



## BKA-EN

### Fire damper

Fig.: BKA-EN with B10 drive

#### USABILITY CERTIFICATES

- **Declaration of Performance**  
DoP-BKA-EN-2021-06-01

#### PERFORMANCE DATA

- For automatic locking of fire lobbies
- For use or connection of a smoke release device with abZ (e.g. SCHAKO smoke detection system RMS) in connection with suitable release devices (e.g. spring return actuator)

#### CLASSIFICATION AND STANDARDS

- **Classification**  
according to EN 13501-3, depending on the mounting situation EI 30 ( $v_e, i \leftrightarrow o$ ) S to EI 90 ( $v_e, h_o, i \leftrightarrow o$ ) S
- **Product standard**  
EN 15650
- **Test standard**  
EN 1366-2

#### SPECIAL FEATURES

- ATEX version available (at an extra charge)
- Extensive uses and applications
- Large free cross-sections
- For optimum integration into the building control system via the SCHAKO EasyBus signalling and switching bus system or the SCHAKO BKSYS fire damper mini-controller

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## DESCRIPTION

Fire dampers built into ventilation ducts (air-conditioning systems) are used for the automatic locking of fire lobbies. The fire damper BKA-EN conforms to EN 15650, EN 13501-3 and EN 1366-2.

The BKA-EN has been tested in compliance with EN 1366-2 according to the Declaration of performance no. DoP-BKA-EN-2021-06-01. Its classification according to EN 13501-3 is EI 30 ( $v_e, i \leftrightarrow o$ ) S to EI 90 ( $v_e, h_o, i \leftrightarrow o$ ) S.

According to Directive 2014/34/EU, EC Certificate of Conformity Number EPS 09 ATEX 2 153 X, its use in areas subject to explosion hazards is permitted, not only with spring return actuator ExMax-5.10-BF (X14/X15), including safety temperature limiter (ExPro-TT), but also with mechanical fusible link triggering (manual actuation with or without ATEX limit switch ES-Ex). The fire damper is marked as follows according to ATEX:

 II 2 G Ex h IIC T6 Gb      EPS 09 ATEX 2 153 X  
 II 2 D Ex h IIIC T80°C Db

The national standards and guidelines must be observed in connection with this technical documentation "Installation, mounting and operating instructions". Further information on ATEX can be found in the additional BKA-EN operating instructions according to ATEX 2014/34/EU.

For functional test, service, retrofitting, etc., inspection openings must be provided on site in suspended ceilings, shaft walls, connected ventilation ducts etc., if necessary. They must be built in in sufficient numbers and sizes and must not impair the functioning of the fire dampers.

The fire dampers must be connected to the ventilation system by means of ventilation ducts either on one or on both sides. When connected on one side, finishing protective gratings made of non-flammable building materials (EN13501-1) must be provided on the opposite side.

The fire dampers can be connected to non-flammable and flammable ventilation ducts as well as to flexible spigots.

- Housing made of galvanised sheet steel (standard) optionally (at an extra charge):
- Housing from stainless steel material no. 1.4301 or 1.4571 (replaceable, non-coated parts are made of stainless steel material no. 1.4301)
- Housing with DD coating (two-component top coat based on polyurethane varnish) inside or inside and outside (replaceable, non-coated parts and the U-profile of the damper blade are made of stainless steel material no. 1.4301)
- Moulded connection flanges with centre hole, corner angle with long hole for simple duct mounting and high stability
- Thermal insulation made of silicate boards
- Damper blade made of glass-fibre-reinforced abrasion-resistant lightweight concrete
- Optionally (at an extra charge): damper blade lined with sheet steel (galvanised) / DD coating (RAL 7035 / light-grey)

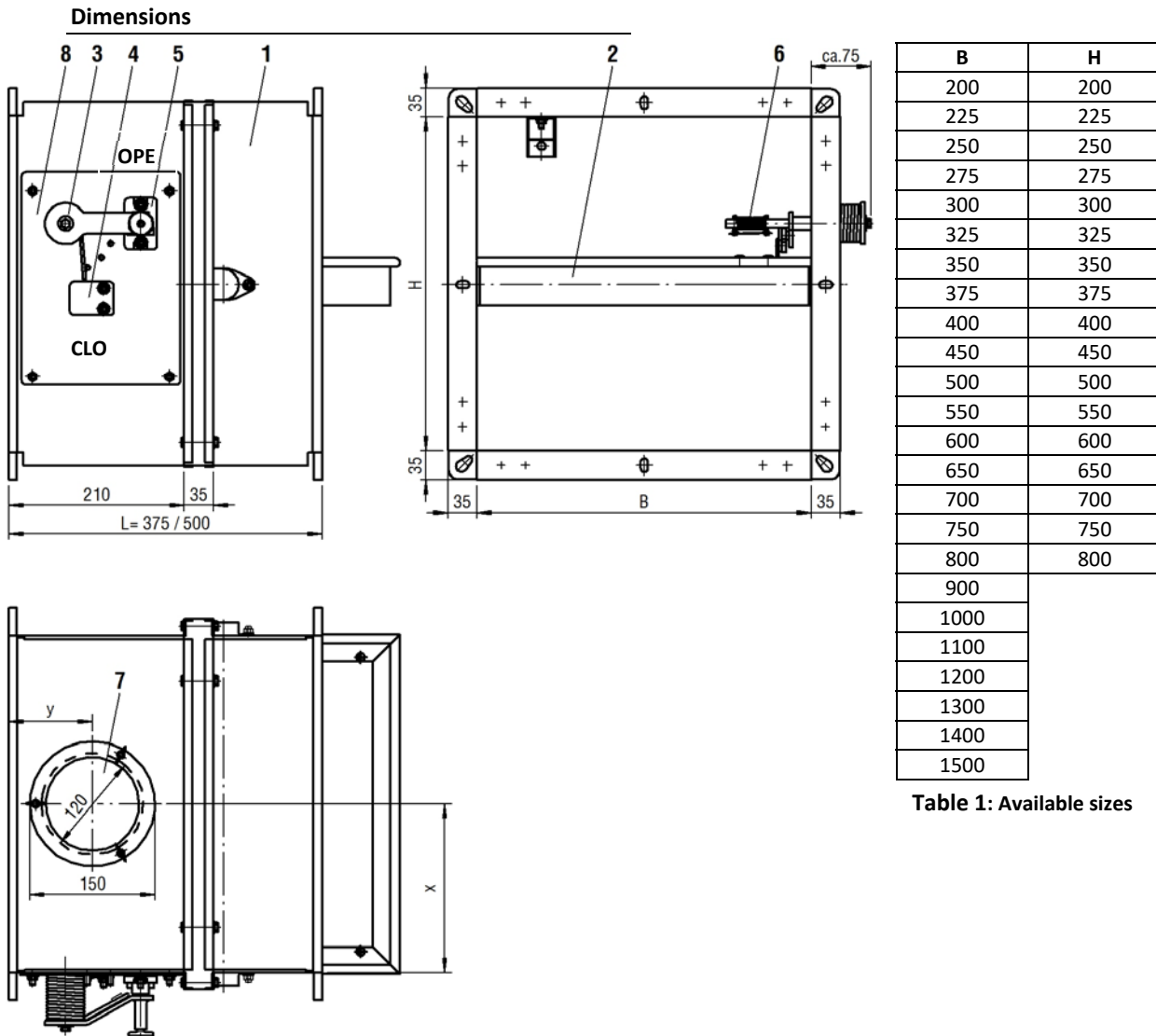
- Cold and hot leakage requirements according to EN 1366-2 are met by means of circumferential rubber and intumescent seals.
- Horizontal or vertical position of the damper blade axle (depending on the mounting situation).
- The installation position is independent of the air flow direction.
- Thermal trigger via fusible link 72°C or 98°C
- Optionally (at an extra charge) by means of electrical, magnetic or pneumatic release devices
- with two inspection openings on opposite sides
- Use: max. operating pressure of 1000 Pa at  $v_{stirn} \leq 10$  m/s
- Housing leakage according to EN 1751 class B
- Use or connection of a smoke trigger device with general building supervisory approval (e.g. SCHAKO smoke detection system RMS, see technical documentation smoke detection system RMS) in connection with suitable electric, magnetic (magnetic clamp) or pneumatic release devices of the fire damper is possible; only release devices working by the "currentless closed/depressurised open" principle may be connected to the RMS system; the propagation of fire and smoke is effectively prevented. Optimal integration into the building control system by means of the SCHAKO EasyBus signalling and switching bus system (see technical documentation EasyBus) or the SCHAKO fire damper mini-controller BKSYS (see technical documentation BKSYS).

## Attention

Building systems have to be arranged, installed, changed and maintained in such a way that they prevent fire and propagation of fire and smoke (fire propagation) and allow evacuation of people and animals as well as efficient fire extinguishing work.

Smoke propagation through the air-conditioning and ventilation system can be prevented for example by means of fire dampers and spring return actuators in combination with approved smoke detector devices (e.g. SCHAKO smoke detection system RMS).

## MODELS AND DIMENSIONS



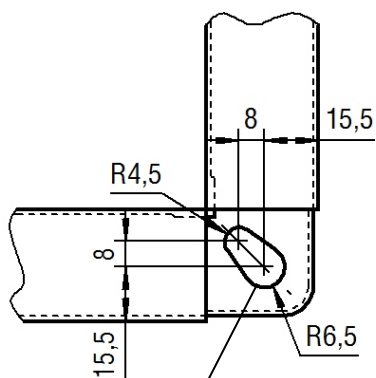
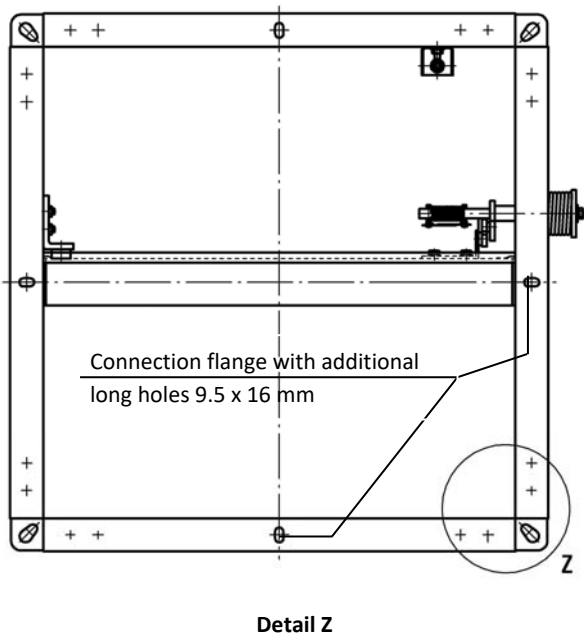
**Table 1: Available sizes**

**Figure 1: Dimensions BKA-EN**

- 1 Fire damper BKA-EN
- 2 Damper blade
- 3 Hand lever
- 4 Locking profile
- 5 Release device
- 6 Fusible link
- 7 Inspection openings on opposite sides
  - B < 800 → x = B/2
  - B ≥ 800 → x ~ 260mm
  - y ~ 100mm from the connection flange
- 8 Actuator unit

- Housing length L = 375 or 500 mm (standard).
- All width and height dimensions can be combined.
- Trigger device always on H side.
- Inspection opening always on B side.
- On request, the width and height dimensions (B, H) are available in steps of 10 mm.

### Frame bores



Corner angle with long hole  
 Suitable for screws e.g. M8 with U-washer

Figure 2: Frame bores

### Damper blade projecting ends

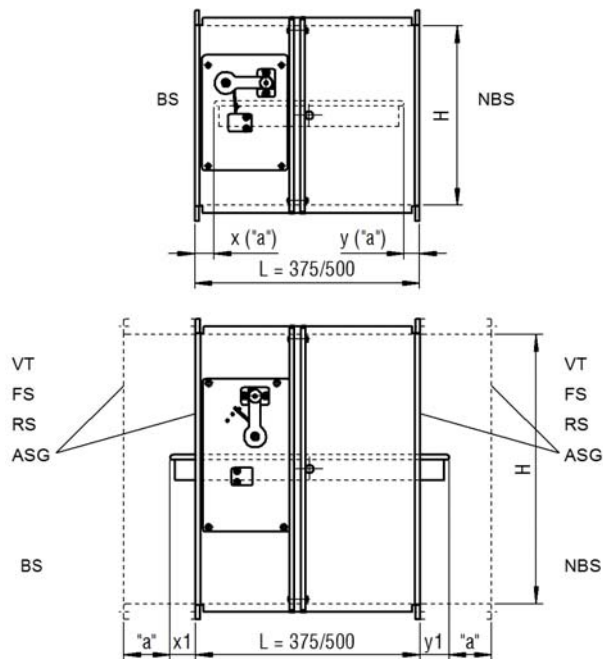


Figure 3: Damper blade projecting ends

"a" = 50 mm: Minimum distance between the front edge of the open damper blade and the finishing protective grating (ASG), the flexible spigot (FS) or the duct connection spigot (RS).

SCHAKO ASG/VT/FS/RS: Flange holes suitable for BKA-EN

H	Operating side		Non-operating side (NBS)	
	(BS)		L=375	L=500
200	154	x	21 *	146
225	142		9 *	134
250	129		4 *	121
275	117		17 *	109
300	104		29 *	96
325	92		42 *	84
350	79		54 *	71
375	67		67 *	59
400	54		79 *	46 *
450	29 *		x1	104 *
500	4 *	129 *		4 *
550	21 *	154 *		29 *
600	46 *	179 *		54 *
650	71 *	204 *		79 *
700	96 *	229 *		104 *
750	121 *	254 *		129 *
800	146 *	279 *		154 *

\* Extension piece (VT) necessary

Table 2: Damper blade projecting ends

**Use**

The fire damper type BKA-EN can be fitted as shown in the following table.

Use	Installation	Material/Model	Minimum thickness [mm]	Minimum distance [mm]	Fire resistance class	Notes Page °
WALL	solid; apparent density $\geq 450 \text{ kg/m}^3$	in	Wet installation in, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859	next to each other: 70 <sup>1)</sup>	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	8
				Wall: 40		
				Ceiling: 40		
		Dry installation <u>with</u> additional installation kit type GDA <sup>3)</sup> in, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859, in the area of flexible ceiling connections <sup>6)</sup>	100	next to each other: 200	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	12
				Wall: 75		
				Ceiling: 90		
	Dry installation <u>with</u> Hilti soft seal system in, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859 <sup>6)</sup>	100	next to each other: 200	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	14	
			Wall: 75			
			Ceiling: 75			
	on	100	Dry installation <u>with</u> additional mounting kit, type AS-E1 <sup>3)</sup> , on, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859 <sup>6)</sup>	280 or 360 <sup>4)</sup>	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	16
				Wall: 220 <sup>2)</sup>		
				Ceiling: 140 <sup>2)</sup>		
away from <sup>8)</sup>	100	Dry installation <u>with</u> additional ERA2 installation frame away from, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859 <sup>6)</sup>	320 <sup>2)</sup>	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	18	
			Wall: 160 <sup>2)</sup>			
			Ceiling: 160 <sup>2)</sup>			
Light-weight partition wall; classification according to EN 13501-2 or similar national standards	in	Wet or dry installation in lightweight partition walls with metal posts and panelling on both sides <sup>6)</sup>	100	next to each other: 200	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	23
				Wall: 90 <sup>2)</sup>		
				Ceiling: 80 <sup>2)</sup>		
		Dry installation <u>with</u> additional installation frame type ER-A1 in lightweight partition walls with metal posts and panelling on both sides <sup>6)</sup>	100	next to each other: 200	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	28
		Dry installation <u>with</u> additional installation frame type GDL <sup>7)</sup> in lightweight partition walls with metal posts and panelling on both sides, in the area of flexible ceiling connections <sup>3) 6)</sup>	100	next to each other: 280 <sup>2)</sup>	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	31
Dry installation <u>with</u> Hilti soft seal system in lightweight partition walls with metal posts and panelling on both sides <sup>6)</sup>	100	next to each other: 200	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	34		
					Wall: 113/125 <sup>2)</sup>	
Dry installation in lightweight partition walls with metal posts and panelling on both sides <sup>6)</sup>	75	next to each other: 200	EI 30 (v <sub>e</sub> , i $\leftrightarrow$ o) S EI 60 (v <sub>e</sub> , i $\leftrightarrow$ o) S	37		
					Wall: 90 <sup>2)</sup>	
Wet installation in lightweight partition walls with metal posts and panelling on one side <sup>6)</sup>	125	next to each other: 200	EI 90 (v <sub>e</sub> , i $\leftrightarrow$ o) S	38		
					Wall: 90 <sup>2)</sup>	
CEILING	in	Wet installation in, for example, concrete; aerated concrete	125	from one another: 70	EI 90 (h <sub>o</sub> , i $\leftrightarrow$ o) S	20
				Wall: 40		
solid; apparent density $\geq 500 \text{ kg/m}^3$	in	Wet installation with concrete base <sup>5)</sup> in concrete, for example; aerated concrete	125	from one another: 70	EI 90 (h <sub>o</sub> , i $\leftrightarrow$ o) S	21
				Wall: 100 <sup>2)</sup>		

**Table 3: Usability**

Supplementary notes:

It may also be installed in and on walls or in and on ceilings of a lower fire resistance class. In this case, however, the fire resistance class of the fire damper is reduced accordingly. The conditions listed above must be taken into account.

- <sup>1)</sup> If mineral wool is used between the fire dampers, the distance between them is 80 mm.
- <sup>2)</sup> Due to design or installation (needs to be adapted to local conditions).
- <sup>3)</sup> The additional frame (installation/mounting kit) can only be used with BKA-EN L=375.
- <sup>4)</sup> Depending on the mounting position (see installation details).
- <sup>5)</sup> Installation only in combination with a concrete base still to be made on site.
- <sup>6)</sup> For each fire damper, a separate installation opening must be provided.
- <sup>7)</sup> The version of the installation kit type GDL depends on the web height of the selected metal stud profiles (CW/UW; single stud structure) of the wall must be considered and specified when ordering and selecting it.
- <sup>8)</sup> Installation only in connection with proven, four-sided, straight fire-resistant ventilation duct (L90) without opening, made of a galvanized sheet steel with calcium silicate cladding boards and ERA2 installation frame.

## General information

- During mounting or installation, there is a risk of injuries. To avoid any possible injuries, personal protective equipment (PPE) must be worn.
- Fire dampers must be installed such that external forces do not impair their permanent functioning.
- Ventilation ducts must not exert significant forces on walls, supports or ceilings and thus also on fire dampers as a result of thermal expansion (in case of fire). Appropriate compensation measures, such as the arrangement of flexible spigots (SCHAKO type FS) or a suitable duct routing (duct angles and distortions), must be taken as required. National regulations must be observed and adhered to.
- Prior to installing the fire damper, the possible connections of the ventilation ducts must be checked. Extension parts (on site or as accessories SCHAKO type VT) might be necessary, e.g. for large wall and ceiling thicknesses. When connecting duct components, a fastening type must be selected that causes no damage to the fire damper or its accessories.
- During mounting it may be required to provide reinforcements for the housing or its accessories.
- The requirement of statically load-bearing lintels may have to be taken into consideration.
- In case of partial mortar lining (not on all four sides) of a fire damper, installation and mounting aids on site must be removed.
- Improper transport/handling may result in damage/functional impairment. In addition to that, the film of the transport packaging must be removed and the delivery inspected for completeness.
- In storage, fire dampers must be protected from dust, dirt, moisture and the effects of temperature (e.g. direct sunlight, heat-emitting light source, etc.). They must not be exposed to direct effects of the weather and must not be stored below  $-20\text{ }^{\circ}\text{C}$  or above  $50\text{ }^{\circ}\text{C}$ .
- The fire damper must be protected from dirt and damage. After installation is complete, any dirt must be removed immediately.
- Enough space must be provided for installation, mortar lining, etc.
- Carry out a functional check of the fire damper before and after mounting and ensure ready access.
- Electrical installation or work on electrical components may only be carried out by skilled electricians. The supply voltage must be switched off when performing this work and secured against being switched on again.
- We would like to point out that only suitable cleaning materials may be used to clean the stainless steel version of fire dampers!

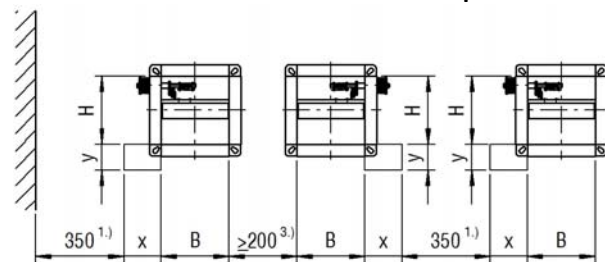
## Minimum distances or projecting ends

The dimensions given must be considered an installation recommendation for the BKA-EN and may differ, depending on the local situation.

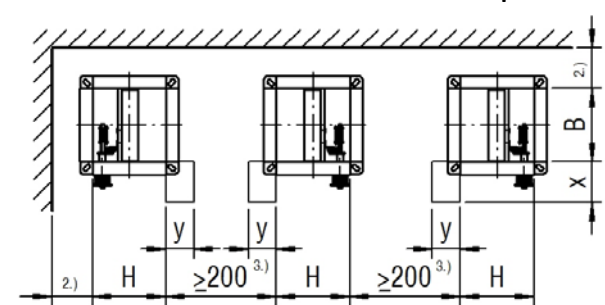
To guarantee fire protection, the fire damper must be installed in accordance with the technical documentation, installation, mounting and operating instructions.

The inspection openings of the fire damper must be freely accessible, otherwise these inspection openings must be provided in the connected ventilation ducts in the immediate proximity. This must be ensured in particular when at least 2 fire dampers are installed next to each other or below each other in the immediate proximity of adjacent components.

### Installation with horizontal damper axle:



### Installation with horizontal or vertical damper axle:



**Figure 4: Minimum distances to walls, ceilings and between fire dampers**

- 1) Minimum distance recommended by SCHAKO for sufficient accessibility
- 2) The distance between the fire damper and adjacent components (ceiling/wall) must be determined according to the respective installation situation.
- 3) In solid walls and solid ceilings, max. 2 BKA-EN can be installed at a reduced distance "flange-to-flange". This may lead to a situation in which the inspection openings are no longer freely accessible. In other installation situations, the distance may become larger as a result of construction. Sufficient distance between the mounted components must be guaranteed.

The dimension y is:

- max. approx. 100 mm with explosion-protected spring return actuator ExMax-5.10-BF (X14 / X15)

The dimension x is:

- approx. 85 mm with manual release, magnetic clamps MH1/MH2, pulse magnets MI1/MI2, spring return actuators S00/S01/S10/S11/S20/S21
- approx. 90 mm with spring return actuators B10/B11/B20/B21/B32/B33/B42
- max. approx. 170 mm with explosion-protected spring return actuator ExMax-5.10-BF (X14 / X15)
- approx. 175 mm with pneumatics (without limit switch)

### Wet installation (mortar lining)

- If the installation of the fire damper is carried out by mortar lining, it must be completely filled with mortar of class M 10 to M 15 according to EN 998-2 or fire protection mortar of suitable grades or with concrete or plaster mortar suitable for the wall or ceiling type.
- If the fire damper is installed during the construction of the wall/ceiling, the annular gap size can be smaller as specified.
- The mortar bed depth must be designed according to the minimum wall or ceiling thickness and may not be less than this thickness.
- The mortar lining must be executed such that it is permanent. The information given by the mortar manufacturer must be observed.

### INSTALLATION IN SOLID WALLS

- Installation in solid walls (shaft walls, shafts, ducts and fire walls) made of, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster board walls according to EN 12859; apparent density  $\geq 450 \text{ kg/m}^3$  and wall thickness  $W \geq 100 \text{ mm}$ .

### Installation positions

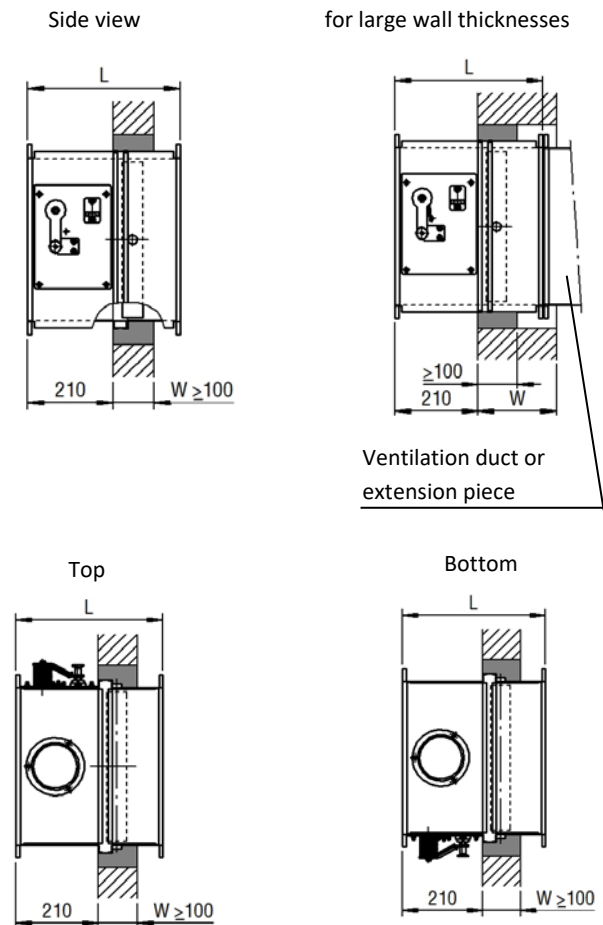


Figure 5: Installation positions in solid walls



### Wet installation of a fire damper, complete mortar lining

- The minimum distance between the fire dampers must be at least 70 mm.
- The minimum distance to adjacent components (wall/ceiling) is 40 mm.

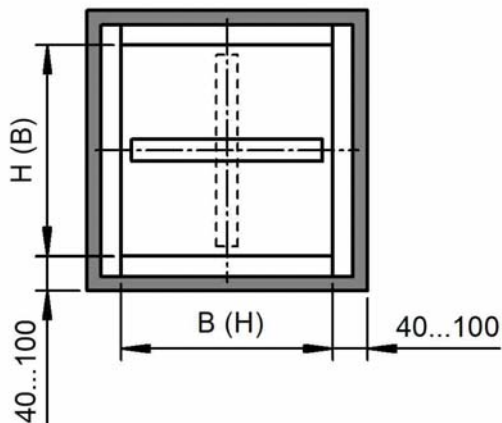


Figure 6: Annular gap size for complete mortar lining in solid walls

### Wet installation of two fire dampers at a reduced distance or "flange-to-flange"

Installation of max. 2 BKA-EN next to or below each other in an installation opening in solid walls at a reduced distance or "flange-to-flange". All annular gaps have to be filled with mortar (version 1). Alternatively, at a distance of 80 mm from each other, mineral wool (2x40 mm; non-flammable (EN 13501-1), melting point  $\geq 1000^{\circ}\text{C}$ ,  $\rho \geq 150 \text{ kg/m}^3$ ) can be used as an annular gap seal between the two BKA-EN (version 2). The mineral wool must be applied over the entire length.

- The minimum distance to adjacent components (wall/ceiling) is 40 mm.
- The minimum distance to other fire dampers is 200 mm.

#### Installation below each other

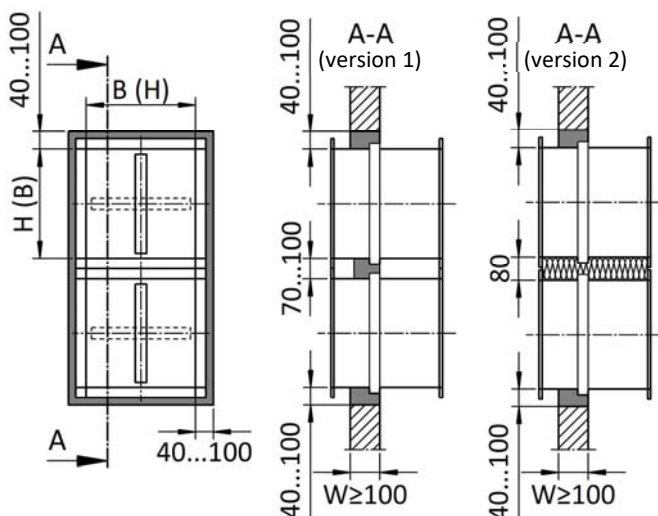


Figure 7: Installation in solid walls at a reduced distance or "flange-to-flange", below each other

#### Installation next to each other

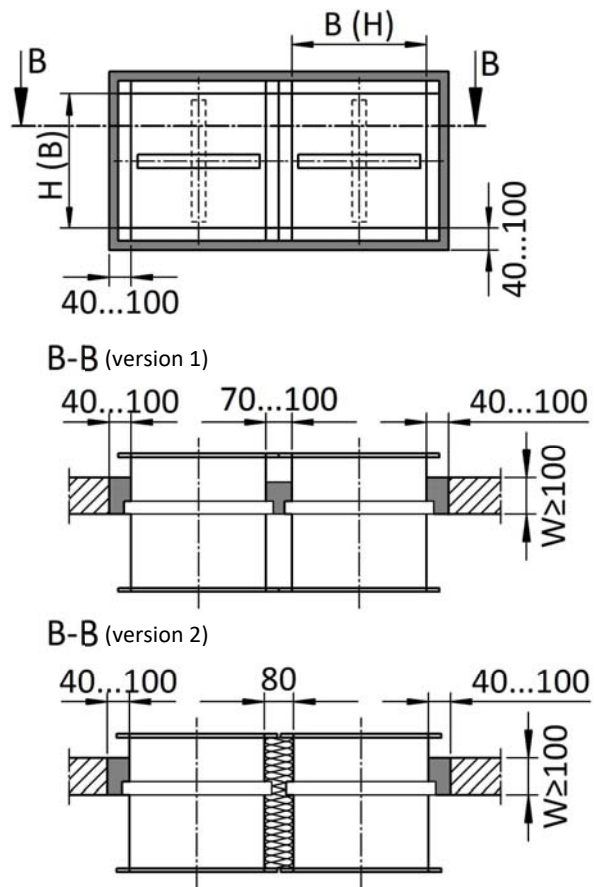


Figure 8: Installation in solid walls at a reduced distance or "flange-to-flange", next to each other

**Wet installation with rigid ceiling connection, partial mortar lining**

- Installation on adjacent walls and/or ceilings with appropriate annular gap sizes  $\leq 50$  mm. The annular gap must be closed with non-flammable mineral wool (EN13501-1, apparent density  $\geq 150$  kg/m<sup>3</sup>, melting point  $\geq 1000$  °C) across the entire housing length. Apply the mortar up to the adjacent wall or ceiling.
- It is also possible to install two fire dampers below or next to each other at a reduced distance or "flange-to-flange". The options for installation at a reduced distance or flange-to-flange are illustrated in figures 10 to 15.

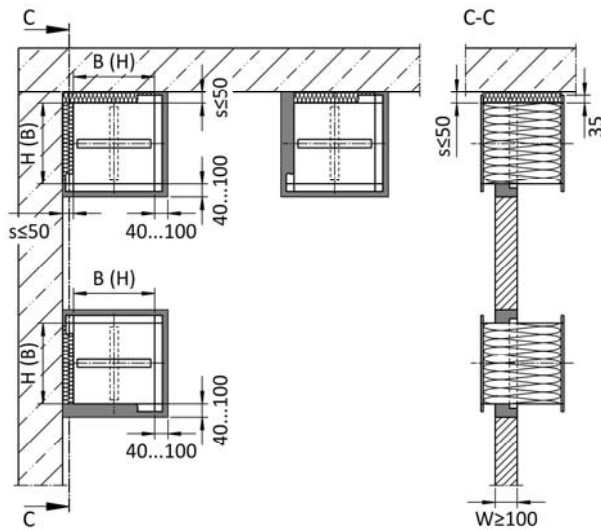


Figure 9: Installation of a fire damper (partial mortar lining) in solid walls with rigid ceiling connection

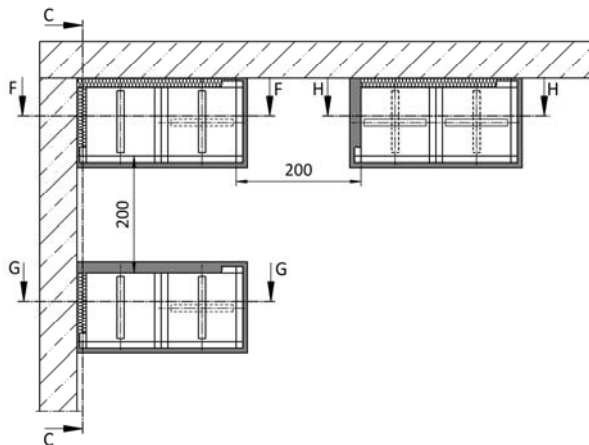


Figure 10: Installation of two fire dampers next to each other (partial mortar lining) in solid walls with rigid ceiling connection (sections C-C, F-F, G-G, H-H)

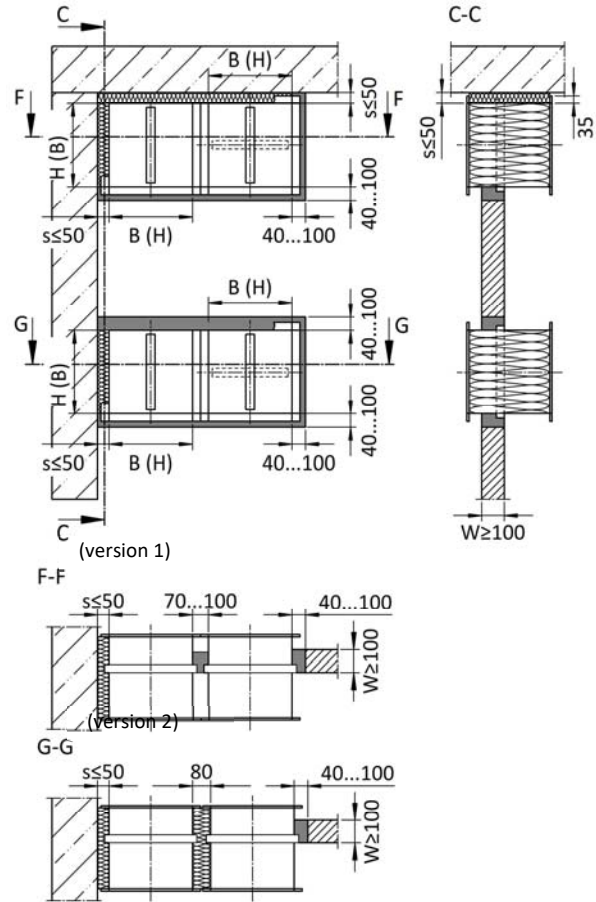


Figure 11: Installation of two fire dampers next to each other (partial mortar lining) in solid walls with rigid ceiling connection (sections C-C, F-F, G-G)

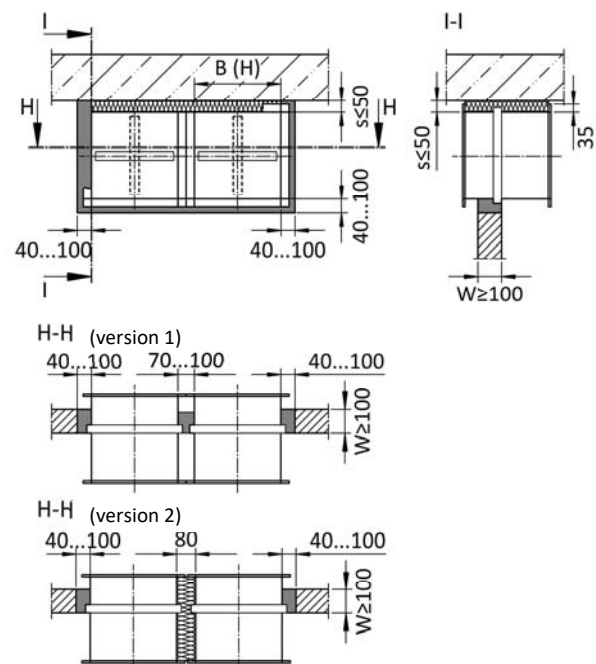
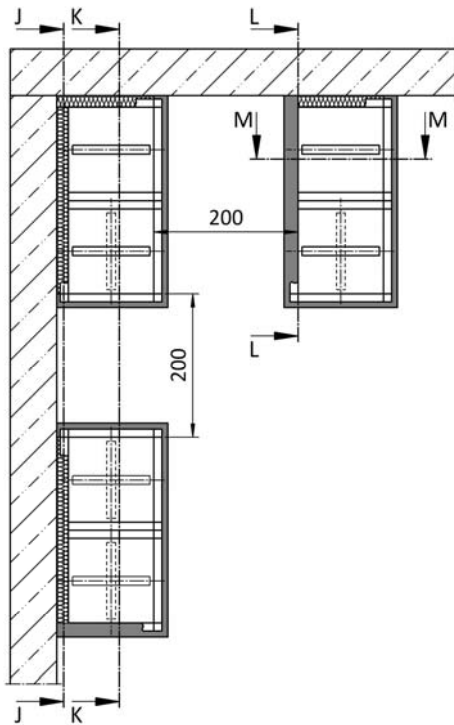
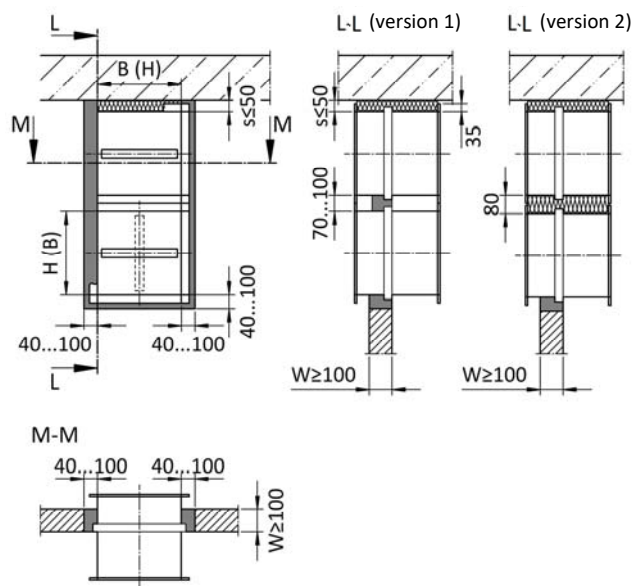


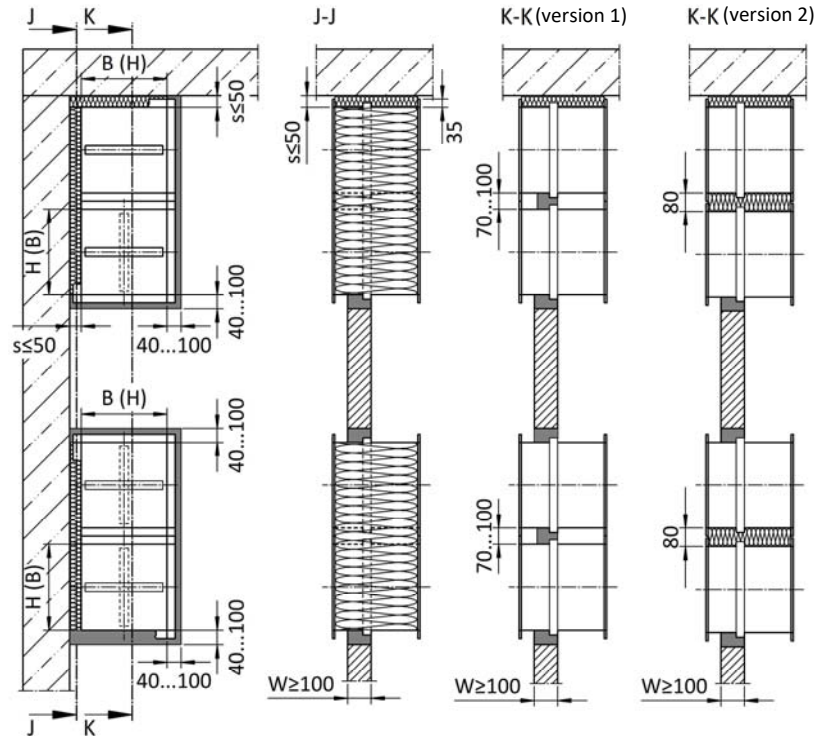
Figure 12: Installation of two fire dampers next to each other (partial mortar lining) in solid walls with rigid ceiling connection (sections I-I, H-H)



**Figure 13: Installation of two fire dampers below each other (partial mortar lining) in solid walls with rigid ceiling connection (sections J-J, K-K, L-L, M-M)**



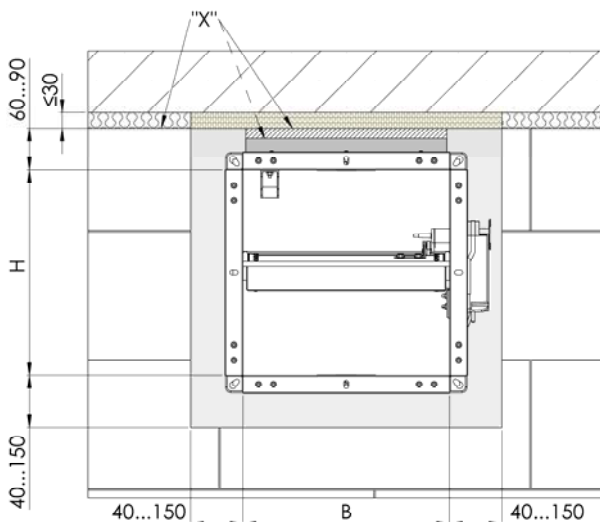
**Figure 15: Installation of two fire dampers below each other (partial mortar lining) in solid walls with rigid ceiling connection (sections L-L, M-M)**



**Figure 14: Installation of two fire dampers below each other (partial mortar lining) in solid walls with rigid ceiling connection (sections J-J, K-K)**

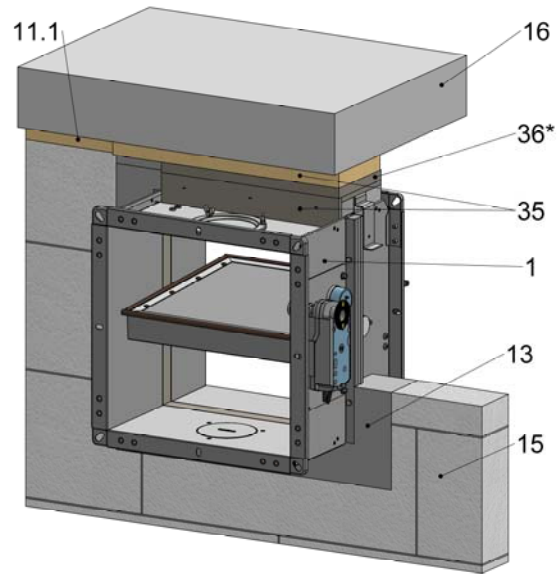
### Wet installation with installation kit type GDA, flexible ceiling connection

- If the installation kit type GDA is used, only a BKA-EN with a housing length of L=375 is possible.
- Installation with installation kit type GDA in the area of flexible ceiling connections (flexibility/ceiling bending  $\leq 20$  mm).
- The installation kit type GDA (pos. 35) or the optional doubling (pos. 36) must be positioned at the same height as the wall head area (see Figure 16; "x"), the mineral wool will be pressed.
- Distance between housing and wall head (see Figure 16)  $> 90$  mm: version with lintel (statically load-bearing) is required (see p. 9 Figure 6: Annular gap size for complete mortar lining in solid walls). The installation kit type GDA is not used here.
- Steel profiles belonging to the wall in the wall head area must be interrupted in the installation area of the fire damper.
- When installed next to each other, the distance between the fire dampers must be at least 200 mm.
- For each fire damper, a separate installation opening must be provided.
- The distance to adjacent components is (due to the design) at least approx. 90 mm from the solid ceiling and approx. 75 mm from the wall.
- Exclusively horizontal position of the damper blade axle.
- The installation kit type GDA including mineral wool is an accessory (extra charge) and must be ordered separately.



In the figure: Installation kit type GDA (pos. 35) with additional doubling (pos. 36, optional)

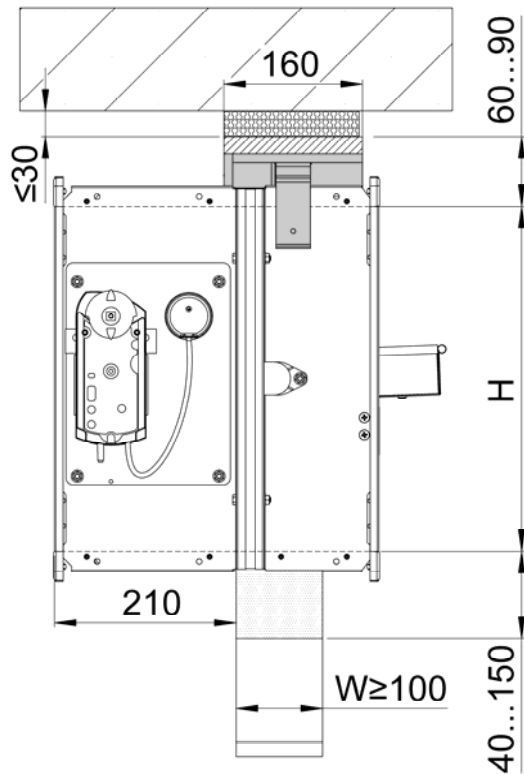
**Figure 16: Installation opening**



\*optional

**Figure 17: Installation in solid walls with installation kit type GDA**

- 1 Fire damper BKA-EN
- 11.1 Mineral wool (according to the wall manufacturer's specifications)
- 13 Mortar; annular gap  $\leq 150$  mm, on three sides (bottom, left, right)
- 15 Solid wall
- 16 Solid ceiling
- 35 Installation kit type GDA including mineral wool (non-flammable according to EN13501-1, apparent density approx.  $30 \text{ kg/m}^3$ , melting point  $\geq 1000 \text{ }^\circ\text{C}$ )
- 36 Optional calcium silicate plate provided on site (apparent density approx.  $870 \text{ kg/m}^3$ )



**Figure 18: Distance to the solid ceiling**

### Installation procedure

- The fire damper (pos. 1) is installed after the construction of the wall and the correct installation opening.
- The ground (bottom side of the ceiling) must be even, bigger unevenness must be levelled (e.g. plaster filling).
- Prior to the installation, the mineral wool of the installation kit type GDA (pos. 35) has to be cut to the correct length according to the existing installation opening and must be placed on the installation kit type GDA.
- Place the installation kit type GDA in the installation opening in the solid wall (pos. 15) so that it is perpendicular and flush.
- The installation kit type GDA (pos. 35) or the optional doubling (pos. 36) must be positioned at the same height as the wall head area (see Figure 16; "x"), the mineral wool will be pressed. The doubling allows a height adjustment of up to 30 mm.
- Fill the remaining annular gaps (bottom, left, right) with mortar (pos.13).

## Dry installation with soft seal

- The fire damper must be permanently suspended from the solid ceiling on both sides of the wall (see page 42). Suspension angle (pos. 38) for fire damper available as accessory at an extra charge.
- With an annular gap of 50 - 100 mm, the fire damper must be installed together with the firestop boards. Mounting of the firestop boards after installation of the fire damper (installation dimension 210 mm) is possible starting with an annular gap of about 100 mm.
- For each fire damper, a separate installation opening must be provided.
- The distance between the fire dampers installed next to each other must be at least 200 mm.
- The distance to adjacent components (wall/ceiling) is at least 75 mm.

## Soft seal system

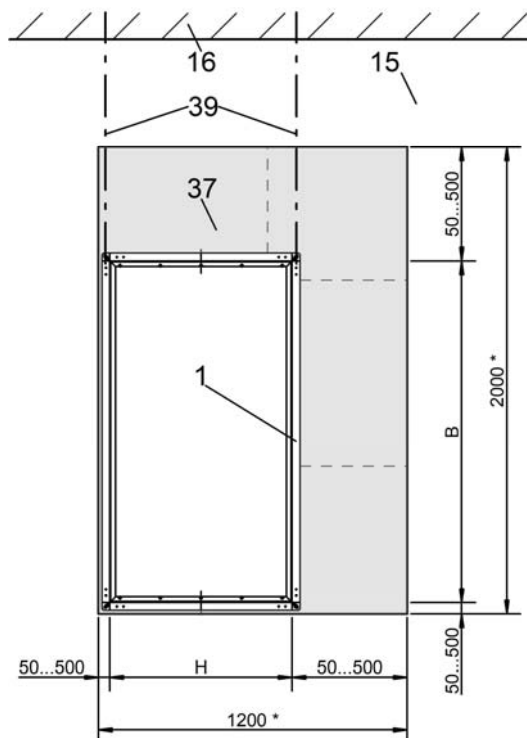
Permissible soft seal system (provided on site):

### Manufacturer Hilti

- Firestop boards CFS-CT B 1S 140/50
- Firestop coating CFS-CT
- Firestop boards CP 673 PF
- Firestop coating CP 673
- Firestop sealant CFS-S ACR

In general, the specifications and processing guidelines of the soft seal manufacturer (in particular the maximum seal dimensions) must be observed.

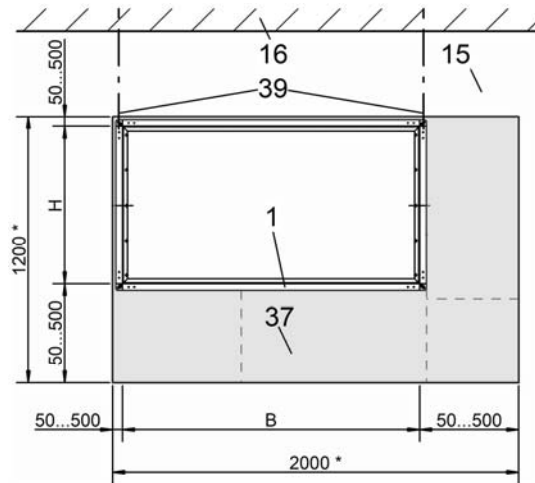
### Dimensions of the min./max. annular gap



\*)  $\triangleq$  max. seal dimensions according to the manufacturer's specifications Hilti

Figure 19: Installation example vertical damper blade

Construction subject to change  
 No return possible



\*)  $\triangleq$  max. seal dimensions according to the manufacturer's specifications Hilti

Figure 20: Installation example horizontal damper blade

### Sectional view for wall thickness = 100 mm

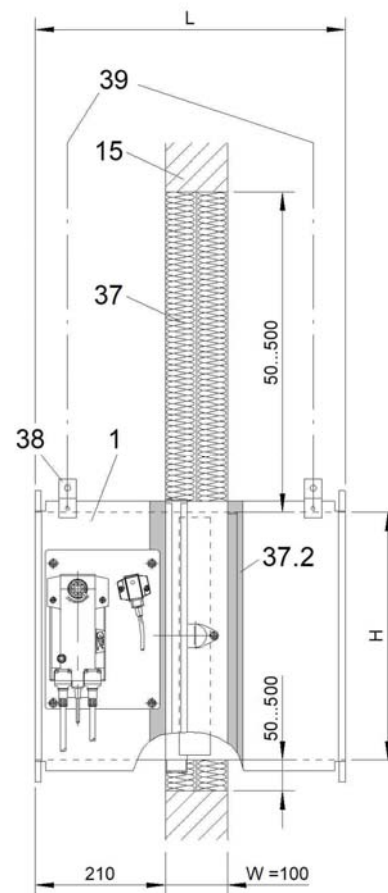
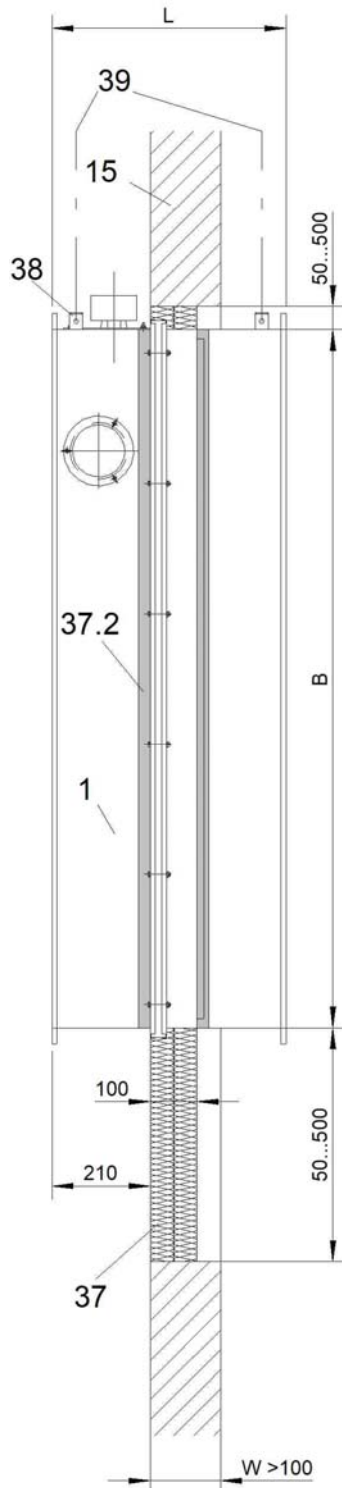


Figure 21:  
 Installation in solid wall (wall thickness = 100 mm)

**Sectional view for wall thickness > 100 mm**



**Figure 22: Installation in solid wall (wall thickness > 100 mm)**

- 1 Fire damper BKA-EN
- 15 Solid wall
- 16 Solid ceiling
- 37 Hilti soft seal system (ETA-11/0429):
  - 37.1 Firestop boards CFS-CT B 1S 140/50 or CP 673 PF
  - 37.2 Firestop coating CFS-CT or CP 673  
(circumferential width  $\geq 25$  mm,  $t \geq 2.5$ mm)
  - 37.3 Firestop sealant CFS-S ACR
- 38 Suspension angle  
(accessory at an extra charge: 1 set = 4 units/BKA-EN)
- 39 Suspension (provided on site)

**Installation procedure**

- The fire damper (pos. 1) is installed in the intended installation opening after the construction of the wall.
- The annular gap between the fire damper housing and the reveal of the installation opening must be min. 50 mm and max. 500 mm. The fire damper must be placed in the installation opening in accordance with the annular gap sizes mentioned above. The installation dimension of 210 mm on the operating side has to be compiled with. The annular gap must be sealed with two layers of firestop boards (pos. 37.1) of the Hilti soft seal system (see p. 14, among others). With an annular gap of 50 - 100 mm, the fire damper must be installed together with the firestop boards. The firestop boards have to be cut precisely with accurate contours so that they are positioned tightly over the entire surface. All gaps (between the firestop boards and the reveal of the installation opening, between the firestop boards and the fire damper) as well as the face area and the cut surface of the boards must be covered with the firestop sealant (pos. 37.3) and sealed. In general, the specifications and processing guidelines of the soft seal manufacturer must be observed.
- The fire damper is suspended from the operating and non-operating side by means of four angles (pos. 38). The angles are available as accessories (at an extra charge) and are mounted on site. For further information on the suspension, see page 42.
- Once the mounting of the soft seal system is completed, the firestop coating (pos. 37.2) must be applied circumferentially with a width of  $\geq 25$  mm and a thickness of  $\geq 2.5$  mm on the operating and non-operating side of the fire damper housing.

### Dry installation with mounting kit type AS-E1

- If the mounting kit type AS-E1 is used, only a BKA-EN with a housing length of L=375 is possible.
- The clear wall recess must correspond to the nominal dimensions of the BKA-EN (width(B) x height(H)) to be installed.
- For each fire damper, a separate installation opening must be provided.
- The minimum distance between the fire dampers for installation side by side is at least 360 mm and at least 280 mm for installation one below the other.
- The minimum distance to adjacent components is (due to the installation) at least 140 mm (ceiling) or at least 220 mm (wall).
- Exclusively horizontal position of the damper blade axle

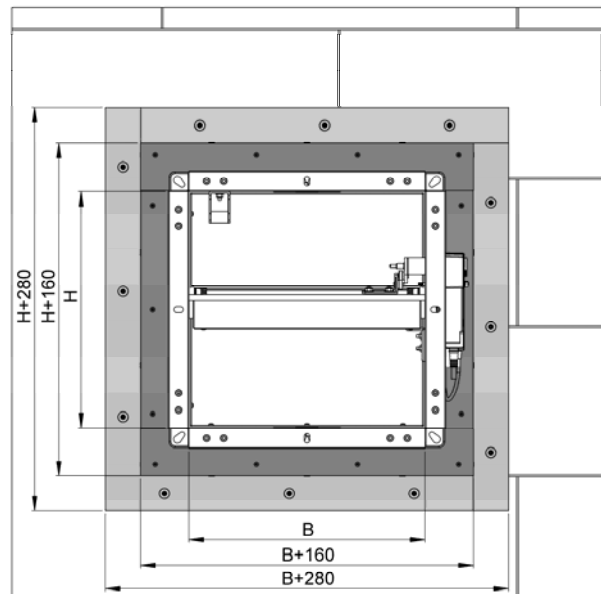
#### General note:

Due to the wide range of different fire damper types (manufacturers, models, etc.), a general procedure in case of a reconstruction cannot be described. A thorough technical clarification in preparation of the reconstruction is therefore required.

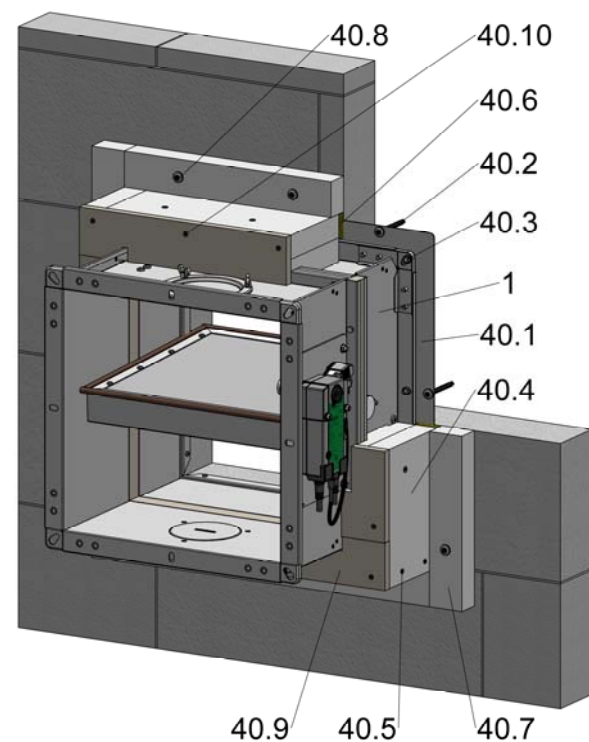
As a matter of principle, the existing fire dampers in solid walls must be circumferentially filled with mortar and mounted at a sufficient distance from adjacent components and third-party systems. Additionally, a minimum distance between the fire damper housings (installation "flange to flange" is not possible) must be maintained. A circumferential distance (see above) around the BKA-EN including the mounting kit type AS-E1 is required. When installing, for example, 2 fire dampers next to each other, the distance between them (measured from the BKA-EN housing) must be at least 360 mm.

When installing a new fire damper at the place of an already existing one, the housing of the fire damper protruding from the solid wall must be cut so that it is flush with the wall. Furthermore, the duct cross-section must be to 100% free, that means that all installation and mounting parts such as inner rods, damper blades, profiled seals, brackets etc. must be removed in order to guarantee that the damper blade of the new BKA-EN fire damper including the mounting kit type AS-E1 can move freely. Make sure that there is nothing left that may affect the function of the new fire damper. The joining plate of the type AS-E1 must be fastened to the housing of the fire damper put out of service using sheet-metal screws (e.g. 4.2 x 13 - provided on site). The old labels of the fire damper (e.g. type approval number), spring return actuators, hand levers etc. must be removed.

If there are empty spaces or gaps in the mortar area of the damper blade axle (hand lever case) after having dismantled outer mounting parts (e.g. hand lever with leg spring), these cavities must be filled with mortar of the respective quality class before installing the BKA-EN and the mounting kit type AS-E1.



**Figure 23: Installation on solid wall with mounting kit type AS-E1, view**



**Figure 24: Installation on solid wall with mounting kit type AS-E1**

The pos. 40.1 - 40.10 are included in the delivery of the mounting kit type AS-E1 (pos. 40).

- 1 Fire damper BKA-EN (L=375)
- 40.1 Joining plate (steel sheet frame)
- 40.2 HUS-P screw-in anchor  $\varnothing$  6 x 60 mm
- 40.3 M6 cap nuts/U-washers
- 40.4 Frame made of silicate boards  $\varnothing$  6 x 100 mm
- 40.5 Screws  $\varnothing$  4 x 80 mm
- 40.6 Mineral wool strips
- 40.7 Collar made of silicate boards
- 40.8 HUS-H screw-in anchor
- 40.9 Screen
- 40.10 Screws  $\varnothing$  4 x 40 mm



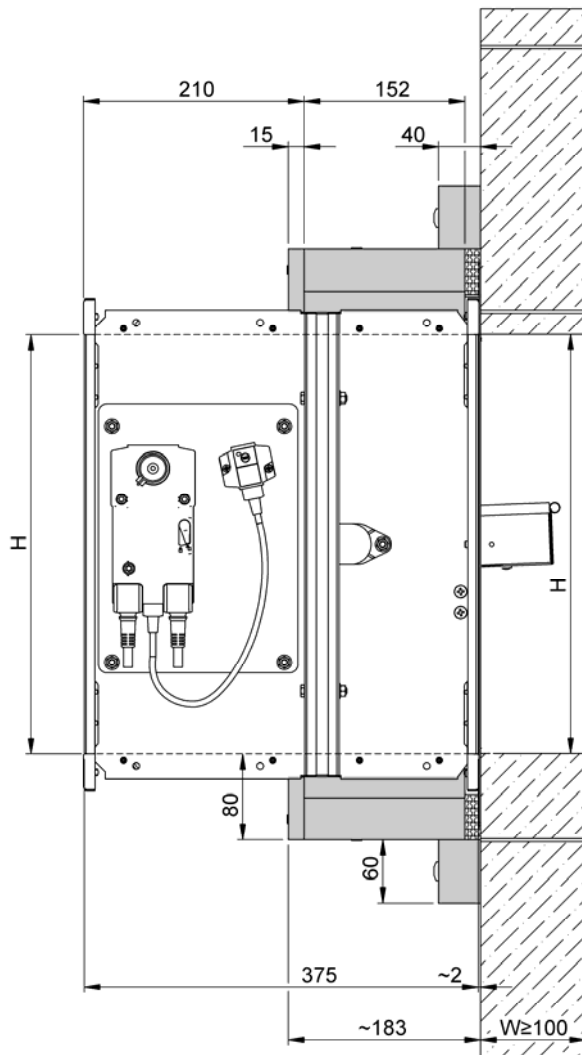


Figure 25: Side view (section) BKA-EN with mounting kit type AS-E1, mounted

### Installation procedure

A wall recess having the size (nominal width and height) of the fire damper BKA-EN to be installed must be made. Apply the sealing composition (included in the delivery of the mounting kit type AS-E1) on the joining plate (pos. 40.1; steel frame - wall side). Insert the joining plate in the wall recess having the dimensions of the fire damper (width (B) and height (H)) and fasten it to the wall using HUS-P screw-in anchors 6 x 60 mm (pos. 40.2;  $\varnothing$  6 mm predrilled).

Apply the sealing composition on the circumferential joining plate of the fire damper.

Fasten the fire damper to the joining plate using M6 cap nuts/U-washers (pos. 40.3).

Additional fastening by screwing the BK flange to the joining plate (all four sides) using a drilling screw  $\varnothing$  4.2 x 19 mm (distance  $\leq$  150 mm).

Place the frame consisting of silicate boards (pos. 40.4) and the mineral wool strips (pos. 40.6) on the fire damper. Screw the corner joints of the frame (pos. 40.4) together using screws  $\varnothing$  4 x 80 mm (pos. 40.5).

Attach the collar made of silicate boards (pos. 40.7) so that it is flush with the frame made of silicate board (pos. 40.4) and the wall and screw it to the wall using HUS-H screw-in anchors  $\varnothing$  6 x 100 mm (pos. 40.8; predrilled  $\varnothing$  6 mm).

Attach the screen made of silicate boards (pos. 40.9) to the front of the frame (pos. 40.4) using screws  $\varnothing$  4 x 40 mm (pos. 40.10).

The screw-in anchors mentioned above (pos. 40.2 and 40.8) are suitable for concrete walls. For other wall types, suitable dowels or other fastening material must be provided on site. Also an equivalent push-through installation is possible.

Installation video (YouTube):



<https://bit.ly/3u5XOZT>

### Dry installation away from solid walls

- Dry installation away from solid walls is only possible for BKA-EN with ERA2 installation frame.
- Wenn installing the fire damper away from solid walls, it must be suspended from a solid ceiling.
- Installation only in connection with proven, four-sided, straight fire-resistant ventilation duct (L90) without opening, made of a galvanized sheet steel with calcium silicate cladding boards. Further, supplementary requirements for the design and installation of the ventilation ducts are to be met in accordance with Promat® manual, design 478, in the current version.
- A separate installation opening and fire-resistant ventilation duct must be provided for each fire damper.
- The minimum distance between fire dampers when installed next to each other is 320 mm (to be adapted to local conditions).
- The minimum distance to adjacent components (wall/solid ceiling) is 160 mm (to be adapted to local conditions).
- Exclusively horizontal position of the damper blade axle.
- The ERA2 installation frame is to be ordered as an accessory (extra charge) – supplied loose or factory-mounted.

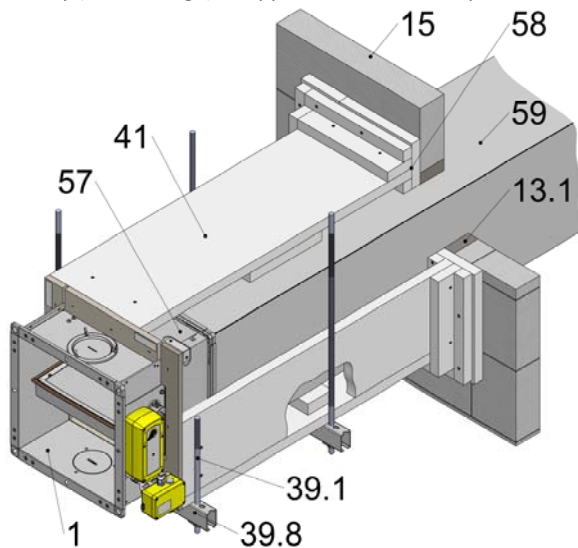


Figure 26: Installation away from the wall with ERA2 installation frame

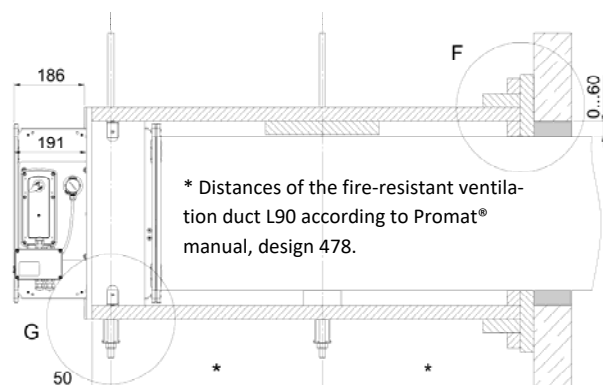
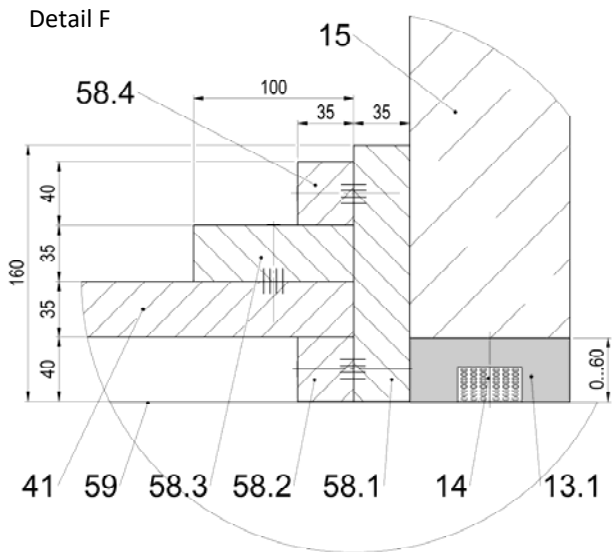


Figure 27: Side view (section) of BKA-EN installed with ERA2 installation frame



III Bonding of contact surfaces 58.2 – 58.1, 58.3 – 58.2, 58.4 – 58.1 with PROMAT® K84 adhesive

Figure 28: Wall connection away from solid wall

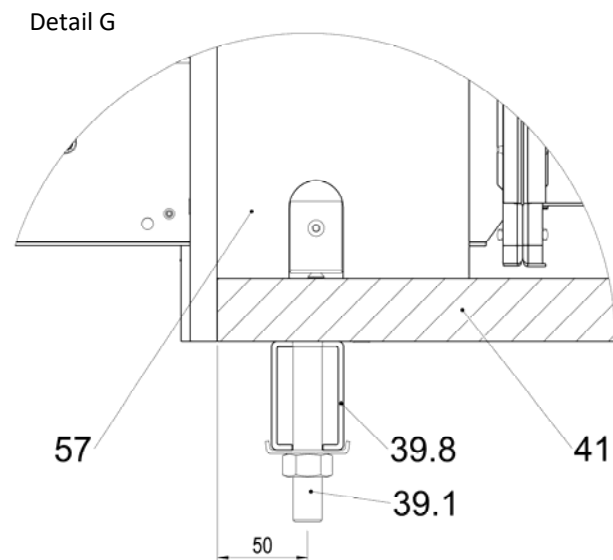


Figure 29: BKA-EN connection away from the wall with ERA2 installation frame

- 1 Fire damper BKA-EN
- 13.1 Mortar min. class M 10 according to EN 998-2
- 14 Mortar anchor (perforated plate  $t \geq 0.5$  mm; width x length = 40 x 70 mm; distance  $\leq 200$  mm; accessories for extra charge) or screws, bolts or similar
- 15 Solid wall, apparent density  $\geq 450$  kg/m<sup>3</sup>,  $W \geq 100$  mm
- 39 Suspension (provided on site) according to Promat® manual, design 478, in the current version; for information on the suspension see page 41.
- 39.1 Threaded rod (M12 or M16 according to page 41)
- 39.8 MÜPRO MPC-Support channel 40/60 and MPC-bracket
- 41 Fire-resistant ventilation duct (L90)
- 57 ERA2 installation frame

- 58 PROMATECT®-LS board strips; provided on site, T=35 mm
- 58.1 Board strips T x W = 35 mm x 160 mm, universal screws FN 4.3 x 65 (aerated concrete masonry) or Hilti HUS3-C 6 x 70 (concrete). Screw heads must be recessed. Other wall materials: fasteners must be selected accordingly.
- 58.2 Board strips T x W = 35 mm x 40 mm, universal screws 5 x 70.
- 58.3 Board strips T x W = 35 mm x 100 mm, universal screws 4 x 60.
- 58.4 Board strips T x W = 35 mm x 40 mm, universal screws 5 x 70.
- 59 Sheet steel ventilation duct

### Installation procedure

- Mount the mortar anchors (pos. 14) to the ventilation duct. Install the ventilation duct and fill the circumferential annular gap with mortar. Any already installed ventilation ducts must be fixed using fasteners (e.g. screws, bolts or similar) that are suitable for the underlying surface.
- Mount the BKA-EN (pos. 1) to the existing sheet steel ventilation duct (pos. 59).
- Fit the ERA2 installation frame (pos. 57) all around and fasten it in the corner areas using the brackets included in the delivery; make sure to observe the installation dimension 186 or 191 (drive side) mm.
- Attach the surrounding PROMATECT® board strips (pos. 58.1) to the wall. Level uneven surfaces, for example by filling gaps.

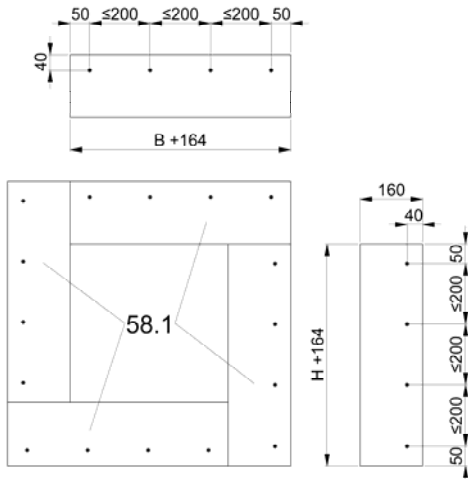


Figure 30: Dimensions and arrangement of pos. 58.1

- Attach the surrounding PROMATECT® board strips pos. 58.2 to pos. 58.1.

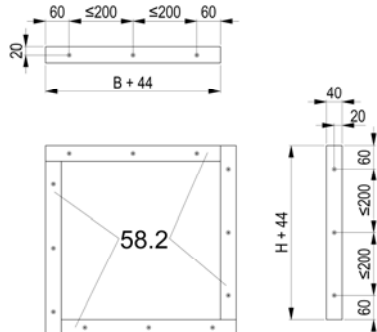


Figure 31: Dimensions and arrangement of pos. 58.2

Construction subject to change  
 No return possible

- Mount the fire-resistant lining (pos. 41) consisting of PROMATECT® fire protection boards, T = 35 mm, incl. suspension. The current version of the Promat® Manual, Design 478, must be observed. Screw the PROMATECT® fire protection boards to the ERA2 installation frame all around; see Figure 32 below. Position the suspension in the area of the BKA-EN as shown in Figure 29 (Detail G).

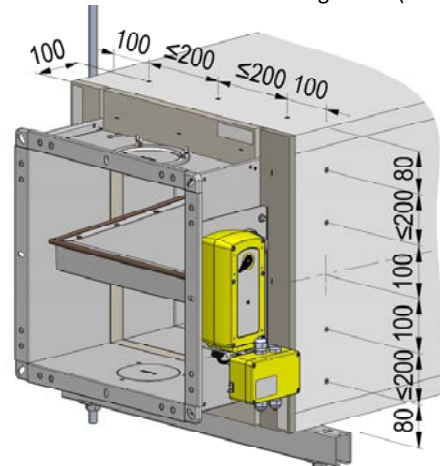


Figure 32: Mounting the PROMATECT® fire protection boards to the ERA2 installation frame

- Attach the surrounding PROMATECT® board strips (pos. 58.3) to the fire-resistant lining (pos. 41).

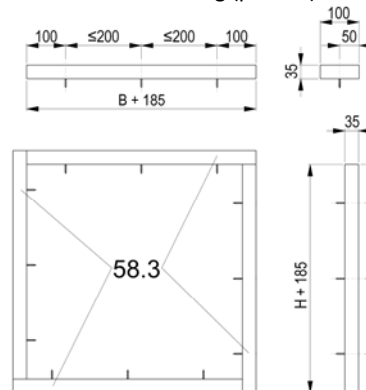


Figure 33: Dimensions and arrangement of pos. 58.3

- Attach the surrounding PROMATECT® board strips pos. 58.4 to pos. 58.1.

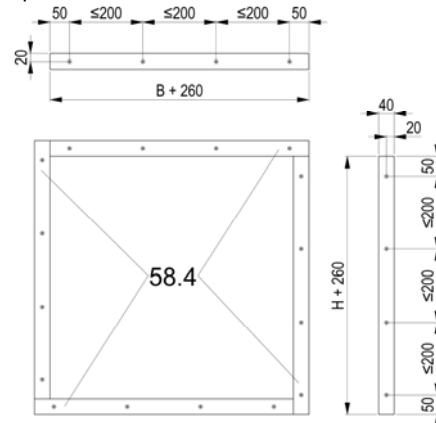


Figure 34: Dimensions and arrangement of pos. 58.4

### INSTALLATION IN SOLID CEILINGS

- Installation in solid ceilings made, for example, of concrete, aerated concrete, apparent density  $\geq 500 \text{ kg/m}^3$  and ceiling thickness  $D \geq 125 \text{ mm}$ .

#### Installation positions

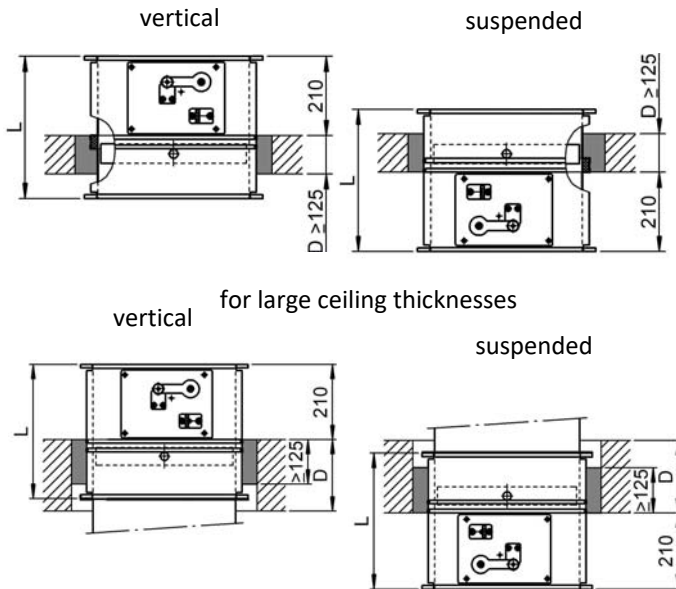


Figure 35: Installation positions in solid ceilings

#### Wet installation of a fire damper, complete mortar lining

- The minimum distance between the fire dampers must be at least 70 mm.
- The minimum distance from adjacent components (wall) is at least 40 mm.

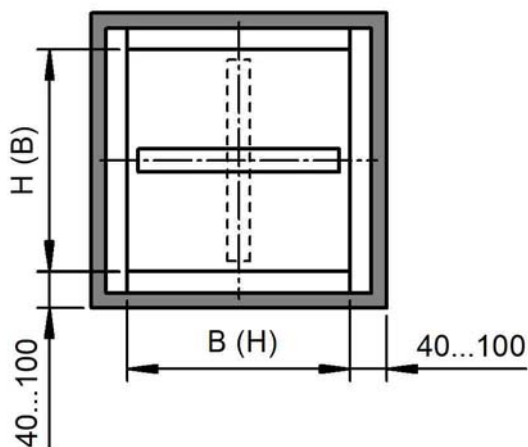


Figure 36: Annular gap sizes for complete mortar lining in solid ceilings

#### Installation at a reduced distance "flange to flange"

Installation of max. 2 BKA-EN next to each other in an installation opening in solid walls at a reduced distance "flange-to-flange". All annular gaps have to be filled with mortar.

- The minimum distance from adjacent components (wall) is at least 40 mm.

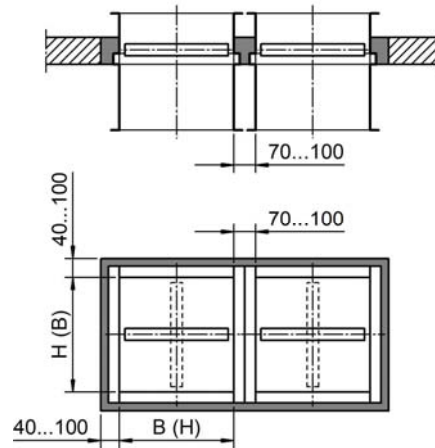


Figure 37: Installation in solid ceilings at a reduced distance "flange-to-flange"

### Wet installation with concrete base

- Construction of a circumferential, straight reinforced concrete base (concrete grade: C20/25; concrete cover  $\geq 35$  mm; reinforcement: concrete steel BSt500S concrete steel mats B500A). The base must be constructed circumferentially with a wall thickness of at least 100 mm, measured from the housing of the fire damper. The height of the base must be maintained up to the prescribed installation dimension (210 mm). The maximum base height is  $\leq 550$  mm.

The damper blade clearance of the installed fire damper must be guaranteed. Make sure that there is nothing left that may affect the function of the new fire damper.

Prior to installation of the fire damper, fastening materials (e.g. screws, press-in nuts, etc.) must be provided and attached on the non-operating side for mounting duct components or, if subsequent mounting is no longer possible, the ventilation duct must be connected before installing the fire damper. Alternatively, extension pieces (on site or as accessories, e.g. SCHAKO type VT) can be mounted.

During the formation of the concrete base in solid ceilings, in addition to the constructive anti-crack reinforcement, it must be ensured that the concrete base is applied directly to the reinforced concrete ceiling or connected to the raw ceiling.

Any separating layers (floor coverings, seals, insulations, floating screeds, etc.) must be removed or must not be present in this area.

During the construction of the concrete base, make sure that the housing of the fire damper is not pressed inwards (reinforcement).

- The distance of the fire dampers to one another (no more than 2) must be at least 70 mm.
- If an adjacent solid component (wall) is closer than 100 mm to the housing of fire damper, the existing gap to this component must be filled as described above. This option becomes available if the adjacent component has F90 characteristics.

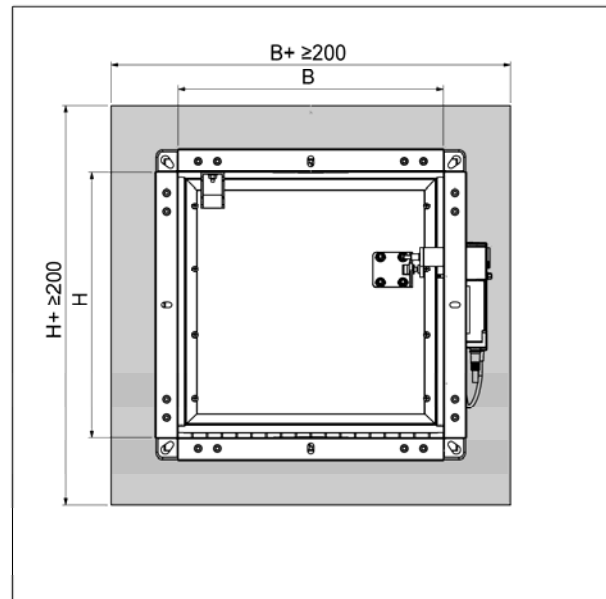


Figure 38: Installation in solid ceilings with concrete base, top view

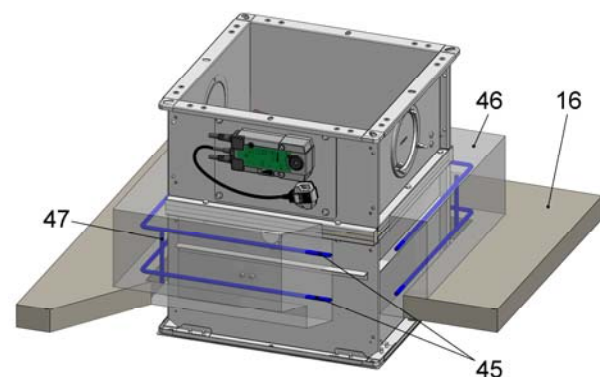


Figure 39: Installation in solid ceilings with concrete base

45 Horizontal reinforcement e.g. bracket ( $\varnothing 8$ ;  $e \leq 150$  mm)

46 Concrete base (concrete C20/25)

47 Splice bars ( $\varnothing 8$ ;  $e \leq 500$  mm; at least 4 pieces/base)

16 Solid ceiling (ceiling thickness  $D \geq 125$  mm;  $\rho \geq 500$  kg/m<sup>3</sup>)

**Reinforcement of the reinforced concrete upstand  
 (Concrete cover  $\geq 35$  mm; Note: Mounting reinforcement  
 not drawn):**

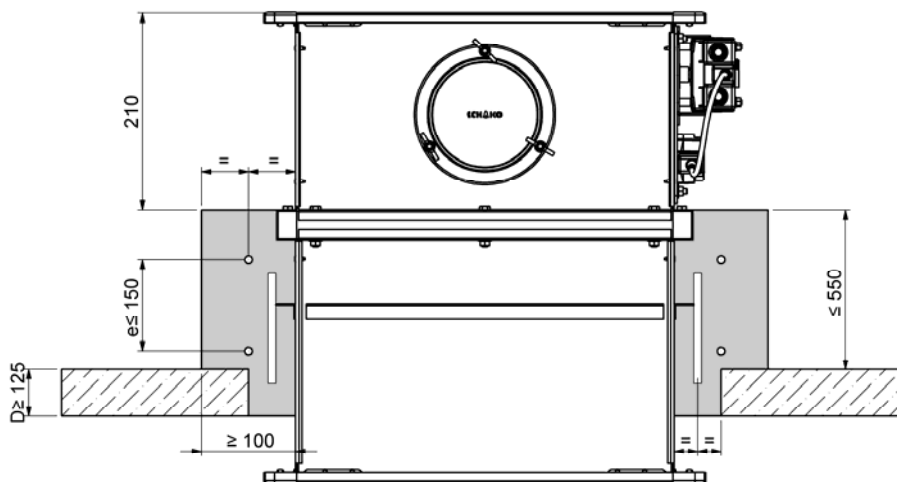
- Horizontal reinforcement (pos. 45):  
 closed bracket  $\varnothing 8$ ,  $e \leq 150$  mm or steel bar with appropriate  
 overlap lengths or equivalent mesh reinforcement (Q335A);  
 arranged in centre of base (pos. 46).

- Connecting reinforcement to the reinforced concrete ceiling,  
 if **an** annular gap is present in the immediate ceiling opening  
 area, it must be sealed with concrete in the appropriate  
 grade:

$\varnothing 8$   $e \leq 500$  mm (splice bar in ceiling, pos. 47) centre of base  
 (=/=), but at least 4 pieces/base (arranged in the corner areas  
 of the base)

- Connecting reinforcement to the reinforced concrete ceiling,  
 if **no** annular gap is present in the immediate ceiling opening  
 area.

$\varnothing 8$   $e \leq 500$  mm (splice bar in ceiling, pos. 47) centre of base  
 (=/=), but at least 4 pieces/base (arranged in the corner areas  
 of the base); to be glued into ceiling using, for example, Hilti  
 HIT HY 200.



**Figure 40: Installation in solid ceilings with concrete base, sec-  
 tion**

## INSTALLATION IN LIGHTWEIGHT PARTITION WALLS WITH METAL POSTS

### LIGHTWEIGHT PARTITION WALLS WITH PANNELLING ON BOTH SIDES AND WALL THICKNESS $W \geq 100$ MM

- Installation in lightweight partition walls with metal posts and panelling on both sides (gypsum-bonded wall boards; wall thickness  $\geq 100$  mm) according to classification to EN 13501-2 or comparable national standards.
- Installation and mounting aids on site must be removed.

### Wet installation of a fire damper, complete mortar lining

- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance to adjacent components must be (due to the design) at least 90 mm from the wall and at least 80 mm from the ceiling. The actual minimum distance may slightly differ from the distances mentioned above and must be executed and adapted as a function of the wall connection type.

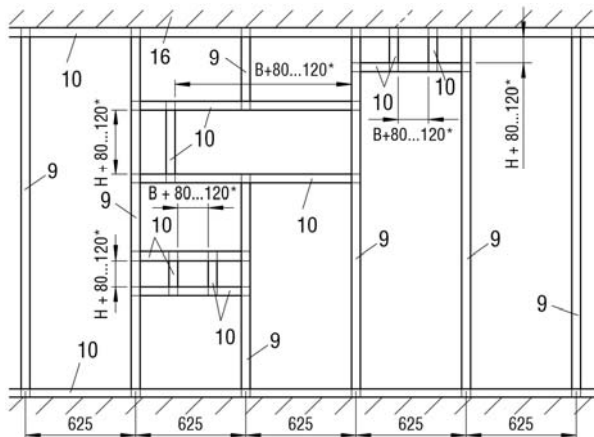


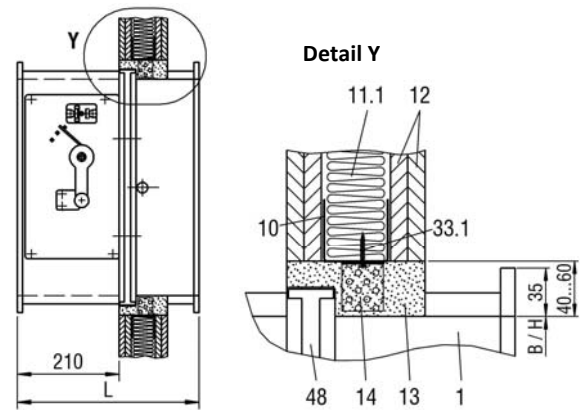
Figure 41: Metal posts with required exchange parts for wet installation (dimensions without reveal)

\*When using a reveal (pos. 20; circumferential 12.5 mm), the opening dimensions (see Figure 41) must be increased by 25 mm.

#### Mounting information:

In the overlap area of the exchangeable profiles, they must be riveted, crimped or screwed once on both sides. These connections are only for fastening the individual metal profiles during mounting.

### Sectional view of lightweight partition wall without reveal



### Sectional view of lightweight partition wall with reveal

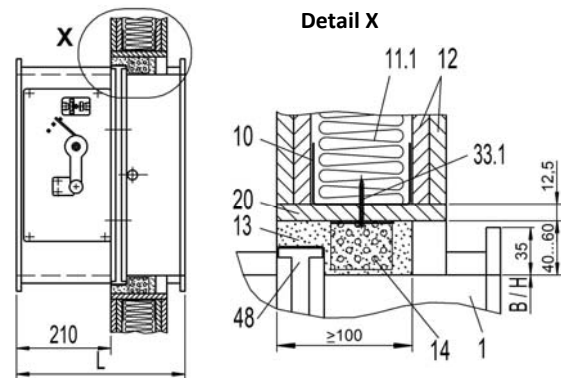


Figure 42: Wet installation in lightweight partition wall

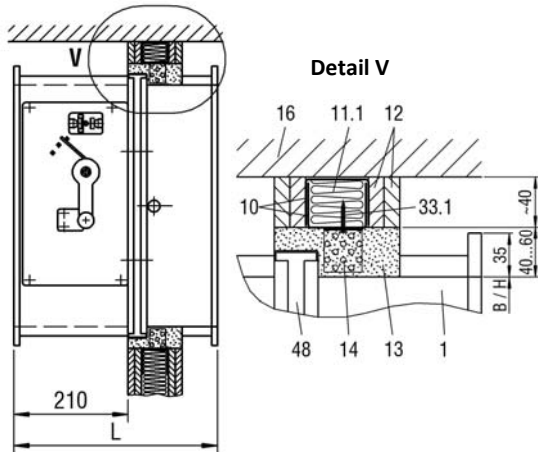
### Installation procedure

- Mount the metal posts and the wall in accordance with the specifications of the wall manufacturer and the required exchange parts as shown on Figure 41.
- Leave a recess for wet installation of the BKA-EN (pos.1).
- From  $B > 800$  mm (with horizontal damper blade axle), on both B sides of the exchange profiles, 2 bent perforated plates each ( $t \geq 0.5$  mm; width x length = 40 x 70 mm), must be fastened as mortar anchor (pos. 14). They must be screwed to the metal profiles at the wall centre, using one dry-wall screw for each plate.
- Insert the BKA-EN into the wall recess (operating side - observe the installation dimension of 210 mm). Average out the circumferential annular gap evenly between the wall and the BKA-EN. Mount the BKA-EN with the help of mounting suspensions, etc.
- Insert mortar (pos. 13) into the circumferential gap of 40 to 60 mm between the BKA-EN housing and the circumferential metal profiles (pos. 10). If reveals (pos. 20) are used, a mortar bed depth of 100 mm is sufficient. When using reveals, the exchange parts must be adjusted to the recess dimensions.

### Wet installation of a fire damper under a solid ceiling, complete mortar lining

Wet installation under a solid ceiling does not constitute a sliding ceiling connection.

#### Sectional view under solid ceiling without reveal



#### Sectional view under solid ceiling with reveal

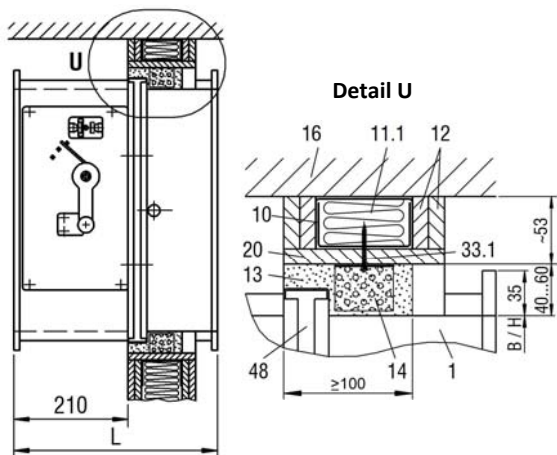


Figure 43: Wet installation in lightweight partition wall under the solid ceiling

### Installation procedure

- Mount the metal posts and the wall in accordance with the specifications of the wall manufacturer and the required exchange parts as shown on Figure 41. Before attaching the UW-profile (pos. 10) necessary for the circumferential metal profile frame to the ceiling area, a mineral wool strip of approx 50 x 40 mm (pos. 11.1) must be incorporated in the UW-profile at the ceiling according to the wall manufacturer's specifications.

- Leave a recess for wet installation of the BKA-EN (pos.1).
- From  $B > 800$  mm (with horizontal damper blade axle), on both B sides of the exchange profiles, 2 bent perforated plates each ( $t \geq 0.5$  mm; width x length = 40 x 70 mm), must be fastened as mortar anchor (pos. 14). They must be screwed to the metal profiles in the wall centre, using one dry-wall screw each, and cast in concrete.
- Insert the BKA-EN into the wall recess (operating side - observe the installation dimension of 210 mm). Average out the circumferential annular gap evenly between the wall and the BKA-EN. Mount the BKA-EN with the help of mounting suspensions, etc.
- Insert mortar (pos. 13) into the circumferential gap of 40 to 60 mm between the BKA-EN housing and the circumferential metal profiles (pos. 10). If reveals (pos. 20) are used, a mortar bed depth of 100 mm is sufficient. When using reveals, the exchange parts must be adjusted to the recess dimensions.

- 1 Fire damper BKA-EN
- 9 Profile CW 50/50/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
- 10 Profile UW 50/40/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
- 11.1 Mineral wool (according to the wall manufacturer's specifications)
- 12 Panelling of the lightweight partition wall made of gypsum-bonded wall boards
- 13 Mortar
- 14 From  $B > 800$  mm, 2 mortar anchors for each B side are required, for installation with horizontal damper blade axle (perforated plate  $t \geq 0.5$  mm; width x length = 40 x 70 mm; accessories at an extra charge). Not required for installation with vertical damper blade axle.
- 16 Solid ceiling
- 20 Reveal, optional
- 33.1 Dry-wall screws (-on site- e.g.  $\varnothing 3.5$  x 25 mm) same quantity as mortar anchors (pos. 14)
- 48 Thermal insulation



### Dry installation of a fire damper

- The dry installation must be carried out during the assembly of the wall.
- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance to adjacent components must be (due to the design) at least 90 mm from the wall and at least 80 mm from the ceiling. The actual minimum distance may slightly differ from the distances mentioned above and must be executed and adapted as a function of the wall connection type.

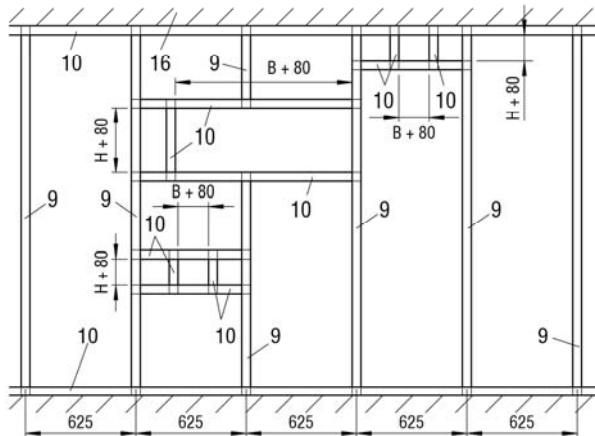


Figure 44: Metal stud frame with required replacement parts for dry installation

### Sectional view of LPW

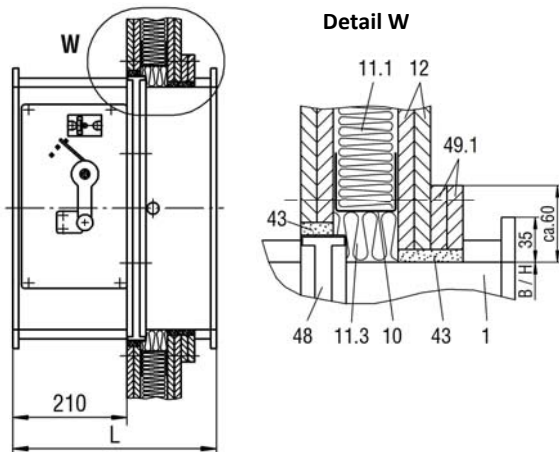


Figure 45: Dry installation in lightweight partition wall

### Installation procedure

- Mount the metal posts and the wall in accordance with the specifications of the wall manufacturer and the required exchange parts as shown on Figure 44.
- Insert the BKA-EN (pos. 1) into the wall recess (operating side - observe the installation dimension of 210 mm). Average out the circumferential annular gap evenly between the wall and the BKA-EN. Mount the BKA-EN with the help of mounting suspensions, etc.
- Insert mineral wool (pos. 11.3) (non-flammable according to EN 13501-1, packing density 80 kg/m<sup>3</sup>, melting point ≥ 1000 °C) into the circumferential gap 40 mm in width between the housing of the BKA-EN and the circumferential metal profiles (pos. 10).
- Mount the wall panellings on both sides (pos. 12) and the doublings on the non-operating side (pos. 49.1). The connection and butt joints must be filled with the jointing material of the wall (pos. 43; max. gap width 5 mm, perform jointing operation as part of assembly).

### Dry installation of a fire damper under a solid ceiling

Dry installation under a solid ceiling does not constitute a sliding ceiling connection.

### Sectional view under solid ceiling

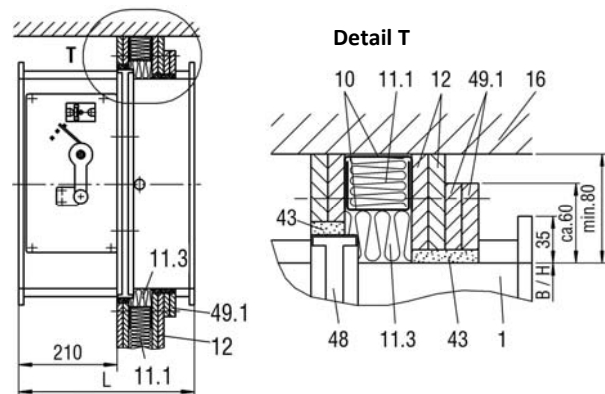


Figure 46: Dry installation in lightweight partition wall under the solid ceiling

### Installation procedure

- Mounting of wall UW-profile (pos. 10) on the ceiling
- Insert mineral wool strips (according to the wall manufacturer's specifications) of approx. 50x40 mm (pos. 11.1) into the UW-profile described above and attach the UW-profile necessary for the circumferential metal profile frame to the ceiling area
- Screw down the double panellings on both sides (pos. 12) and both doublings (pos. 49.1)  $L \pm$  housing width B on the non-operating side.
- Insert mineral wool strips of approx. 50x40 mm (pos. 11.3) between the previously screwed-down panellings.
- Mount the BKA-EN (pos. 1) by means of mounting suspensions, etc. Prior to mounting, plaster or plaster mortar must be applied in wedge form to the upper B side of the thermal insulation (pos. 48) and in the area of the panelling (pos. 12)

and doubling (pos. 49.1) on the non-operating side, so that the gaps (pos. 43; max. gap width 5 mm, perform jointing operation as part of assembly) are completely filled. The BKA-EN must be positioned at a height distance of approx. 80 mm from the ceiling.

- The remaining metal posts are mounted according to the specified distances.
- Insertion of mineral wool (pos. 11.1+11.3)
- Mounting of the wall panellings on both sides (pos. 12) and of the doublings (pos. 49.1)

- 1 Fire damper BKA-EN
- 9 Profile CW 50/50/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
- 10 Profile UW 50/40/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
- 11.1 Mineral wool (according to the wall manufacturer's specifications)
- 11.3 Mineral wool, (non-flammable according to EN13501-1, apparent density approx. 80 kg/m<sup>3</sup>, melting point ≥ 1000 °C, thickness 40 mm)
- 12 Panelling of the lightweight partition wall made of gypsum-bonded wall boards
- 16 Solid ceiling
- 43 Joint filling with jointing material of the wall
- 48 Thermal insulation
- 49.1 Doubling (plaster boards GKF, 2 x d=12.5 mm)
  - First doubling, fastening: Dry-wall screws e.g. TN 3.5x55, a ≤ 250 mm, but at least 2 screws per side, connection and butt joints of the doublings must be filled with the wall material.
  - Second doubling, fastening: Dry-wall screws e.g. TN 4.5x70, a ≤ 250 mm, but at least 2 screws per side, connection and butt joints of the doublings must be filled with the wall material.

### Dry installation of a fire damper directly under a solid ceiling with "mineral wool inlay"

- A dry installation with mineral wool inlay does not constitute a flexible ceiling connection.
- The minimum distance between the fire dampers must be 200 mm.
- The minimum distance to adjacent components must be 40 mm from the ceiling and 90 mm from the wall. The actual minimum distance from the wall may slightly differ from the distance mentioned above and must be executed and adapted as a function of the wall connection type.

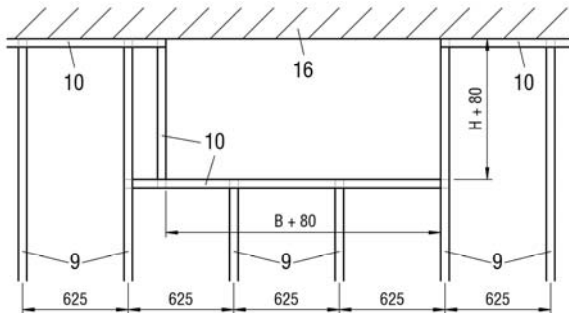


Figure 47: Metal posts with required exchange parts (dry installation directly under the solid ceiling with "mineral wool inlay")

#### Mounting information:

In the overlap area of the exchangeable profiles, they must be riveted, crimped or screwed once on both sides. These connections are only for fastening the individual metal profiles during mounting.

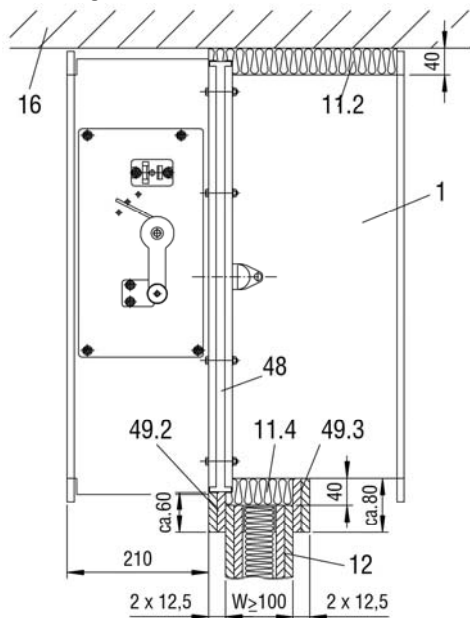


Figure 48: Dry installation in lightweight partition wall directly under the solid ceiling with "mineral wool inlay"

### Installation procedure

- Mount the metal posts and the wall in accordance with the specifications of the wall manufacturer and the required exchange parts as shown on Figure 47. Leave a recess for installing the BKA-EN (pos. 1).
- Attach mineral wool (pos. 11.2) to the upper side of the BKA-EN. Cut out the mineral wool in the area of the thermal insulation (pos. 48). Insert the BKA-EN into the wall recess (operating side - observe the installation dimension of 210 mm) and press it against the ceiling.
- Mount the BKA-EN with the help of mounting suspensions, etc.
- Doubling (pos. 49.2, operator side) consisting of plaster boards 2 x 12.5 mm, width = 60 mm is mounted on both H sides and the lower B side.
- Mineral wool (pos. 11.4; on three sides: bottom/right/left, compressed to a density of approx. 60 kg/m<sup>3</sup>) is inserted between the fire damper and the wall reveal in the appropriate wall thickness filling the cavity.
- Doubling (pos. 49.3, non-operator side) consisting of plaster boards 2 x 12.5 mm, width = 80 mm is mounted on both H sides and the lower B side.

#### 1 Fire damper BKA-EN

9 Profile CW 50/50/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly).

10 Profile UW 50/40/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly).

11.2 Mineral wool (non-flammable EN 13501-1,  $\rho \geq 100 \text{ kg/m}^3$ , melting point  $\geq 1000^\circ\text{C}$ )

11.4 Mineral wool (non-flammable EN 13501-1, apparent density approx. 30 kg/m<sup>3</sup>, melting point  $\geq 1000^\circ\text{C}$ ; on three sides: bottom/right/left, compressed to a density of approx. 60 kg/m<sup>3</sup>)

12 Panelling (on both sides) of the metal stud wall made of gypsum-bonded wall boards

16 Solid ceiling

48 Thermal insulation

49.2 Doubling (plaster boards GKF, 2 x 12.5 mm, width = 60 mm) fastening: dry-wall screws e.g.  $\varnothing 3.9 \times 75$ ,  $a \leq 200 \text{ mm}$ , but at least 2 screws per side

49.3 Doubling (plaster boards GKF, 2 x 12.5 mm, width = 80 mm) fastening: dry-wall screws e.g.  $\varnothing 3.9 \times 75$ ,  $a \leq 200 \text{ mm}$ , but at least 2 screws per side

### Dry installation with installation frame type ER-A1

- When installed next to each other, the distance between the fire dampers must be at least 200 mm; they must be installed in separate openings. Fixing lugs ( $W=30$  mm) may have to be offset by at least 15 mm.
- The minimum distance to adjacent components (wall/ceiling) must be 110 mm (due to the design). The actual minimum distance may slightly differ from the distances mentioned above and must be provided and adjusted depending on the wall connection type.
- $L=375$ , wall widths  $W > 125$ : prior to fire damper installation in the wall opening, duct pieces (provided on site or SCHAKO type VT) must be mounted in advance to the BKA-EN (non-operating side).
- The ER-A1 installation frame is to be ordered as an accessory (extra charge) – supplied loose or factory-mounted.

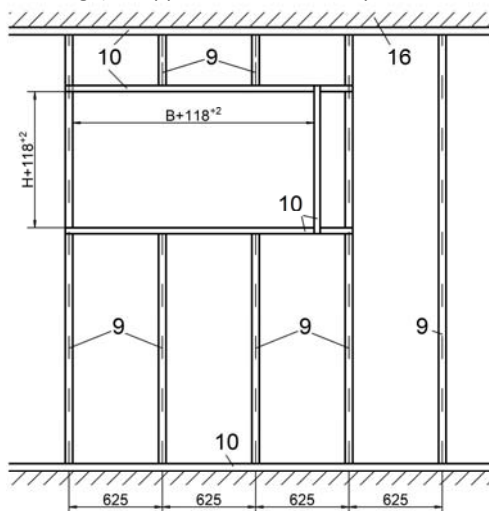


Figure 49: Metal stud frame with required replacement parts at  $W \leq 125$  mm and 1 layer of circumferential reveal (12.5 mm) for BKA-EN with ER-A1 installation frame

#### Mounting information:

In the overlap area of the exchangeable profiles, they must be riveted, crimped or screwed once on both sides. These connections are only for fastening the individual metal profiles during mounting.

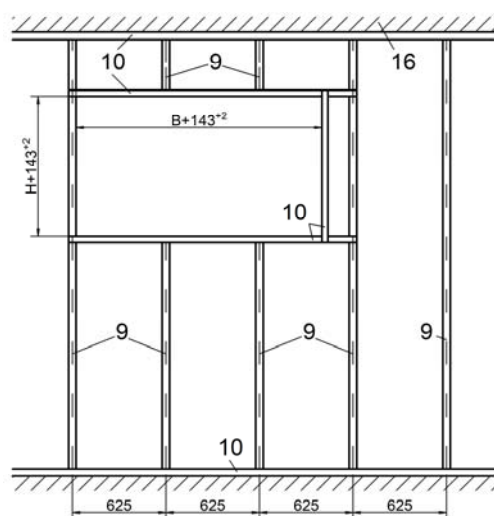


Figure 50: Metal stud frame with required replacement parts at  $W > 125$  mm and 2 layers of circumferential reveal (2x12.5 mm) for BKA-EN with ER-A1 installation frame

Construction subject to change  
No return possible

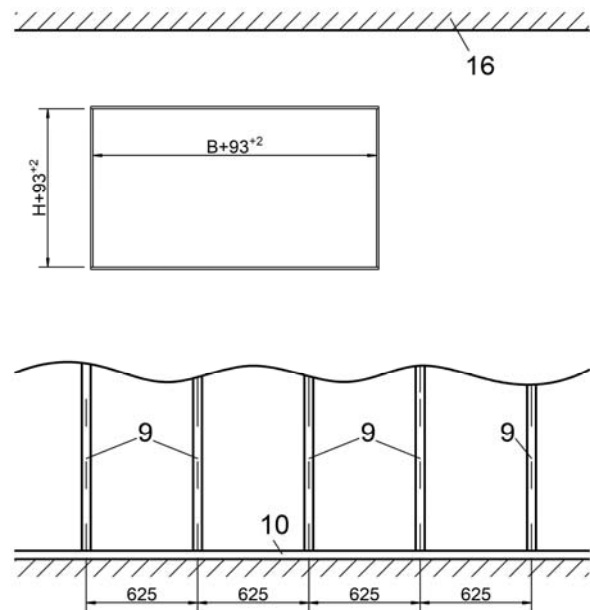


Figure 51: Representation of the internal dimension for installation of the BKA-EN with ER-A1 installation frame

### Dry installation (with installation frame type ER-A1)

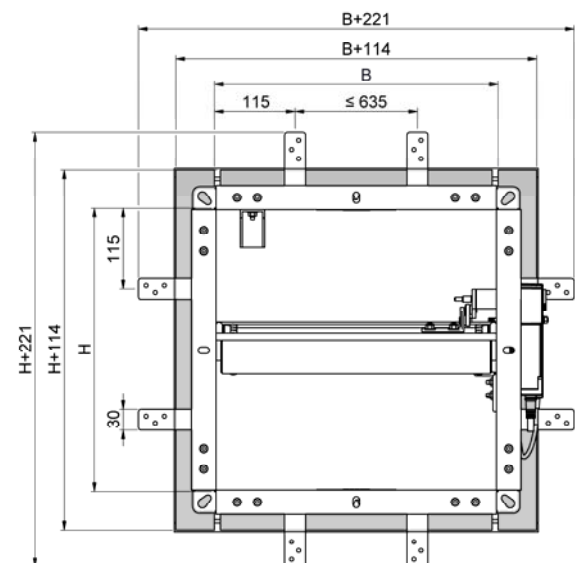


Figure 52: BKA-EN with installation frame type ER-A1 and shown fixing lugs (in the figure: width (B) x height (H) 400 x 400 mm)

Examples of number and positioning:

Number of fixing lugs per side dimension [mm]	
1 fixing lug/side	< 400
2 fixing lugs/side	≥ 400 to ≤ 865
3 fixing lugs/side	> 865

Table 4: Number of fixing lugs per side for ER-A1

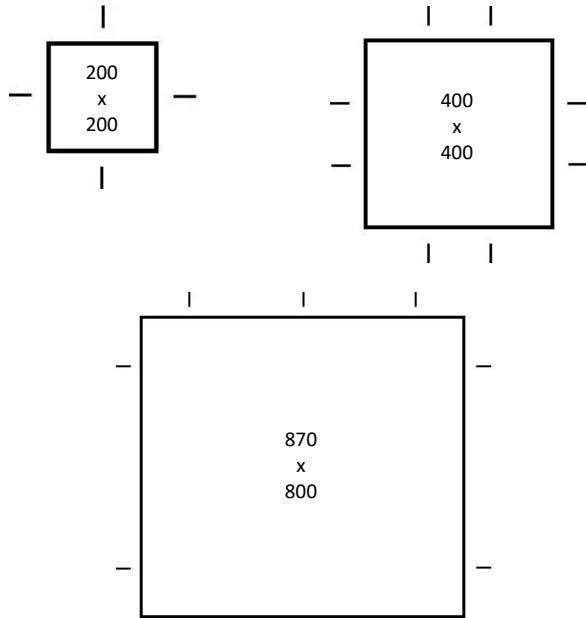


Figure 53: Examples of fixing lug number and positioning for installation frame type ER-A1

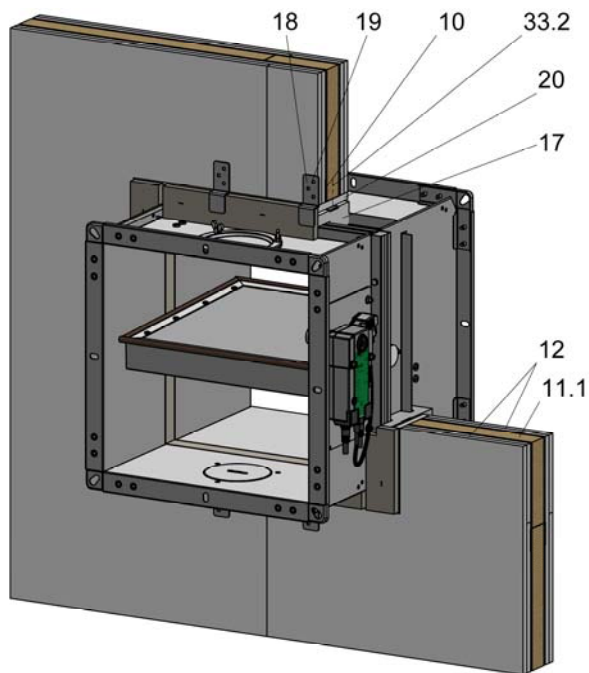


Figure 54: BKA-EN with installation frame type ER-A1 in lightweight partition wall

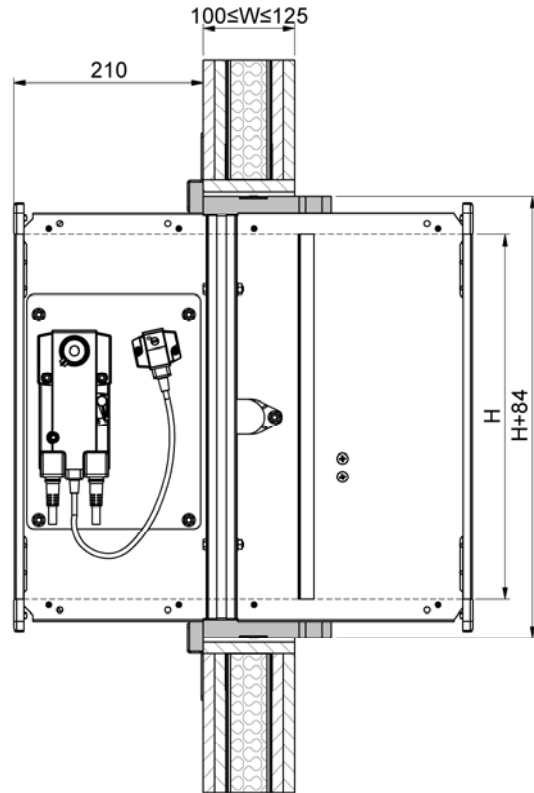


Figure 55: Dry installation in lightweight partition wall (F90)  $W \leq 125$  mm with ER-A1 installation frame

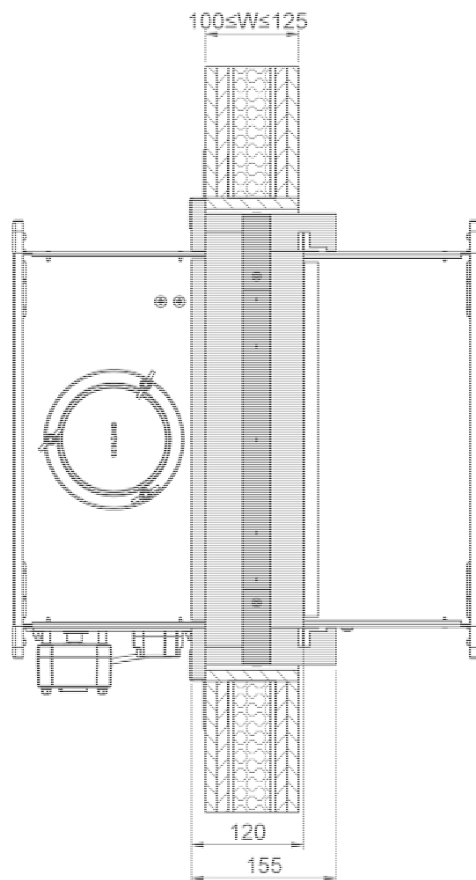


Figure 56: Dry installation in lightweight partition wall (F90)  $W \leq 125$  mm with ER-A1 installation frame

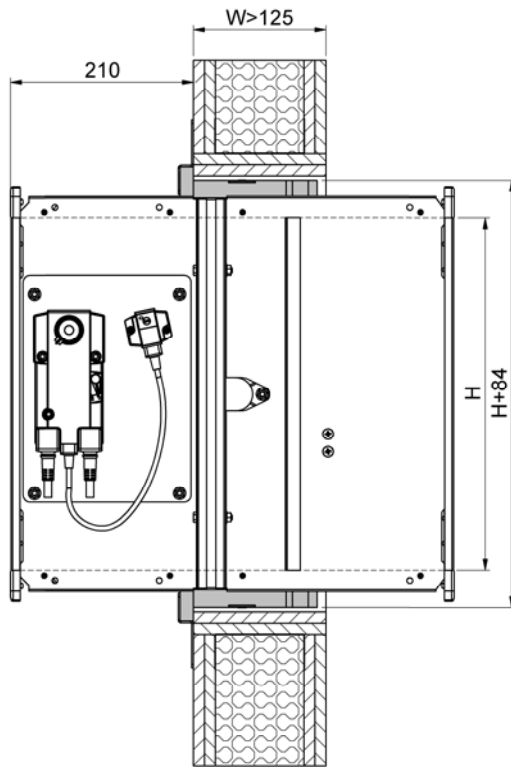


Figure 57: Dry installation in lightweight partition wall (F90)  
W > 125 mm with ER-A1 installation frame

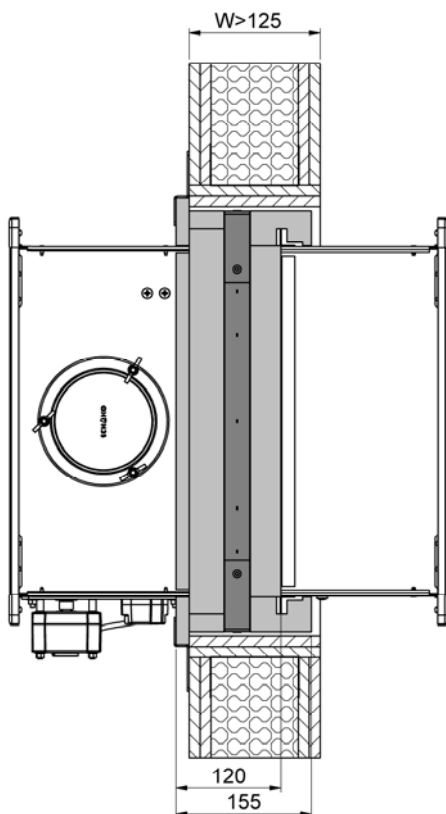


Figure 58: Dry installation in lightweight partition wall (F90)  
W > 125 mm with ER-A1 installation frame

Construction subject to change  
No return possible

### Installation procedure

- Prepare the metal posts and the wall in accordance with the specifications of the wall manufacturer and the required exchange parts as shown on Figure 49 page 28. Leave a recess for installing the BKA-EN with installation frame type ER-A1 (pos. 17).
- Construct a circumferential reveal (pos 20) with 12.5-mm plaster boards and screw them centrally to the circumferential metal profile frame (pos. 33.2 - fastening: e.g. dry-wall screws  $\phi$  3.5 x 25 mm, screw distance  $\leq$  250 mm, but at least 2 screws per side).
- Insert the BKA-EN in the wall recess (dimensions: B+93<sup>+2</sup> mm x H+93<sup>+2</sup> mm), so that the stop of the installation frame type ER-A1 is in contact with the wall (operating side – observe the installation dimension of 210 mm up to the VK wall, see Figure 55). Average out the circumferential annular gap evenly between the wall recess and the installation frame type ER-A1. Mount the BKA-EN with the help of mounting suspensions, etc.
- The fire damper is fastened on all sides to the supporting structure (exchange profiles – pos. 10) using the appropriate number of fixing lugs (pos. 18; see Table 4) The fixing lugs are fastened to the supporting structure using 2 dry-wall screws for each lug (pos. 19 e.g.  $\phi$  3.5x35 mm; adjust the screw length to the panelling thickness).

9 Profile CW 50/50/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly).

10 Profile UW 50/40/06 (with wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly).

11.1 Mineral wool (according to the wall manufacturer's specifications)

12 Panelling (on both sides) of the metal stud wall made of gypsum-bonded wall boards

16 Solid ceiling

17 ER-A1 installation frame (accessory at an extra charge: supplied loose as a mounting kit or factory-assembled).

17.1 + 17.3 B side Parts 1 and 2

17.2 + 17.4 H side parts 1 and 2

17.5 Countersunk head screw 4.5 x 20 mm (8 pieces)

17.6 Corner angle ER-A1 (4 pieces)

18 Fixing lugs (included in the delivery of the installation frame type ER-A1)

19 Drywall screws (on site 2 x / fixing lug; e.g.  $\phi$  3.5 x 35 mm)

20 Circumferential reveal (on site) screwed to metal stud profiles,

depending on the wall thickness (12.5 mm GRP panels for wall thickness  $W \leq$  125 mm / for  $W >$  125 mm two layers of reveal (2 x 12.5 mm) are required)

33.2 Dry-wall screws (must be provided on site, e.g.  $\phi$  3.5 x 25 mm; screw spacing  $\leq$  250 mm, but at least 2 screws per side)

### Dry installation with installation kit type GDL, flexible ceiling connection

- If the installation kit type GDL is used, only a BKA-EN with a housing length of L=375 is possible.
- Installation in the area of flexible ceiling connections (flexibility/ceiling bending  $\leq 20$  mm). They are to be constructed if the expected ceiling bending is  $\geq 10$  mm (wall manufacturer's specification).
- When installed next to each other, the distance between the fire dampers must be at least 280 mm (due to the design) and they must be mounted in separated installation openings.
- The distance to adjacent components is (due to the design) at least approx. 190 mm from the wall and approx. 40 mm from the solid ceiling. The actual minimum distance to adjacent walls may slightly differ from the distance mentioned above and must be executed and adapted according to the wall connection type.
- Fastening to the solid component (e.g. the ceiling).
- Exclusively horizontal position of the damper blade axle
- On the non-operating side, blind rivet nuts for mounting duct components are attached in the corner angles. Select the length of the screws (on site) so that the installation kit type GDL cannot be damaged (screw depth  $\approx 14$  mm).
- The version of the installation kit type GDL depends on the selected metal post profiles of the wall. Consider this when ordering and selecting the installation kit type GDL and specify it based on the versions listed below.

R08 = installation kit type GDL (for metal post profiles

CW50/UW50, single stud structure)

R09 = installation kit type GDL (for metal post profiles

CW75/UW75, single stud structure)

R10 = installation kit type GDL (for metal post profiles

CW100/UW100, single stud structure)

R11 = installation kit type GDL (for metal post profiles

CW125/UW125, single stud structure)

#### BKA-EN ex works rotated by 180°

R12 = installation kit type GDL (for metal post profiles

CW50/UW50, single stud structure)

R13 = installation kit type GDL (for metal post profiles

CW75/UW75, single stud structure)

R14 = installation kit type GDL (for metal post profiles

CW100/UW100, single stud structure)

R15 = installation kit type GDL (for metal post profiles

CW125/UW125, single stud structure)

R58-R65 correspond to the installation kits mentioned above with additional DD coating.

#### Mounting information:

In the sliding area (see Figure 59 + Figure 60), the metal stud profiles must be installed according to the wall manufacturer's specifications. Panellings must not be fastened in this area.

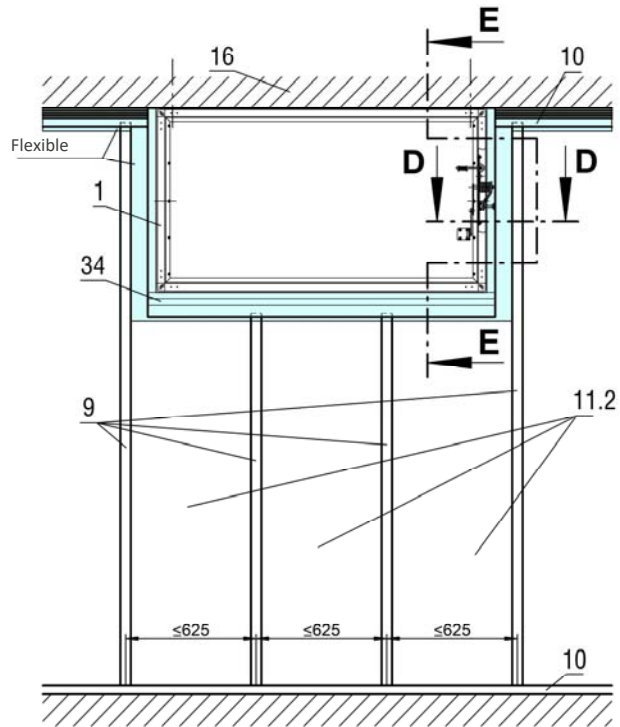


Figure 59: Metal stud frame with required replacement parts for installation kit type GDL (the figure shows: WxH 1500x800; R08 - R11 or R58 - R61)

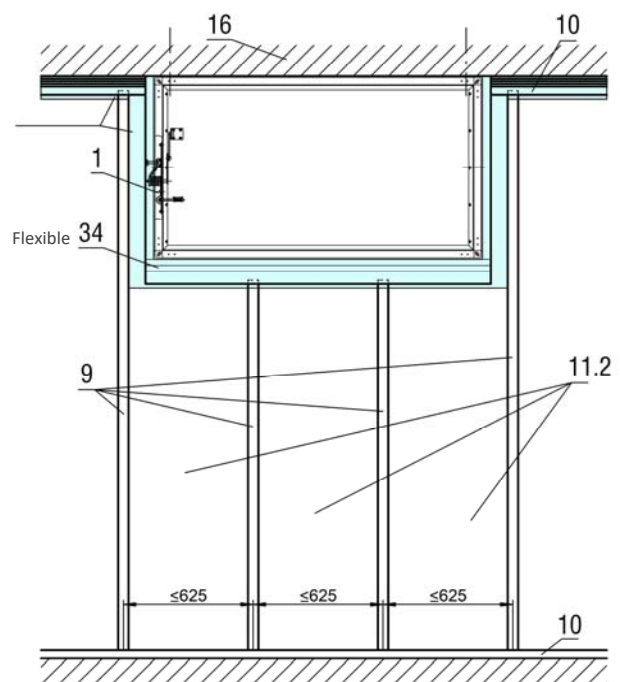


Figure 60: Metal stud frame with required replacement parts for installation kit type GDL (the figure shows: WxH 1500x800; R12 - R15 or R62 - R65)

Section D-D

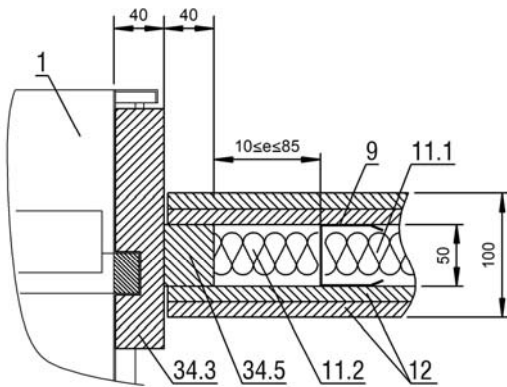


Figure 61: Section D-D

Section E-E

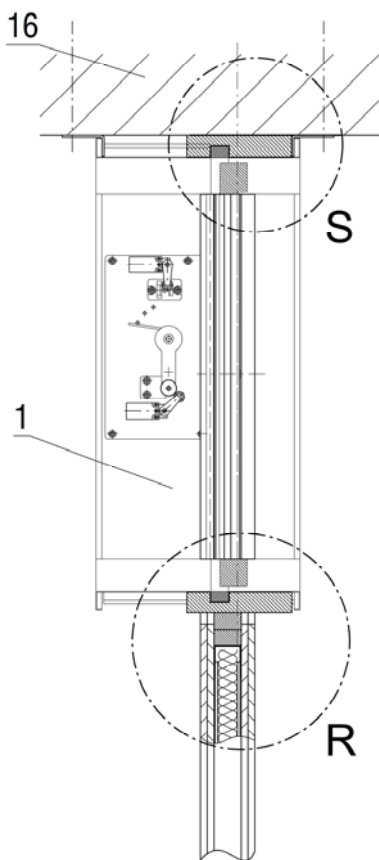


Figure 62: Section E-E

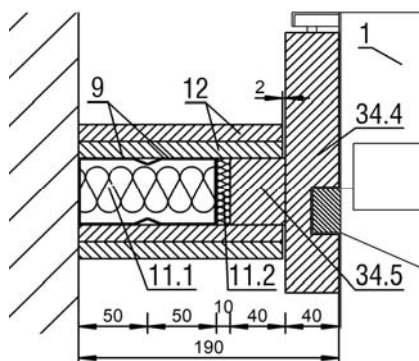
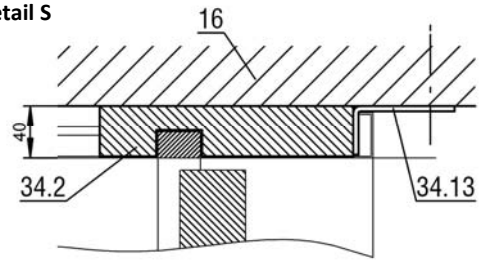
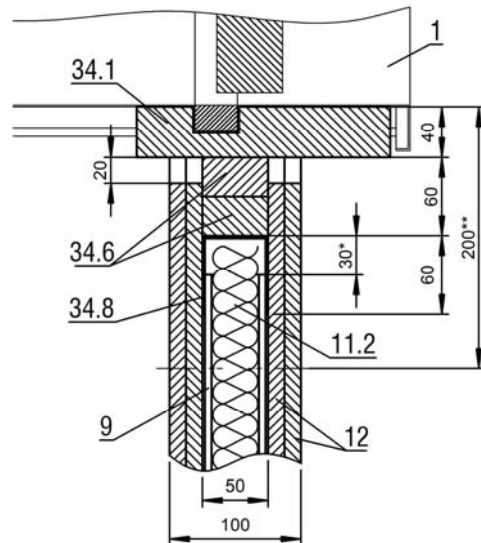


Figure 63: Distance to adjacent wall

Detail S



Detail R



\* Distance from CW-profile (pos. 9) to U-profile (pos. 34.8)

\*\* Distance from the screw connection of the panelling ("screw-free area")

Figure 64: Detail S and R

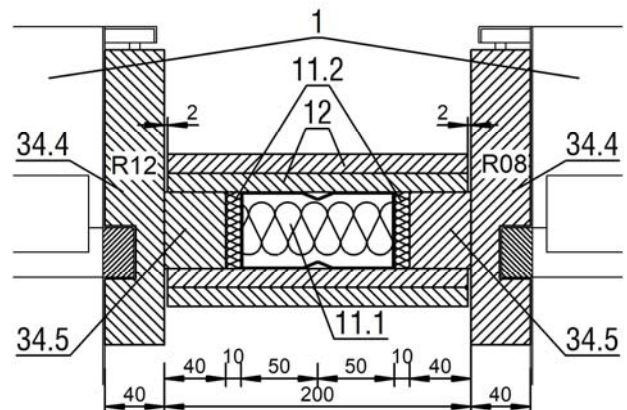


Figure 65: Distance to one another when installed next to each other



## Installation procedure

- Fire damper (pos. 1) is installed before the construction of the wall.
- The ground (bottom side of the ceiling) must be even and smooth, bigger unevenness must be levelled (e.g. plaster filling).
- The BKA-EN with installation kit GDL (pos. 34) is fastened to the solid ceiling via the fastening brackets (pos. 34.13; 4 pieces) mounted ex works on the fire damper using metal dowels M12 provided on site.
- Horizontal U-profile (pos. 34.8) and vertical H-strips (pos. 34.5; sliding strips) of the installation kit type GDL must be aligned such that they are perpendicular and flush to the wall (which will be assembled subsequently).
- Assembly of the wall in the immediate connection area of the installation kit type GDL (pos. 34):
  - Mount the plate strips of the flexible ceiling connection of the wall on both sides of the installation kit type GDL on the solid ceiling (pos. 16). Guide the strips up to the vertical H-strips of the installation kit type GDL (pos. 34.5; sliding strips). Gaps to the installation kit type GDL must be closed (filled) with the jointing material of the wall. After that, the UW connection profile is mounted.
  - Adjust the first vertical continuous metal post (floor-ceiling) on each of the two sides of the damper: distance (clearance in mm) to the vertical H-strip (pos. 34.5; sliding strip):  $10 \leq e \leq 85$ .
  - Arrange metal posts between the above mentioned continuous metal posts evenly or in steps of 625 mm. At least one metal post must be provided. Metal posts are inserted into the UW floor profile and the U-profile of the installation kit type GDL (pos. 34.8).
  - The wall must be connected to the U-profile of the installation kit type GDL (pos. 34.8) according to the general ceiling connection of the wall.
  - Insertion of mineral wool (pos. 11.2). It must always be provided in the marked area (Figure 59).
- Mounting of panellings on both sides (pos. 12). Screw connections in the marked area (sliding area; Figure 59) are not allowed.
 

The length of the installed panellings and CW post profiles must be reduced by the bending dimension. On the sides, guide the panellings up to  $2^{+1}$  mm to the installation kit type GDL. The panelling may only be fastened in the CW post profiles at a distance to the UW connection profile or U-profile (pos. 34.8) related to the bending dimension ( $\geq 10$  mm to  $\leq 20$  mm) to ensure proper sliding of it.

- 1 Fire damper BKA-EN
- 9 CW profile (50; 75; 100; 125) adapted to pos. 10
- 10 UW profile (50; 75; 100; 125) adapter to pos. 9
- 11.1 Mineral wool (according to the wall manufacturer's specifications)
- 11.2 Mineral wool (non-flammable according to EN13501-1, apparent density approx.  $100 \text{ kg/m}^3$ , melting point  $\geq 1000 \text{ }^\circ\text{C}$ , thickness adapted to the respective profile or wall thickness)
- 12 Panelling (on both sides) of the metal stud wall made of gypsum-bonded wall boards
- 16 Solid ceiling
- 34 Installation kit type GDL (mounted ex works; consisting, among other things, of)
  - 34.1 Frame part B2
  - 34.2 Frame part B1
  - 34.3 Frame part H1
  - 34.4 Frame part H2
  - 34.5 H-strip
  - 34.6 B-strip
  - 34.8 U-profile (50; 75; 100; 125) adapter to pos. 9 + 10
  - 34.13 Fastening brackets (4 pieces)

### Dry installation with soft seal

- The fire damper must be permanently suspended from the solid ceiling on both sides of the wall (see page 42). Suspension angle (pos. 38) for fire damper available as accessory at an extra charge.
- With an annular gap of 50 - 100 mm, the fire damper must be installed together with the firestop boards. Mounting of the firestop boards after installation of the fire damper (installation dimension 210 mm) is possible starting with an annular gap of about 100 mm.
- For each fire damper, a separate installation opening must be provided.
- The minimum distance between the fire dampers for installation side by side must be at least 200 mm (note: each fire damper must be installed in a separate installation opening)
- Depending on the wall thickness, the distance to adjacent components is, due to the design, at least approx. 103/115 mm from the ceiling and approx. 113/125 mm from the wall.

### Soft seal system

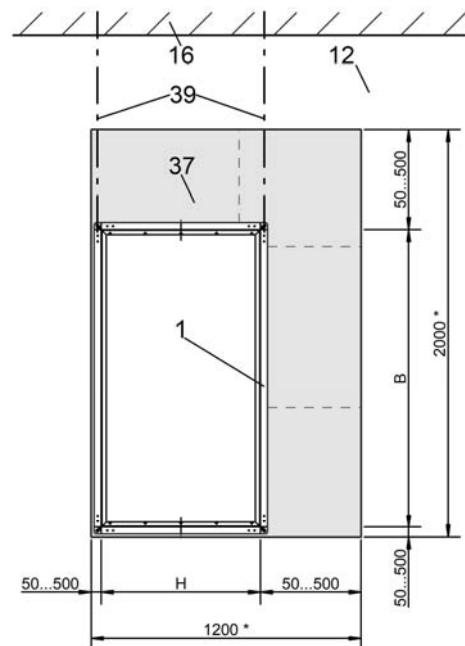
Permissible soft seal system (provided on site):

#### Manufacturer Hilti

- Firestop boards CFS-CT B 1S 140/50
- Firestop coating CFS-CT
- Firestop boards CP 673 PF
- Firestop coating CP 673
- Firestop sealant CFS-S ACR

In general, the specifications and processing guidelines of the soft seal manufacturer (in particular the maximum seal dimensions) must be observed.

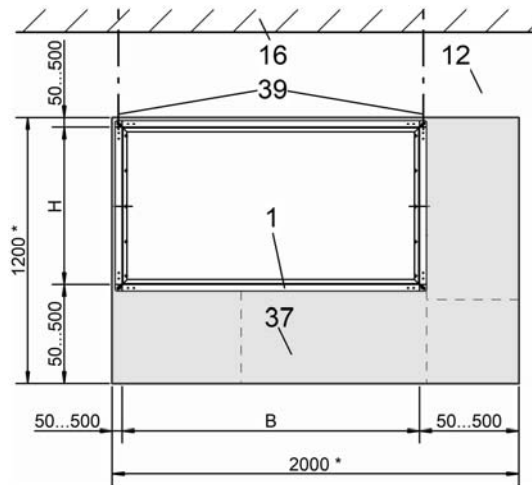
#### Dimensions of the min./max. annular gap



\*)  $\triangleq$  max. seal dimensions according to the manufacturer's specifications Hilti

Figure 66: Installation example vertical damper blade

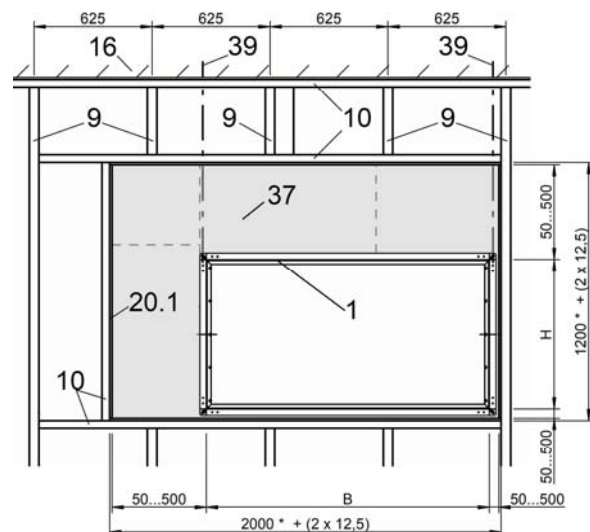
Construction subject to change  
No return possible



\*)  $\triangleq$  max. seal dimensions according to the manufacturer's specifications Hilti

Figure 67: Installation example horizontal damper blade

#### Wall thickness = 100 mm



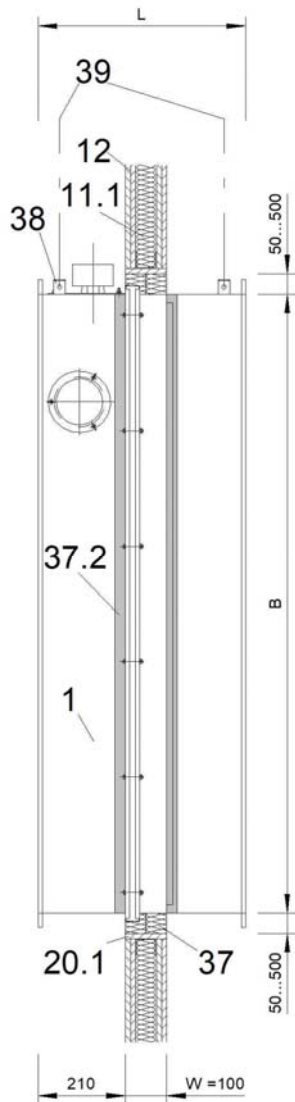
\*)  $\triangleq$  max. seal dimensions according to the manufacturer's specifications Hilti

Figure 68: Metal stud frame plus required replacement parts (for wall thickness = 100 mm)

#### Mounting information:

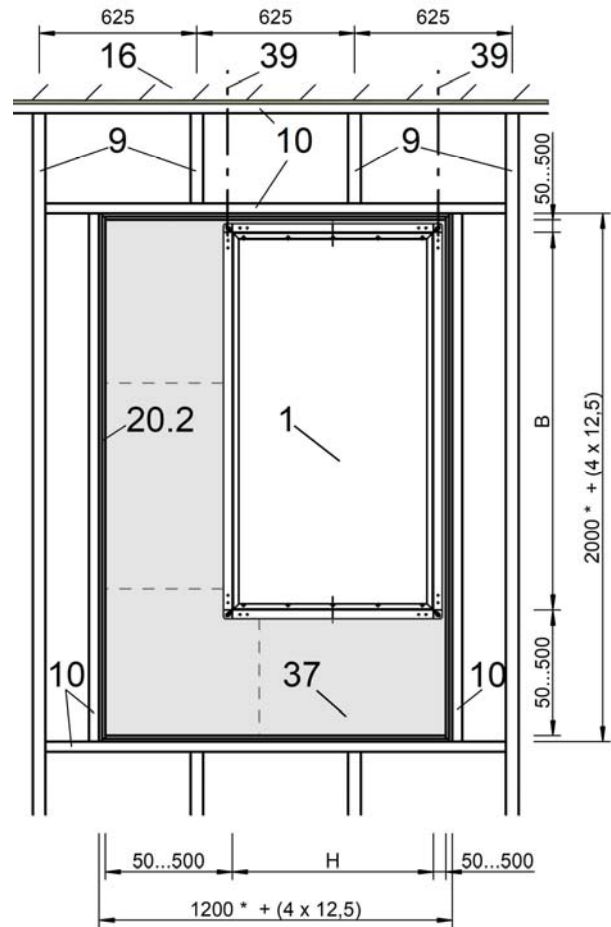
In the overlap area of the exchangeable profiles, they must be riveted, crimped or screwed once on both sides. These connections are only for fastening the individual metal profiles during mounting.

**Sectional view for wall thickness = 100 mm**



**Figure 69:**  
Installation in metal stud wall (wall thickness = 100 mm)

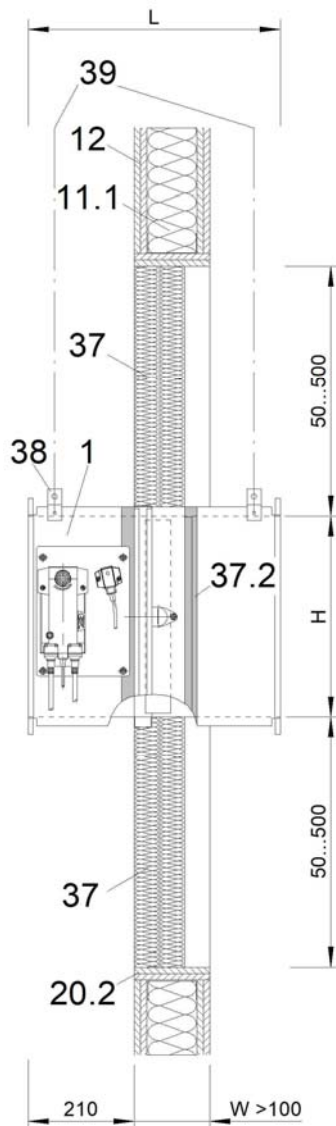
**Wall thickness > 100 mm**



\*)  $\triangleq$  max. seal dimensions according to the manufacturer's specifications Hilti

**Figure 70:** Metal stud frame plus required replacement parts (for wall thickness > 100 mm)

**Sectional view for wall thickness > 100 mm**



**Figure 71: Installation in metal stud wall (wall thickness > 100 mm)**

**Installation procedure**

- The fire damper (pos. 1) is installed in the intended installation opening after the construction of the wall.
- The annular gap between the fire damper housing and the reveal of the installation opening must be min. 50 mm and max. 500 mm. The fire damper must be placed in the installation opening in accordance with the annular gap sizes mentioned above. The installation dimension of 210 mm on the operating side has to be complied with. The annular gap must be sealed with two layers of firestop boards (pos. 37.1) of the Hilti soft seal system (see p. 34, among others). With an annular gap of 50 - 100 mm, the fire damper must be installed together with the firestop boards. The firestop boards have to be cut precisely with accurate contours so that they are positioned tightly over the entire surface. All gaps (between the firestop boards and the reveal of the installation opening, between the firestop boards and the fire damper) as well as the face area and the cut surface of the boards must be covered with the firestop sealant (pos. 37.3) and sealed. In general, the specifications and processing guidelines of the soft seal manufacturer must be observed.
- The fire damper is suspended from the operating and non-operating side by means of four angles (pos. 38). The angles are available as accessories (at an extra charge) and are mounted on site. For further information on the suspension, see page 42.
- Once the mounting of the soft seal system is completed, the firestop coating (pos. 37.2) must be applied circumferentially with a width of  $\geq 25$  mm and a thickness of  $\geq 2.5$  mm on the operating and non-operating side of the fire damper housing.

1 Fire damper BKA-EN

9 Profile CW 50/50/06 (for wall thickness = 100 mm; for larger wall thicknesses, the profiles must be adapted accordingly)

10 Profile UW 50/40/06 (for wall thickness = 100 mm; for larger wall thicknesses, the profiles must be adapted accordingly)

11.1 Mineral wool (according to the wall manufacturer's specifications)

12 Panelling (on both sides) of the metal stud wall made of gypsum-bonded wall boards

16 Solid ceiling

20 Circumferential reveal (on site) screwed to metal stud profiles, depending on the wall thickness

20.1 Reveal 1 x 12.5 mm (wall thickness = 100 mm)

20.2 Reveal according to the board number and thickness of the wall (wall thickness > 100 mm)

37 Hilti soft seal system (ETA-11/0429):

37.1 Firestop boards CFS-CT B 1S 140/50 or CP 673 PF

37.2 Firestop coating CFS-CT or CP 673

(circumferential width  $\geq 25$  mm,  $t \geq 2.5$ mm)

37.3 Firestop sealant CFS-S ACR

38 Suspension angle

(accessory at an extra charge: 1 set = 4 units/BKA-EN)

39 Suspension (provided on site)

**LIGHTWEIGHT PARTITION WALLS (F30/F60) WITH PANELLING ON BOTH SIDES AND WALL THICKNESS  $W \geq 75$  MM**

- Installation in lightweight partition walls with metal posts and panelling on both sides (gypsum-bonded wall boards; wall thickness  $\geq 75$  mm) according to classification to EN 13501-2 or comparable national standards.
- Installation and mounting aids on site must be removed.

**Dry installation of a fire damper**

- The dry installation must be carried out during the assembly of the wall.
- The minimum distance between the fire dampers must be 200 mm.
- The minimum distance to adjacent components is at least 80 mm from the ceiling and at least 90 mm from the wall. The actual minimum distance may slightly differ from the distances mentioned above and must be executed and adapted as a function of the wall connection type.

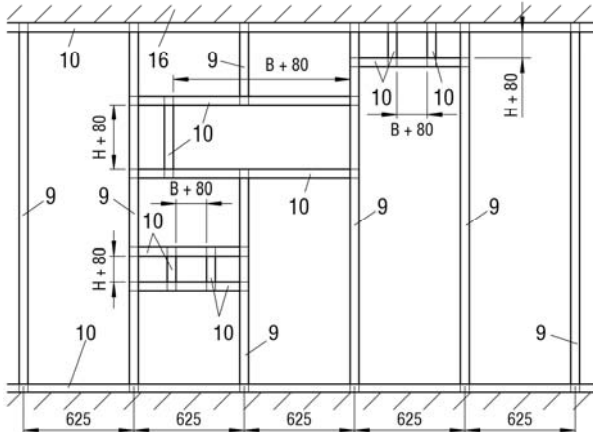


Figure 72: Metal post with required exchange parts for dry installation (F30/F60)

Mounting information:

In the overlap area of the exchangeable profiles, they must be riveted, crimped or screwed once on both sides. These connections are only for fastening the individual metal profiles during mounting.

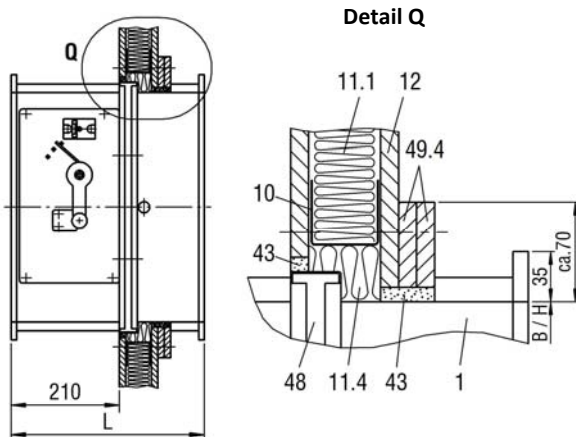


Figure 73: Wall panelling and double-board layers (lightweight partition wall)

**Installation procedure**

- Mount the metal posts and the wall in accordance with the specifications of the wall manufacturer and the required exchange parts as shown on Figure 72.
- Insert the BKA-EN (pos. 1) into the wall recess (operating side - observe the installation dimension of 210 mm). Average out the circumferential annular gap evenly between the wall and the BKA-EN. Mount the BKA-EN with the help of mounting suspensions, etc.
- Insert mineral wool (pos. 11.4) into the circumferential gap 40 mm in width between the BKA-EN housing and the circumferential metal profiles (pos. 10).
- Mount the wall panellings on both sides (pos. 12) and the doublings on the non-operating side (pos. 49.4). The connection and butt joints must be filled with the jointing material of the wall (pos. 43; max. gap width 5 mm, perform jointing operation as part of assembly).

**Dry installation of a fire damper under a solid ceiling**

- Dry installation under a solid ceiling does not constitute a sliding ceiling connection.

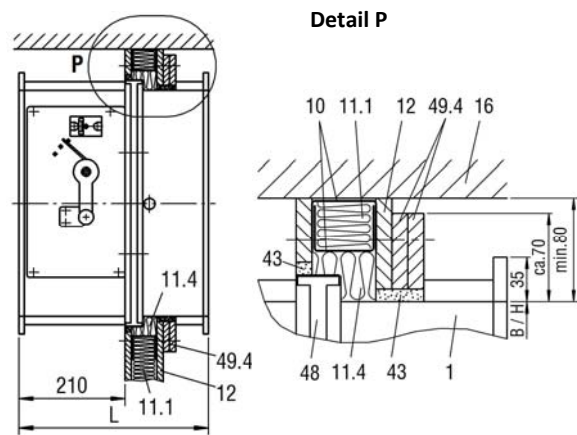


Figure 74: Dry installation in lightweight partition wall (F30/F60) under a solid ceiling

### Installation procedure

- Mounting of wall UW-profile (pos. 10) on the ceiling
- Insert mineral wool strips (according to the wall manufacturer's specifications) of approx. 50x40 mm (pos. 11.1) into the UW-profile described above and attach the UW-profile necessary for the circumferential metal profile frame to the ceiling area
- Screw down the panellings on both sides (pos. 12) and doublings (pos. 49.4)  $L \triangleq$  housing width B on the non-operating side.
- Insert mineral wool strips of approx. 50x40 mm (pos. 11.4) between the previously screwed-down panellings.
- Mounting of the BKA-EN by means of mounting suspensions etc. Prior to mounting, plaster or plaster mortar must be applied wedge-like to the upper B side of the thermal insulation (pos. 48) in the area of the panelling and the doublings on the non-operating side, so that the gaps (pos. 43; max. gap width 5 mm, perform jointing operation as part of assembly) are completely filled. The BKA-EN must be positioned at a height distance of approx. 80 mm from the ceiling.
- The remaining metal posts are mounted according to the specified distances.
- Insertion of the mineral wool (pos. 11.1 according to the wall manufacturer's specifications and pos. 11.4)
- Mounting of the wall panellings on both sides (pos. 12) and of the doubling (pos. 49.4)

1 Fire damper BKA-EN

9 Profile CW 50/50/06

10 Profile UW 50/40/06

11.1 Mineral wool, according to the wall manufacturer's specifications

11.4 Mineral wool, (non-flammable according to EN 13501-1, apparent density approx. 30 kg/m<sup>3</sup>, melting point  $\geq$  1000 °C, thickness 40 mm)

12 Panelling (on both sides) of the metal stud wall made of gypsum-bonded wall boards

16 Solid ceiling

43 Joint filling with jointing material of the wall

48 Thermal insulation

49.4 Doubling (plaster boards GKF, 2 x d=12.5 mm)

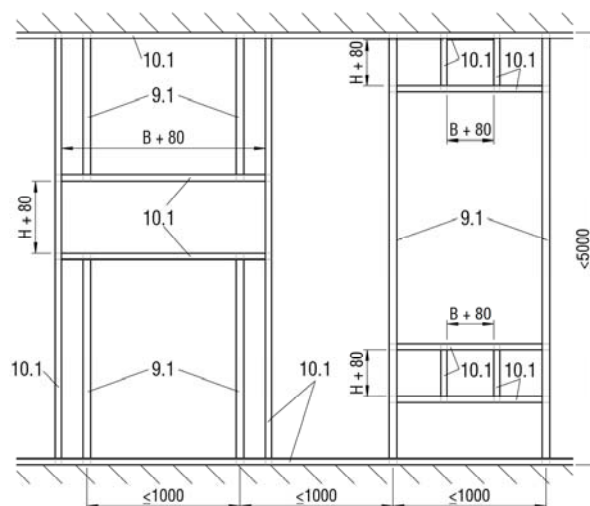
- First doubling, fastening: dry-wall screws e.g. TN 3.5x55,  $a \leq$  250 mm, but at least 2 screws per side, connection or butt joints of the doublings must be filled with the jointing material of the wall.
- Second doubling, fastening: dry-wall screws e.g.  $\varnothing$ 3.9x55,  $a \leq$  250 mm, but at least 2 screws per side, connection and butt joints of the doublings must be filled with the jointing material of the wall.

### LIGHTWEIGHT PARTITION WALLS WITH PANELLING ON ONE SIDE AND WALL THICKNESS $W \geq 125$ MM

- Installation in lightweight partition walls (shaft walls) with metal stud frame and panelling on one side (gypsum-bonded wall boards; wall thickness  $\geq$  125 mm) as classified according to EN 13501-2 or comparable national standards.
- The specifications of the wall manufacturers regarding wall heights, widths and thicknesses must be taken into account.
- Installation and mounting aids on site must be removed.

### Wet installation of a fire damper

- The minimum distance between the fire dampers must be 200 mm.
- The minimum distance to adjacent components (wall/ceiling) must be 90 mm (due to the design). The actual minimum distance may slightly differ from the distances mentioned above and must be executed and adapted as a function of the wall connection type.



**Figure 75: Metal posts with required exchange parts for wet installation (shaft wall)**

### Mounting information:

In the overlap area of the exchangeable profiles, they must be riveted, crimped or screwed once on both sides. These connections are only for fastening the individual metal profiles during mounting.

Detail O

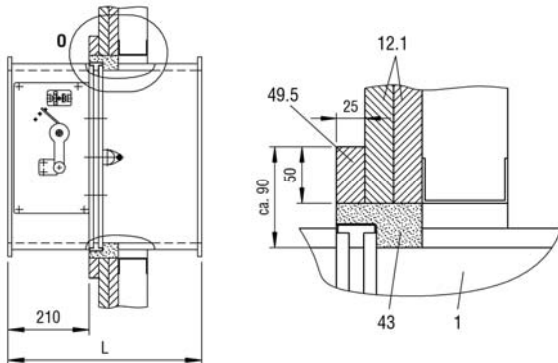


Figure 76: Wall panelling and double-board layers (shaft wall)

#### Installation procedure

- Mount the metal posts and the wall in accordance with the specifications of the wall manufacturer and the required spare parts as shown in Figure 75.
- Prepare the wall panelling (pos. 12.1) and doubling (pos. 49.5) as well as the installation opening for the installation of the BKA-EN.
- If necessary, mount a filling stop on the non-operating side of the BKA-EN (pos. 1) (must not be screwed to the housing of the BKA-EN! The filling stop is not required by fire protection regulations).
- Mount the BKA-EN with the help of mounting suspensions, etc.
- Insert the BKA-EN into the wall recess (operating side - observe the installation dimension of 210 mm for double-board layer). Average out the annular gap evenly between the circumferential metal profiles of the wall and the housing of the BKA-EN.
- Carry out the joint filling with the jointing material of the wall (pos. 43, gap completely filled with plaster). The connection and butt joints of the double-board layers must also be filled with the jointing material of the wall.

#### Wet installation of a fire damper under a solid ceiling

- Wet installation under a solid ceiling does not constitute a sliding ceiling connection.

Detail N

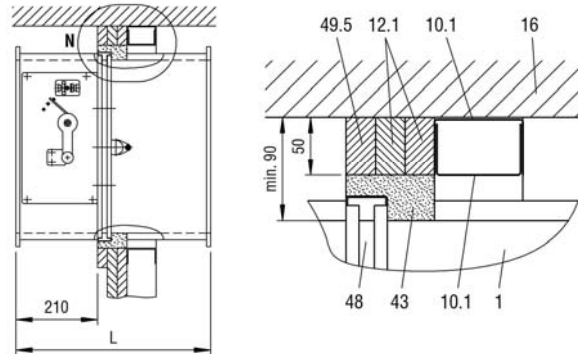


Figure 77: Wall panelling and doubling directly under the solid ceiling (shaft wall)

#### Installation procedure

- Mount the metal posts of the wall according to the wall manufacturer's specifications and provide the exchange parts as shown on Figure 75 (mount the wall UW-profile (pos. 10.1) on the ceiling and attach the UW-profile necessary for the circumferential metal profile frame in the ceiling area). Prepare the wall panelling (pos. 12.1) and doubling (pos. 49.5) as well as the installation opening for the installation of the BKA-EN.
- If necessary, mount a filling stop on the non-operating side of the BKA-EN (pos. 1) (must not be screwed to the housing of the BKA-EN! The filling stop is not required by fire protection regulations).
- Mounting of the BKA-EN by means of mounting suspensions etc. Prior to mounting, plaster or plaster mortar must be applied wedge-like to the upper B side in the area of the thermal insulation (pos. 48) so that the gap (pos. 43; perform jointing as part of assembly) is completely filled. The BKA-EN must be positioned at a height distance of approx. 90 mm from the ceiling. The BKA-EN housing must be pressed against the gypsum-bonded wall boards (pos. 49.5+12.1) (operate side - observe the installation dimension of 210 mm for the doubling).
- Carry out the joint filling with the jointing material of the wall over the entire circumference (gap completely filled with plaster). The connection and butt joints of the doublings must also be filled with the jointing material of the wall.

1 Fire damper BKA-EN

9.1 Profile CW 75/50/06 - 150 profiles

10.1 Profile UW 75/40/06 - 150 profiles

12.1 Panelling (on one side 2x25) of the shaft wall made of gypsum-bonded wall boards. The specifications of the wall manufacturer must be observed.

16 Solid ceiling

- 43 Joint filling with jointing material of the wall
- 48 Thermal insulation
- 49.5 Doubling (gypsum-bonded wall boards, d=25 mm)
  - Fastening: Dry-wall screws e.g.  $\varnothing$  4.2x90,  $a \leq 300$  mm, but at least 2 screws per side, connection and butt joints of the doubling must be filled with the wall material.

## INSTALLATION INFORMATION

### Connection of ventilation ducts

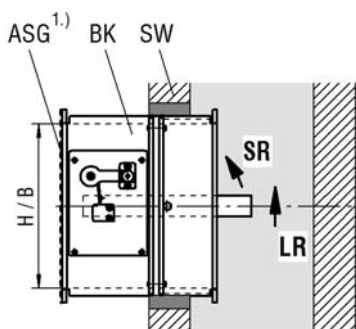
The fire dampers must be connected to the ventilation system by means of ventilation ducts either on one or on both sides. When connected on one side, finishing protective gratings made of non-flammable building materials (EN13501-1) must be provided on the opposite side. The fire dampers can be connected to non-flammable as well as flammable ventilation ducts. Ventilation ducts must be suspended separately.

The local regulations or national standards on ventilation systems (in Germany e.g. LüAR) apply. It is important that ventilation ducts do not exert significant forces on walls, supports or ceilings and thus also on fire dampers as a result of thermal expansion (in case of fire). Appropriate compensation measures, such as the arrangement of flexible spigots (SCHAKO type FS) or a suitable duct routing (duct angles and distortions), must be taken as required. National regulations must be observed and adhered to.

When using flexible spigots (SCHAKO type FS), the flexible part of the spigot (polyester fabric) must have a minimum length of  $l_{min} = 100$  mm when mounted, resulting in an installation dimension of approx.  $L = 160$  mm. Alternatively, flexible ventilation ducts can be used.

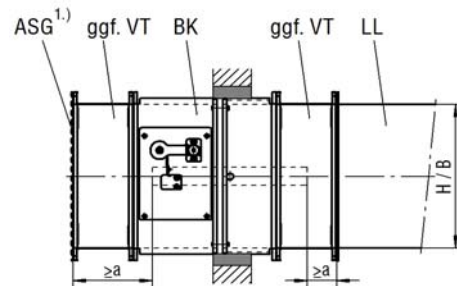
### In solid shaft walls

(Security grille on the operating side)



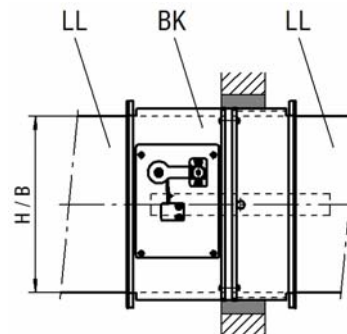
**Figure 78:** Connection example of a ventilation duct in solid shaft walls

### with ventilation duct arranged on one side and finishing protective grating



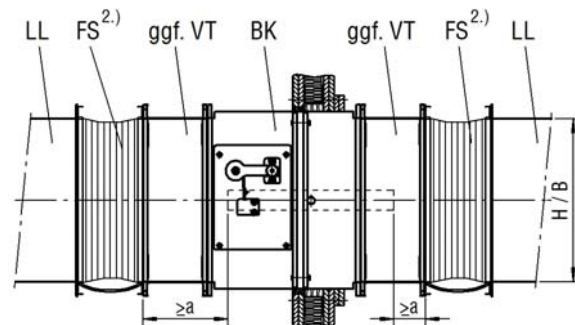
**Figure 79:** Connection example of a ventilation duct arranged on one side and finishing protective grating

### on both sides with ventilation ducts



**Figure 80:** Connection example of ventilation ducts on both sides

### on both sides with flexible connection piece and ventilation ducts



**Figure 81:** Connection example on both sides with flexible connection piece and ventilation ducts

- BK Fire damper BKA-EN
- ASG Finishing protective grating type ASG <sup>1.)</sup>
- VT Extension piece type VT
- FS Flexible spigot type FS <sup>2.)</sup>
- LL Ventilation duct
- SW Shaft wall
- SR Closing direction
- LR Air flow direction
- 1.) made of non-combustible materials (EN 1350 1-1)
- 2.) min. standard flammable according to EN 1350 1-1

"a" = 50 mm minimum distance between the front edge of the open damper blade and of the finishing protective grating (ASG), the flexible spigot (FS) or pipe connection piece (RS).



## SUSPENDED FIRE DAMPER

### General

The following installation situations require the fire dampers to be suspended on site.

- Dry installation away from solid walls with ERA2 installation frame
- Dry installation with soft seal

For dry installation away from solid walls with ERA2 installation frame, the following suspensions must be provided in the immediate area of the fire damper (see Figure 82):

- 2 M12 threaded rods per fire damper W X H ≤ 1000 x 500
- 2 M16 threaded rods per fire damper W X H ≤ 1000 x 500

The requirements specified in the current version of the Promat® manual, design 478, must be met when installing the suspended fire-resistant ventilation duct L90. The same applies to the lining of the above-mentioned suspension in the immediate area of the fire damper and those of the fire-resistant ventilation duct.

For dry installation with soft seal, 4 M10 threaded rods must be provided for each fire damper. Threaded rods from a length of 1500 mm must be coated, for example according to the current version of the Promat® Manual, Design 478.

For static design of the suspension systems, the calculated tensile stress must be limited to 6 N/mm<sup>2</sup> and shear stress to 10 N/mm<sup>2</sup>.

Suspension systems must be fastened to solid ceilings. For this purpose, fastening systems such as dowels, anchor rods, injection systems, etc., with proven fire resistance duration must be used and matched to the ceiling designs. Push-through mounting with fasteners above the solid ceilings is also possible, see Figure 82.

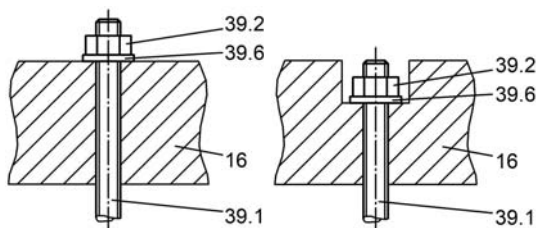


Figure 82: Push-through mounting (Detail A)

### Suspension of the fire damper for dry installation away from solid walls with ERA2 installation frame

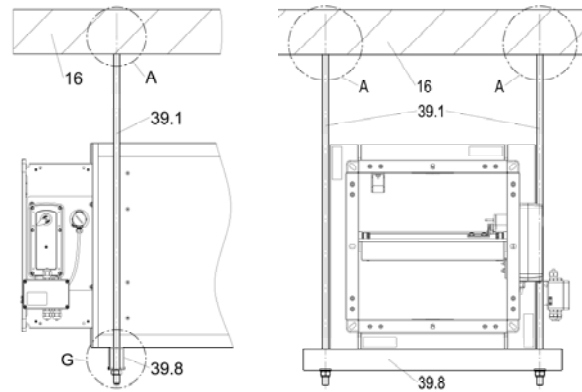


Figure 83: Suspension in the immediate area of the fire damper

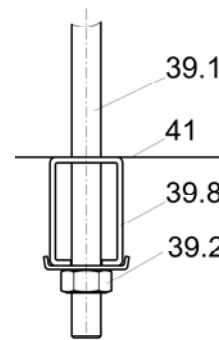


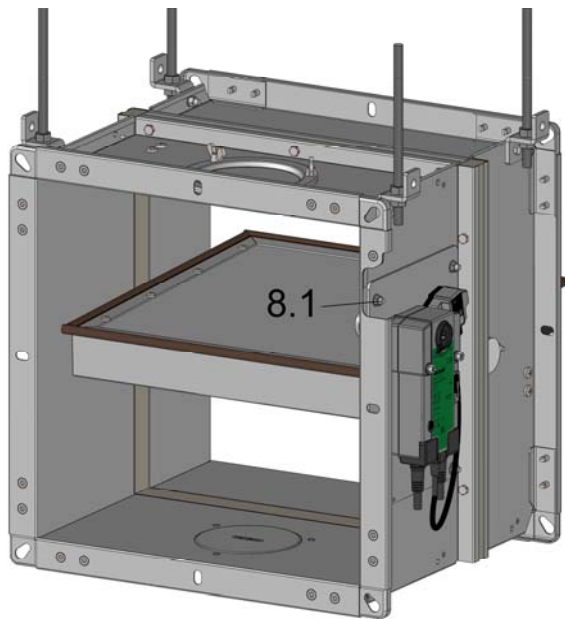
Figure 84: Mounting rail (Detail G)

- 16 Solid ceiling
- 39.1 M12 or M16 threaded rod
- 39.2 Hexagon nut e.g. ISO 4032 (suitable for pos. 39.1)
- 39.6 Washer, e.g. DIN EN ISO 7089/7090 (suitable for pos. 39.1)
- 39.8 MÜPRO MPC-Support channel 40/60 and MPC-bracket
- 41 Fire-resistant ventilation duct (L90)

**Suspension of the fire damper in case of dry installation with soft seal**

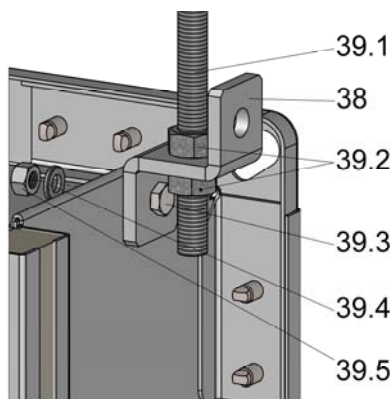
The fire damper must be permanently suspended from the solid ceiling on both sides of the wall. Suspension angle (pos. 38) for fire damper available as accessory at an extra charge. For both dowel mounting and push-through mounting, the threaded rods must be hinged to the solid ceiling. To do so, components with fire protection certificate are required (e.g. sliding hangers, pendulum hangers). In general, building regulations can differ from country to country; these are mandatory.

Angle fastening for damper blades in horizontal position



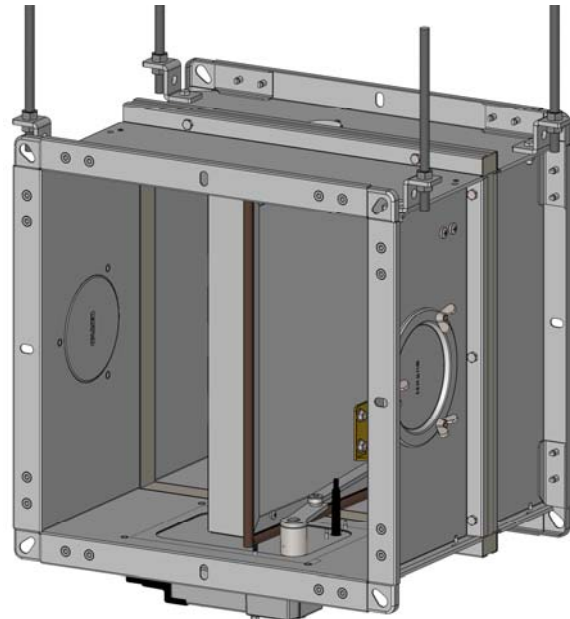
**Figure 85: Fastening for horizontal damper blades**

With a height  $H \leq 250$ , the suspension angle must be fastened on the operating side to the threaded bolt of the actuator unit (pos. 8.1).

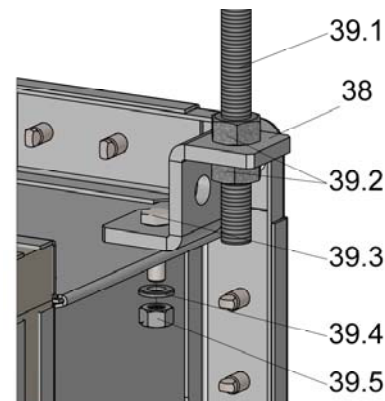


**Figure 86: Fastening detail (damper blade in horizontal position)**

Angle fastening for damper blades in vertical position



**Figure 87: Fastening for vertical damper blades**



**Figure 88: Fastening detail (damper blade in vertical position)**

- 8.1 Threaded bolt of actuator unit
- 38 Suspension angle  
(accessory at an extra charge: 1 set = 4 units/BKA-EN)
- 39.1 M10 threaded rod
- 39.2 Hexagon nut e.g. ISO 4032 (suitable for pos. 39.1)
- 39.3 Hexagon head screw e.g. ISO 4017 - M6 x 20
- 39.4 Washer e.g. ISO 7090-6 (suitable for pos. 39.3)
- 39.5 Hexagon nut e.g. ISO 4032 - M6  
(suitable for pos. 39.3)

**TECHNICAL DATA**

**QUICK SELECTION LWA = 35-45 dB(A)**

Quick selection L<sub>WA</sub> = 35 dB(A)

Height (H)	Width (B)															
	200				300				400				500			
	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]
200	447	124	3.1	10.6	739	205	3.5	9.9	1,087	302	3.8	7.2	1,362	378	3.8	6.5
300	801	222	3.7	13.4	1,340	372	4.2	12.1	1,776	493	4.1	7.2	2,167	602	4.0	5.6
400	1,181	328	4.1	15.0	1,964	546	4.6	11.5	3,146	874	5.5	5.9	3,252	903	4.5	4.4
500	1,525	424	4.3	15.2	2,463	684	4.6	11.7	3,514	976	4.9	4.8	4,024	1,118	4.5	4.1
600	1,842	512	4.3	13.9	3,008	836	4.7	11.5	4,047	1,124	4.7	4.5	4,725	1,312	4.4	4.0
700	2,198	611	4.4	14.2	3,407	946	4.5	10.7	4,716	1,310	4.7	4.5	5,413	1,503	4.3	3.9
800	2,432	676	4.2	13.5	3,873	1,076	4.5	10.5	5,391	1,498	4.7	4.6	6,152	1,709	4.3	3.8
Height (H)	Width (B)															
	600				700				800				900			
	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]
200	1,567	435	3.7	5.9	1,883	523	3.8	5.6	2,072	576	3.6	5.1	2,082	578	3.2	4.0
300	2,766	768	4.3	5.7	3,157	877	4.2	4.5	3,500	972	4.0	3.5	3,888	1,080	4.0	3.4
400	3,527	980	4.1	4.1	4,067	1,130	4.0	3.4	4,961	1,378	4.3	3.9	5,129	1,425	4.0	3.4
500	4,203	1,168	3.9	3.2	5,082	1,412	4.0	3.4	6,108	1,697	4.3	3.8	6,386	1,774	3.9	3.4
600	5,079	1,411	3.9	3.2	6,101	1,695	4.0	3.4	7,176	1,993	4.1	3.6	7,568	2,102	3.9	3.2
700	5,914	1,643	3.9	3.2	6,893	1,915	3.9	3.2	7,818	2,172	3.9	3.6	8,555	2,376	3.8	3.0
800	6,762	1,878	3.9	3.2	7,588	2,108	3.8	3.0	8,605	2,390	3.7	3.5	9,417	2,616	3.7	2.8
Height (H)	Width (B)															
	1000				1100				1200				1300			
	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]
200	2,312	642	3.3	4.0	2,839	789	3.6	4.9	3,076	854	3.6	4.9	3,217	894	3.5	4.5
300	4,302	1,195	4.0	3.3	4,914	1,365	4.2	3.3	5,218	1,449	4.0	3.4	5,539	1,538	4.0	3.0
400	5,760	1,600	4.0	3.2	6,510	1,808	4.1	3.3	7,112	1,976	4.1	3.3	7,430	2,064	4.0	3.0
500	7,199	2,000	4.0	3.3	8,171	2,270	4.1	3.3	8,478	2,355	3.9	3.0	9,270	2,575	4.0	3.0
600	8,596	2,388	4.0	3.2	9,445	2,624	4.0	3.0	10,228	2,841	4.0	3.0	11,051	3,070	3.9	3.0
700	9,638	2,677	3.8	2.9	10,952	3,042	4.0	3.0	11,290	3,136	3.8	2.7	12,314	3,421	3.8	2.7
800	10,340	2,872	3.6	2.6	11,896	3,304	3.8	2.7	12,283	3,412	3.6	2.5	13,360	3,711	3.6	2.4
Height (H)	Width (B)															
	1400				1500											
	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]	V <sub>zu</sub> [m <sup>3</sup> h]	V <sub>zu</sub> [l/s]	V <sub>stirn</sub> [m/s]	Δp [Pa]								
200	3,960	1,100	3.9	4.5	4,277	1,188	4.0	3.0								
300	5,932	1,648	3.9	3.0	6,430	1,786	4.0	3.0								
400	7,965	2,213	4.0	3.0	8,482	2,356	4.0	3.0								
500	10,014	2,782	4.0	3.0	10,700	2,972	4.0	3.0								
600	11,901	3,306	3.9	3.0	12,862	3,573	4.0	3.0								
700	13,122	3,645	3.7	2.7	14,395	3,999	3.8	2.7								
800	14,292	3,970	3.6	2.5	14,666	4,074	3.4	2.2								

Table 5: Quick selection L<sub>WA</sub> = 35 dB(A)

Quick selection  $L_{WA} = 40 \text{ dB(A)}$

Height (H)	Width (B)															
	200				300				400				500			
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]
200	523	145	3.7	14.5	850	236	3.9	13.1	1,312	364	4.6	10.5	1,639	455	4.6	9.4
300	945	262	4.4	18.6	1,567	435	4.9	16.5	2,143	595	5.0	10.5	2,516	699	4.7	7.5
400	1,369	380	4.8	20.1	2,297	638	5.3	15.8	3,942	1,095	6.9	9.2	3,975	1,104	5.5	6.6
500	1,829	508	5.1	21.9	2,932	814	5.5	16.6	4,303	1,195	6.1	7.6	4,882	1,356	5.4	6.1
600	2,233	620	5.2	20.5	3,585	996	5.6	16.4	5,070	1,408	5.9	7.1	5,770	1,603	5.4	5.8
700	2,682	745	5.4	21.1	4,067	1,130	5.4	15.3	5,910	1,642	5.9	7.1	6,616	1,838	5.3	5.8
800	2,962	823	5.2	20.1	4,624	1,284	5.4	14.9	6,755	1,876	5.9	7.2	7,586	2,107	5.3	6.1
Height (H)	Width (B)															
	600				700				800				900			
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]
200	1,859	516	4.3	8.3	2,312	642	4.6	8.5	2,562	712	4.5	7.9	2,555	710	4.0	6.0
300	3,298	916	5.1	8.0	3,735	1,038	4.9	6.3	4,286	1,191	5.0	5.2	4,860	1,350	5.0	5.3
400	4,198	1,166	4.9	5.8	4,856	1,349	4.8	4.8	6,333	1,759	5.5	6.3	6,428	1,786	5.0	5.3
500	4,996	1,388	4.7	4.5	6,066	1,685	4.8	4.8	7,797	2,166	5.4	6.1	8,033	2,232	4.9	5.3
600	6,037	1,677	4.7	4.5	7,285	2,023	4.8	4.8	9,160	2,544	5.3	5.9	9,491	2,636	4.9	5.0
700	7,027	1,952	4.7	4.5	8,230	2,286	4.7	4.5	9,979	2,772	5.0	5.8	10,725	2,979	4.8	4.7
800	8,057	2,238	4.7	4.5	9,059	2,517	4.5	4.3	11,097	3,083	4.8	5.7	11,809	3,280	4.6	4.4
Height (H)	Width (B)															
	1000				1100				1200				1300			
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]
200	2,848	791	4.0	6.0	3,865	1,074	4.9	9.1	4,172	1,159	4.8	8.9	4,368	1,213	4.7	8.3
300	5,333	1,481	4.9	5.1	6,133	1,704	5.2	5.2	7,120	1,978	5.5	6.3	7,176	1,993	5.1	5.1
400	7,372	2,048	5.1	5.3	8,048	2,236	5.1	5.0	9,164	2,546	5.3	5.5	9,676	2,688	5.2	5.1
500	9,221	2,562	5.1	5.4	10,151	2,820	5.1	5.1	10,955	3,043	5.1	5.0	12,031	3,342	5.2	5.1
600	10,892	3,026	5.0	5.2	12,306	3,418	5.2	5.1	13,305	3,696	5.1	5.1	14,322	3,978	5.1	5.1
700	12,207	3,391	4.8	4.7	14,213	3,948	5.1	5.1	14,666	4,074	4.9	4.6	16,029	4,452	4.9	4.6
800	12,759	3,544	4.5	4.0	15,538	4,316	4.9	4.7	16,010	4,447	4.7	4.2	17,338	4,816	4.7	4.1
Height (H)	Width (B)															
	1400				1500											
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]								
200	5,201	1,445	5.2	7.5	5,585	1,551	5.2	5.2								
300	7,686	2,135	5.1	5.1	8,379	2,328	5.2	5.1								
400	10,342	2,873	5.1	5.1	10,970	3,047	5.1	5.0								
500	13,041	3,622	5.2	5.1	13,944	3,873	5.2	5.1								
600	15,495	4,304	5.1	5.1	16,749	4,653	5.2	5.1								
700	17,041	4,734	4.8	4.6	18,651	5,181	4.9	4.5								
800	18,548	5,152	4.6	4.1	19,085	5,301	4.5	3.8								

Table 6: Quick selection  $L_{WA} = 40 \text{ dB(A)}$

**Quick selection  $L_{WA} = 45 \text{ dB(A)}$**

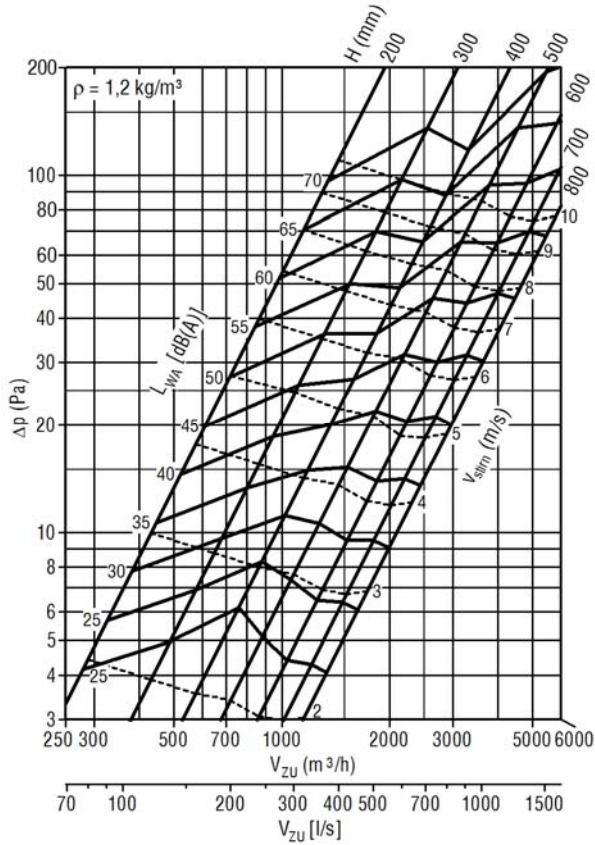
Height (H)	Width (B)															
	200				300				400				500			
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]
200	611	170	4.3	19.9	976	271	4.5	17.2	1,583	440	5.5	15.2	1,974	548	5.6	13.6
300	1,115	310	5.1	25.9	1,832	509	5.7	22.5	2,586	718	6.0	15.3	2,921	811	5.6	10.1
400	1,587	441	5.5	27.0	2,687	746	6.2	21.6	4,939	1,372	8.6	14.5	4,858	1,350	6.8	9.8
500	2,194	610	6.1	31.6	3,490	969	6.5	23.6	5,517	1,532	7.7	11.9	5,922	1,645	6.6	9.0
600	2,705	751	6.3	30.0	4,272	1,187	6.6	23.2	6,352	1,764	7.4	11.2	7,045	1,957	6.5	8.9
700	3,274	909	6.5	31.5	4,856	1,349	6.4	21.8	7,405	2,057	7.4	11.1	8,085	2,246	6.4	8.7
800	3,639	1,011	6.3	30.3	5,520	1,533	6.4	21.3	8,463	2,351	7.4	11.3	9,333	2,592	6.5	8.8
Height (H)	Width (B)															
	600				700				800				900			
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]
200	2,205	613	5.1	11.7	2,837	788	5.7	12.8	3,168	880	5.5	12.0	3,136	871	4.9	9.1
300	3,933	1,092	6.0	11.4	4,418	1,227	5.9	8.8	5,248	1,458	6.1	7.9	6,128	1,702	6.3	8.4
400	4,997	1,388	5.8	8.1	5,798	1,611	5.8	6.9	8,149	2,264	7.1	10.6	8,054	2,237	6.3	8.3
500	5,936	1,649	5.5	6.4	7,243	2,012	5.8	6.9	9,952	2,764	6.9	10.0	10,030	2,786	6.2	8.3
600	7,173	1,992	5.6	6.4	8,698	2,416	5.8	6.9	11,692	3,248	6.8	9.6	11,890	3,303	6.1	7.9
700	8,350	2,320	5.5	6.4	9,827	2,730	5.6	6.4	12,735	3,538	6.3	9.5	13,437	3,732	5.9	7.4
800	9,576	2,660	5.6	6.4	10,817	3,005	5.4	6.1	14,009	3,891	6.1	9.3	14,794	4,110	5.7	6.9
Height (H)	Width (B)															
	1000				1100				1200				1300			
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]
200	3,508	974	4.9	9.2	5,264	1,462	6.7	16.9	5,656	1,571	6.6	16.4	5,932	1,648	6.4	15.3
300	6,611	1,837	6.1	7.8	7,654	2,126	6.5	8.1	9,847	2,735	7.6	12.0	9,296	2,582	6.6	8.5
400	9,436	2,621	6.6	8.7	9,952	2,764	6.3	7.6	11,809	3,280	6.8	9.1	12,601	3,500	6.7	8.7
500	11,811	3,281	6.6	8.8	12,610	3,503	6.4	7.8	14,158	3,933	6.6	8.4	15,617	4,338	6.7	8.6
600	13,797	3,833	6.4	8.3	16,036	4,454	6.8	8.7	17,306	4,807	6.7	8.7	18,544	5,151	6.6	8.5
700	15,460	4,294	6.1	7.5	18,450	5,125	6.7	8.6	19,050	5,292	6.3	7.8	20,864	5,796	6.4	7.8
800	15,740	4,372	5.5	6.1	20,291	5,636	6.4	7.9	20,869	5,797	6.0	7.1	22,496	6,249	6.0	6.9
Height (H)	Width (B)															
	1400				1500											
	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]	$V_{zu}$ [m <sup>3</sup> h]	$V_{zu}$ [l/s]	$V_{stirn}$ [m/s]	$\Delta p$ [Pa]								
200	6,831	1,898	6.8	12.9	7,291	2,025	6.8	8.8								
300	9,961	2,767	6.6	8.5	10,917	3,032	6.7	8.7								
400	13,431	3,731	6.7	8.6	14,171	3,936	6.6	8.4								
500	16,986	4,718	6.8	8.7	18,055	5,015	6.7	8.6								
600	20,147	5,596	6.7	8.6	21,782	6,051	6.7	8.6								
700	22,126	6,146	6.3	7.8	24,171	6,714	6.3	7.6								
800	24,077	6,688	6.0	7.0	24,900	6,917	5.8	6.5								

**Table 7: Quick selection  $L_{WA} = 45 \text{ dB(A)}$**

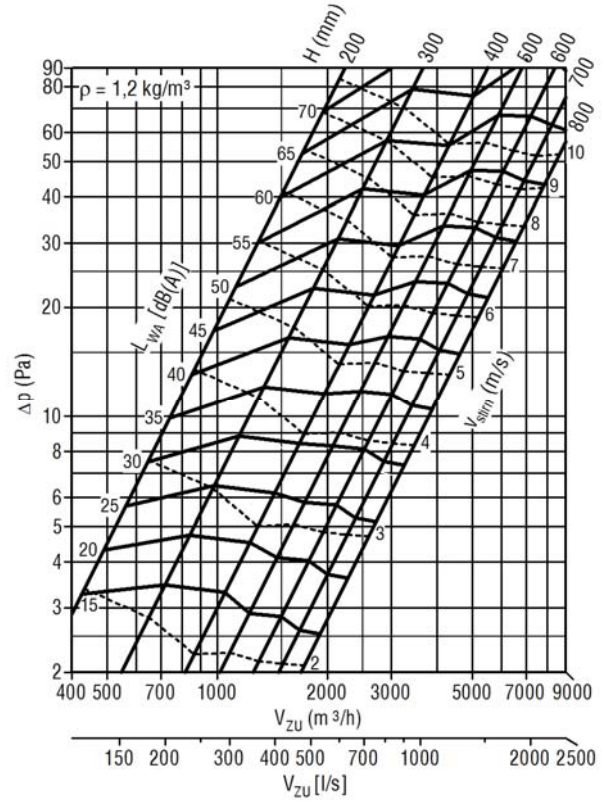
**Pressure loss and noise level**

**Flow generated noise**

**Damper width B = 200 mm**



**Damper width B=300 mm**



**Diagram 1: Damper width B = 200 and B = 300**

**Correction values B=200mm**

**with security grille (-ASG)**

$L_{WA} \times 1.05$

$\Delta p \times 1.66$

**Radiated noise:**

$L_{WA} - 7 \text{ [dB(A)]}$

**Correction values B=300mm**

**with security grille (-ASG)**

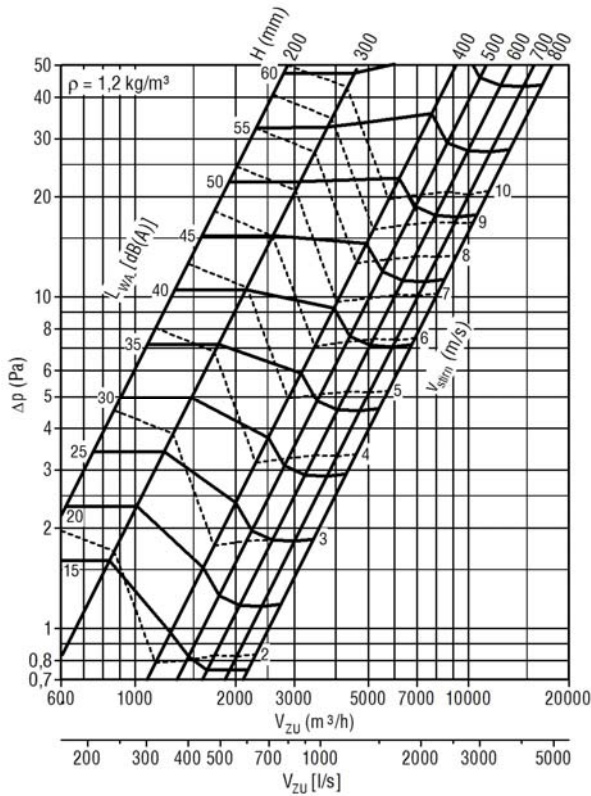
$L_{WA} \times 1.09$

$\Delta p \times 1.72$

**Radiated noise:**

$L_{WA} - 7 \text{ [dB(A)]}$

**Damper width B=400 mm**



**Diagram 2: Damper width B=400 and B=500**

**Correction values B=400mm**

**with security grille (-ASG)**

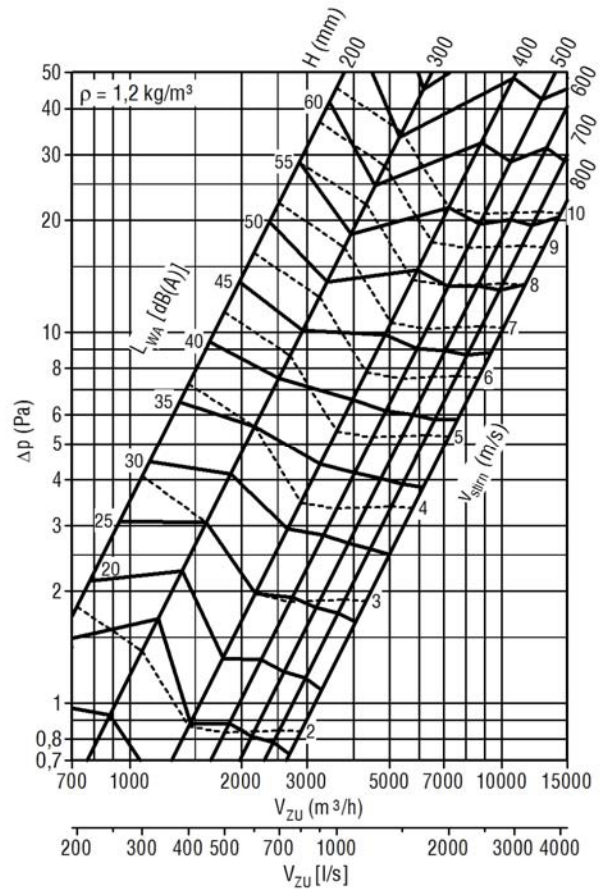
$L_{WA} \times 1.11$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 8$  [dB(A)]

**Damper width B=500 mm**



**Correction values B=500mm**

**with security grille (-ASG)**

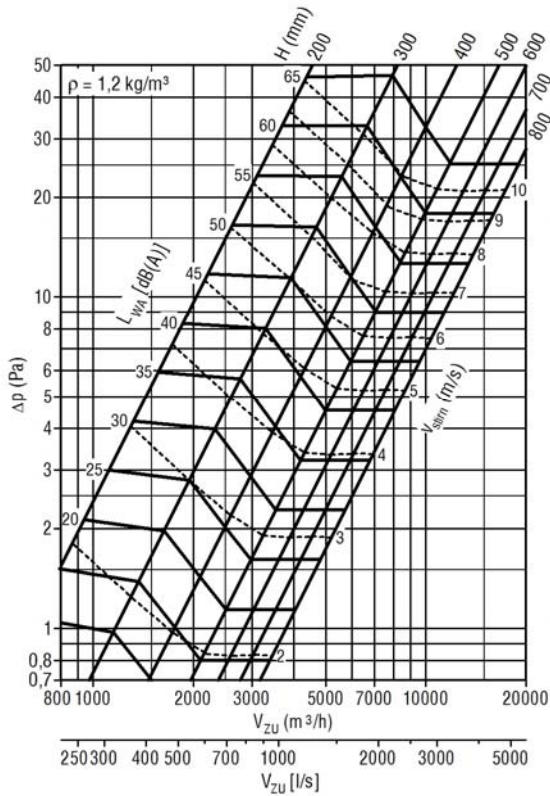
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 8$  [dB(A)]

**Damper width B=600 mm**



**Diagram 3: Damper width B=600 and B=700**

**Correction values B=600mm**

**with security grille (-ASG)**

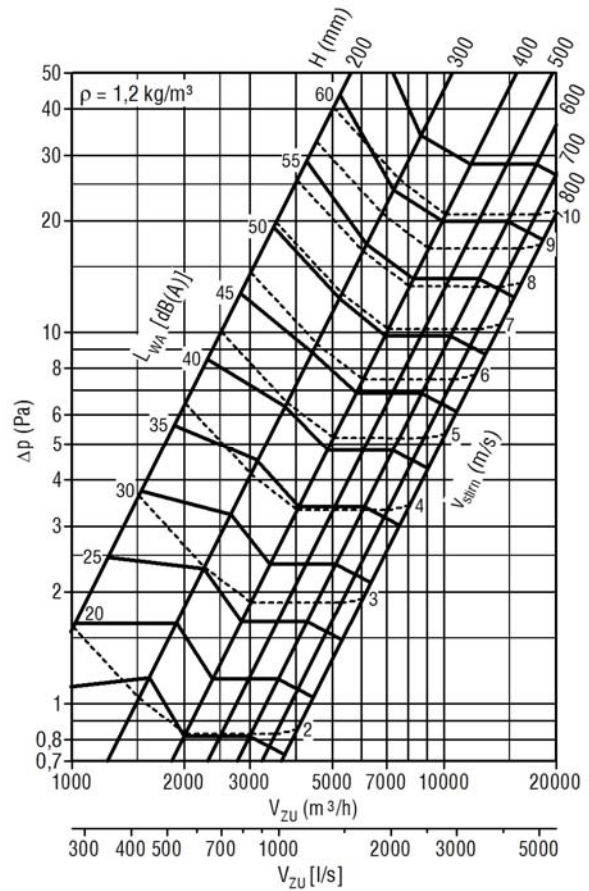
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 8$  [dB(A)]

**Damper width B=700 mm**



**Correction values B=700mm**

**with security grille (-ASG)**

$L_{WA} \times 1.08$

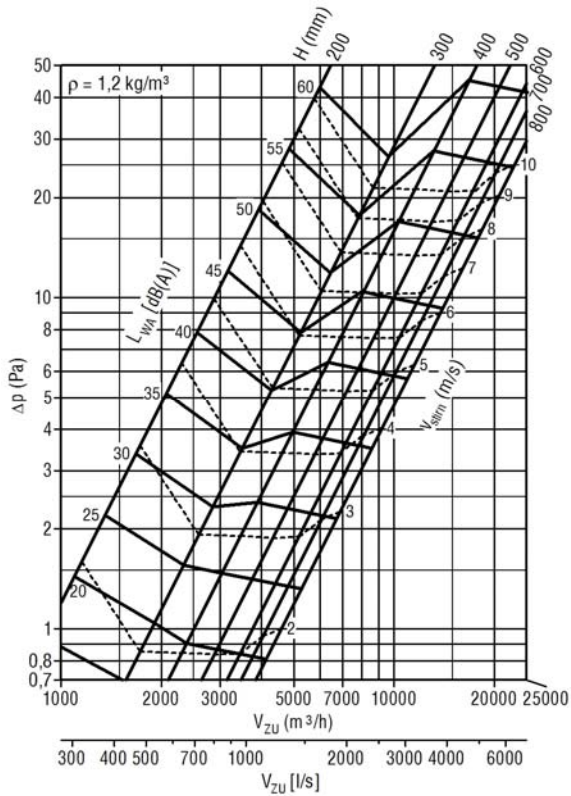
$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]



**Damper width B=800 mm**



**Diagram 4: Damper width B=800 and B=900**

**Correction values B=800mm**

**with security grille (-ASG)**

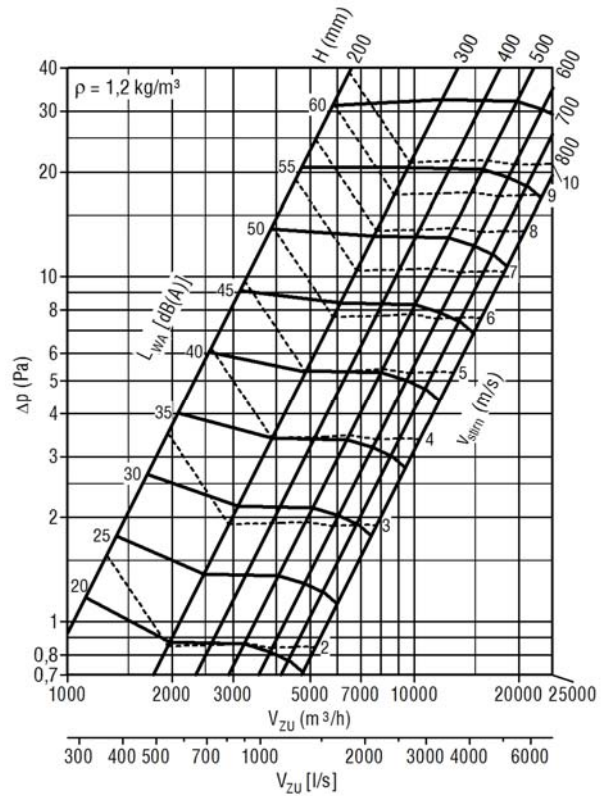
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Damper width B=900 mm**



**Correction values B=900mm**

**with security grille (-ASG)**

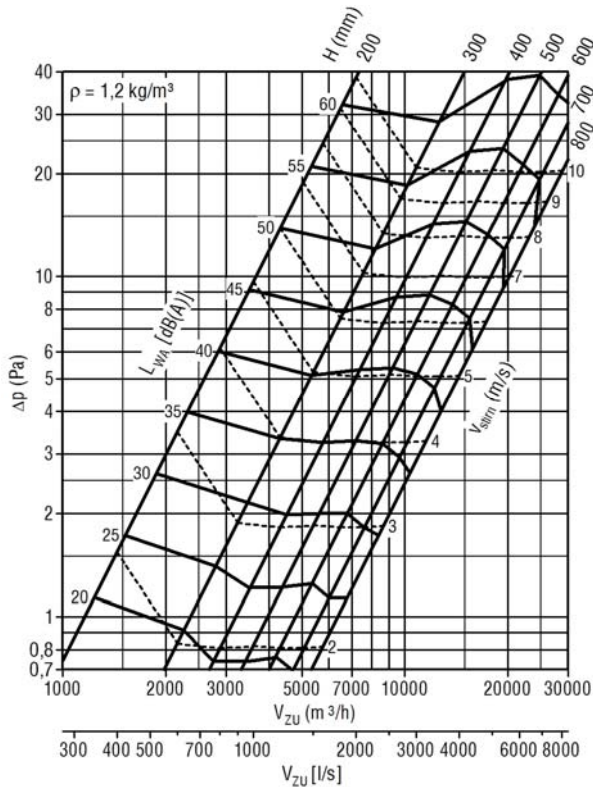
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Damper width B=1000 mm**



**Diagram 5: Damper width B=1000 and B=1100**

**Correction values B=1000mm**

**with security grille (-ASG)**

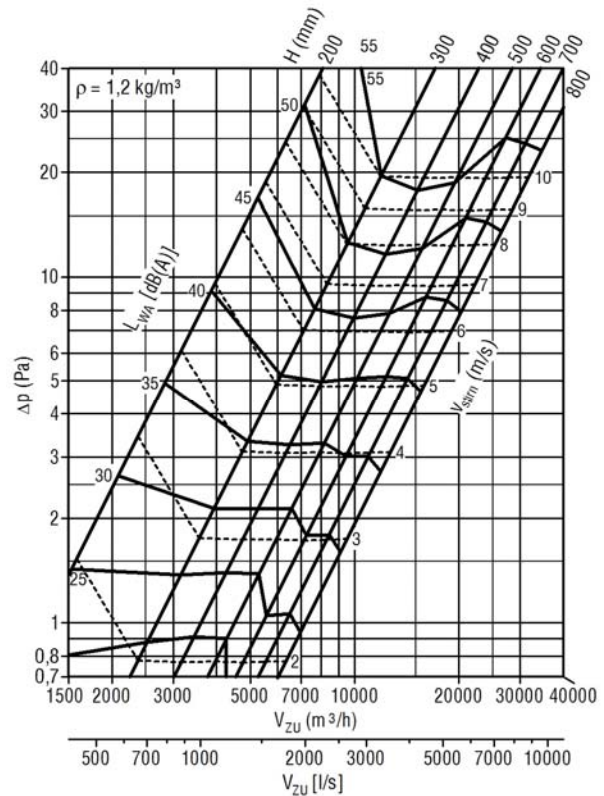
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Damper width B=1100 mm**



**Correction values B=1100mm**

**with security grille (-ASG)**

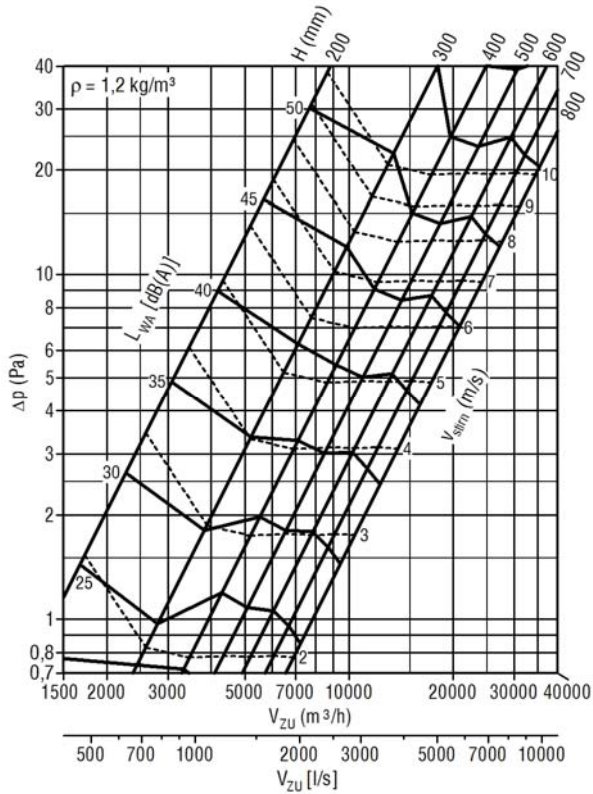
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Damper width B=1200 mm**



**Diagram 6: Damper width B=1200 and B=1300**

**Correction values B=1200mm**

**with security grille (-ASG):**

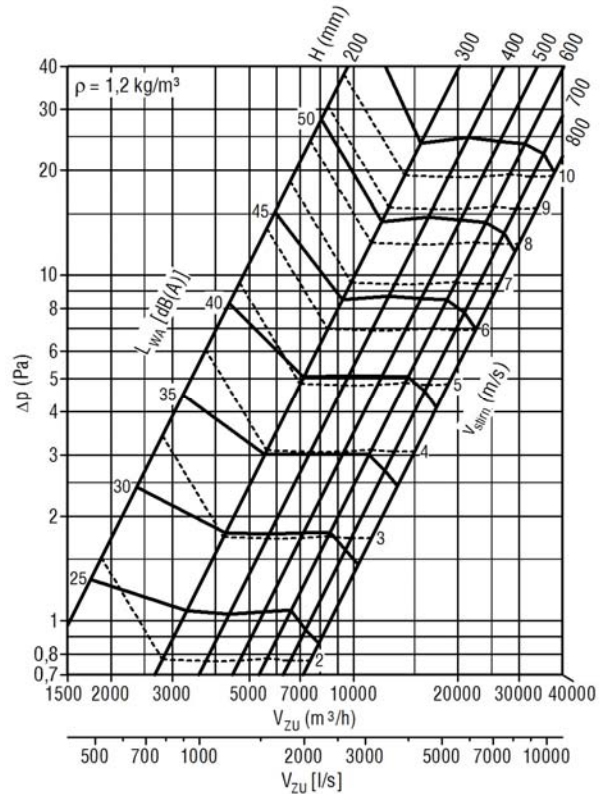
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Damper width B=1300 mm**



**Correction values B=1300mm**

**with security grille (-ASG):**

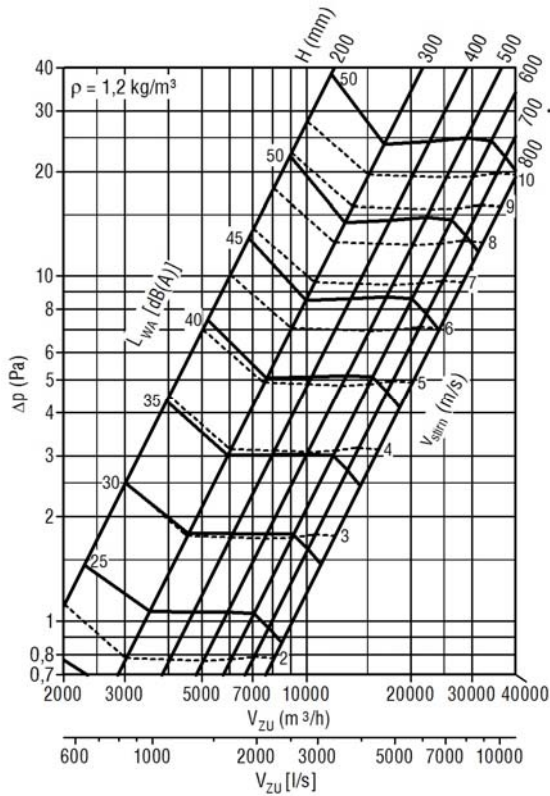
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Damper width B=1400 mm**



**Diagram 7: Damper width B=1400 and B=1500**

**Correction values B=1400mm**

**with security grille (-ASG)**

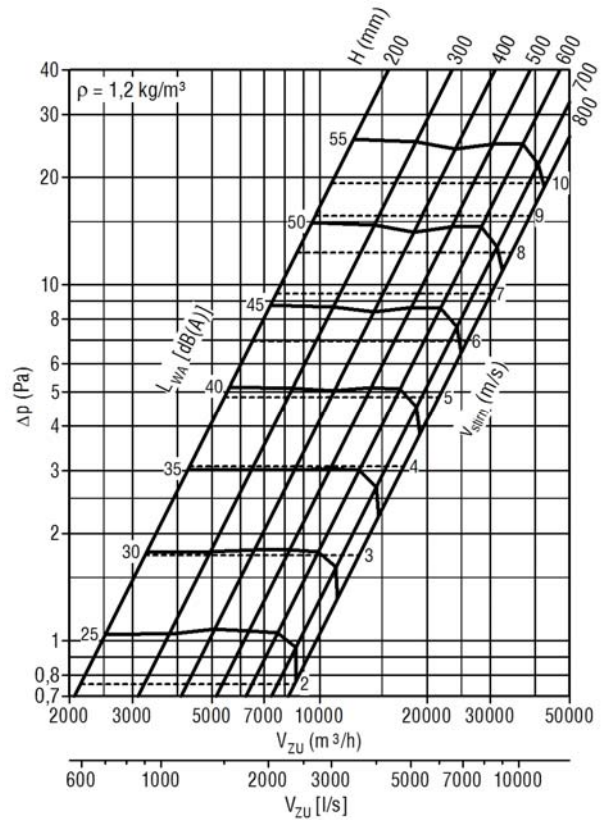
$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Damper width B=1500 mm**



**Correction values B=1500mm**

**with security grille (-ASG)**

$L_{WA} \times 1.08$

$\Delta p \times 2.85$

**Radiated noise:**

$L_{WA} - 9$  [dB(A)]

**Free cross-section [m<sup>2</sup>]**

		Width																							
		200	225	250	275	300	325	350	375	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1300	1400	1500
Height	200	0.029	0.033	0.036	0.040	0.044	0.047	0.051	0.054	0.058	0.065	0.073	0.080	0.087	0.094	0.102	0.109	0.116	0.131	0.145	0.160	0.174	0.189	0.203	0.218
	225	0.034	0.038	0.043	0.047	0.051	0.055	0.060	0.064	0.068	0.077	0.085	0.094	0.102	0.111	0.119	0.128	0.136	0.153	0.170	0.187	0.204	0.221	0.238	0.255
	250	0.039	0.044	0.049	0.054	0.059	0.063	0.068	0.073	0.078	0.088	0.098	0.107	0.117	0.127	0.137	0.146	0.156	0.176	0.195	0.215	0.234	0.254	0.273	0.293
	275	0.044	0.050	0.055	0.061	0.066	0.072	0.077	0.083	0.088	0.099	0.110	0.121	0.132	0.143	0.154	0.165	0.176	0.198	0.220	0.242	0.264	0.286	0.308	0.330
	300	0.049	0.055	0.061	0.067	0.074	0.080	0.086	0.092	0.098	0.110	0.123	0.135	0.147	0.159	0.172	0.184	0.196	0.221	0.245	0.270	0.294	0.319	0.343	0.368
	325	0.054	0.061	0.068	0.074	0.081	0.088	0.095	0.101	0.108	0.122	0.135	0.149	0.162	0.176	0.189	0.203	0.216	0.243	0.270	0.297	0.324	0.351	0.378	0.405
	350	0.059	0.066	0.074	0.081	0.089	0.096	0.103	0.111	0.118	0.133	0.148	0.162	0.177	0.192	0.207	0.221	0.236	0.266	0.295	0.325	0.354	0.384	0.413	0.443
	375	0.064	0.072	0.080	0.088	0.096	0.104	0.112	0.120	0.128	0.144	0.160	0.176	0.192	0.208	0.224	0.240	0.256	0.288	0.320	0.352	0.384	0.416	0.448	0.480
	400	0.069	0.078	0.086	0.095	0.104	0.112	0.121	0.129	0.138	0.155	0.173	0.190	0.207	0.224	0.242	0.259	0.276	0.311	0.345	0.380	0.414	0.449	0.483	0.518
	450	0.079	0.089	0.099	0.109	0.119	0.128	0.138	0.148	0.158	0.178	0.198	0.217	0.237	0.257	0.277	0.296	0.316	0.356	0.395	0.435	0.474	0.514	0.553	0.593
	500	0.089	0.100	0.111	0.122	0.134	0.145	0.156	0.167	0.178	0.200	0.223	0.245	0.267	0.289	0.312	0.334	0.356	0.401	0.445	0.490	0.534	0.579	0.623	0.668
	550	0.099	0.111	0.124	0.136	0.149	0.161	0.173	0.186	0.198	0.223	0.248	0.272	0.297	0.322	0.347	0.371	0.396	0.446	0.495	0.545	0.594	0.644	0.693	0.743
	600	0.109	0.123	0.136	0.150	0.164	0.177	0.191	0.204	0.218	0.245	0.273	0.300	0.327	0.354	0.382	0.409	0.436	0.491	0.545	0.600	0.654	0.709	0.763	0.818
	650	0.119	0.134	0.149	0.164	0.179	0.193	0.208	0.223	0.238	0.268	0.298	0.327	0.357	0.387	0.417	0.446	0.476	0.536	0.595	0.655	0.714	0.774	0.833	0.893
	700	0.129	0.145	0.161	0.177	0.194	0.210	0.226	0.242	0.258	0.290	0.323	0.355	0.387	0.419	0.452	0.484	0.516	0.581	0.645	0.710	0.774	0.839	0.903	0.968
	750	0.139	0.156	0.174	0.191	0.209	0.226	0.243	0.261	0.278	0.313	0.348	0.382	0.417	0.452	0.487	0.521	0.556	0.626	0.695	0.765	0.834	0.904	0.973	1.043
800	0.149	0.168	0.186	0.205	0.224	0.242	0.261	0.279	0.298	0.335	0.373	0.410	0.447	0.484	0.522	0.559	0.596	0.671	0.745	0.820	0.894	0.969	1.043	1.118	

**Table 8: Free cross-section [m<sup>2</sup>]**

**Weight table [kg]**

**L=375mm, with hand trigger** (added weight for drives: max. 4kg)

		Width																							
		200	225	250	275	300	325	350	375	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1300	1400	1500
Height	200	10	11	11	12	12	12	13	13	14	15	16	17	18	19	20	21	22	24	26	28	29	31	33	35
	225	11	11	12	12	13	13	14	14	15	16	17	18	19	20	21	22	23	25	27	29	31	33	35	37
	250	11	12	12	13	13	14	14	15	15	16	17	18	20	21	22	23	24	26	28	30	32	35	37	39
	275	11	12	13	13	14	14	15	15	16	17	18	19	20	22	23	24	25	27	29	32	34	36	38	41
	300	12	13	13	14	14	15	15	16	17	18	19	20	21	23	24	25	26	28	31	33	35	38	40	42
	325	12	13	14	14	15	15	16	17	17	19	20	21	22	23	25	26	27	30	32	34	37	39	42	44
	350	13	14	14	15	15	16	17	17	18	19	21	22	23	24	26	27	28	31	33	36	38	41	43	46
	375	13	14	15	15	16	17	17	18	19	20	21	23	24	25	27	28	29	32	35	37	40	42	45	48
	400	14	14	15	16	17	17	18	19	19	21	22	24	25	26	28	29	30	33	36	39	41	44	47	50
	450	15	15	16	17	18	19	20	20	21	23	24	26	27	28	30	31	33	36	39	42	45	48	50	53
	500	16	16	17	19	19	20	21	22	22	24	26	27	29	30	32	33	35	38	41	44	48	51	54	57
	550	17	18	18	20	20	21	22	23	24	25	27	29	30	32	34	35	37	41	44	47	50	54	57	60
	600	18	19	19	21	22	23	23	24	25	27	29	30	32	34	36	38	39	43	46	50	53	57	61	64
	650	19	20	20	22	23	24	25	26	27	28	30	32	34	36	38	40	41	45	49	53	56	60	64	68
	700	20	21	21	23	24	25	26	27	28	30	32	34	36	38	40	42	44	48	51	55	59	63	67	71
	750	21	22	23	24	25	26	27	28	29	31	33	35	38	40	42	44	46	50	54	58	62	66	71	75
800	22	23	24	25	26	27	28	30	31	33	35	37	39	41	44	46	48	52	57	61	65	70	74	78	

Table 9: Weight table [kg] BKA-EN L=375

**L=500mm, with hand trigger** (added weight for drives: max. 4kg)

		Width																							
		200	225	250	275	300	325	350	375	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1300	1400	1500
Height	200	12	13	14	14	15	15	16	16	17	18	19	20	21	23	24	25	26	28	31	33	35	37	40	42
	225	13	14	14	15	15	16	17	17	18	19	20	21	22	24	25	26	27	30	32	34	37	39	41	44
	250	14	14	15	15	16	17	17	18	18	20	21	22	23	25	26	27	28	31	33	36	38	41	43	46
	275	14	15	15	16	17	17	18	19	19	21	22	23	24	26	27	28	29	32	35	37	40	42	45	47
	300	15	15	16	17	17	18	19	19	20	21	23	24	25	27	28	29	31	33	36	39	41	44	47	49
	325	15	16	17	17	18	19	19	20	21	22	23	25	26	28	29	30	32	35	37	40	43	46	48	51
	350	16	16	17	18	19	19	20	21	21	23	24	26	27	29	30	32	33	36	39	42	44	47	50	53
	375	16	17	18	19	19	20	21	21	22	24	25	27	28	30	31	33	34	37	40	43	46	49	52	55
	400	17	17	18	19	20	21	21	22	23	25	26	28	29	31	32	34	35	38	41	44	48	51	54	57
	450	18	19	19	21	22	22	23	24	25	27	28	30	31	33	35	36	38	41	44	48	51	54	57	61
	500	19	20	21	22	23	24	25	25	26	28	30	32	33	35	37	38	40	44	47	51	54	58	61	64
	550	20	21	22	23	24	25	26	27	28	30	32	33	35	37	39	41	43	46	50	53	57	61	64	68
	600	21	22	23	25	26	26	27	28	29	31	33	35	37	39	41	43	45	49	53	56	60	64	68	72
	650	22	23	24	26	27	28	29	30	31	33	35	37	39	41	43	45	47	51	55	59	63	67	71	76
	700	23	24	25	27	28	29	30	31	32	35	37	39	41	43	45	47	49	54	58	62	66	71	75	79
	750	25	26	27	28	29	31	32	33	34	36	38	41	43	45	47	49	52	56	61	65	70	74	78	83
800	26	27	28	30	31	32	33	34	35	38	40	42	45	47	49	52	54	59	63	68	73	77	82	87	

Table 10: Weight table [kg] BKA-EN L=500

## ACCESSORIES

### Available at an extra charge

- Model made of stainless steel material no. 1.4301 (V2A) or 1.4571 (V4A; replaceable, non-coated parts are made of stainless steel material no. 1.4301)
- Model with additional DD coating (solvent-based two-component top coat, PU-based - RAL 7035/light grey) inside/outside (replaceable, non-coated parts and the U-profile of the damper blade are made of stainless steel material no. 1.4301)
- thermal release via fusible link 98°C (hot-air heating)
- Limit switch type ES, limit switch type ES-Ex, limit switch EasyF-ETX (EasyBus)
- Spring return actuators B10/B11, B20/B21, B32/ B33, B42, S00/S01, S10/S11, S20/S21, X14/X15; J10/J11/J20 upon request
- Pneumatic swivel drives P10/P20/P30 (PND, 6 bar)
- Magnetic clamps MH1 (24 V DC) / MH2 (230 V AC)
- Pulse magnets MI1 (24 V DC) / MI2 (230 V AC)
- Smoke detection system type RMS with general building supervisory approval (abZ) no. Z-78.6-58<sup>3.)</sup>
- Assembly part type EBT for smoke detector RMSII-L of the smoke detection system type RMS
- Signaling and switching bus system type EasyBus<sup>3.)</sup>
- Fire damper mini-controller BKSYS<sup>3.)</sup>
- Extension piece type VT<sup>1.)</sup>
- Duct connection spigot type RS<sup>1.)</sup>
- Flexible spigot type FS; PVC (normally inflammable to EN 13501-1). Connection profile made of sheet steel<sup>2.)</sup>
- Finishing protective grating type ASG<sup>1.)</sup>

- 1.) Standard design galvanised sheet steel, material No. 1.4301 or 1.4571, DD coating (RAL 7035 / light-grey) possible.
- 2.) Standard design galvanised sheet steel, design material no. 1.4301 or 1.4571 possible.
- 3.) For technical descriptions and documents, see respective technical documentation

## LIMIT SWITCH

### Limit switch type ES

Electric limit switch for position indicators "OPEN" and/or "CLOSED". Switching element including one NC and one NO contact each, 4 connections for M3.5 screw terminals for max. 2 mm<sup>2</sup>. 250 V AC, I<sub>e</sub> 6A, IP67 -using suitable cable glands M20 (on site).

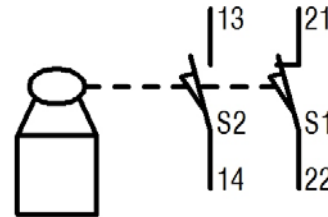


Figure 89: Circuit diagram limit switch type ES

Damper positions that can be displayed:  
 ESZ (type ES 1Z: "CLOSED")  
 ESA (type ES 1A: "OPEN")  
 EZA (type ES 2: "OPEN" and "CLOSED")

### Limit switch type ES-Ex

Limit switch for application in areas subject to explosion hazards

⊕ Ex II 2G Ex d IIC T6/T5 Gb,

⊕ Ex II 2D Ex tb IIIC T 80°C/ 95°C Db

IP65; 250V / 6A AC15; 230V / 0.25A DC13; -20°C ≤ Ta ≤ +65°C

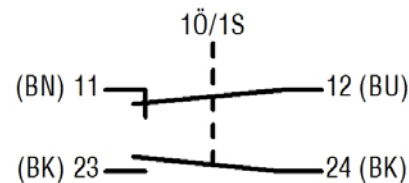


Figure 90: Circuit diagram limit switch type ES-Ex

Damper positions that can be displayed:  
 EXZ (type ES-Ex 1 Z: "CLOSED")  
 EXA (type ES-Ex 1A: "OPEN")  
 EX2 (type ES-Ex 2: "OPEN" and "CLOSED")

### Limit switch type EasyF-ETX

For a technical description and documentation of the limit switch ETX (type EasyF-ETX): see technical documentation signalling and switching bus system EasyBus.


## SPRING RETURN ACTUATORS


### Classification of spring return actuators


#### **B10/B11/B20/B21/B32/B33/S00/S01/S10/S11/S20/S21**

Assignment of the actuator types according to the dimensions

Height	Width																							
	200	225	250	275	300	325	350	375	400	450	500	550	600	650	700	750	800	900	1000	1100	1200	1300	1400	1500
200	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
225	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
250	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
275	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
300	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
325	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
350	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
375	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
400	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
440	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal							
450																								
500																								
550																								
600																								
650																		Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
700																		Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
750																		Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal
800																		Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal	Diagonal

 **B10** (BFL24-T-ST SO) or **B11** (BFL230-T SO)  
 or  
**S00** (GRA126.1E/SO3) or **S01** (GRA326.1E/SO2)

 **B20** (BFN24-T-ST SO) or **B21** (BFN230-T SO)  
 or  
**S10** (GNA126.1E/SO3) or **S11** (GNA326.1E/SO2)

 **B32** (BF24-TN-ST SO) or **B33** (BF230-TN SO)  
 or  
**S20** (GGA126.1E/SO3) or **S21** (GGA326.1E/SO2)

**Table 11: Assignment of the actuator types**



## Spring return actuators B10/B11/B20/B21

**B10** (BFL24-T-ST SO), **B11** (BFL230-T SO)

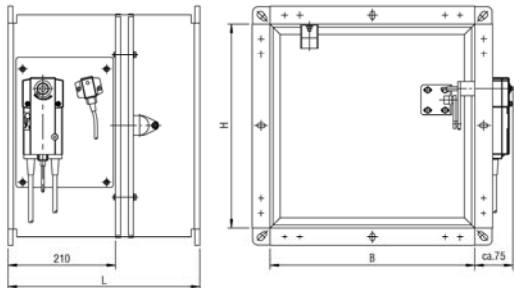


Figure 91: BKA-EN with spring return actuator B10/B11

**B20** (BFN24-T-ST SO), **B21** (BFN230-T SO)

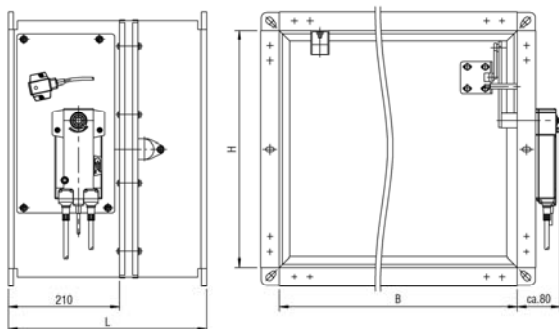


Figure 92: BKA-EN with spring return actuator B20/B21

### Connection diagram B10/B11/B20/B21

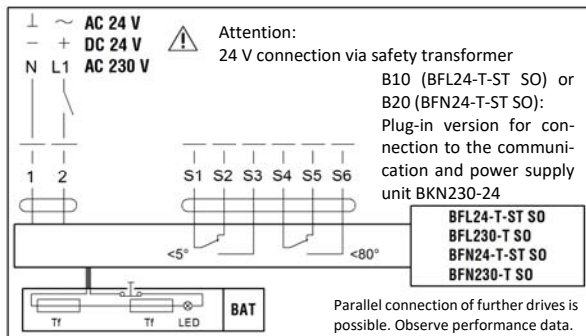


Figure 93: Connection diagram B10/B11/B20/B21

Electric spring return actuators with thermoelectric release device BAT (assignment of the actuator types according to the BSK dimension, as per Table 11 page 56).

- Release temperatures: ambient temperature 72 °C and internal duct temperature 72 °C optionally 95 °C (for hot air heating).
- Operating position (damper "OPEN") and tensioning of the return spring by applying the supply voltage.
- 24V actuators with connectors that can be removed on site if required.
- Safety position (damper "CLOSED") through spring force when supply voltage is interrupted or the temperature fuses (room temperature; 72 °C or internal duct temperature; 72 °C optionally 95 °C) respond. Reaction of the thermal fuses interrupts the supply voltage permanently.

## Spring return actuators B32/B33

**B32** (BF24-TN-ST SO), **B33** (BF230-TN SO)

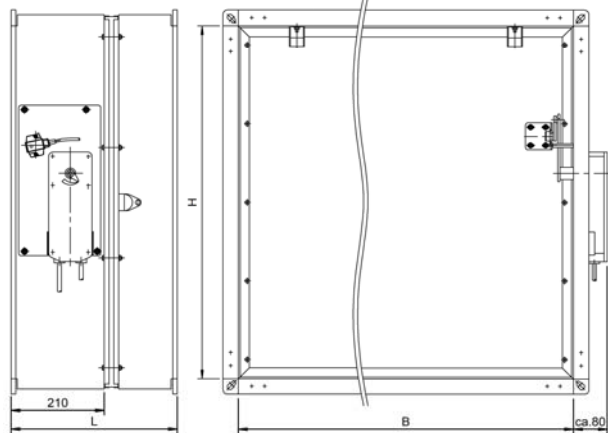


Figure 94: BKA-EN with spring return actuator B32/B33

### Connection diagram B32/B33

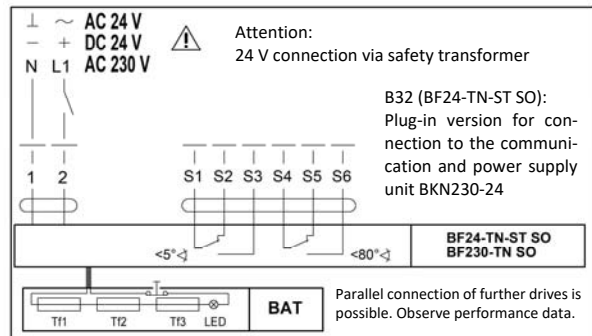


Figure 95: Connection diagram B32/B33

### Attention!

**Safety function is only guaranteed if the drive has been connected to the supply voltage in accordance with regulations and unlocked mechanically.**

- Indication of damper end positions by integrated microswitches via potential-free changeover contacts (S1 to S3 "CLOSED" indicates "CLOSED" position; S4 to S6 "OPEN" indicates "OPEN" position)
- Manual actuation and fixing in any position is possible in the de-energised state. It is unlocked manually.
- On-site function control is possible by means of the control key of BAT.
- Spare parts: Temperature fuse for internal duct temperature (ZBAT72 or ZBAT95). Replacement takes place by unscrewing both screws at the thermoelectric release device. Remove the thermoelectric release device from the actuator unit. Remove the duct inside temperature fuse from the release device and replace it by a new duct inside temperature fuse (ZBAT...). Screw the thermo-electric trigger device back onto the actuator unit. For any other damage etc., the entire "actuator/thermal release device" must be replaced completely.

**Technical data of spring return actuators  
B10/B11/B20/B21/B32/B33**

**24 V actuators (B10/B20/B32)**

Actuator type	B10 (BFL24-T-ST SO)	B20 (BFN24-T-ST SO)	B32 (BF24-TN-ST SO)
Rated voltage [V]	AC/DC 24		
Rated voltage frequency [Hz]	50/60		
Functional range [V]	AC 19.2...28.8 / DC 21.6...28.8		
Power consumption during operation [W]	2.5	4	7
Power consumption in idle position [W]	0.8	1.4	2
Power consumption/dimensioning	4 VA / I <sub>max</sub> 8.3 A @ 5 ms	6 VA / I <sub>max</sub> 8.3 A @ 5 ms	10 VA / I <sub>max</sub> 8.3 A @ 5 ms
Auxiliary switch	2 x EPU		
Switching capacity of auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V		1 mA...6 (3) A, DC 5 V...AC 250 V
Connection of supply / control	Cable 1 m, 2 x 0.75 mm <sup>2</sup> (halogen-free), with 3-pin connector		
Auxiliary switch connection	Cable 1 m, 6 x 0.75 mm <sup>2</sup> (halogen-free), with 6-pin connector		
Motor runtime	<60 s /90°		<120 s /90°
Spring return runtime	20 s @ -10...55°C / <60 s @ -30...-10°C		~16 s (t <sub>amb</sub> = 20°C)
Protection class IEC/EN	Safety extra low voltage III		
Protection class auxiliary switch IEC/EN	II protective insulation		
Degree of protection IEC/EN	IP54		
Ambient temperature Normal operation	-30...55°C		-30...50°C
Storage temperature	-40...55°C		-40...50°C
Ambient humidity	95% r.H., non-condensing		

**Table 12: Technical data of 24 V spring return actuators  
B10/B20/B32**

**230 V actuators (B11/B21/B33)**

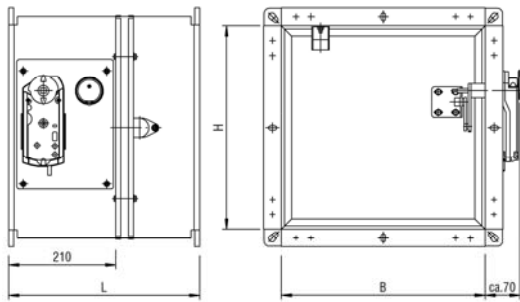
Actuator type	B11 (BFL230-T SO)	B21 (BFN230-T SO)	B33 (BF230-TN SO)
Rated voltage [V]	AC 230		
Rated voltage frequency [Hz]	50/60		
Functional range [V]	AC 198...264		
Power consumption during operation [W]	3.5	5	8.5
Power consumption in idle position [W]	1.1	2.1	3
Power consumption/dimensioning	6.5 VA / I <sub>max</sub> 4 A @ 5 ms	10 VA / I <sub>max</sub> 4 A @ 5 ms	11 VA / I <sub>max</sub> 0,5 A @ 5 ms
Auxiliary switch	2 x EPU		
Switching capacity of auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V		1 mA...6 (3) A, DC 5 V...AC 250 V
Connection of supply / control	Cable 1 m, 2 x 0.75 mm <sup>2</sup> (halogen-free)		
Auxiliary switch connection	Cable 1 m, 6 x 0.75 mm <sup>2</sup> (halogen-free)		
Motor runtime	<60 s /90°		<120 s /90°
Spring return runtime	20 s @ -10...55°C / <60 s @ -30...-10°C		~16 s (t <sub>amb</sub> = 20°C)
Protection class IEC/EN	II protective insulation		
Protection class auxiliary switch IEC/EN	II protective insulation		
Degree of protection IEC/EN	IP54		
Ambient temperature Normal operation	-30...55°C		-30...50°C
Storage temperature	-40...55°C		-40...50°C
Ambient humidity	95% r.H., non-condensing		

**Table 13: Technical data of 230 V spring return actuators  
B11/B21/B33**

Ambient temperature safety incident: Reaching the safety position is guaranteed up to max. 75 °C.

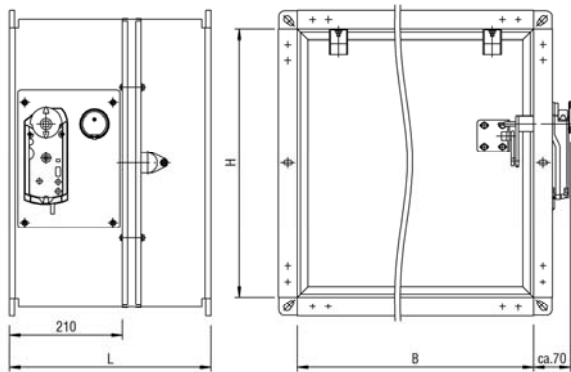
**Spring return actuators S00/S01/S10/S11/S20/S21**

**S00 (GRA126.1E/SO3)/S01 (GRA326.1E/SO2)**



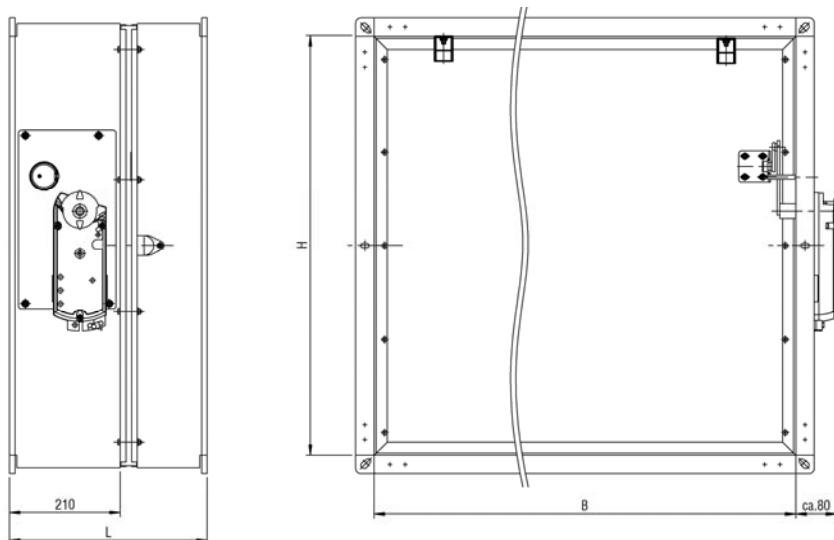
**Figure 96: BKA-EN with spring return actuator S00/S01**

**S10 (GNA126.1E/SO3)/S11 (GNA326.1E/SO2)**



**Figure 97: BKA-EN with spring return actuator S10/S11**

**S20 (GGA126.1E/SO3)/S21 (GGA326.1E/SO2)**



**Figure 98: BKA-EN with spring return actuator S20/S21**

**Cable designation**

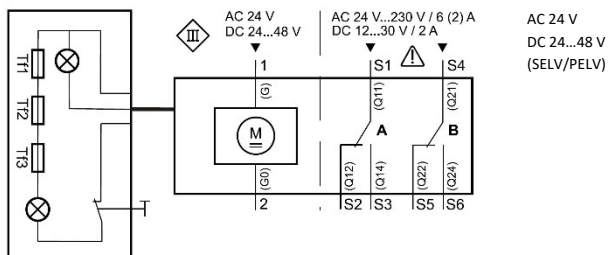
The wires are colour-coded and labelled.

Connection	Cable				Meaning
	Code	No.	Colour	Abbreviation	
Drives AC 24 V DC 24...48 V	G	1	red	RD	System potential AC 24 V/DC 24...48 V
	G0	2	black	BK	System zero
Drives AC 230 V	L	3	brown	BN	Phase AC 230 V
	N	4	blue	BU	Zero conductor
Auxiliary switch	Q11	S1	grey/red	GYRD	Switch A ("CLOSED") input
	Q12	S2	grey/blue	GYBU	Switch A ("CLOSED") rest contact
	Q14	S3	grey/pink	GYPK	Switch A ("CLOSED") NO contact
	Q21	S4	black/red	BKRD	Switch B ("OPEN") input
	Q22	S5	black/blue	BKBU	Switch B ("OPEN") rest contact
	Q24	S6	black/pink	BKPK	Switch B ("OPEN") NO contact

**Table 14: Cable designation S00/S01/S10/S11/S20/S21**

**Connection diagram**

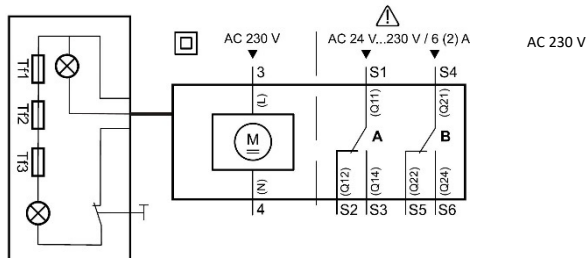
**Spring return actuator S00/S10/S20 (24V AC/ 24...48V DC)**



**Figure 99: Connection diagram S00/S10/S20**

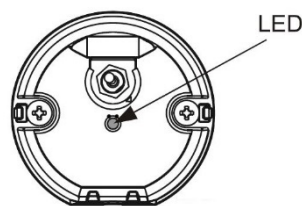
**Connection diagram**

**Spring return actuator S01/S11/S21 (230V AC)**



**Figure 100: Connection diagram S01/S11/S21**

**LED functions**



- red = operating voltage OK  
Thermal sensor defective
- green = operating voltage OK  
Thermal sensor OK
- dark = no operating voltage

**Figure 101: LED functions S00/S01/S10/S11/S20/S21**

**Attention!**

Safety function is only guaranteed if the actuator has been connected to the supply voltage in accordance with regulations and unlocked mechanically.

**Technical data S00/S01/S10/S11/S20/S21**

**S00** (GRA126.1E/SO3)/**S01** (GRA326.1E/SO2)

**S10** (GNA126.1E/SO3)/**S11** (GNA326.1E/SO2)

**S20** (GGA126.1E/SO3)/**S21** (GGA326.1E/SO2)

Actuator type	<b>S00</b> (GRA126.1E/SO3)	<b>S10</b> (GNA126.1E/SO3)	<b>S20</b> (GGA126.1E/SO3)	<b>S01</b> (GRA326.1E/SO2)	<b>S11</b> (GNA326.1E/SO2)	<b>S21</b> (GGA326.1E/SO2)
Supply [V]	AC 24 / DC 24...48 (SELV/PELV)			AC 230		
Operating voltage [V]	AC 24 ±20% / DC 24...48 ±20%			AC 230 ±15%		
Frequency [Hz]	50/60					
Power consumption during operation	AC: 5 VA / 3.5 W DC: 3.5 W		AC: 7 VA / 5 W DC: 4 W	7 VA / 4.5 W		8 VA / 6 W
Power consumption in idle position	AC/DC: 2 W		AC: 5 VA / 3 W DC: 3 W	3.5 W		6 VA / 4 W
Auxiliary switch *)	Integrated, fixed switching point at 5° or 80°					
Auxiliary switch switching voltage [V]	AC 24...230 / DC 12...30					
Auxiliary switch rated current [A]	AC: 6 (ohmic) or. 2 (inductive) / DC: 2					
Supply cable AC 24V: (wires 1-2)/ AC 230V: (wires 3-4)	Cable 0.9 m, 2 x 0.75 mm <sup>2</sup> (halogen-free) + 3-pin connector					
Auxiliary switch cable (wires S1...S6)	Cable 0.9 m, 6 x 0.75 mm <sup>2</sup> (halogen-free) + 6-pin connector					
Motor running time [s] (angle of rotation 90°)	90					
Spring return runtime [s]	15					
Protection class	III according to EN 60 730			II according to EN 60 730		
Degree of protection according to EN 60 529	IP54					
Ambient temperature Normal operation	-32...+50°C (actuator) -20...+50°C (temperature monitoring unit)					
Storage temperature	-32...+50°C (actuator) -20...+50°C (temperature monitoring unit)					
Ambient humidity	<95% r.h. / no dewing (actuator) CL D according to DIN 40040 (temperature monitoring unit)					

\*) Either only mains voltage or only safety extra low voltage may be applied to the auxiliary switches. Mixed operation is not allowed.  
Operation with different phases is not allowed.

**Table 15: Technical data S00/S01/S10/S11/S20/S21**

Electric spring return actuator with temperature monitoring unit (assignment of the actuator types according to the BSK dimension, as per Table 11 page 56).

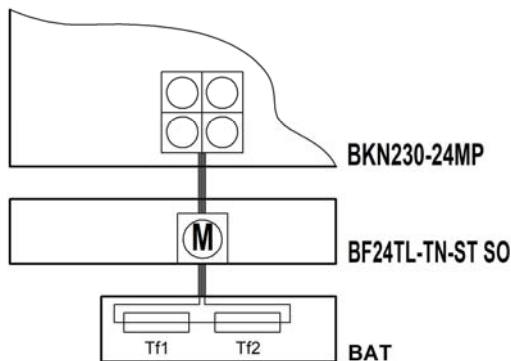
- Release temperatures: ambient temperature 72 °C and internal duct temperature 72 °C optionally 95 °C (for hot air heating).
- Operating position (damper "OPEN") and tensioning of the return spring by applying the supply voltage.
- 24V actuators with connectors that can be removed on site if required.
- Safety position (damper "CLOSED") through spring force when supply voltage is interrupted or the temperature fuses (room temperature; 72° or internal duct temperature; 72°C optionally 95°) respond. The response of the temperature monitoring unit interrupts the supply voltage permanently and irrevocably.
- Indication of damper end positions by integrated auxiliary switches via potential-free changeover contacts (S1 to S3 "CLOSED" indicates "CLOSED" position; S4 to S6 "OPEN" indicates "OPEN" position)

- Manual actuation and fixing in any position is possible in the de-energised state. It is unlocked manually.
- An on-site functional check is possible by means of a pushbutton or temperature monitoring unit permanently connected to the actuator.
- Spare parts: Duct tip for temperature monitoring unit with internal duct temperature of 72°C (ASK79.4) or 95°C (ASK79.5).  
 The replacement takes place by unscrewing both screws at the temperature monitoring unit and removing the actuator unit. Pull duct tip (internal duct temperature fuse) off the temperature monitoring unit and replace it with a new duct tip with internal duct temperature of 72°C (ASK79.4) or 95°C (ASK79.5). Reinsert temperature monitoring unit into actuator unit and screw it down.  
 For damage other than to the duct tip (internal duct temperature fuse), the entire actuator/temperature monitoring unit set must be completely replaced.

### Spring return actuator B42

**B42** (BF24TL-TN-ST SO; Top-Line)  
 (suitable for all BKA-EN dimensions)

#### Connection diagram



**Figure 102: Connection diagram B42**

Electric spring return actuator with thermoelectric release device BAT72TL.

- Trigger temperature (internal duct temperature) 72°C optionally 95°C (for hot-air heating).
- Supply voltage: 24 V AC/DC, including plug
- Connection to Belimo MP bus systems is possible via communication and power supply unit BKN230-24MP.

Technical data and connection diagrams available upon request.

### Spring return actuator ExMax-5.10-BF

**ExMax-5.10-BF (X14 - X15)**  
 (suitable for all BKA-EN dimensions)

Electric explosion-protected spring return actuators with safety temperature limiter (ExPro-TT).

- Trigger temperatures (internal duct temperature) 72 °C, optionally 95 °C (for hot-air heating).
- Operating position (damper "OPEN") and tensioning of the return spring by applying the supply voltage (universal power supply 24 - 240 VAC/DC)
- Safety position (damper "CLOSED") through spring force when supply voltage is interrupted or the temperature fuses (room temperature or internal duct temperature) respond. A response of the thermal fuses will interrupt the sensor circuit permanently and irrevocably.
- End position signalling by integrated auxiliary switches, switching at an angle of rotation of 5° and 85°.
- An on-site functional check is possible by means of the control key of of the safety temperature limiter

#### Attention!

**Safety function is only guaranteed if the actuator has been connected to the supply voltage in accordance with regulations and unlocked mechanically.**

Further information can be found in the additional BKA-EN operating instructions according to ATEX 2014/34/EU.

## PNEUMATIC SWIVEL DRIVES

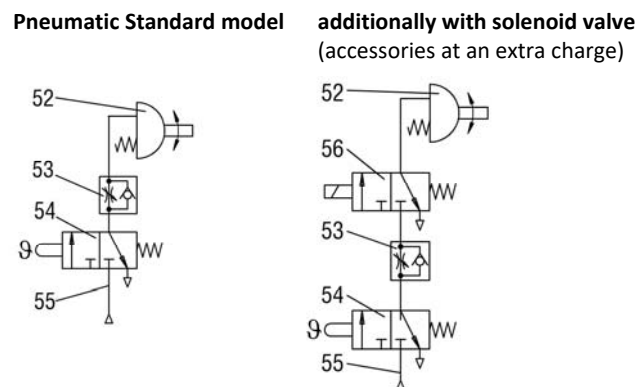
### Swivel drives P10/P20/P30 (PND 6 bar; closed-circuit principle)

Remote-controlled opening and closing by pneumatic swivel drive (continuous pressure). Complete regulation mechanism for easy fitting with 4 screws. If the fusible link is intact, the damper blade can be closed and opened as desired by interrupting the compressed air supply on site. Mounting a solenoid valve (accessories) allows the damper blade to be opened while power is active and to be closed by interrupting power, thus allowing switches, smoke release devices, etc., installed on site to be connected. The damper blade can be kept open with compressed air and voltage. It can be closed via thermal release (72°C/98°C) or by removing the pressure. Thermal functional readiness through 72°C / 98°C thermal switch.

#### Attention!

- Leakage at 6 bar max. 2 NI/h (as delivered), max. 10 NI/h (after 500,000 switching cycles). (feed line must be sufficiently dimensioned). Valves fitted on site must be dimensioned in accordance with their distance from the pneumatic unlocking and release device.
- Compressed air quality: - Particle size max. 5 µm  
- Oil content in compressed air 5 ... 25mg/m<sup>3</sup>
- For connection, a commercially available G 1/8" connecting nipple is used (must be provided on site)
- For transport reasons and to avoid possible damage during fitting, the complete regulation mechanism can be delivered separately (if desired). The space required for subsequent mounting must be taken into account. Fitting is easy as the complete regulation mechanism is assembled on a mounting plate (on request with electrical wiring).
- Training of the installers at SCHAKO in-house is recommended.

#### Circuit diagram

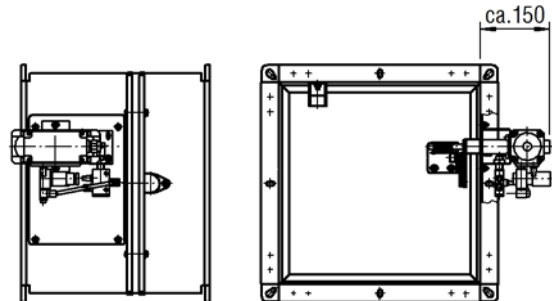


**Figure 103: Connection diagram pneumatic swivel drives P10/P20/P30 (PND 6bar; closed-circuit principle)**

- 52 Pneumatic swivel drive (operating pressure 6 bar)
- 53 Pneumatic throttle valve
- 54 Pneumatic thermo switch with fusible link  
72°C/98°C; 3/2-way valve, connection G1/8
- 55 Feed pressure 6 bar
- 56 Solenoid valve (accessory, at an extra charge)  
Electro-pneumatic 3/2-way valve, G1/8 connection

### Mounting example: Pneumatic swivel drives P10/P20/P30

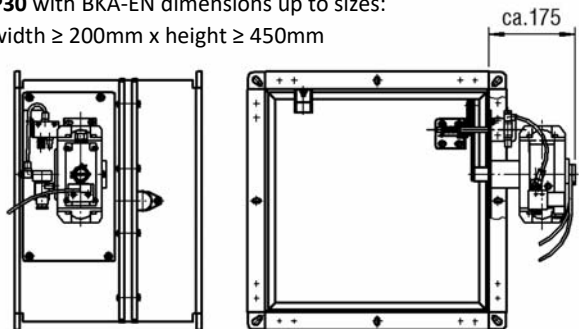
**P10** with BKA-EN dimensions up to sizes:  
width ≤ 800mm x height < 450mm



**Figure 104: Pneumatic swivel drive P10 (versions up to sizes: width ≤ 800mm x height < 450mm)**

**P20** with BKA-EN dimensions up to sizes:  
width > 800mm x height < 450mm

**P30** with BKA-EN dimensions up to sizes:  
width ≥ 200mm x height ≥ 450mm



**Figure 105: Pneumatic swivel drive P20 (for dimensions: width > 800mm x height < 450mm / P30 (for dimensions: width ≥ 200mm x height ≥ 450mm)**

#### Accessories (at an extra charge):

- Solenoid valve
- Micro limit switches "OPEN/CLOSED" for position indication (when mounted ex works).
- Limit switch box "OPEN/CLOSED" for position indication (when retrofitted on site, etc.).
- Wiring of all fitted electrical components

#### Thermo-pneumatic triggering

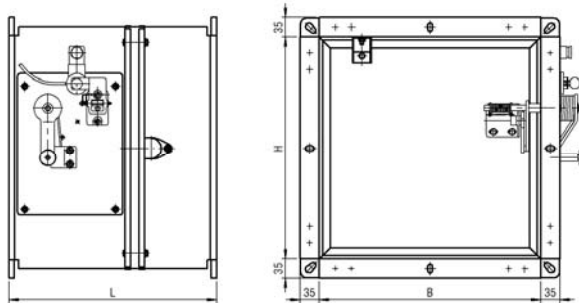
With thermal triggering, the fusible link will break, and the attached directional valve will interrupt the compressed air supply to the cylinder and the damper blade will close. Opening velocity can be set. After thermal release is complete, the damper blade cannot be opened by means of the actuating cylinder, before replacing the fusible link.

#### Electro-pneumatic triggering

The electro-pneumatic triggering will interrupt the power supply of the solenoid valve. If the fusible link is not broken, the damper blade will open again as soon as the power supply of the solenoid valve is restored.

## MAGNETS

### Magnetic clamps MH1/MH2 and pulse magnets MI1/MI2



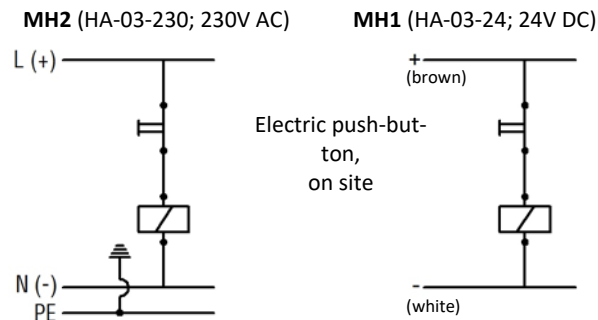
**Figure 106: Magnetic clamp/pulse magnet (MH1/MH2/MI1/MI2) mounted to BKA-EN (shown with optional accessories)**

#### Magnetic triggers

The release rocker of the trigger device is held on one side by the anchor plate of a magnet clamp or a pulse magnet. On the other side of the release rocker, the lock bolt of the hand lever is arrested. When the magnetic clamp is triggered by interrupting the power supply, the release rocker is tilted by a leg spring attached laterally such that the lock bolt of the hand lever is released, closing the damper. The pulse magnet is triggered by a short current pulse, which results in the anchor plate being released by the magnet.

#### Magnetic clamps MH1/MH2

Wiring information:



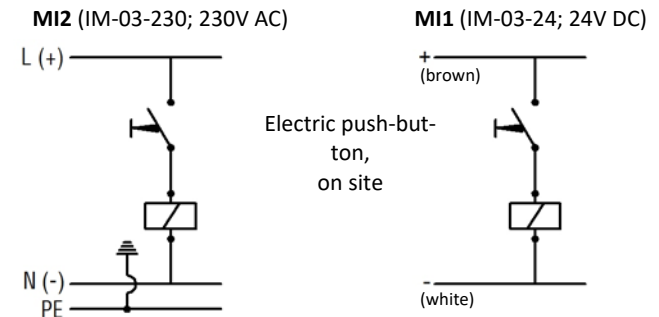
**Figure 107: Wiring information magnetic clamps MH1/MH2**

#### Functional principle:

Magnetic clamps consist of an electromagnetic clamping system. The magnetic circuit, which is open in the switched-on state, allows ferromagnetic workpieces to be held. The fire damper is closed by interrupting the power.

### Pulse magnets MI1/MI2

Wiring information:



**Figure 108: Wiring information pulse magnets MI1/MI2**

#### Functional principle:

Pulse magnets (permanent electric magnets) consist of a permanently magnetic adhesion system for holding ferromagnetic workpieces and an excitation winding, which neutralises the magnetic field at the adhesion surface in the switched-on state, thus allowing the workpieces to be removed or loads to be set down. Owing to the built-in permanently magnetic clamping system, which is effective in the currentless state of the device, these pulse magnets (magnetic clamps) are preferably used wherever long clamping times are required and the device is only switched on for a short period or occasionally. The fire damper is closed by "briefly" applying a voltage (pulse).

#### Magnetic trigger:

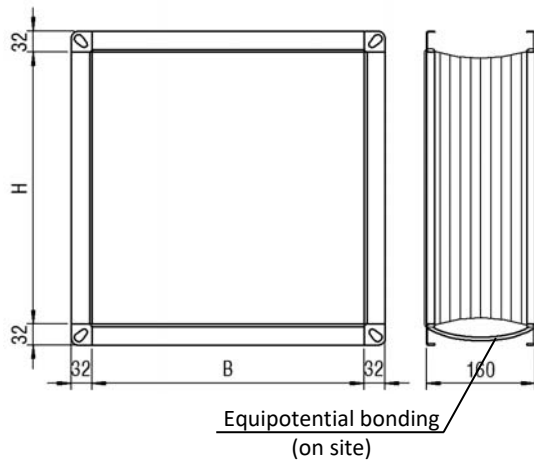
Trigger time min. 1.5 s

When using pulse magnets for triggering, the operating voltage may be applied during a short period only.



## ADD-ON PARTS

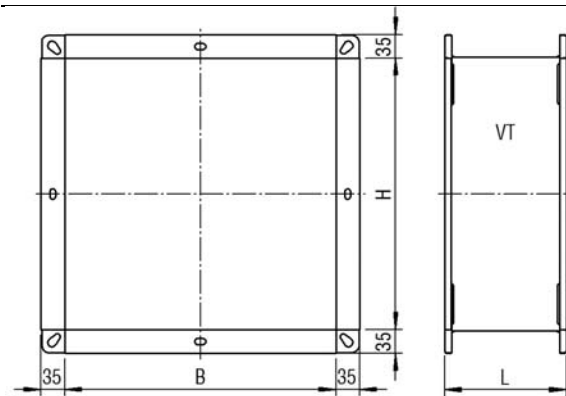
### Flexible spigot type FS



**Figure 109: Flexible spigot type FS**

- Ventilation ducts must not exert significant forces on walls, supports or ceilings and thus also on fire dampers as a result of thermal expansion (in case of fire). Appropriate compensation measures, such as the arrangement of flexible spigots (SCHAKO type FS) or a suitable duct routing (duct angles and distortions), must be taken as required. Alternatively, flexible ventilation ducts can be used. National regulations must be observed and adhered to.
- Flexible spigot consisting of profiled connection flanges (made of galvanised sheet steel) with elastic intermediate piece made of polyester fabric PVC-coated on both sides, standard flammable according to EN 13501-1, with welded lip seals (sealing degree C according to EN 13180/EN 1507; temperature-resistant from -20° to 80°C). The flexible part of the spigot (polyester fabric) must have a length of  $L_{\min} = 100$  mm when mounted, resulting in an installation dimension of approx.  $L = 160$  mm. This may reduce the free cross-section.
- The required equipotential bonding must be carried out on-site according to VDE regulations. The fire dampers must not be subject to mechanical stress under any circumstances.

### Extension piece type VT



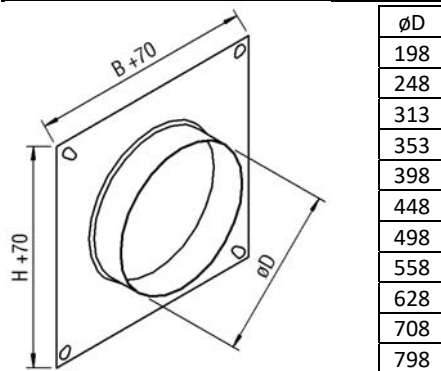
**Figure 110: Extension piece type VT**

- Extension piece made of profiled sheet steel fitted with connecting flanges
- Intended use:  
for large wall/ceiling thickness, in order to maintain a minimum distance  $a_{\min} = 50$  mm from the open damper blade when fitting finishing protective grating type ASG, flexible spigot type FS or duct connection spigot type RS

H	L	The L dimension depends on the height.	
200	180		
225			
250			
275			
300			
325			
350			
375			
400			
450			
500			
550			
600			
650			
700			
750			
800	210		

**Table 16: Length of the extension part type VT depending on the fire damper height**

### Duct connection spigot type RS

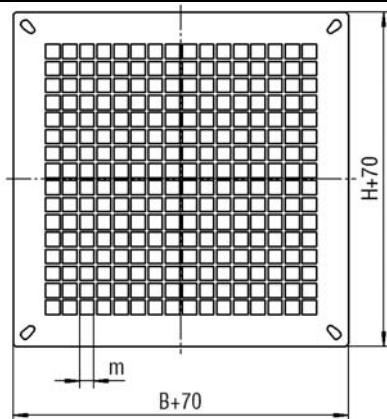


The spigot diameter  $\varnothing D$  must be smaller than the smallest side dimension (width(B)/height(H)). Further dimensions are available upon request.

**Figure 111: Duct connection spigot type RS**

- Duct connection spigot with galvanised sheet steel joining plate
- Intended use: connection/transition from fire damper to round ducts.

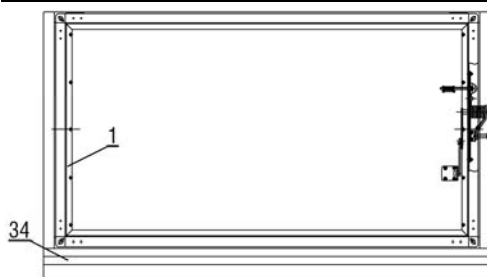
### Finishing protective grating type ASG



**Figure 112: Security grille type ASG**

- Wire or punch grille with a mesh size of  $\leq 20$  mm
- Intended use: to be fitted for one-sided connection
- Minimum distance  $a_{\min} = 50$  mm from open damper blade must be considered; if necessary, use extension part type VT. On the B side, an additional long hole is present in the flange centre area from  $B \geq 1000$  mm.

### Installation kit type GDL



**Figure 113: BKA-EN with GDL installation kit**

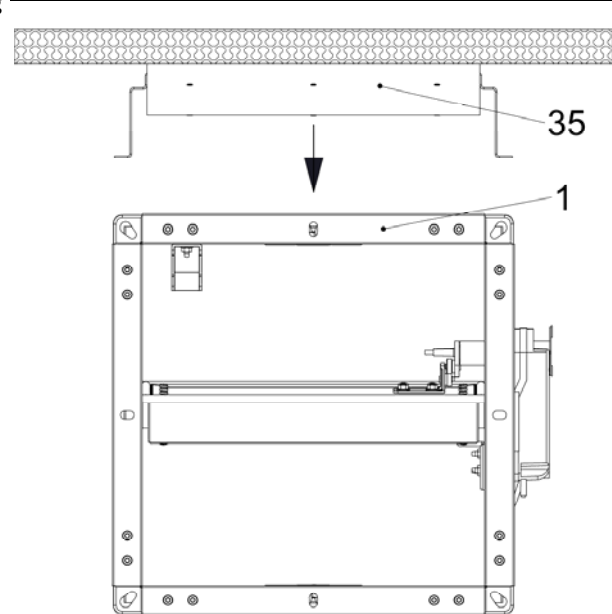
- 1 Fire damper BKA-EN (L=375)
- 34 Installation kit type GDL (mounted ex works)

Construction subject to change  
 No return possible

- Installation kit type GDL consisting of silicate boards, U-profile and fastening brackets is delivered only mounted ex works.
- Intended use: For installation of the BKA-EN (L=375) in lightweight partition walls with metal studs and panelling on both sides according to classification to EN 13501-2 or comparable national standards, in the area of sliding ceiling connections (sliding/ceiling bending  $\leq 20$  mm).

The version of the installation kit type GDL depends on the web height of the selected metal post profiles (CW/UW; single stud structure) of the wall and must be considered and specified when ordering and selecting it. It is fastened to the solid ceiling using metal dowels M12 provided on site.

### Installation kit type GDA

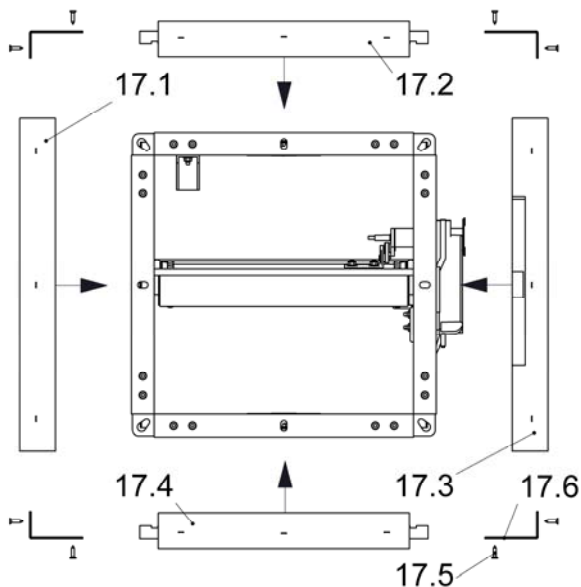


**Figure 114: BKA-EN with GDA installation kit**

- 1 Fire damper BKA-EN (L=375)
- 35 Installation kit type GDA with mineral wool (included in delivery; non-flammable according to EN13501-1, apparent density approx.  $30 \text{ kg/m}^3$ , melting point  $\geq 1000$  °C).

- Installation kit type GDA is supplied loose with the BKA-EN.
- Intended use: Installation with installation kit type GDA in the area of flexible ceiling connections (flexibility/ceiling bending  $\leq 20$  mm).

### Installation frame type ER-A1



**Figure 115: BKA-EN with ER-A1 installation frame (loose)**

- 1 Fire damper BKA-EN
- 17 Installation frame type ER-A1 (accessory, at an extra charge).
  - 17.1 H side part 1
  - 17.2 B side part 1
  - 17.3 H side part 2
  - 17.4 B side part 2
  - 17.5 Countersunk head screw 4.5 x 20 mm (8 pieces)
  - 17.6 Corner angle ER-A1 (4 pieces)
- 18 Fixing lugs (not shown; included in the delivery of the installation frame type ER-A1)

- Installation frame type ER-A1 consisting of silicate boards, incl. fastening material, with a circumferential intumescent seal located in its centre.
- Intended use:  
 For installation of the BKA-EN in lightweight partition walls with metal posts and panelling on both sides according to classification to EN 13501-2 or comparable national standards.  
 The ER-A1 installation frame is to be ordered as an accessory (extra charge) – supplied loose or factory-mounted. If the installation frame type ER-A1 is already mounted ex works to the BKA-EN, the installation in the wall can immediately take place.

If the installation frame type ER-A1 has been ordered or delivered loose as a mounting kit, it must be mounted on the BKA-EN (see Figure 115) following the instructions described below.

To avoid damage to components when mounting the installation frame type ER-A1, the fire damper must be placed on a suitable surface (e.g. cardboard, pallet, etc.).

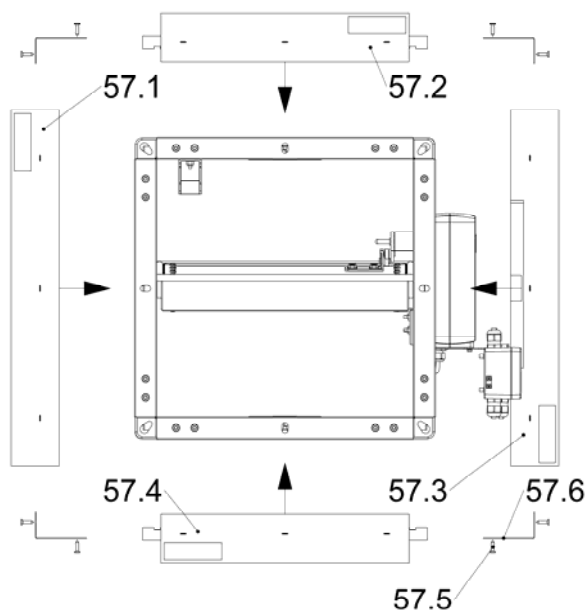
All holes required for screw mounting have been predrilled ex works on the installation frame type ER-A1, no further holes must be drilled. The ER-A1 installation frame must not be screwed directly to the housing of the fire damper.

Construction subject to change  
 No return possible

### Mounting procedure

- Place the fire damper on the flange of the operator side (BS).
- The two B side and H side parts (pos. 17.1 - 17.4) are positioned around the BKA-EN housing (pos. 1), as shown in Figure 115.
- They are then screwed together with the supplied corner angles (pos. 17.6) and the corresponding countersunk screws (pos. 17.5) in the corner area.

### ERA2 installation frame



**Figure 116: BKA-EN with ERA2 installation frame (loose)**

- 1 Fire damper BKA-EN
- 17 ERA2 installation frame (accessory, at an extra charge).
  - 57.1 H side part 1
  - 57.2 B side part 1
  - 57.3 H side part 2
  - 57.4 B side part 2
  - 57.5 Countersunk head screw 4.5 x 20 mm (8 pieces)
  - 57.6 Corner angle ERA2 (4 pieces)

- ERA2 installation frame made of silicate boards
- Intended use:  
 For BKA-EN installation away from solid walls.  
 The ERA2 installation frame is to be ordered as an accessory (extra charge) – supplied loose or factory-mounted. If the installation frame has already been mounted to the BKA-EN at the factory, installation can take place immediately.

If the ERA2 installation frame has been ordered or delivered loose as a mounting kit, it must be mounted to the BKA-EN (see Figure 116) following the instructions described below. To avoid damage to components when mounting the ERA2 installation frame, the fire damper must be placed on a suitable surface (e.g. cardboard, pallet, etc.).

All holes required for screw mounting have been predrilled at the factory on the installation frame type ER-A1, no further holes must be drilled. The ERA2 installation frame must not be screwed directly to the housing of the fire damper.

**Mounting procedure**

- Place the fire damper on the flange of the operator side (BS).
- The two B side and H side parts (pos. 57.1 - 57.4) are positioned around the BKA-EN housing (pos. 1), as shown in Figure 116.
- They are then screwed together with the supplied corner angles (pos. 57.6) and the corresponding countersunk screws (pos. 57.5) in the corner area.

- The mounting kit type AS-E1 consisting of silicate boards, screen and joining plate incl. fastening material and mineral wool strips will be delivered loose as a mounting kit and has to be mounted on site.
- Intended use:  
 For installation of the BKA-EN (L=375) directly on solid walls. The delivered means for wall mounting are suitable for solid walls (concrete  $\geq$  C20/25), for other walls, suitable fastening means must be provided on site.

**Mounting Kit Type AS-E1**

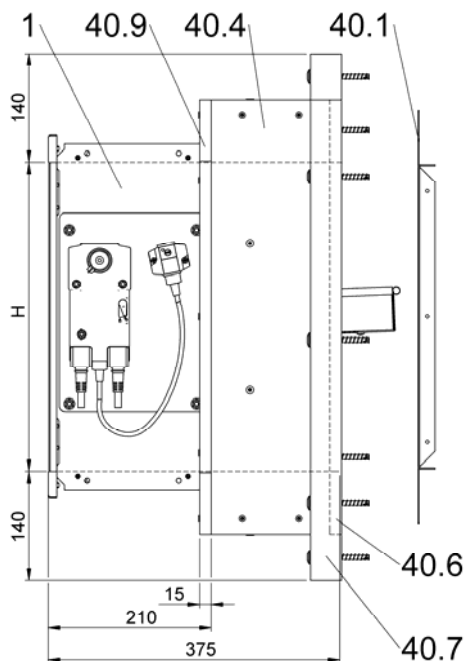
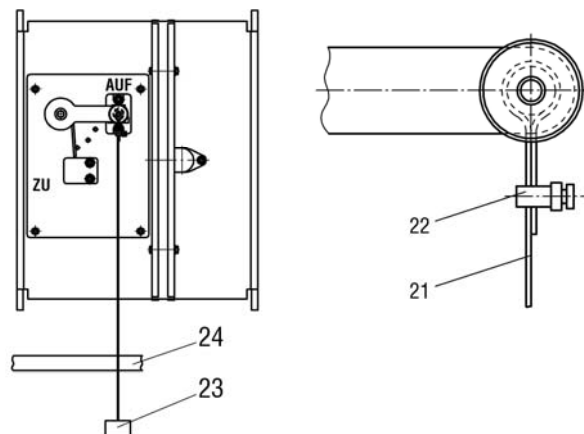


Figure 117: BKA-EN with AS-E1 mounting kit (side view)

- 1 Fire damper BKA-EN (L=375)
- 40.1 Joining plate (steel sheet frame)
- 40.4 Frame made of silicate boards
- 40.6 Mineral wool strips
- 40.7 Collar made of silicate boards
- 40.9 Screen

### Position indicator type MSZ



**Figure 118: Position indicator type MSZ**

- 21 Galvanised steel cable
- 22 Clamping nipple
- 23 Position indicator
- 24 False ceiling

- Steel cable -galvanized- (pos. 21) with clamping nipple (pos. 22) and position indicator (pos. 23); steel cable and position indicator must be arranged perpendicularly.
- Intended use:  
 Mechanical position indicator for false ceilings (pos. 24).  
 Can be used for any mechanically operated BKA-EN with hand lever (article 3019870).

### Mortar anchor

- Perforated plate  $t \geq 0.5$  mm; width x length = 40 x 70 mm (accessories at an extra charge: 1 set = 40 pieces). From a width > 800 mm (with horizontal damper blade axle) (article 3231690).
- Intended use: In case of wet installation in lightweight partition walls with metal posts and panelling on both sides according to classification to EN 13501-2 or comparable national standards.


### Suspension angle

- 4 pieces (= 1 set, at an extra charge) per fire damper are required. Select the angle material (SV; V2A; V4A) according to the housing material of the BSK.  
 SV = article 5007240;  
 V2A = article 5007242;  
 V4A = article 5007241;
- Intended use: For installation with Hilti soft seal system.

### Legend

$V_{Zu}$	[m <sup>3</sup> /h] [l/s]	=	Supply air volume
$\Delta p$	[Pa]	=	Static pressure difference
$L_{WA}$	[dB(A)]	=	A-weighted sound power level
$V_{stirn}$	[m/s]	=	Face velocity
$\rho$	[kg/m <sup>3</sup> ]	=	Density
B	[mm]	=	Width
H	[mm]	=	Height
min.		=	at least
or		=	or
approx.		=	approximately

### CE marking

 0761	12
<b>SCHAKO Klima-Luft          Ferdinand Schad KG          Weidenäcker 9          D-88605 Meßkirch</b>	
2020 DoP-BKA-EN-2021-06-01	
<b>EN 15650:2010</b>  Fire Damper  Type/version  <b>BKA-EN</b>	
<b>Nominal conditions of activation / sensitivity:</b> - Load bearing capacity of the temperature-sensitive measuring sensor <span style="float: right;">passed</span> - Response temperature of the temperature-sensitive measuring sensor	
<b>Response delay (Response time):</b> - Closing time <span style="float: right;">passed</span>	
<b>Operational safety:</b> - Cyclic testing (50 cycles) <span style="float: right;">passed</span>	
<b>Fire resistance:</b> - Cross-section maintained - Integrity E - Heat insulation I <span style="float: right;">EI 90</span> - Smoke leakage S <span style="float: right;">(V<sub>e</sub>, h<sub>o</sub>, i↔o) S</span> - Mechanical strength (under E) - Cross-section (under E)	
<b>Durability of the response delay:</b> - temperature-sensitive measuring sensor <span style="float: right;">passed</span> - Response temperature and load bearing capacity	
<b>Durability of the operational safety:</b> - Test of the opening and closing cycle <span style="float: right;">passed</span>	

## ORDER CODE

01	02	03	04	05	06
Type	Width	Height	Length	Material (housing)	Coating (housing)
<b>Example</b>					
BKAEN	-1500	-800	-375	-V2	-1

07	08	09	10	11	12
Damper blade version	Release temperature	Actuator type	Accessories	Additional frame	Field modules
-2	-72	-B32	-Z00	-R08	-22

### EXAMPLE

#### **BKAEN-1500-800-375-V2-1-2-72-B32-Z00-R08-22**

Type **BKAEN** = fire damper BKA-EN | Width = **1500** mm | Height = **800** mm | Length = **375** mm | Material (housing) **V2** = stainless steel material no. 1.4301 (V2A) | Coating (housing) **1** = DD coating inside | Damper blade model **2** = coated with DD coating | Release temperature **72** = 72°C | Actuator type **B32** = type BF24-TN-ST SO | Accessories **Z00** = without accessories | Additional frame **R08** = installation kit type GDL (for metal post profiles CW50/UW50; single stud structure) | Field module **22** = EasyFADC-MASD-01 (corresponds to module mounted to the BKA-EN incl. actuator unit connection, with flat cable connection, with addressing)

### ORDER DETAILS

#### 01 - TYPE

BKAEN = BKA-EN

#### 02 - WIDTH

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - in mm - with 4 digits

#### 03 - HEIGHT

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

#### 04 - LENGTH

500 (standard) or  
 375  
 in mm - always three digits

#### 05 - MATERIAL (HOUSING)

SV = Galvanised sheet steel (standard)  
 V2 = Stainless steel material no. 1.4301 (V2A)  
 V4 = Stainless steel material no. 1.4571 (V4A)

#### 06 - COATING (HOUSING)

0 = without paint (standard)  
 1 = DD coating, inside (RAL7035)  
 3 = DD coating inside and outside (RAL7035)

#### 07 - DAMPER BLADE VERSION

0 = without coating (standard)  
 2 = DD coating  
 4 = covered with galvanised sheet steel  
 6 = covered with galvanised sheet steel + DD coating

#### 08 - RELEASE TEMPERATURE

72 = 72°C (standard) or  
 98 = 98(95)°C

#### 09 - ACTUATOR TYPE

HAN = thermomechanical and manual triggering \* (standard)  
 B10 = BFL24-T-ST SO (suitable for see p.56 Table 11)  
 B11 = BFL230-T SO (suitable for see p.56 Table 11)  
 B20 = BFN24-T-ST SO (suitable for see p.56 Table 11)  
 B21 = BFN230-T SO (suitable for see p.56 Table 11)  
 B32 = BF24-TN-ST SO (suitable for see p.56 Table 11)  
 B33 = BF230-TN SO (suitable for see p.56 Table 11)  
 B42 = BF24TL-TN-ST SO \*  
 S00 = GRA126.1E/SO3 (suitable for see p.56 Table 11)  
 S01 = GRA326.1E/SO2 (suitable for see p.56 Table 11)  
 S10 = GNA126.1E/SO3 (suitable for see p.56 Table 11)  
 S11 = GNA326.1E/SO2 (suitable for see p.56 Table 11)  
 S20 = GGA126.1E/SO3 (suitable for see p.56 Table 11)  
 S21 = GGA326.1E/SO2 (suitable for see p.56 Table 11)  
 P10 = PDE 006 / FS 3006 PN-D (90°)  
     (suitable for width ≤ 800 mm x height < 450 mm)  
 P20 = PDE 012 / FS 3012 PN-D (90°)  
     (suitable for width > 800 mm x height < 450 mm)  
 P30 = PDE 012 / FS 3012 PN-D (180°)  
     (suitable for width ≥ 200 mm x height ≥ 450 mm)  
 J10 = SFR 1.90 T / 12 (24V) \*  
 J11 = SFR 2.90 T / 12 (230V) \*  
 J20 = SFR 1.90 T SLC / 12 (24V) \*\*\*\*  
 MH1 = MAGNETIC CLAMP HA-03-24 \*  
 MH2 = MAGNETIC CLAMP HA-03-230 \*  
 MI1 = PULSE MAGNET IM-03-24 \*  
 MI2 = PULSE MAGNET IM-03-230 \*

\* suitable for all dimension combinations

\*\*\*\* only in combination with the respective module, e.g. safety module BSLC (must be provided on site); suitable for all dimension combinations

## 10 - ACCESSORIES

Z00 = without accessories (standard)  
 ZB0 = BKN230-24 \*\* (suitable for B10 / B20 / B32)  
 ZB3 = BKN230-24-C-MP (suitable for B10 / B20 / B32)  
 ZB4 = BKN230-24-MOD (suitable for B10 / B20 / B32)  
 ZB5 = BKN230-MOD (suitable for B11 / B21 / B33)  
 ZB6 = BKN230-24MP (suitable for B42)  
 ESZ = ES-1Z (limit switch Closed; suitable for HAN/MH1+2/MI1+2)  
 ESA = ES-1A (limit switch Open; suitable for see ESZ)  
 EZA = ES-2Z/A (limit switch Open/Closed; suitable for see ESZ)  
 ETZ = EasyF-ETX (radio limit switch, CLOSED position; (suitable for field modules 40-43 and 50-53) \*\*\*)  
 ETA = EasyF-ETX (radio limit switch, OPEN position; (suitable for field modules 40-43 and 50-53) \*\*\*)  
 ETX = EasyF-ETX (radio limit switch, OPEN + CLOSED position; (suitable for field modules 40-43 and 50-53) \*\*\*)  
 ZP1 = Solenoid valve 230 V (AC) (suitable for P10/20/30)  
 ZP2 = Solenoid valve 24 V (AC/DC) (suitable for P10/20/30)  
 ZP3 = Solenoid valve 230 V (AC) + ESZ (suitable for P10/20/30)  
 ZP4 = Solenoid valve 24 V (AC/DC) + ESZ (suitable for P10/20/30)  
 ZP5 = Solenoid valve 230 V (AC) + ESA (suitable for P10/20/30)  
 ZP6 = Solenoid valve 24 V (AC/DC) + ESA (suitable for P10/20/30)  
 ZP7 = Solenoid valve 230 V (AC) + EZA (suitable for P10/20/30)  
 ZP8 = Solenoid valve 24 V (AC/DC) + EZA (suitable for P10/20/30)

\*\* Function available only in connection with the communication and control devices BKS24-1B or BKS24-9A

\*\*\* Additional radio receiver EasyF-RXE required.

## 11 – ADDITIONAL FRAME

R00 = without additional frame (standard)  
 R01 = Mounting kit type AS-E1 (only for L=375) <sup>1)</sup>  
 R08 = Installation kit type GDL (only for L=375; for metal post profiles CW50/UW50, single stud structure) <sup>1)</sup>  
 R09 = Installation kit type GDL (only for L=375; for metal post profiles CW75/UW75, single stud structure) <sup>1)</sup>  
 R10 = Installation kit type GDL (only for L=375; for metal post profiles CW100/UW100, single stud structure) <sup>1)</sup>  
 R11 = Installation kit type GDL (only for L=375; for metal post profiles CW125/UW125, single stud structure) <sup>1)</sup>  
BKA-EN ex works rotated by 180°  
 R12 = Installation kit type GDL (only for L=375; for metal post profiles CW50/UW50, single stud structure) <sup>1)</sup>  
 R13 = Installation kit type GDL (only for L=375; for metal post profiles CW75/UW75, single stud structure) <sup>1)</sup>  
 R14 = Installation kit type GDL (only for L=375; for metal post profiles CW100/UW100, single stud structure) <sup>1)</sup>  
 R15 = Installation kit type GDL (only for L=375; for metal post profiles CW125/UW125, single stud structure) <sup>1)</sup>  
 R16 = Installation frame type ER-A1 <sup>1)</sup>  
 R17 = Installation frame type ER-A1 <sup>1)</sup>  
 R18 = Installation frame type GDA (only for L=375) <sup>1)</sup>  
 R19 = installation frame type ERA2 <sup>1)</sup>  
 R28 = Installation frame type ERA2 <sup>1)</sup>  
 R51 = Mounting kit type AS-E1 (only for L=375) + DD coating <sup>1)</sup>  
 R58 = Installation kit type GDL (only for L=375; for metal post profiles CW50/UW50, single stud structure) + DD coating <sup>1)</sup>  
 R59 = Installation kit type GDL (only for L=375; for metal post profiles CW75/UW75, single stud structure) + DD coating <sup>1)</sup>  
 R60 = Installation kit type GDL (only for L=375; for metal post profiles CW100/UW100, single stud structure) + DD coating <sup>1)</sup>  
 R61 = Installation kit type GDL (only for L=375; for metal post profiles CW125/UW125, single stud structure) + DD coating <sup>1)</sup>  
BKA-EN ex works rotated by 180°  
 R62 = Installation kit type GDL (only for L=375; for metal post profiles CW50/UW50, single stud structure) + DD coating <sup>1)</sup>  
 R63 = Installation kit type GDL (only for L=375; for metal post profiles CW75/UW75, single stud structure) + DD coating <sup>1)</sup>  
 R64 = Installation kit type GDL (only for L=375; for metal post profiles CW100/UW100, single stud structure) + DD coating <sup>1)</sup>  
 R65 = Installation kit type GDL (only for L=375; for metal post profiles CW125/UW125, single stud structure) + DD coating <sup>1)</sup>  
 R66 = Installation frame type ER-A1 + DD coating <sup>1)</sup>  
 R67 = Installation frame type ER-A1 + DD coating <sup>1)</sup>  
 R68 = Installation kit type GDA (only for L=375) + DD coating <sup>1)</sup>  
 R69 = Installation frame type ERA2 + DD coating <sup>1)</sup>  
 R78 = Installation frame type ERA2 + DD coating <sup>1)</sup>

<sup>1)</sup> Additional frame supplied loose

<sup>1)</sup> Additional frame mounted ex works

## 12 – FIELD MODULES

---

00 = without field module (standard)

01 = preparation of mounting console for field module (Only mounting plate mounted to BKA-EN, but without field module!)

10 = BKSYS-ADM (mounted to BKA-EN incl. connection to drive unit)

### 24V drive module

20 = EasyF-ADC-MASD-00 (mounted to BKA-EN, incl. connection to drive unit, with flat cable connection, without addressing)

21 = EasyF-ADC-OASD-00 (mounted to BKA-EN, incl. connection to drive unit, without flat cable connection, without addressing)

22 = EasyF-ADC-MASD-01 (mounted to BKA-EN, incl. connection to drive unit, with flat cable connection, with addressing)

23 = EasyF-ADC-OASD-01 (mounted to BKA-EN, incl. connection to drive unit, without flat cable connection, with addressing)

### 230V drive module

30 = EasyF-AAC-MASD-00 (mounted to BKA-EN, incl. connection to drive unit, with flat cable connection, without addressing)

31 = EasyF-AAC-OASD-00 (mounted to BKA-EN, incl. connection to drive unit, without flat cable connection, without addressing)

32 = EasyF-AAC-MASD-01 (mounted to BKA-EN, incl. connection to drive unit, with flat cable connection, with addressing)

33 = EasyF-AAC-OASD-01 (mounted to BKA-EN, incl. connection to drive unit, without flat cable connection, with addressing)

### Input/output modules for up to 4 limit switches

40 = EasyF-IOM-MASD-00 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, with flat cable connection, without addressing)

41 = EasyF-IOM-OASD-00 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, without flat cable connection, without addressing)

42 = EasyF-IOM-MASD--01 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, with flat cable connection, with addressing)

43 = EasyF-IOM-OASD--01 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, without flat cable connection, with addressing)

### Input modules for up to 8 limit switches

50 = EasyF-I8M-MASD-00 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, with flat cable connection, without addressing)

51 = EasyF-I8M-OASD-00 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, without flat cable connection, without addressing)

52 = EasyF-I8M-MASD--01 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, with flat cable connection, with addressing)

53 = EasyF-I8M-OASD--01 (mounted to BKA-EN, incl. connection to ESZ, ESA or EZA, without flat cable connection, with addressing)



## ORDER CODE (ADD-ON PARTS)

### Flexible spigot type FS

01	02	03
Type	Fire damper type	Width
FS	-BKAEN	-1500

04	05	06	07
Height	Length	Material (flange)	Version
-800	-160	-SV	-EX

#### EXAMPLE

#### FS-BKAEN-1500-800-160-SV-EX

Type **FS** = Flexible spigot | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Height = **800** mm | Length = **160** mm | Material (flange) **SV** = Galvanised sheet steel | **EX** version = Atex-compliant

#### ORDER DETAILS

##### 01 - TYPE

FS = Flexible spigot type FS

##### 02 - FIRE DAMPER TYPE

BKAEN = BKA-EN

##### 03 - WIDTH

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

##### 04 - HEIGHT

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

##### 05 - LENGTH

160  
 in mm - always three digits

##### 06 - MATERIAL (FLANGE)

SV = Galvanised sheet steel (standard)  
 V2 = Stainless steel material no. 1.4301 (V2A)  
 V4 = Stainless steel material no. 1.4571 (V4A)

##### 07 - VERSION

ST = Standard  
 EX = Atex-compliant

### Extension piece type VT

01	02	03
Type	Fire damper type	Width
VT	-BKAEN	-1500

04	05	06	07
Height	Length	Material	Paint
-800	-210	-SV	-1

#### EXAMPLE

#### VT-BKAEN-1500-800-210-SV-1

Type **VT** = Extension piece | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Height = **800** mm | Length = **210** mm | Material **SV** = Galvanised sheet steel | Paint **1** = DD coating inside (RAL7035)

#### ORDER DETAILS

##### 01 - TYPE

VT = Extension piece type VT

##### 02 - FIRE DAMPER TYPE

BKAEN = BKA-EN

##### 03 - WIDTH

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

##### 04 - HEIGHT

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

##### 05 - LENGTH

180 (Standard)  
 210 (only with height = 800)  
 in mm - always three digits

##### 06 - MATERIAL

SV = Galvanised sheet steel (standard)  
 V2 = Stainless steel material no. 1.4301 (V2A)  
 V4 = Stainless steel material no. 1.4571 (V4A)

##### 07 - PAINT

0 = without paint (standard)  
 1 = DD coating, inside (RAL7035)  
 3 = DD coating inside and outside (RAL7035)

### Duct connection spigot type RS

01	02	03
Type	Fire damper type	Width
RS	-BKAEN	-1500

04	05	06	07
Height	Spigot $\varnothing$	Material	Paint
-800	-798	-SV	-3

#### EXAMPLE

#### RS-BKAEN-1500-800-798-SV-3

Type **RS** = Duct connection spigot | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Height = **800** mm | Spigot  $\varnothing$  = **798** mm | Material **SV** = Galvanised sheet steel | Paint **3** = DD coating inside and outside (RAL7035)

#### ORDER DETAILS

##### 01 - TYPE

RS = Duct connection spigot type RS

##### 02 - FIRE DAMPER TYPE

BKAEN = BKA-EN

##### 03 - WIDTH

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

##### 04 - HEIGHT

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

##### 05 - SPIGOT $\varnothing$

098 - 148 - 198 - 248 - 313 - 353 - 398 - 448 - 498 - 558 - 598 - 628 - 698 - 708 - 798  
 in mm - always three digits  
 The spigot diameter  $\varnothing D$  must be smaller than the smallest side dimension (width(B)/height(H)).

##### 06 - MATERIAL

SV = Galvanised sheet steel (standard)  
 V2 = Stainless steel material no. 1.4301 (V2A)  
 V4 = Stainless steel material no. 1.4571 (V4A)

##### 07 - PAINT

0 = without paint (standard)  
 1 = DD coating, inside (RAL7035)  
 3 = DD coating inside and outside (RAL7035)

### Finishing protective grating type ASG

01	02	03
Type	Fire damper type	Width
ASG	-BKAEN	-1500

04	05	06
Height	Material	Paint
-800	-SV	-3

#### EXAMPLE

#### ASG-BKAEN-1500-800-SV-3

Type **ASG** = Duct connection spigot | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Height = **800** mm | Material **SV** = Galvanised sheet steel | Paint **3** = DD coating inside and outside (RAL7035)

#### ORDER DETAILS

##### 01 - TYPE

ASG = Security grille type ASG

##### 02 - FIRE DAMPER TYPE

BKAEN = BKA-EN

##### 03 - WIDTH

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

##### 04 - HEIGHT

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

##### 05 - MATERIAL

SV = Galvanised sheet steel (standard)  
 V2 = Stainless steel material no. 1.4301 (V2A)  
 V4 = Stainless steel material no. 1.4571 (V4A)

##### 06 - PAINT

0 = without paint (standard)  
 3 = DD coating on both sides (RAL7035)

**GDA installation kit (loose) (R18+R68)**

01	02	03
Type	Fire damper type	Width
GDA	-BKAEN	-1500

04	05	06
Length	Material (mortar anchor)	Paint
-375	-SV	-R18

**EXAMPLE**

**GDA-BKAEN-1500-800-375-SV-R18**

Type **GDA** = Installation kit GDA | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Length = **375** mm | Material (mortar anchor) **SV** = Galvanised sheet steel | Paint **R18** = Without paint

**ORDER DETAILS**

**01 - TYPE**

GDA = Installation kit type GDA

**02 - FIRE DAMPER TYPE**

BKAEN = BKA-EN

**03 - WIDTH**

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

**04 - LENGTH (HOUSING)**

375 (only for BKA-EN housing length 375)  
 in mm - always three digits

**05 - MATERIAL (MORTAR ANCHOR)**

SV = Galvanised sheet steel (standard)

**06 - PAINT**

R18 = Without paint (standard)  
 R68 = DD coating

**ER-A1 installation frame (loose) (R17+R67)**

01	02	03
Type	Fire damper type	Width
ERA1	-BKAEN	-1500

04	05	06	07
Height	Length	Material (fixing lugs)	Paint
-800	-375	-SV	-R17

**EXAMPLE**

**ERA1-BKAEN-1500-800-375-SV-R17**

Type **ERA1** = Installation frame ER-A1 | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Height = **800** mm | Length = **375** mm | Material (fixing lugs) **SV** = Galvanised sheet steel | Paint **R17** = Without paint

**ORDER DETAILS**

**01 - TYPE**

ERA1 = Installation frame type ER-A1

**02 - FIRE DAMPER TYPE**

BKAEN = BKA-EN

**03 - WIDTH**

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

**04 - HEIGHT**

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

**05 - LENGTH (HOUSING)**

375  
 500  
 in mm - always three digits

**06 - MATERIAL (FIXING LUGS)**

SV = Galvanised sheet steel (standard)  
 V2 = Stainless steel material no. 1.4301 (V2A)  
 V4 = Stainless steel material no. 1.4571 (V4A)

**07 - PAINT**

R17 = Without paint (standard)  
 R67 = DD coating

**Mounting kit type AS-E1 (loose) (R01+R51)**

01	02	03
Type	Fire damper type	Width
ASE1	-BKAEN	-1500

04	05	06	07
Height	Length	Material (joining plate)	Paint
-800	-375	-SV	-R51

**EXAMPLE**

**ASE1-BKAEN-1500-800-375-SV-R51**

Type **ASE1** = Mounting kit AS-E1 | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Height = **800** mm | Length = **375** mm | Material (joining plate) **SV** = Galvanised sheet steel | Paint **R51** = DD coating

**ORDER DETAILS**

**01 - TYPE**

ASE1 = Mounting kit type AS-E1

**02 - FIRE DAMPER TYPE**

BKAEN = BKA-EN

**03 - WIDTH**

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

**04 - HEIGHT**

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

**05 - LENGTH (HOUSING)**

375 (only for BKA-EN: housing length 375)  
 in mm - always three digits

**06 - MATERIAL (JOINING PLATE)**

SV = Galvanised sheet steel (standard)  
 V2 = Stainless steel material no. 1.4301 (V2A)  
 V4 = Stainless steel material no. 1.4571 (V4A)

**07 - PAINT**

R01 = Without paint (standard)  
 R51 = DD coating

**ERA2 installation frame (loose) (R19+R69)**

01	02	03
Type	Fire damper type	Width
ERA2	-BKAEN	-1500

04	05	06	07
Height	Length	Material (corner angles)	Paint
-800	-375	-SV	-R19

**EXAMPLE**

**ERA2-BKAEN-1500-800-375-SV-R19**

Type **ERA2** = Installation frame ER-A2 | **BKAEN** = Fire damper type BKA-EN | Width = **1500** mm | Height = **800** mm | Length = **375** mm | Material (corner angles) **SV** = Galvanised sheet steel | Paint **R19** = Without paint

**ORDER DETAILS**

**01 - TYPE**

ERA2 = Installation frame type ERA2

**02 - FIRE DAMPER**

BKAEN = BKA-EN

**03 - WIDTH**

0200 - 0225 - 0250 - 0275 - 0300 - 0325 - 0350 - 0375 - 0400 - 0450 - 0500 - 0550 - 0600 - 0650 - 0700 - 0750 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500  
 in mm - always four digits

**04 - HEIGHT**

200 - 225 - 250 - 275 - 300 - 325 - 350 - 375 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800  
 in mm - always three digits

**05 - LENGTH (HOUSING)**

375  
 500  
 in mm - always three digits

**06 - MATERIAL (CORNER ANGLES)**

SV = Galvanised sheet steel  
 V2 = Stainless steel material no. 1.4301 (V2A)

**07 - PAINT**

R19 = Without paint (standard)  
 R69 = DD coating

## SPECIFICATION TEXTS

The fire damper BKA-EN conforms to the product standard EN 15650.

The BKA-EN has been tested according to EN 1366-2. CE marking and Declaration of performance (DoP) in accordance with the Construction Products Regulation (BauPVO). According to EN 13501-3, the classification is EI 30 ( $v_e, i \leftrightarrow o$ ) S to EI 90 ( $v_e, h_o, i \leftrightarrow o$ ) S.

According to Directive 2014/34/EU, EC Certificate of Conformity number EPS 09 ATEX 2 153 X, its use in areas subject to explosion hazards is permitted, not only with spring return actuator ExMax-5.10-BF (X10 - X15), including safety temperature limiter (ExPro-TT), but also with mechanical trigger via fusible link (manual actuation with or without ATEX limit switch ES-Ex). The fire damper is marked as follows according to ATEX:



II 2 G Ex h IIC T6 Gb  
 II 2 D Ex h IIIC T80°C Db

EPS 09 ATEX 2 153 X

Housing made of galvanised sheet steel - 2-parts -, without circumferential stop profiles for largest possible free cross-section, thermal insulation made of silicate boards, 2 inspection openings on opposite sides. Damper blade made of abrasion-resistant, glass-fibre-reinforced lightweight concrete with circumferential hose and intumescent seals to meet the cold and hot leakage requirements according to DIN EN 1366-2.

Any accessories that may be required for the respective mounting situation (flexible pieces, suspensions, pole braces, etc.) are listed in separate positions of the specification.

For connection to ventilation ducts (one- or two-sided), air flow direction optional.

Connection to smoke detectors with general building supervisory approval possible.

If the smoke alarm system type RMS is used, the additional information in the Technical Documentation must be observed.

Installation:

- In solid walls, solid ceilings and lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards.
- With Hilti soft seal system in solid walls and lightweight partition walls with metal post and panelling on both sides as classified according to EN 13501-2 or comparable national standards.
- With installation kit type GDA in solid walls; in the area of flexible ceiling connections and only possible for BKA-EN L=375.
- With mounting kit type AS-E1 on solid walls; only possible with BKA-EN L=375.
- With ERA2 installation frame away from solid walls.
- With concrete base in solid ceilings.
- With installation frame type ER-A1 in lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards.

- With installation kit type GDL in lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards; in the area of flexible ceiling connections (The version of the installation kit type GDL depends on the selected metal post profiles [single stud structure] of the wall and can only be used with BKA-EN L=375).
- Directly under solid ceilings with mineral wool inlay in lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards.
- In lightweight partition walls with metal posts and panelling on one side as classified according to EN 13501-2 or comparable national standards.
- At a reduced distance "flange-to-flange" (for installation in solid walls and solid ceilings)
- Partial mortar lining (for installation in solid walls with rigid ceiling connection)

Product: SCHAKO **TYPE BKA-EN**

Declaration of Performance no. DoP-BKA-EN-2021-06-01

Dimensions:

Width (B): .....mm  
 Height (H): .....mm  
 Length (L): 375 / **500** mm

(Unless stated otherwise, the mechanical model length 500 mm and fusible link trigger temperature 72°C will be delivered)

**Alternative designs or accessories (at an extra charge) (select as desired)**

- Model made of stainless steel material no. 1.4301 (V2A)
- Model made of stainless steel material no. 1.4571 (V4A; replaceable, non-coated parts are made of stainless steel material no. 1.4301)
- Housing with DD coating (solvent-containing two-component top coat based on polyurethane varnish - RAL 7035 / light-grey)
  - DD coating inside/outside (replaceable, non-coated parts and the U-profile of the damper blade are made of stainless steel material no. 1.4301)
- Thermal release with mechanical fusible link release temperature 98°C (for hot-air heating)
- Model marked according to ATEX
- Electric limit switch type ES for "OPEN" and/or "CLOSED" position indicators, switching element containing one NC and one NO contact:
  - ESZ (type ES 1Z: "CLOSED")
  - ESA (TYPE ES 1A: "OPEN")
  - EZA (type ES 2: "OPEN" and "CLOSED")

- Limit switch type ES-Ex (ATEX) for "OPEN" and/or "CLOSED" position indicators, application in areas subject to explosion hazards:
  - EXZ (type ES EX 1Z: "CLOSED")
  - EXA (type ES EX 1A: "OPEN")
  - EX2 (type ES EX 2: "OPEN" and "CLOSED")
- Limit switch ETX (type EasyF-ETX), for connection to SCHAKO signalling and switching bus system EasyBus, the status of the damper position being transferred by radio signal. Additional radio receiver EasyF-RXE required.
  - ETZ (type EasyF-ETX: "CLOSED")
  - ETA (type EasyF-ETX: "OPEN")
  - ETX (type EasyF-ETX: "OPEN" and "CLOSED")
- Spring return actuator with thermoelectric trigger mechanism BAT (B10/B11/B20/B21/B32/B33) or temperature monitoring unit (S00/S01/S10/S11/ S20/S21)
- Releases at a room temperature of 72°C and an internal duct temperature of 72°C (optionally: 95°C) containing integrated micro switches for indication of damper end positions (24 V drive with connector), assignment of the actuators according to Table 11 page 56:
  - Type B10 (BFL24-T-ST SO)
    - B11 (BFL230-T SO)
    - B20 (BFN24-T-ST SO)
    - B21 (BFN230-T SO)
    - B32 (BF24-TN-ST SO)
    - B33 (BF230-TN SO)
  - Type S00 (GRA126.1E/SO3)
    - S01 (GRA326.1E/SO2)
    - S10 (GNA126.1E/SO3)
    - S11 (GNA326.1E/SO2)
    - S20 (GGA126.1E/SO3)
    - S21 (GGA326.1E/SO2)
- Spring return actuator with thermoelectric trigger BAT72TL
  - Triggers at an internal duct temperature of 72°C (optional: 95°C); integrated microswitches indicate the damper positions; connection to Belimo MP bus systems via communication device is possible. Available for all dimensions.
  - Type B42 (BF24TL-TN-ST SO; 24V AC/DC)
    - Communication device ZB6 (BKN230-24MP) for connection to Belimo MP bus systems
- Electric explosion-protected spring return actuator with safety temperature limiter (ExPro-TT).
  - Releases at a room temperature of 72°C and an internal duct temperature of 72°C (optionally: 95°C), end position signalling by integrated auxiliary switches:
    - Type ExMax-5.10-BF (X14 - X15; universal power supply 24 - 240 V AC/DC).
- Actuators J10/J11/J20 upon request (assignment according to the BKA-EN dimension)
- Pneumatic swivel drive P10/P20/P30 (PND 6 bar, assignment according to the BKA-EN dimensions)
- Magnetic clamps MH1 (24 V DC) / MH2 (230 V AC)
- Pulse magnets MI1 (24 V DC) / MI2 (230 V AC)

**Extension piece type VT**, for installation with large wall/ceiling thicknesses; to maintain the minimum distance  $a_{min} = 50$  mm from the open damper blade when mounting the finishing protective grating type ASG, flexible connection piece type FS or duct connection spigot type RS. Extension part made of galvanised profiled sheet steel fitted with connecting flanges, L=180 mm (damper height 200 to 750 mm), L=210 mm (damper height 800 mm).

Product: SCHAKO type VT

Dimensions:  
 Width (B): .....mm  
 Height (H): .....mm

- Extra charge for anticorrosive paint - inside/outside -
  - DD coating (two-component top coat based on polyurethane varnish - RAL 7035 / light-grey)
- Extra charge for design:
  - Material no. 1.4301 (V2A)
  - Material no. 1.4571 (V4A)

**Flexible spigot FS** consisting of profiled connection flanges (galvanised sheet steel) with elastic intermediate piece made of polyester fabric PVC-coated on both sides, standard flammable according to EN 13501-1, with welded lip seals (sealing degree C according to EN 13180/EN 1507; temperature-resistant from -20° to 80°C). The flexible part of the spigot (polyester fabric) must have a minimum length of  $l_{min} = 100$  mm when mounted, resulting in an installation dimension of approx L = 160 mm.

The required equipotential bonding must be carried out on-site according to VDE regulations. The fire dampers must not be subject to mechanical stress under any circumstances.

Product: SCHAKO type FS

Dimensions:  
 Width (B): .....mm  
 Height (H): .....mm

- Extra charge for connection flanges made of:
  - Material no. 1.4301 (V2A)
  - Material no. 1.4571 (V4A)

**Duct connection spigot type RS**, for connecting round ventilation ducts to BKA-EN, consisting of joining plate with bores and connecting pipe, galvanised sheet steel.

Product: SCHAKO type RS

Dimensions (B;H according to damper size):  
 Width (B): .....mm  
 Height (H): .....mm  
 Connection pipe  $\varnothing$  .....mm ( $\varnothing D$ )

- Extra charge for anticorrosive paint - inside and outside -
  - DD coating (two-component top coat based on polyurethane varnish - RAL 7035 / light-grey)
- Extra charge for design:
  - Material no. 1.4301 (V2A)
  - Material no. 1.4571 (V4A)

**Security grille type ASG**, for mounting with ventilation duct connection on only one side, wire or punch grille, galvanised sheet steel, mesh width  $\leq 20$  mm, minimum distance  $a_{\min} = 50$  mm from the open damper blade must be taken into account, if necessary, use extension piece type VT.

Product: SCHAKO **type ASG**

Dimensions:

Width (B): .....mm  
 Height (H): .....mm

- Extra charge for anticorrosive paint - inside and outside -
  - DD coating (two-component top coat based on polyurethane varnish - RAL 7035 / light-grey)
- Extra charge for design:
  - Material no. 1.4301 (V2A)
  - Material no. 1.4571 (V4A)

**Position indicator type MSZ**, consisting of a galvanised steel cable

with clamping nipple and position indicator made. The mechanical position indicator for false ceilings is usable for each mechanically operated BKA-EN with hand lever.

Product: SCHAKO **type MSZ**

**Installation frame type ER-A1**, consisting of silicate boards, with fastening material, for installation of the BKA-EN in lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards. The ER-A1 installation frame is to be ordered as an accessory (extra charge) – supplied loose or factory-mounted. A circumferential intumescent seal is located in the centre of the installation frame type ER-A1. Fixing lugs are included in delivery.

Product: SCHAKO **Installation frame type ER-A1**

Dimensions (B;H according to damper size):

Width (B): .....mm  
 Height (H): .....mm

(Unless stated otherwise in the order details, the ER-A1 installation frame will be delivered loose as a mounting kit)

**ERA2 installation frame**, consisting of silicate boards, for installation away from solid walls. The ERA2 installation frame is to be ordered as an accessory (extra charge) – supplied loose or factory-mounted.

Product: SCHAKO **installation frame Type ERA2**

Dimensions (B;H according to damper size):

Width (B): .....mm  
 Height (H): .....mm

(Unless stated otherwise in the order details, the ERA2 installation frame will be delivered loose as a mounting kit)

**Mounting kit type AS-E1**, consisting of joining plate, silicate boards and screen incl. fastening material and mineral wool strips, for installation of the BKA-EN (L=375) directly on solid walls.

The mounting kit type AS-E1 is delivered loose as a mounting kit and can only be used with a BKA-EN with L=375 mm.

The delivered means for wall mounting are suitable for solid walls (concrete  $\geq C20/25$ ), for other walls, suitable fastening means must be provided on site.

Product: SCHAKO **Mounting kit type AS-E1**

Dimensions (B;H according to damper size):

Width (B): .....mm  
 Height (H): .....mm

**Installation kit type GDA**, consisting, among other things, of silicate boards, for installation of the BKA-EN (L=375) in solid walls; wall thickness  $\geq 100$  mm, in the area of flexible ceiling connections (flexibility/ceiling bending  $\leq 20$  mm). The installation kit type GDA is delivered loose as a mounting kit and can only be used with a BKA-EN with L=375 mm.

Product: SCHAKO **Installation kit type GDA**

Dimensions (B;H according to damper size):

Width (B): .....mm  
 Height (H): .....mm

**Installation kit type GDL**, consisting of silicate boards, U-profile and fastening brackets, for installation of BKA-EN (L=375) in lightweight partition walls with metal posts (single stud structure) and panelling on both sides (gypsum-bonded wall boards; wall thickness  $\geq 100$  mm to  $\leq 175$  mm) according to classification to EN 13501-2 or comparable national standards, in the area of sliding ceiling connections (sliding/ceiling bending  $\leq 20$  mm). The installation kit type GDL is only delivered mounted ex works and can only be used with a BKA-EN with L=375 mm.

Product: SCHAKO **Installation kit type GDL**

Dimensions (B;H according to damper size):

Width (B): .....mm  
 Height (H): .....mm  
 CW/UW (web height) .....mm

(The version of the installation kit type GDL depends on the web height of the selected metal post profiles [CW/UW; single stud structure] of the wall and must be considered and specified when ordering and selecting it).

## COMMISSIONING AND MAINTENANCE

### COMMISSIONING

Before the ventilation and air-conditioning system and thus also the fire dampers are put into operation for the first time, they must undergo an inspection in order to determine and assess the installation and function (see model protocol, page 84).

### FUNCTIONAL CHECKING, CLEANING, REPAIR

The owner or operator of a ventilation and air-conditioning system must arrange for its function to be checked. The inspection must be carried out at least every six months. If two successive functional tests at intervals of half a year do not reveal any defects, the interval may be increased to one year.

The following standards describe the basic maintenance measures and are generally to be taken into account:

- EN 13306
- DIN 31051
- EN 15423

In addition, any possible national or building code regulations regarding the safe operation of ventilation and air conditioning systems must be observed.

Information on explosion-protected release devices can be found in the additional operating instructions according to ATEX 2014/34/EU.

### 1. Manual trigger device

#### 1.1. Visual inspection

- Check the fire damper for damage and contamination (e.g. housing, damper blade, seals).
- Perform necessary cleaning work.

#### 1.2 Manual release – Closing the fire damper

- Pull the manual unlocking disc (pos. 25) at the hand lever (pos. 3), thus releasing the lock (in the "OPEN" position) of the locking bolt (pos. 27) in the trigger (pos. 5).
- Hand lever has been released and is moved toward the CLOSED position by spring force.

**ATTENTION! Do not reach into the pivoting range of the damper blade and of the manual lever. There is a risk of injury.**

- The fire damper must close and lock automatically (locking of the damper blade in the CLOSED position).

#### 1.3 Opening the fire damper

- Pull manual unlocking disc (pos. 25) at the hand lever (pos. 3) and move it toward the trigger device (pos. 5)
- Locking bolt (pos. 27) must snap into the release device (pos. 5).

### Fire damper BKA-EN

#### Technical documentation

#### Commissioning and maintenance

- The fire damper is ready for operation again (damper blade is locked in the OPEN position).

#### 1.4 Replacing the fusible link (if necessary)

- If, for example, the fusible link is damaged or corroded, it is must be replaced.
- Perform manual release as described in section 1.2.
- Unscrew the fastening screws (pos. 26; 2 pieces), pull the release device out by turning it 90° and remove it from the housing.
- Compress the retainer screws of the fusible link holder (pos. 28) using a suitable tool (e.g. pliers) and replace the fusible link by a replacement fusible link (pos. 6).
- Insert the release device and fasten it with screws (make sure that the position of the coding screw with regard to the coding hole is correct).
- Finally a functional check has to be carried out.

#### BKA-EN with manual trigger

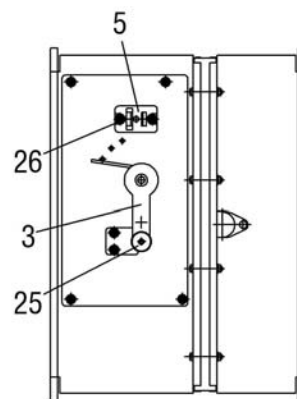


Figure 119: Side view BKA-EN (manual trigger)

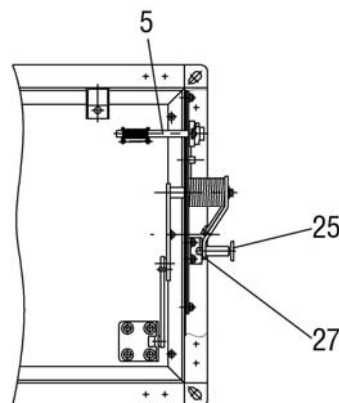


Figure 120: Front view BKA-EN (manual trigger)

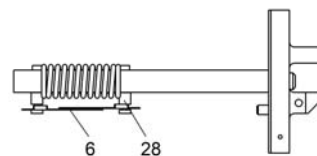


Figure 121: Release device BKA-EN (fusible link)



## 2. Release device with spring return actuator

### 2.1. Visual inspection

- Check the fire damper for damage and contamination.
- Perform necessary cleaning work.

### 2.2 Thermoelectric triggering – Closing the fire damper

- Press the button/switch (pos. 30) on the thermoelectric trigger (pos. 31), thereby de-energising the spring return actuator (pos. 29).
- The fire damper must close automatically, locking is performed by blocking the spring return actuator.

### 2.3 Replacement of the thermoelectric release device (if necessary)

- Exchange takes place by unscrewing both screws of the thermoelectric release device (pos. 31). Remove the thermoelectric release device from the actuator unit. Remove the internal duct temperature fuse (pos. 32) from the thermoelectric release device and replace it with a new internal duct temperature fuse (ZBAT...). Screw the thermo-electric trigger device back onto the actuator unit.

### BKA-EN with spring return actuator

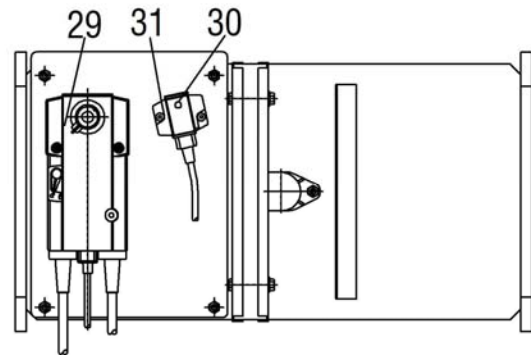


Figure 122: Side view BKA-EN (spring return actuator)

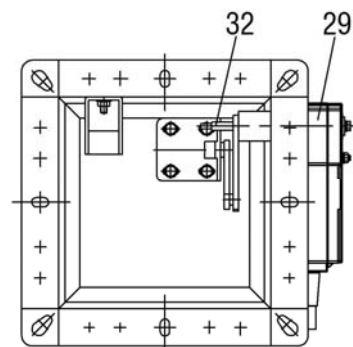


Figure 123: Front view BKA-EN (spring return actuator)

### 3. Manual release device with magnetic clamp or pulse magnet

#### 3.1. Visual inspection

- Check the fire damper for damage and contamination (e.g. housing, damper blade, seals).
- Perform necessary cleaning work.

#### 3.2 Manual release – Closing the fire damper

- Pull the manual unlocking disc (pos. 25) on the hand lever (pos. 3), thus releasing the lock ("OPEN" position) of the locking bolt (pos. 27) in the release rocker (pos. 51).
- Hand lever has been released and is moved toward the CLOSED position by spring force.

**ATTENTION! Do not reach into the pivoting range of the damper blade and of the manual lever. There is a risk of injury.**

The fire damper must close and lock automatically (locking of the damper blade in the CLOSED position).

#### 3.3 Magnetic clamp release – Closing the fire damper

- De-energise the magnetic clamp (pos. 50) on site, thus unlocking the release rocker (pos. 51).
- Hand lever has been released and is moved toward the CLOSED position by spring force.

**ATTENTION! Do not reach into the pivoting range of the damper blade and of the manual lever. There is a risk of injury.**

- The fire damper must close and lock automatically (locking of the damper blade in the CLOSED position).
- Before opening the damper blade, the magnetic clamp has to be supplied with voltage.

#### 3.4 Pulse magnet release - Closing the fire damper

- Supply the pulse magnet (pos. 50) on site with power, thus unlocking the release rocker (pos. 51).
- Hand lever has been released and is moved toward the CLOSED position by spring force.

**ATTENTION! Do not reach into the pivoting range of the damper blade and of the manual lever. There is a risk of injury.**

- The fire damper must close and lock automatically (locking of the damper blade in the CLOSED position).  
De-energise the pulse magnet before opening the damper blade.

#### 3.5 Opening the fire damper

- Pull the manual unlocking disc (pos. 25) at the hand lever (pos. 3) and move it toward the release rocker (pos. 51).
- The locking bolt (pos. 27) must snap into the release rocker (pos. 51).
- The fire damper is ready for operation again (damper blade is locked in the OPEN position).

#### 3.6 Replacing the fusible link (if necessary)

- If, for example, the fusible link is damaged or corroded, it is must be replaced.
- Perform manual release as described in section 3.2.
- Unscrew the fastening screws (2 pieces, pos. 26), pull the trigger out of the housing by turning it 90°.
- Compress the retainer screws of the fusible link holder (pos. 28) using a suitable tool (e.g. pliers) and replace the fusible link by a replacement fusible link (pos. 6).
- Insert the release device and fasten it with screws (make sure that the position of the coding screw with regard to the coding hole is correct).
- Finally a functional check has to be carried out.

#### BKA-EN with manual triggering by means of magnetic clamp or pulse magnet

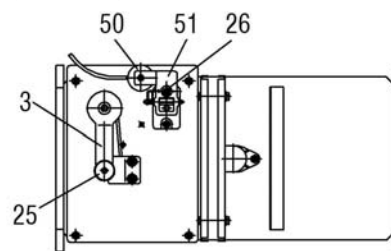


Figure 124: Side view BKA-EN (manual trigger and magnet)

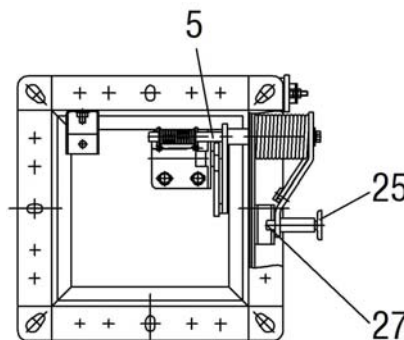


Figure 125: Front view BKA-EN (manual trigger and magnet)

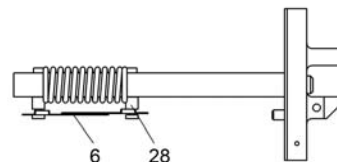


Figure 126: Release device BKA-EN (fusible link)

#### 4. Release device for pneumatic swivel drive

##### 4.1. Visual inspection

- Check the fire damper for damage and contamination.
- Perform necessary cleaning work.

##### 4.2 Pneumatic triggering – Closing the fire damper

###### Version A (standard)

- Depressurise the pneumatic swivel drive (pos. 52).
- Fire damper must close automatically, locking takes place by spring force of the pneumatic swivel drive.

###### Version B

- To depressurise the pneumatic swivel drive, interrupt the air supply by actuating the electric valve (on-site).
- Fire damper must close automatically, locking takes place by spring force of the pneumatic swivel drive.

#### BKA-EN with pneumatic swivel drive

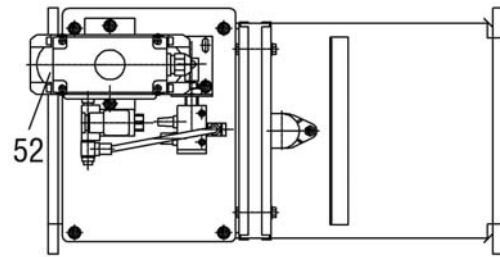


Figure 127: Side view BKA-EN (pneumatic version)

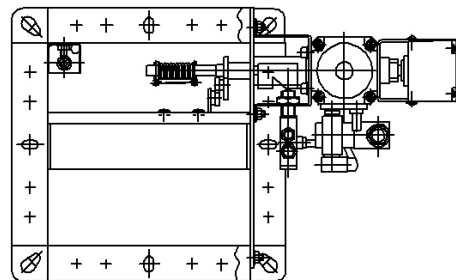
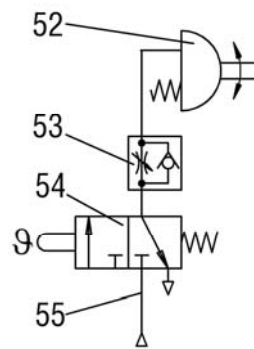


Figure 128: Front view BKA-EN (pneumatic version)

#### Pneumatic Standard model



#### Additionally with solenoid valve

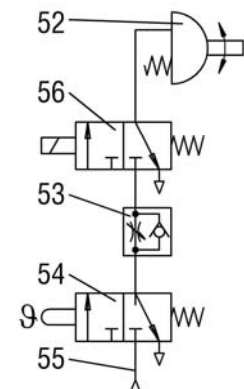


Figure 129: Versions (pneumatics)

- 52 Pneumatic swivel drive (operating pressure 6 bar)
- 53 Pneumatic throttle valve
- 54 Pneumatic thermo switch with fusible link  
72°C/98°C; 3/2-way valve, connection G1/8
- 55 Feed pressure 6 bar
- 56 Solenoid valve (accessory, at an extra charge)  
Electro-pneumatic 3/2-way valve, G1/8 connection

**SAMPLE OF FUNCTIONAL TEST PROTOCOL**

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 Ferdinand Schad KG  
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Sample

Functional check protocol for fire dampers

Cons. No. \_\_\_\_\_

Fire damper no.: \_\_\_\_\_

Declaration of performance no.: \_\_\_\_\_

Series: \_\_\_\_\_

Release device: \_\_\_\_\_

The following functional steps have been carried out according to the documents installation, mounting and operating instructions	Prior to commissioning	Next functional check in: _____	Next functional check in: _____	Next functional check in: _____	Next functional check in: _____
External check: System: _____ Item: _____					
Internal check: System: _____ Item: _____					
Additional check: System: _____ Item: _____					
without defects Date / tester					
with defects (see back) Date / tester					
without defects Date / tester					

SAMPLE

SCHAKO  
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Steigstrasse 25-27  
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Fax: +49- (0)7463 / 980-200  
E-mail: [info@schako.de](mailto:info@schako.de)  
Web: [schako.com](http://schako.com)

Sample

Functional check protocol for fire dampers

Cons. No. \_\_\_\_\_

Defects found during the test on: \_\_\_\_\_

*Sluggishness due to soiling.*

*Any remaining mortar must be removed.*

Defects found during the test on: \_\_\_\_\_

Defects found during the test on: \_\_\_\_\_

Defects found during the test on: \_\_\_\_\_

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