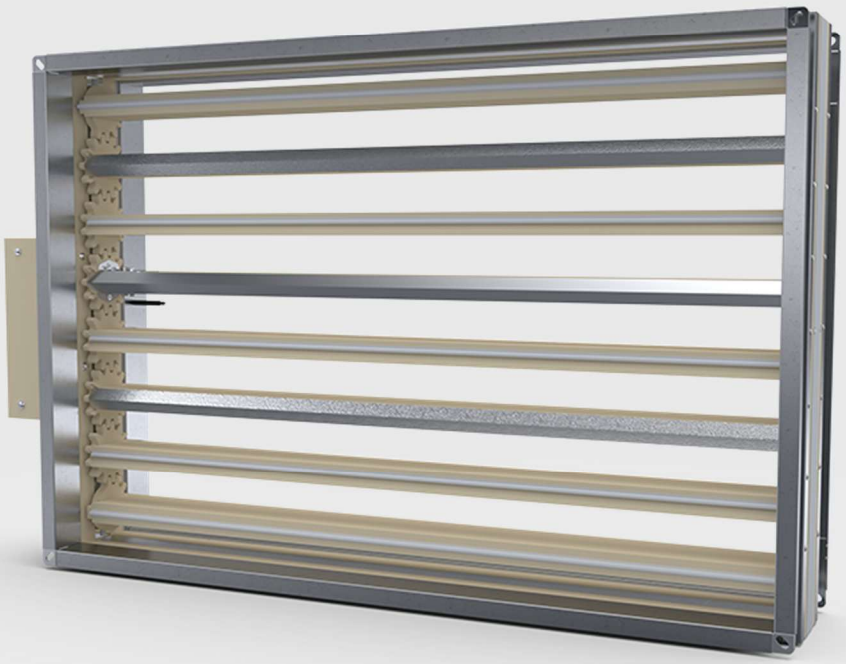
WKP-O

Fire damper - rectangular

Technical Documentation



https: // www.smay.eu

CE **2434**	
SMAY Sp. z o.o. **17** **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 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 6.4

SMAY reserves the right to make changes to this document.

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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 blade, 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 blade 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.

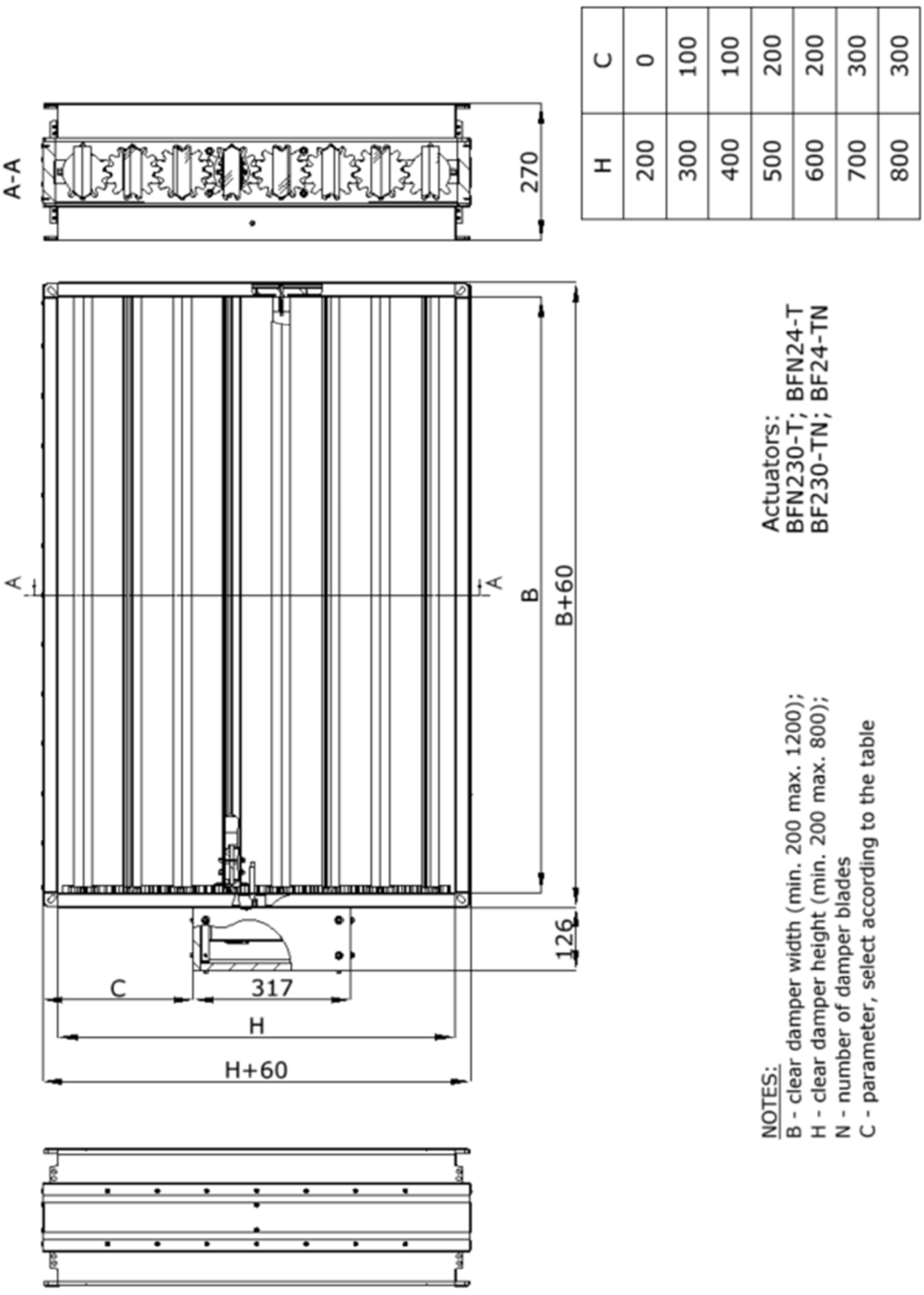
During normal operation of the system, the blades are in the open position. The permissible air velocity for the WKP-O damper in a B x H connection duct is 12 m/s.

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).

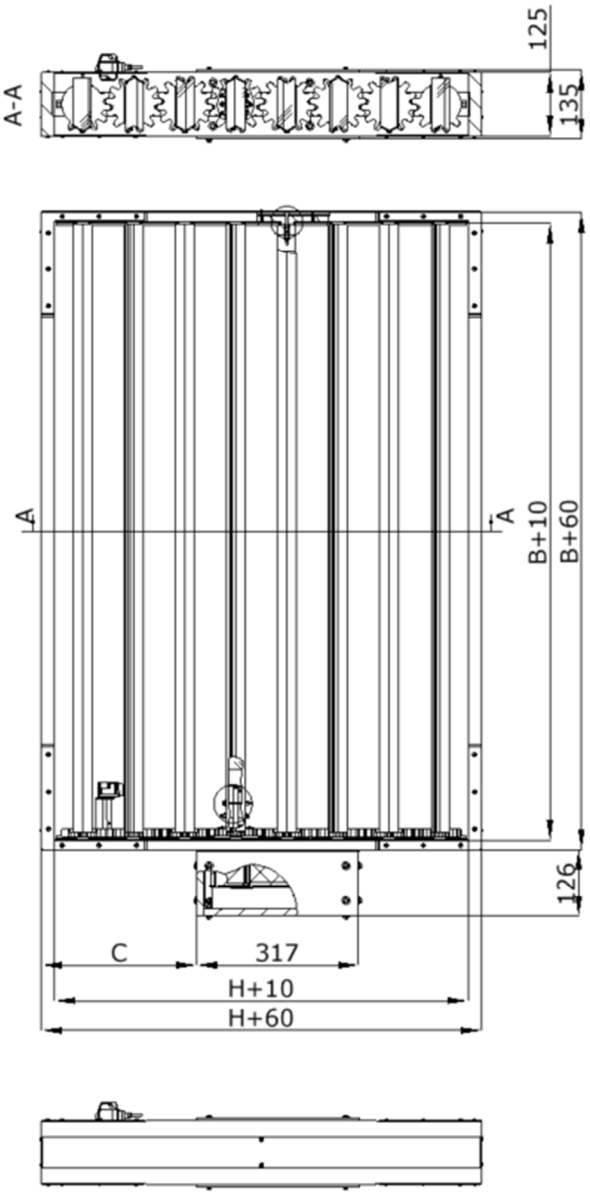
Table 1.WKP-O weight [kg]

		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

Figure 1. WKP-O-E-K damper



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

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

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

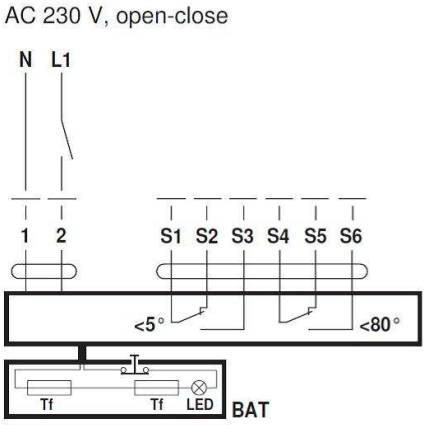
Spring-return 90° actuator BFN series, combined with thermoelectric tripping device BAT:

- BFN230-T,
- BFN24-T,

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

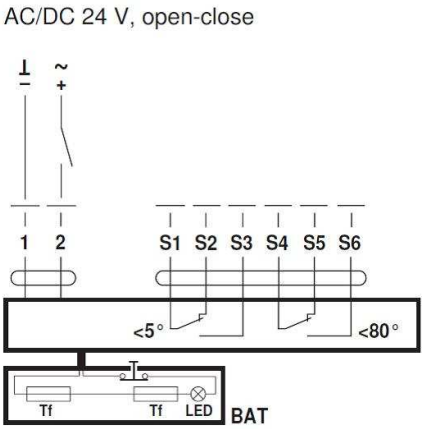
- BF230-TN,
- BF24-TN

Wiring diagram BFN230-T



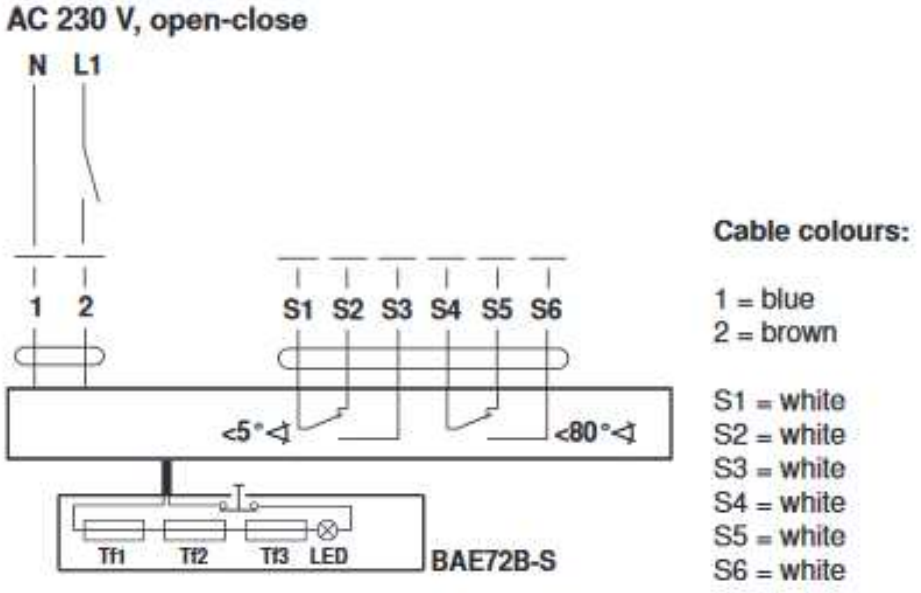
Cable colours:
1 = blue
2 = brown
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey
Tf: Thermal fuse (see "Technical data")

Wiring diagram BFN24-T

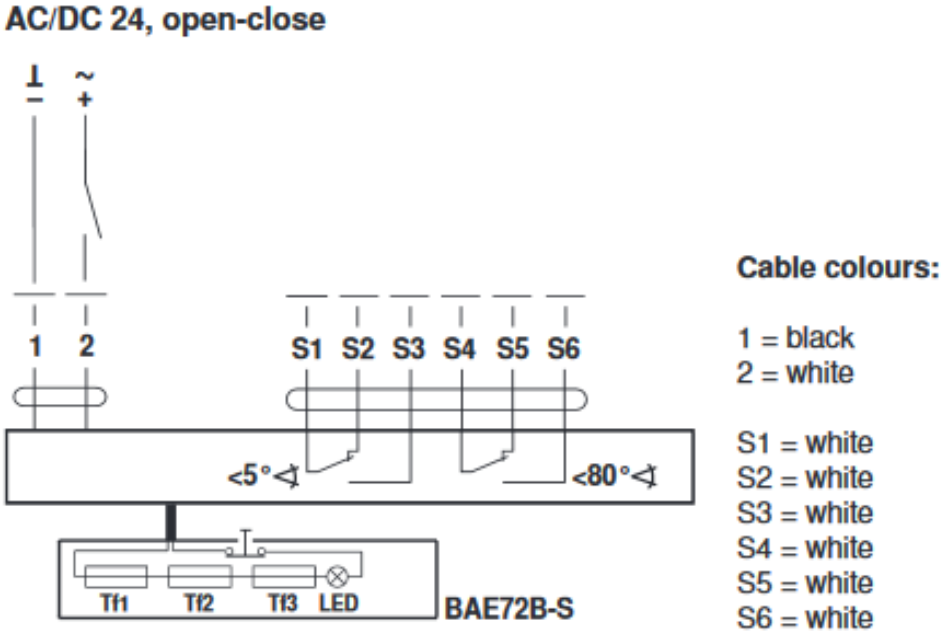


Cable colours:
1 = black
2 = red
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey
Tf: Thermal fuse (see "Technical data")

Wiring diagram BF230-TN



Wiring diagram BF24-TN



	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-TN
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-TN
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-O 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.

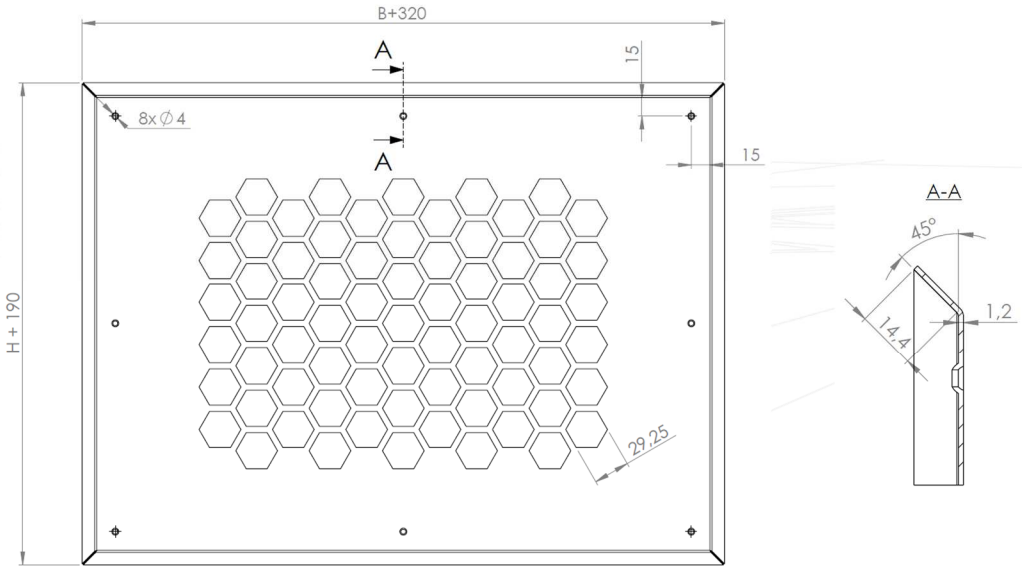


Figure 3. MKW-B (flat) honeycomb mesh cover

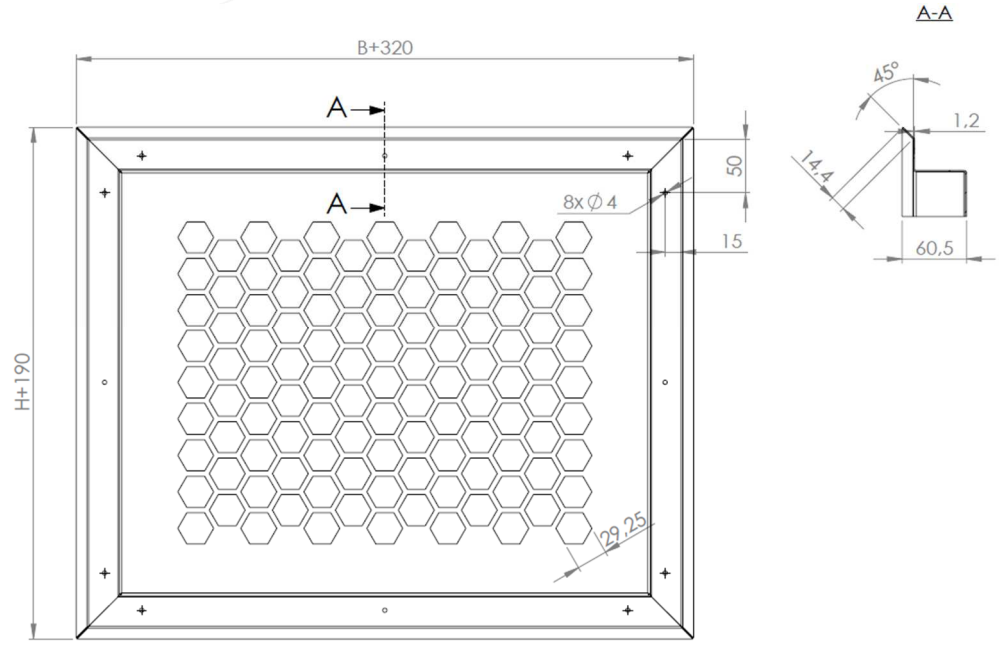


Figure 4. MKW-D (convex) honeycomb mesh cover

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 blade.
Check that the blade 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 blade 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 gap should be even and its size cannot be less 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 dampers, which are installed in different ventilation ducts, and between damper 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. Prepare an installation opening in the wall with the recommended dimensions B+230 mm and H+100 mm. The acceptable range of opening dimensions is B+(210 ÷ 280) mm and H+(80 ÷ 150) mm.
b. For the dampers with height H=200 mm and H=300 mm installation opening should have height of H+160 mm. The acceptable range of openings height is H+(140 ÷ 210) 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 blade 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.

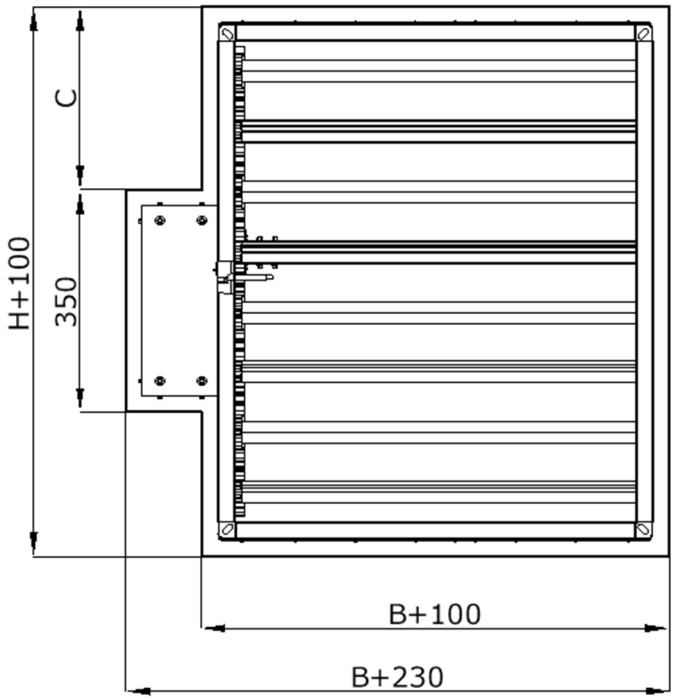


Figure 5. Dimensions of the installation opening of the WKP-O dampers in rigid wall with a horizontal and with vertical axis of rotation of the blade, with planned cut for actuator housing. The C dimension is given in the table

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

H – nominal height of the damper

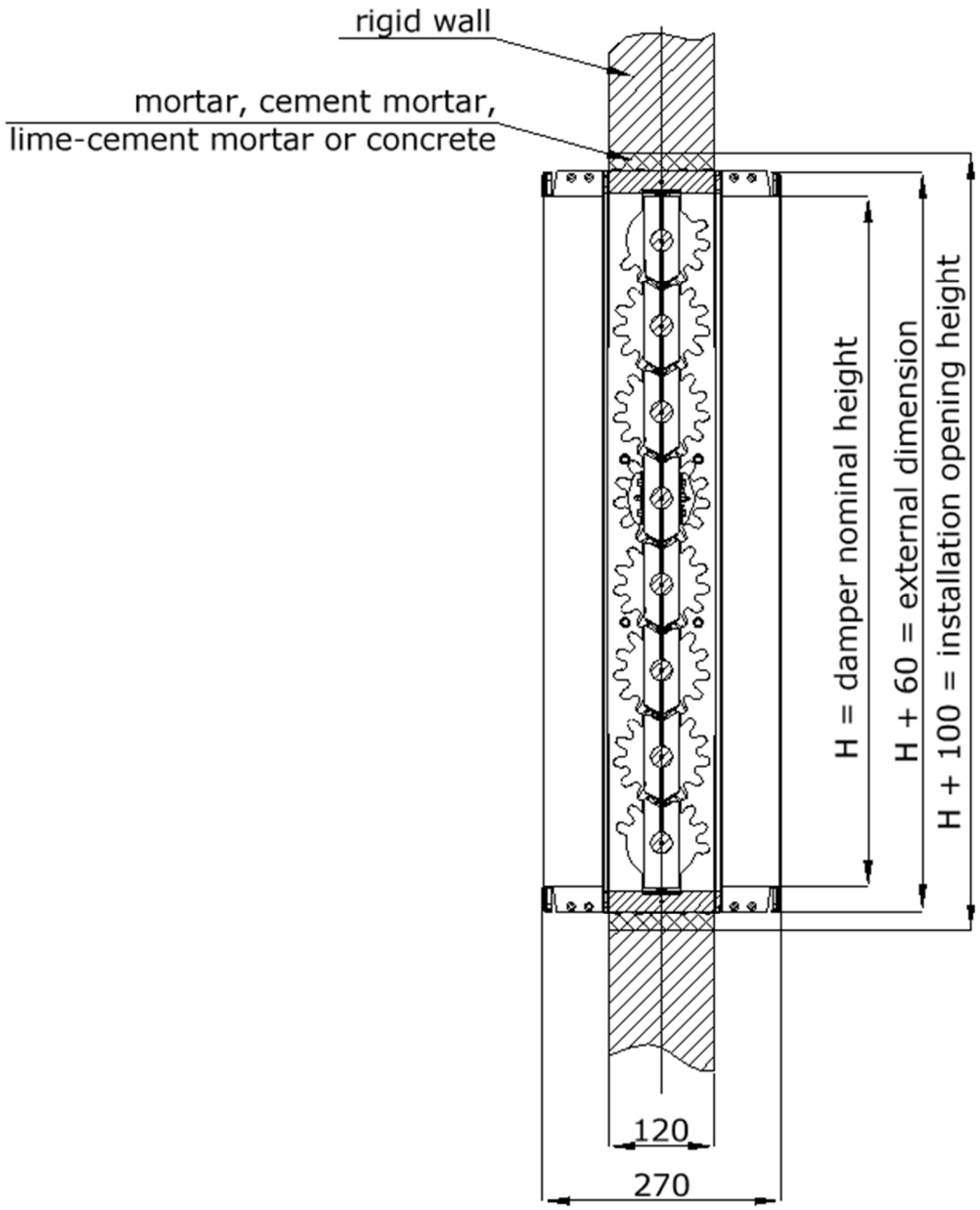


Figure 6. Installing method of WKP-O fire dampers in rigid wall.

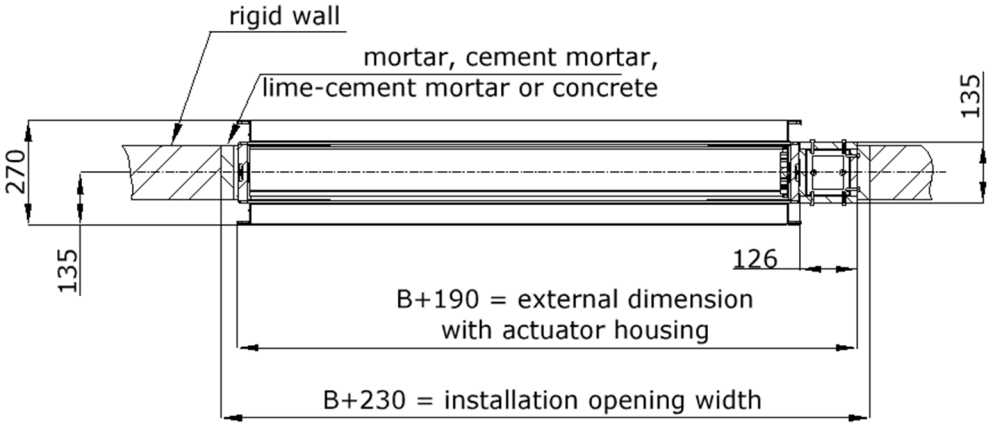


Figure 7. Installing method of WKP-O fire dampers in rigid wall

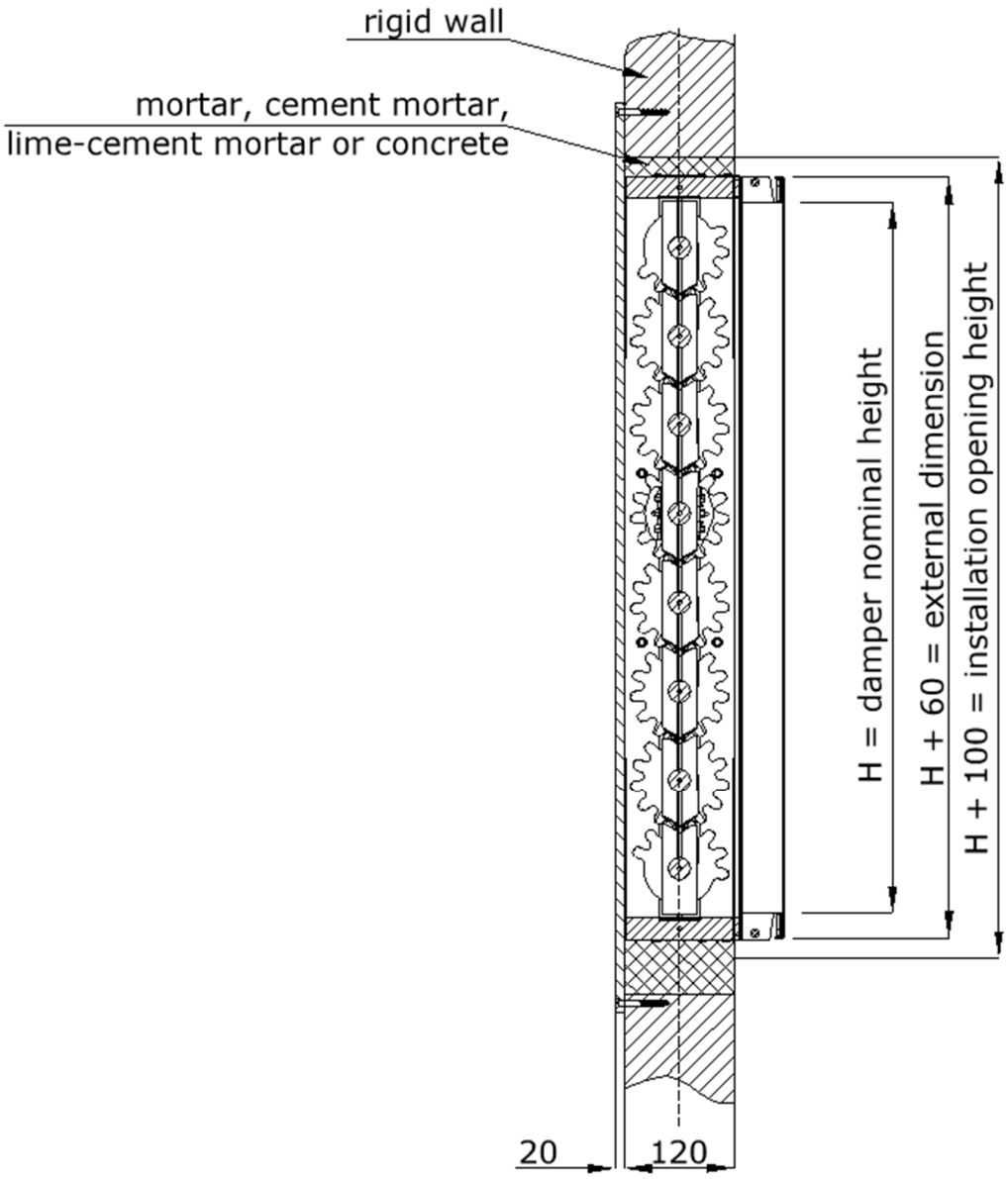


Figure 8. Installing method of WKP-O fire dampers in rigid wall with KST grille in rigid wall structure.

8.2. INSTALLATION TECHNOLOGY – FLEXIBLE WALL

a. Prepare an installation opening in the wall with the recommended dimensions B+230 mm and H+100 mm. The acceptable range of opening dimensions is B+(210 ÷ 350) mm and H+(80 ÷ 220) mm.

b. For the dampers which have height H=200 mm and H=300 mm installation opening should have height H+160 mm. The acceptable range of opening dimensions is H+(140 ÷ 280) mm.

c. In the case of wall construction, a frame should be made of wall profiles with dimensions increased by 25 mm in relation to the target dimensions of the installation opening. In the case of making installation opening in finished walls, their dimensions should also be increased by 25 mm in relation to the target dimensions of the installation opening and then the missing profiles should be supplemented around the perimeter of the obtained opening.

d. Make a frame of GKF boards 12,5 or 15 mm thick and the width relative to the thickness of wall, mounting by screws to wall profiles, remembering to carefully seal the contact edges with a mastic: Hilti Firestop Coating CP 673, Promastop-CC, Promaseal-Mastic or Soudal Firesilicone B1 FR.

e. Put the closed fire damper into the installation opening and support or suspend, in this way that an axis of the fire blade matches the axis of the wall, and ensure a concentricity of fire damper and installation opening.

f. 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.

g. Seal the place of filling with mineral wool using the sealing compounds given in pts.2

h. Mount collar, both side of wall, made of GKF boards, 15 mm thick and 150 mm wide, using screws,

i. After mounting the collar, remove the supports or suspensions, check the fire damper correct operation and leave it in open position.

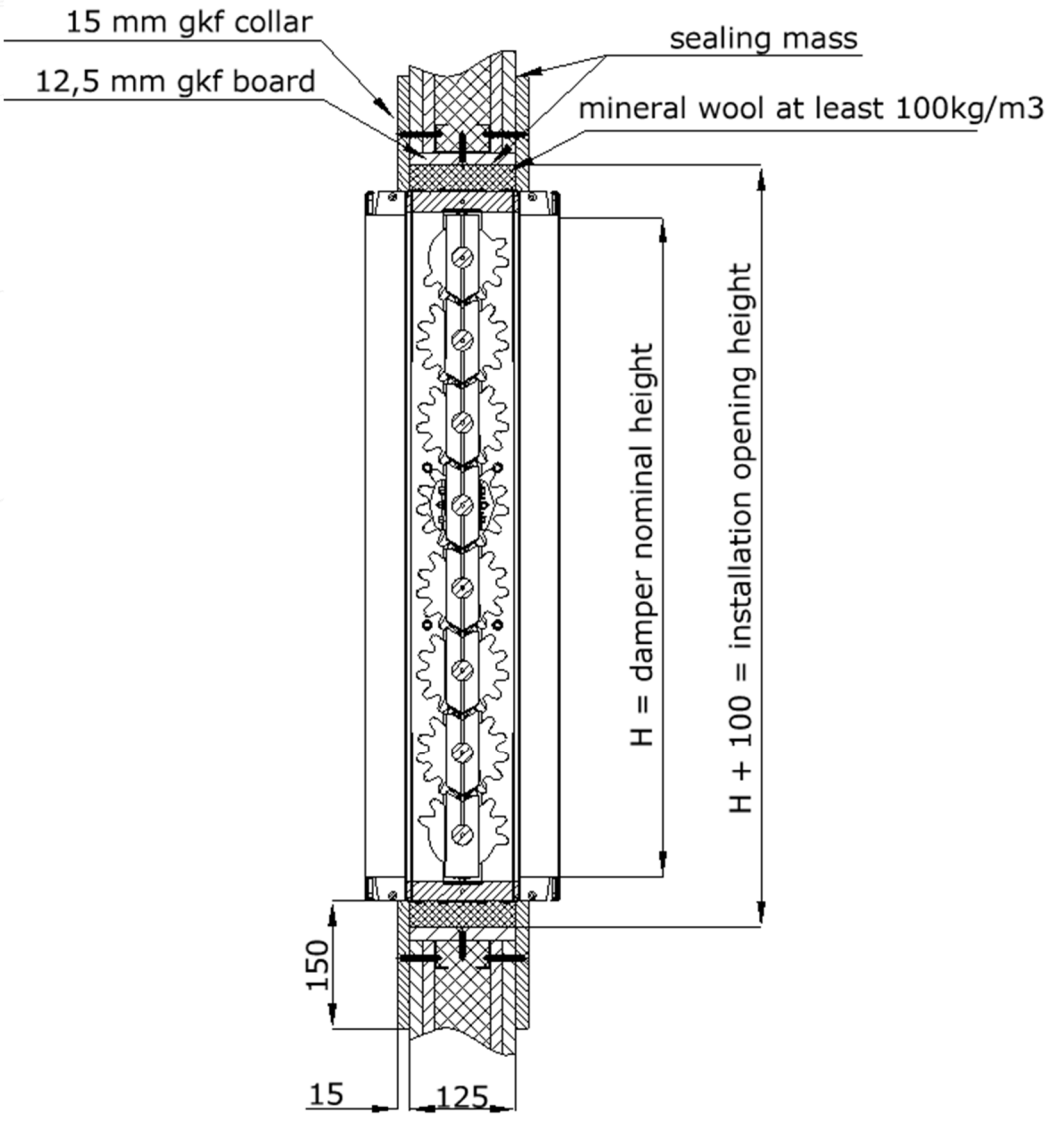


Figure 9. Installation method of fire dampers WKP-O in standard wall with 125 mm thick

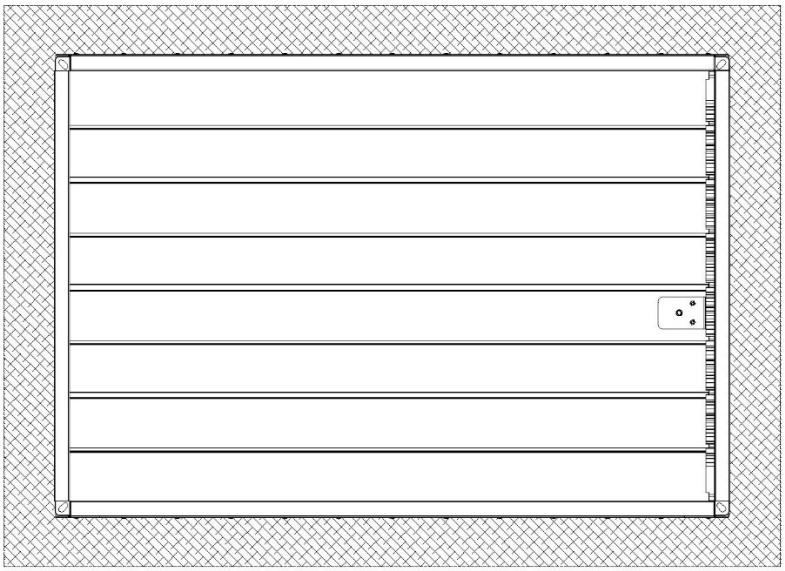


Figure 10. Installation method of fire dampers WKP-O in standard wall

8.3. FIRE RATED DUCT

After setting the fire damper as described, and build it in wall, fire rated duct, for example made of PROMATECT-L500 boards with 50 mm thickness, can be installed if needed. 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.

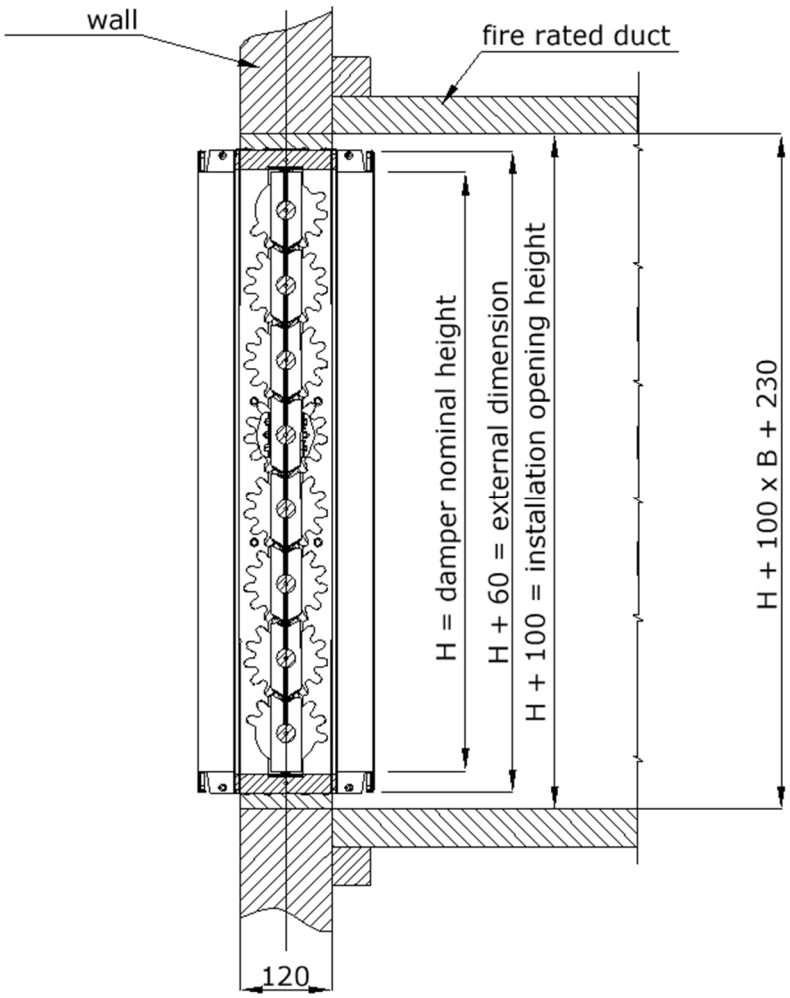


Figure 11. Installing method of WKP-O fire dampers with PROMAT boards duct.

8.4. INSTALLATION TECHNOLOGY – STRUCTURES THICKER THAN 125 mm

In walls with thickness equal to minimum thickness of the building partitions WKP-O fire dampers are installed in this way that an axis of the dampers blade matches the axis of the wall.

In case when wall thickness is grater than minimal WKP-O fire dampers are installed in this way that the damper border is flush with the wall surface (Fig. 12).

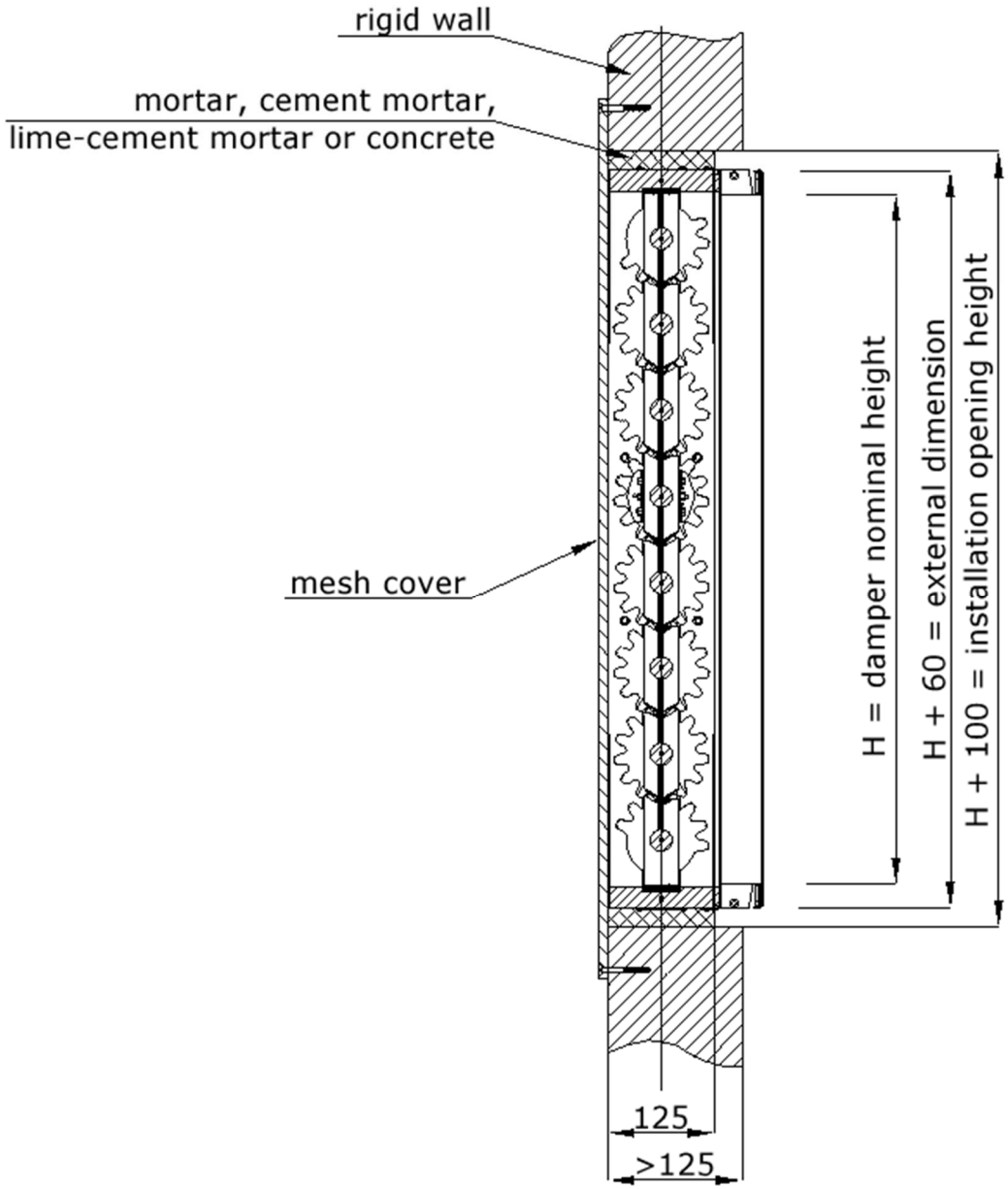


Figure 12. Installation method of fire dampers WKP-O in structures thicker than 125 mm

8.5. 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.

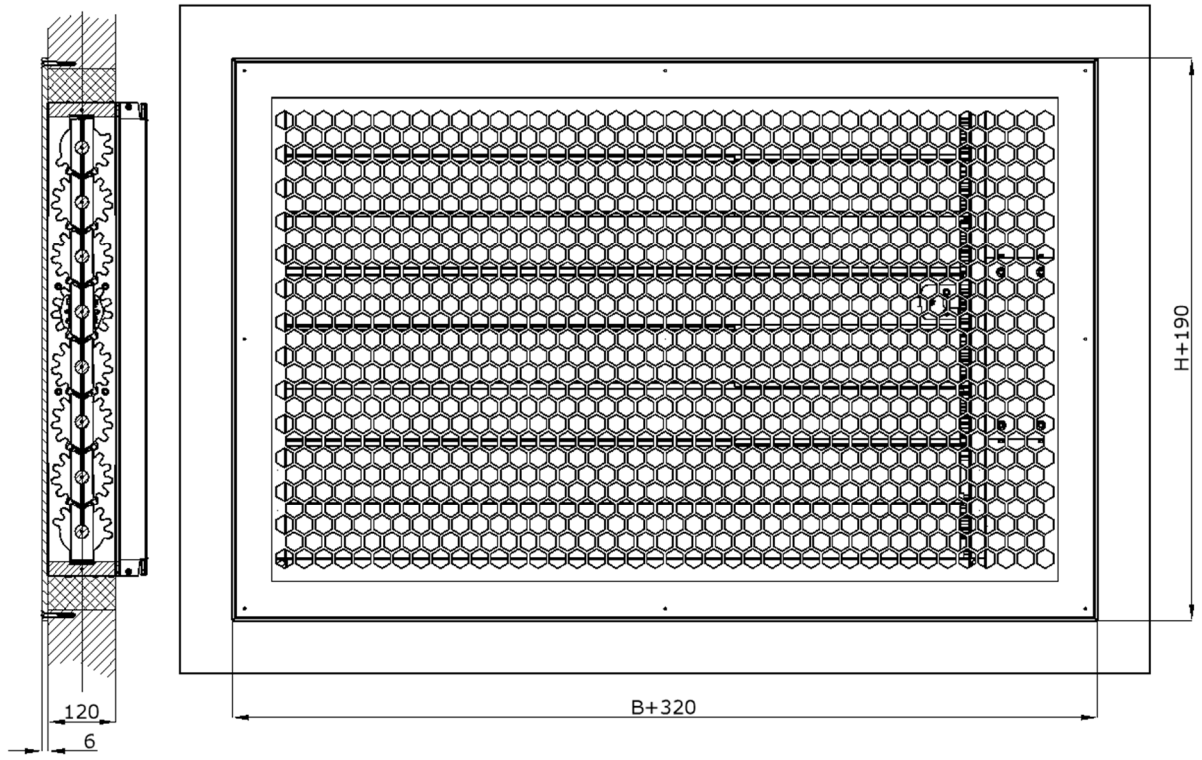


Figure 13. Installation method of MKW-B honeycomb mesh cover

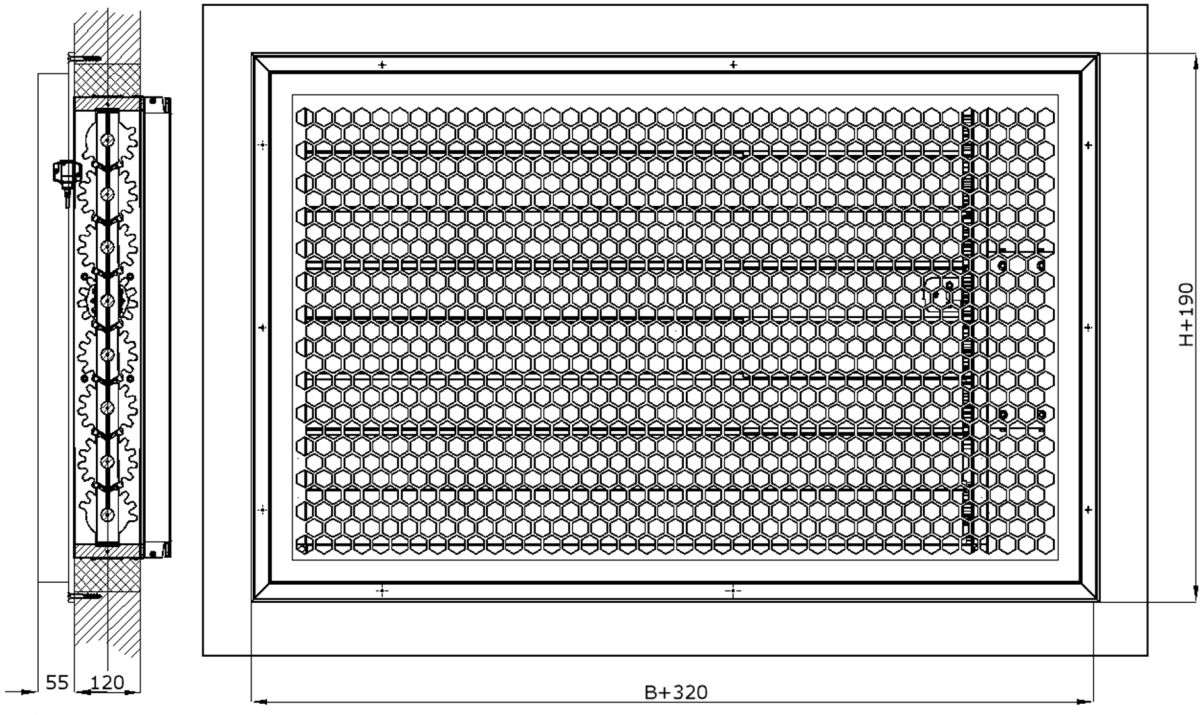


Figure 14. Installation method of MKW-D honeycomb mesh cover

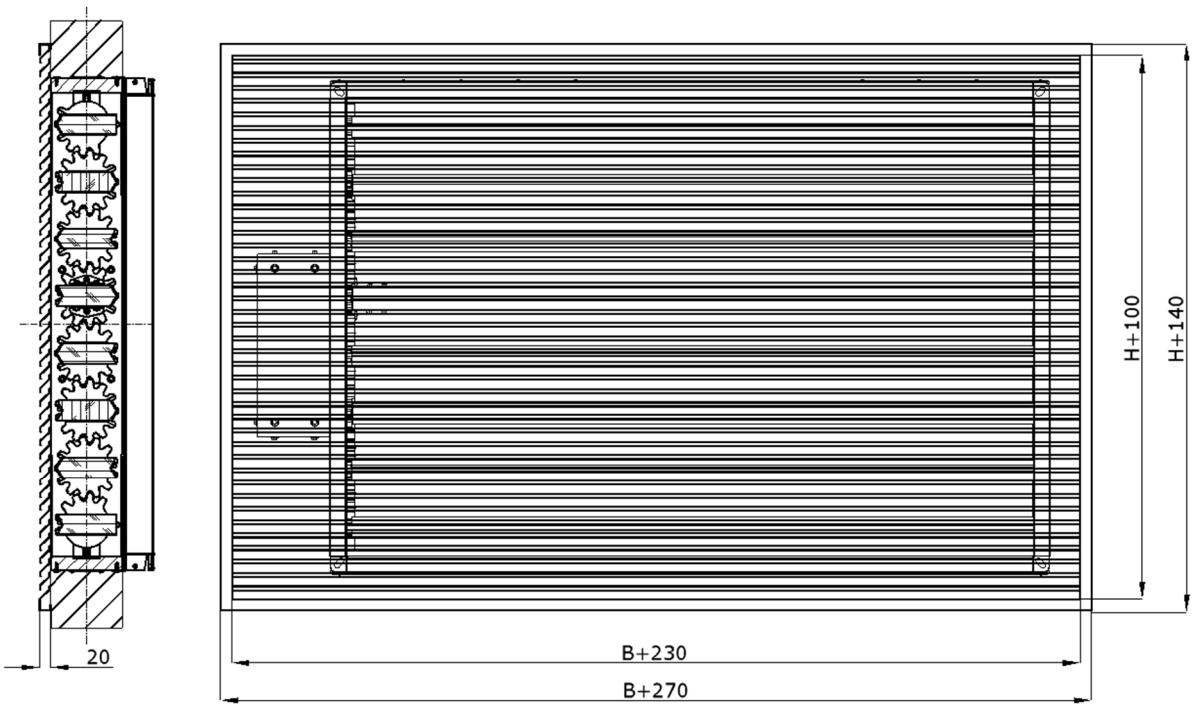


Figure 15. Installation method of KST grille

9. COMMISSIONING

After assembling the device and installation into the control system, before putting the fire 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.

In order to enable efficient verification of the correctness of the assembly and start-up of the KTQ-O damper, before putting it into service and documenting the above control activities in the as-built construction documentation, we suggest using (for auxiliary purposes) the document: "Assembly and Start-up Protocol - Fire Flaps".

This protocol is not obligatory to prepare and is only a proposal from the manufacturer of the product in the scope of preparing documentation confirming the execution of assembly and start-up in accordance with the DTR and Assembly Instructions.

An editable version of the document (universal for all dampers in the SMAY offer) can be downloaded from the manufacturer's website: https://www.smay.pl/en/

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 SMAY devices should be carried out by the SMAY Manufacturer's Service or technical staff of SMAY trading partners appropriate for a given country.
Damage to the KTQ-O damper resulting from failure to comply with the guidelines contained in the documentation will not be covered by warranty repairs.

After installing the KTQ-O fire dampers and after activating the system, regular inspections must be carried out and documented in accordance with the Annual Inspection Protocol - Smoke Vents / Fire Dampers (included below) **at least every 12 months unless national fire protection regulations in the country of installation provide otherwise. If necessary, inspections should be carried out more frequently.**

Technical condition review and maintenance of the device should include:

1. Visual inspection of the damper
   a) Reading data from the damper rating label
   b) Assessment of the damper installation condition
   c) Assessment of the damper housing condition
   d) Assessment of the partition and drive transmission condition
   e) Assessment of the condition of the swelling and ventilation seal
   f) Assessment of the damper cleanliness, cleaning

2. Inspection of the damper drive
   a) Assessment of the manual mechanism*
   b) Assessment of the actuator* (compliance of the symbol with the label, warranty seal)
   c) Assessment of the electrical connection of the damper*

3. Inspection of the damper trigger
   a) Inspection of the mechanical trigger*
   b) Inspection of the electrical trigger*

4. Inspection of the damper operation
   a) Opening and closing the damper
   b) Assessment of maintaining the open position
   c) Assessment of correct closure of the damper
   d) Assessment of correct response to the control signal from the SAP or voltage loss

* if present in the inspected damper type

Technical inspection and service of the device should be documented in an inspection report, an editable version of which is available for download on the manufacturer's website: https://www.smay.pl/en/

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 be carried in agreement with the SMAY manufacturer's service.
Elements that have been factory sealed should have intact original seals applied.

The KTQ-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 with possible faults. The document is intended to assist in defining identified defects during inspection.

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!

Annual Inspection Protocol - Fire Dampers / Smoke Control 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 / smoke control dampers.**
- **In order to maintain the warranty, the employee conducting inspections of SMAY fire dampers / smoke control 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 / Smoke Control Dampers is located at the end of the Technical Documentation.

ATTENTION!

The templates of the forms provided by the SMAY Manufacturer Service and available on the manufacturer's website (concerning assembly, start-up, inspections) are the intellectual property of Smay sp. z o.o. They may not be copied, duplicated or used for purposes other than those specified in this Technical Documentation.