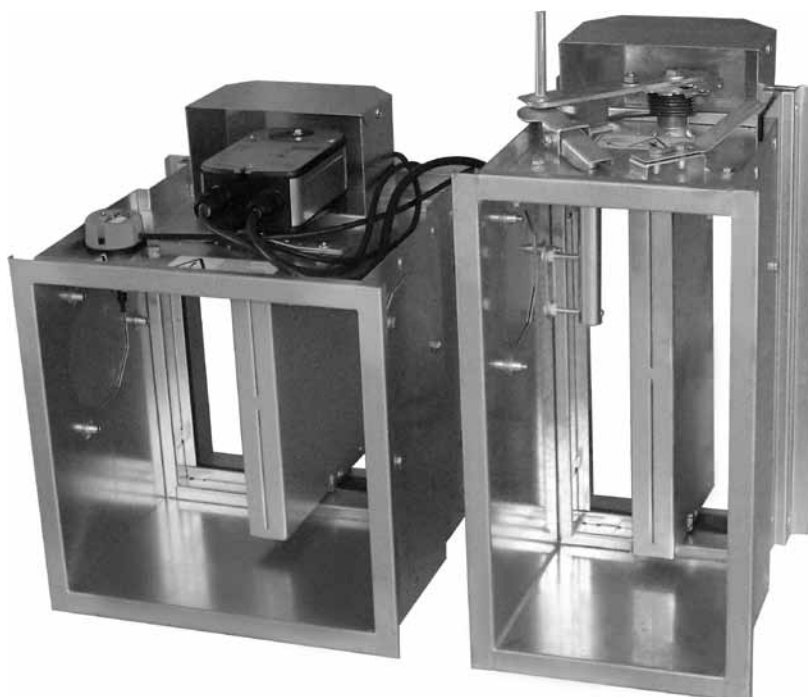


FIRE DAMPERS

EI 120 HO (I↔O) IN ACCORDANCE WITH EN 13501-3+A1

OK B/H-MT – WITH MECHANICAL RELEASE AND THERMAL PLATE

OK B/H-BT – WITH ELECTRIC MOTOR (ACTUATOR) AND THERMO-ELECTRICAL SENSOR



Description

- Designed to prevent the spread of aroused fire (flames and smoke) from one fire sector to another through the air duct system of the ventilation and air-conditioning installations.
- Dampers cover the criteria for impermeability (E) and insulation capacity (I) for 120 minutes at pressure difference from 300 Pa.
- Automatic closed in case the temperature arises to 72°C.
- Normal damper position in exploitation conditions - open.
- **Designed for work in non-aggressive and explosion-proof environment.**

Construction

- Dampers are constructed of galvanized metal sheets. Protection element (fire damp louver) – plate type “sandwich”, consisting of two covers of galvanized metal sheets with profiles and insulation of ceramic wool between them.
- Dampers can be completed with two type mechanisms:

- MT - mechanical release with spring action and thermal plate;
- BT - electric motor (actuator) with spring action and thermo-electric sensor.

Installation

- For incorporation into massive walls ($\delta \geq 160$ mm) (fig.3), outside in front of the walls (fig.4) or at remote distance from fire protection walls (fig.5), the air duct from fire protection wall to the fire damper has to be made of proper material.
- Building opening has to be provided with deformation resisting support; otherwise deformations can cause improper work of the fire damper. (fig.6).
- Easy approach to the release mechanism has to be provided – not less than 250mm (for service and maintenance). Easy approach has to be provided also, for at least one of the revision doors of the fire damper.
- Installation position of the damper does not depend on the air flow direction. Dampers can be installed with horizontal or vertical axis.

Overall and joined dimensions

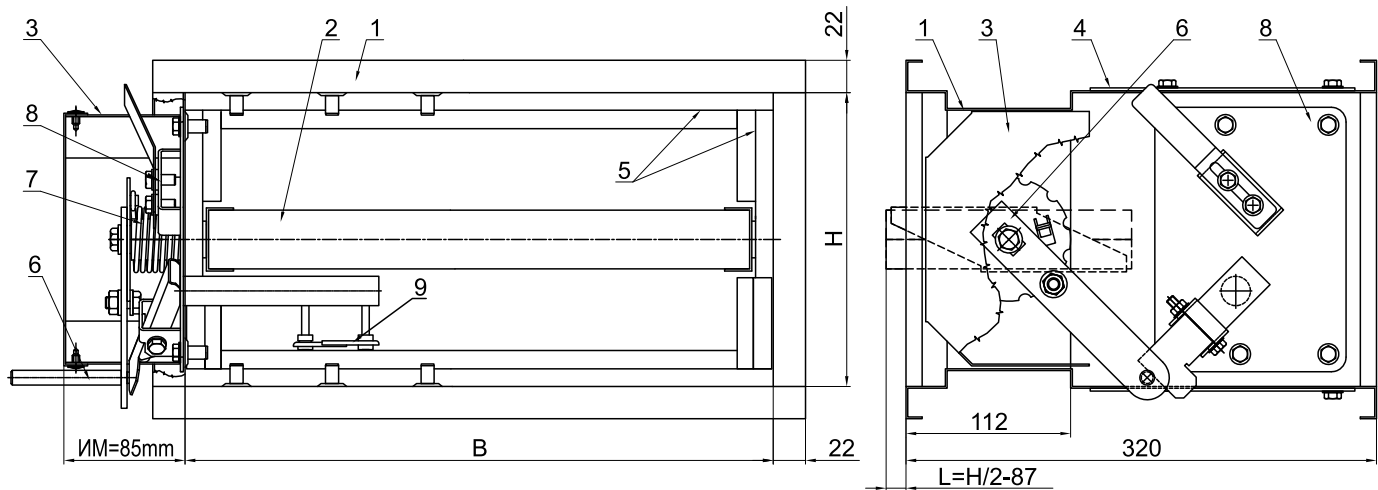


Fig. 1. Fire damper OK B/H – MT – manual control

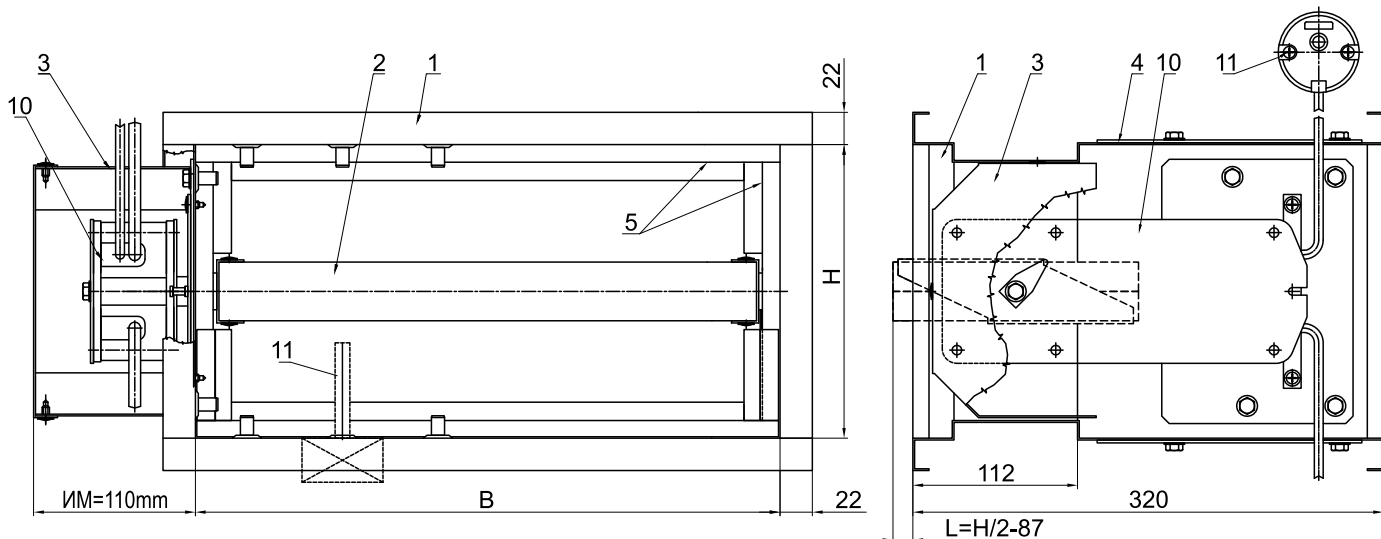


Fig. 2. Fire damper OK B/H – BT – motor driven

Components of OK B/H-MT – fig.1

1. Corpus – consisting of 4 pcs. profiled covers from galvanized metal sheets, thickness 1,2 mm;
2. Fire protection blade;
3. Protection box;
4. Revision doors – round plates of galvanized metal sheets, thickness 2 mm;
5. Swell thermo-reactive, self-adhesive tape, installed on the corpus;
6. Rod mechanism;
7. Reflexive spring;
8. Release mechanism;
9. Thermo fusible plate, melting at 72°C;

Components of OK B/H-BT – fig.2

1. Corpus – consisting of 4 pcs. profiled covers from galvanized metal sheets, thickness 1,2 mm;
2. Fire protection blade;
3. Protection box;
4. Revision doors – round plates of galvanized metal sheets, thickness 2 mm;
5. Swell thermo-reactive, self-adhesive tape, installed on the corpus;
10. Electric motor (actuator) BLF230-T (BLF24-T) or BF230-T (BF24-T), based on BELIMO Automation AG;
11. Thermo-electrical sensor – BAE72B-S.

- $B \geq H$
- B – damper width, parallel to the axis of the fire protection blade
- H – damper height
- IM – overall dimension of the protection box, depending on the electric motor (actuator)

Standard dimensions and weight of fire dampers, without electric motors [kg]

Width [mm] \ Height [mm]	Width [mm]										
	200	250	300	350	400	450	500	600	700	800	
200	6.5	7.2	7.9	8.6	9.3	10.0	10.7	12.0	13.4	14.8	
250	-	7.9	8.7	9.4	10.2	10.9	11.7	13.2	14.7	16.1	
300	-	-	9.5	10.3	11.1	11.9	12.7	14.3	15.9	17.5	
350	-	-	-	11.3	12.1	13.0	13.9	15.7	17.5	19.3	
400	-	-	-	-	13.0	14.0	14.9	16.8	18.0	19.7	
500	-	-	-	-	-	-	17.2	19.4	21.6	23.7	

Note:

- For dampers OK B/H-MT weight of release mechanism is 1,1 kg.
- For dampers OK B/H-BT weight of electric motor (actuator) depends on its type.

Electric motor (actuator) type	BLF24-T	BLF230-T	BF24-T	BF230-T
Nominal voltage	AC 24V, 50 Hz/ DC24	AC 230V, 50 Hz	AC 24V, 50 Hz/ DC24	AC 230V, 50 Hz
Power consumption [W]	5	6	7	8
Weight [kg]	1.630	1.730	2.800	3.100

Effective section [m²] and type of electric motor (actuator)

Width [mm] \ Height [mm]	Width [mm]										
	200	250	300	350	400	450	500	600	700	800	
200	0.023	0.029	0.036	0.043	0.049	0.056	0.062	0.076	0.089	0.102	
250	-	0.040	0.050	0.059	0.068	0.077	0.086	0.104	0.122	0.141	
300	-	-	0.063	0.075	0.086	0.098	0.110	0.133	0.156	0.179	
350	-	-	-	0.091	0.111	0.119	0.133	0.161	0.190	0.218	
400	-	-	-	-	0.124	0.140	0.157	0.190	0.223	0.256	
500	-	-	-	-	-	-	0.204	0.247	0.290	0.334	

0.111 – electric motor (actuator) type BLF24-T / BLF230-T

0.124 – electric motor (actuator) type BF24-T / BF230-T

Pressure drop ΔP [Pa]

Air speed in the effective section – $W_{ef}=4.0$ m/s

B [mm] \ H [mm]	B [mm]									
	200	250	300	350	400	450	500	600	700	800
200	21	19	17	16	15	14	13	13	13	12
250	-	11	10	9	9	8	8	7	7	7
300	-	-	7	6	6	6	5	5	5	5
350	-	-	-	5	5	5	4	4	4	4
400	-	-	-	-	4	4	4	4	3	3
500	-	-	-	-	-	-	4	3	3	3

Air speed in the effective section – $W_{ef}=6.0$ m/s

B [mm] \ H [mm]	B [mm]									
	200	250	300	350	400	450	500	600	700	800
200	47	42	38	35	33	32	30	29	28	28
250	-	25	23	21	20	19	18	17	16	16
300	-	-	16	15	14	13	12	12	11	11
350	-	-	-	12	11	10	10	9	9	9
400	-	-	-	-	10	9	9	8	8	7
500	-	-	-	-	-	-	8	7	7	7

Air speed in the effective section – $W_{ef}=8.0$ m/s

B [mm] \ H [mm]	B [mm]									
	200	250	300	350	400	450	500	600	700	800
200	83	74	68	63	59	56	54	52	50	49
250	-	44	40	37	35	33	31	30	29	28
300	-	-	28	26	24	23	22	21	20	19
350	-	-	-	21	20	19	17	17	16	15
400	-	-	-	-	17	16	15	14	14	13
500	-	-	-	-	-	-	14	13	12	12

Recommendations for installation

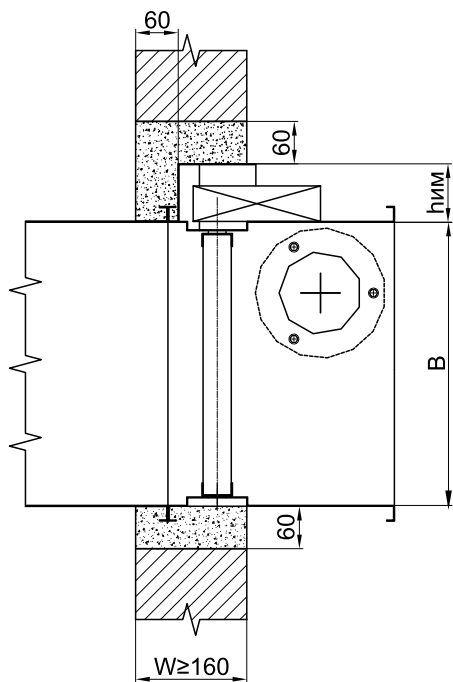


Fig. 3. Installation in fire protection wall

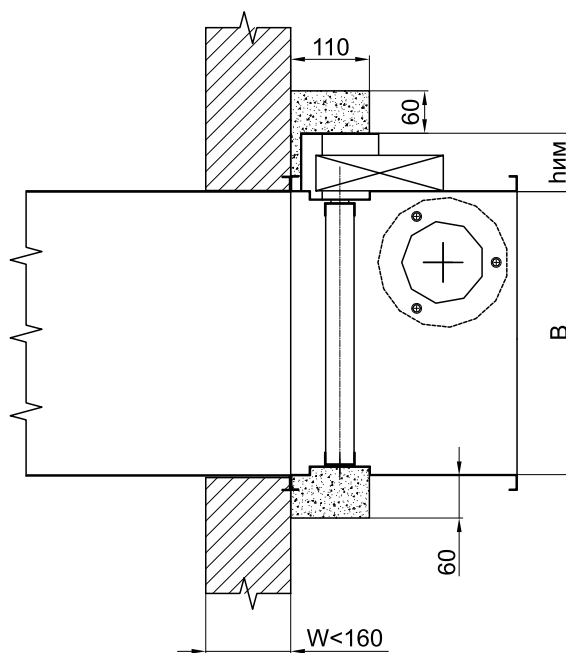


Fig. 4. Installation before fire protection wall

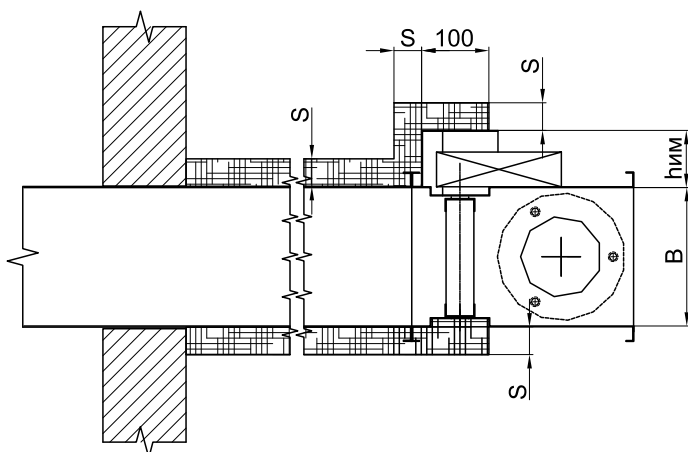


Fig. 5. Installation at remote distance from fire protection wall

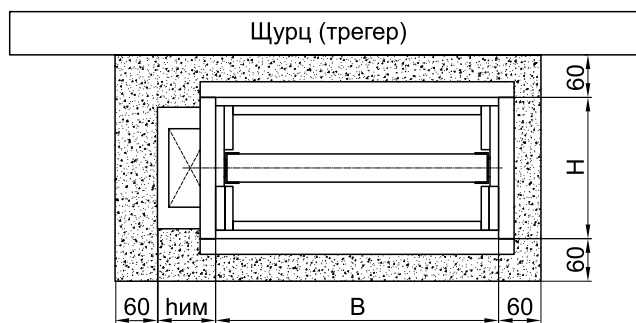
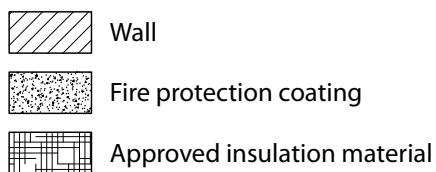


Fig. 6. Building opening provision in case of installation in or in front of fire protection wall



Note:

- In case fire damper is finishing element, immovable protection grille has to be provided, to prevent objects suction, which could cause improper unit functioning.

Damper batteries

- In case higher dimensions are necessary, factory integrated damper batteries can be produced, not exceeding 6 dampers in one battery.
- No Fig. 7 and 8 are shown two possible configurations.
- Possible combinations can be calculated with the following relation:

$i \times B / j \times H$, where:

$i=1 \div 2$;

$j=1 \div 6$, only in case $i \times j \leq 6$

This way for the nominal dimensions of the air duct is valid the following:

$$i \times B + (i - 1) \times 45 / j \times H + (j - 1) \times 45$$

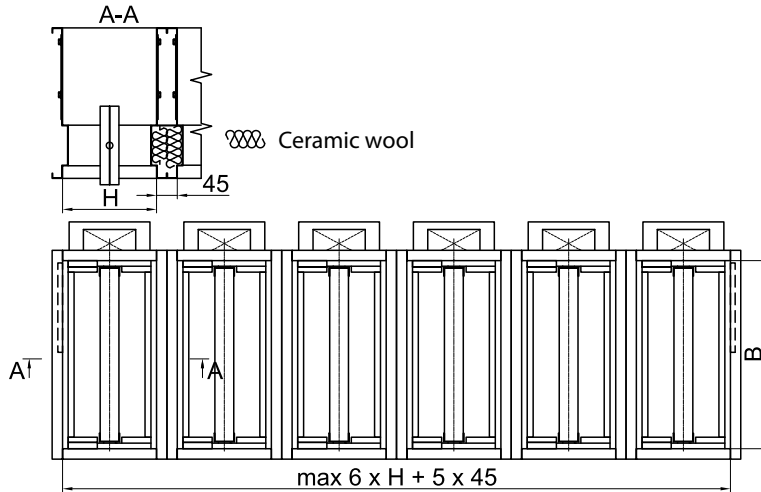


Fig. 7

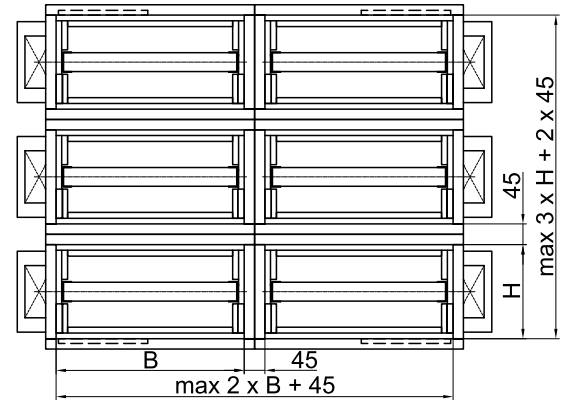


Fig. 8

Note:

- In case of batteries with more than one damper, some of the revision doors are not accessible. It is recommended option for revision to be ensured through air duct!

Order designation

