Technical documentation
Installation, mounting and operating instructions

BSK-RPR

Fire damper

Fig.: BSK-RPR with B10 drive

USABILITY CERTIFICATES

- **Declaration of Performance**
  DoP-BSK-RPR-2020-09-01

CLASSIFICATION AND STANDARDS

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

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)

SPECIAL FEATURES

- ATEX version available (at an extra charge)
- Extensive uses and applications
- Housing leakage class C according to EN 1751
- 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

SCHAKO | Ferdinand Schad KG
Steigstraße 25-27
D-78600 Kolbingen

Phone +49 (0) 7463-980-0
Fax +49 (0) 7463-980-200
schako.com | info@schako.de

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DESCRIPTION

Fire dampers, installed in ventilation ducts (air conditioning systems), serve for the automatic locking of fire lobbies.
The fire damper BSK-RPR corresponds to EN 15650, EN 13501-3 and EN 1366-2.
The BSK-RPR has been tested according to EN 1366-2 in compliance with Declaration of Performance No. DoP-BSK-RPR-2020-09-01. Its classification according to EN 13501-3 is EI 30 (v_e i↔o) S to EI 90 (v_e, h_o i ↔ 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 (FireSafe or 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
II 3 D Ex h IIIC T80°C Dc*)

*) when using the safety temperature limiter FireSafe.

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 BSK-RPR 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 made of stainless steel material no. 1.4301 or material no. 1.4571
  - Housing with DD coating (two-component top coat based on polyurethane varnish) inside / outside
- Model with plug-in connection (-S) or flanged connection (-F) according to EN 12220 and DIN 24154-1, respectively.
- Damper leaf made of silicate board,
  optionally (at an extra charge):
  - DD coating (RAL 7035 / light-grey)
- Cold and hot leakage requirements according to EN 1366-2 are complied with using 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 release via fusible link 72°C or 98°C;
  optionally (at an extra charge)
  - equipped with electrical or magnetic release devices
- Use: max. operating pressure of 1000 Pa at $v_{face} \leq 10$ m/s
- Housing leakage class C according to EN 1751
- Use or connection of a smoke release 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) release devices of the fire damper is possible; only release devices working by the "currentless closed" 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).

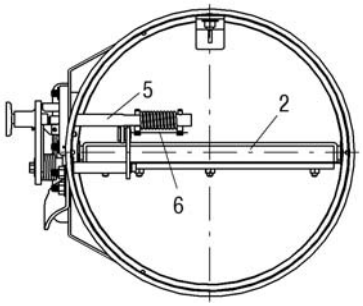
ATTENTION

Building systems have to be arranged, installed and maintained in such a way that they prevent fire and propagation of fire and smoke (fire propagation) and allow evacuation of persons 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

BSK-RPR – Nominal sizes 100 to ≤ 250

BSK-RPR-S (plug-in connection)



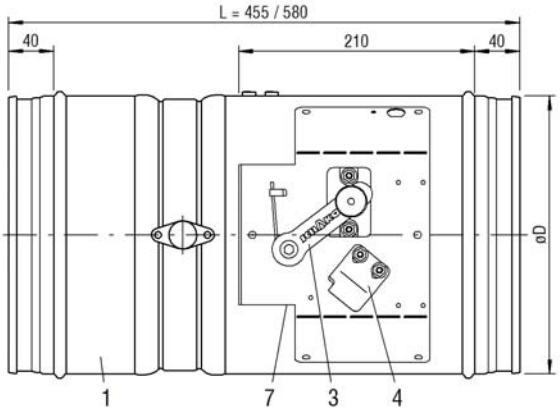
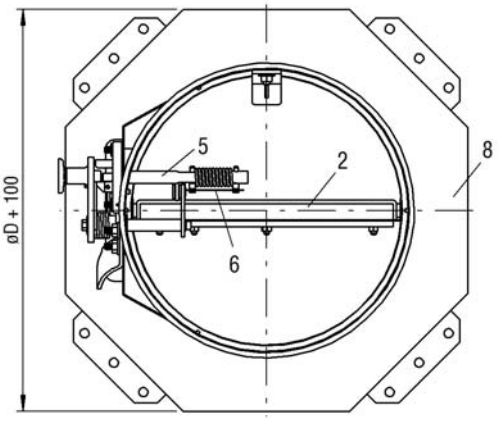


Figure 1: Dimension BSK-RPR-S – Nominal sizes 100 to ≤ 250

BSK-RPR-S with mounting frame AR
(Mounting frame AR only possible in -S design, pre-mounted ex works, delivery in loose form not possible)



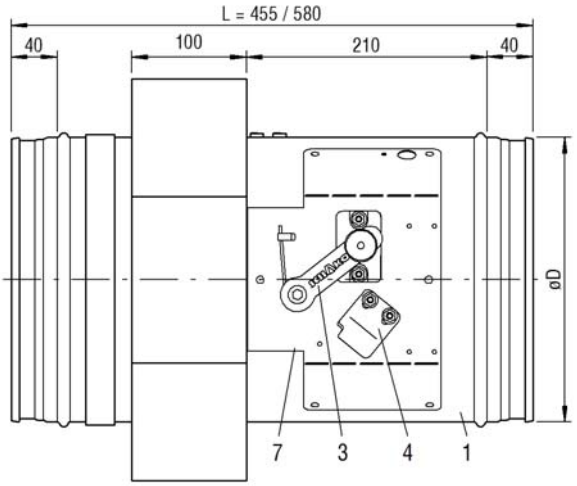
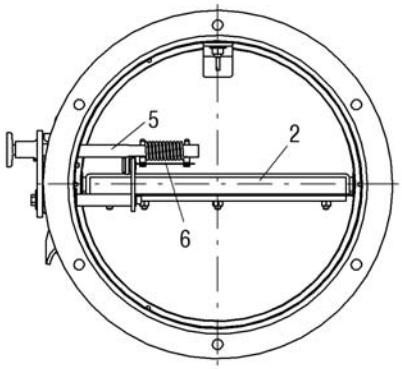


Figure 2: Dimension BSK-RPR-S with mounting frame AR – Nominal sizes 100 to ≤ 250

BSK-RPR-F (flanged connection)



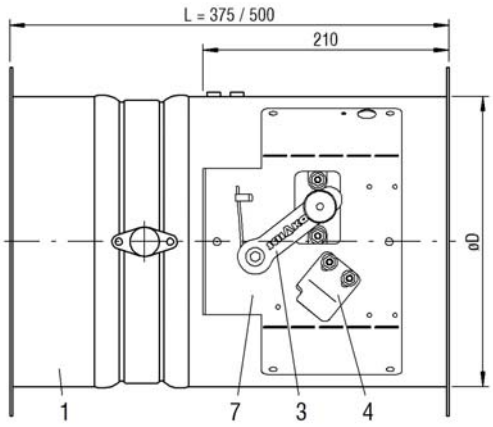
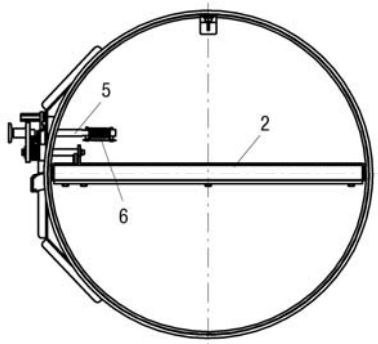


Figure 3: Dimension BSK-RPR-F – Nominal sizes 100 to ≤ 250

1	Fire damper BSK-RPR	5	Release device
2	Damper blade	6	Fusible link
3	Hand lever	7	Actuator unit
4	Locking profile	8	Mounting frame AR

BSK-RPR – Nominal sizes > 250 to 500

BSK-RPR-S (plug-in connection)



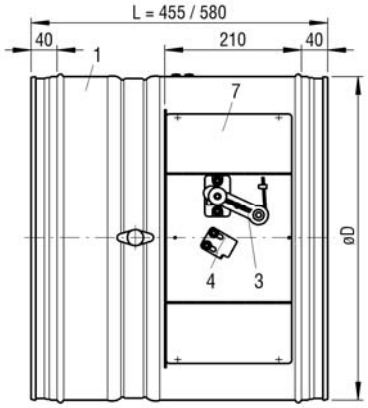
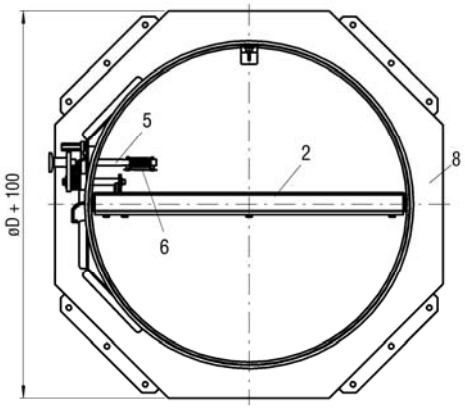


Figure 4: Dimension BSK-RPR-S – Nominal sizes >250 to 500

BSK-RPR-S with mounting frame AR
(Mounting frame AR only possible in -S design, pre-mounted ex works, delivery in loose form not possible)



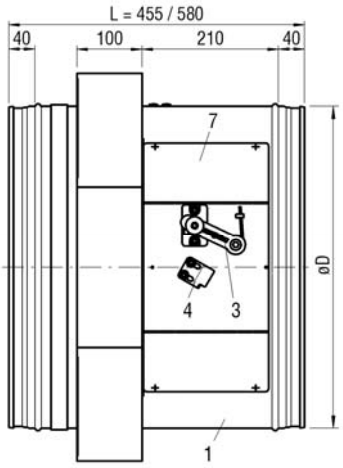
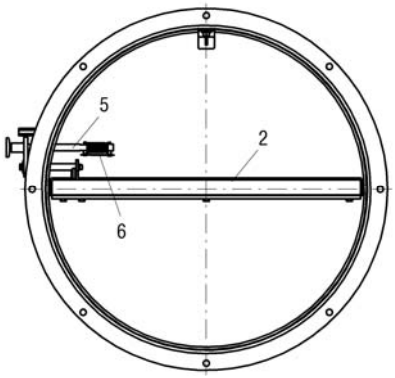


Figure 5: Dimension BSK-RPR-S with mounting frame - Nominal sizes > 250 to 500

BSK-RPR-F (flanged connection)



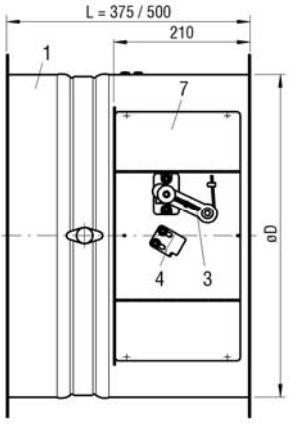


Figure 6: Dimension BSK-RPR-F - Nominal sizes > 250 to 500

1	Fire damper BSK-RPR	5	Release device
2	Damper blade	6	Fusible link
3	Hand lever	7	Actuator unit
4	Locking profile	8	Mounting frame AR

Available sizes

Nominal size	øD [mm]	L [mm] BSK-RPR-S	L [mm] BSK-RPR-F
100	98		
125	123		
140	138		
160	158		
180	178	455	375
200	198		
224	222	or	or
250	248		
280	278	580	500
315	313	(standard)	(standard)
355	353		
400	398		
450	448		
500	498		

Table 1: Available sizes

Rubber lip seal for BSK-RPR-S

Model BSK-RPR-S is delivered as standard with a rubber lip seal.

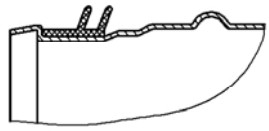


Figure 7: Rubber lip seal

Flange bores BSK-RPR-F

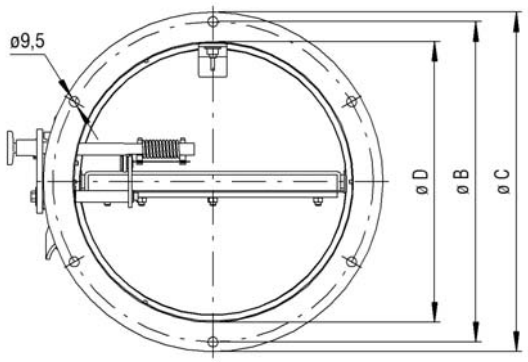


Figure 8: Flange bores

Table to DIN EN 12220 or DIN 24154-1

Nominal size	øD [mm]	øC [mm]	Bolt circle øB (± 0.5mm)	Number of bores Ø9.5 (± 0.5mm)
100	98	150	132	4
125	123	175	157	4
140	138	190	172	6
160	158	210	192	6
180	178	230	212	6
200	198	250	233	6
224	222	274	257	6
250	248	300	283	6
280	278	340	317	8
315	313	375	352	8
355	353	415	392	8
400	398	460	438	8
450	448	510	488	8
500	498	560	538	8

Table 2: Flange bores

SCHAKO ASG-RF / VT-RF / FS-RF: Flange bores suitable for BSK-RPR-F

Damper leaf projecting ends

BSK-RPR-S

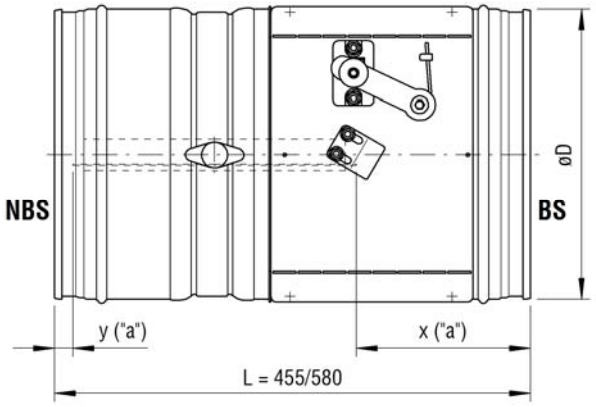


Figure 9: Damper blade projecting ends BSK-RPR-S

BSK-RPR-F

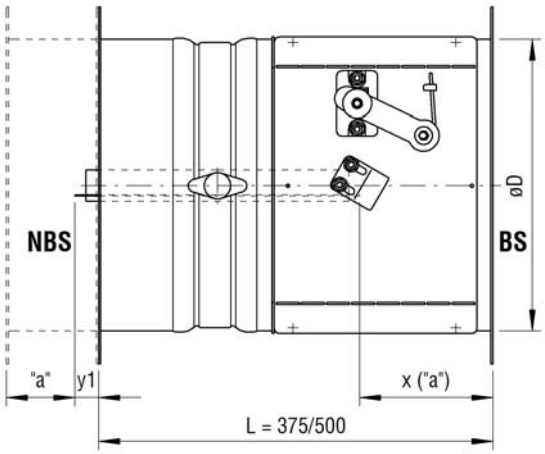


Figure 10: Damper blade projecting ends BSK-RPR-F

Nominal size	øD	Operating side (BS)		Non-operating side (NBS)			
		L=455 / 580		L=455		L=580	
100	**98**	256	x	107	Y	232	y
125	**123**	244		95		220	
140	**138**	236		87		212	
160	**158**	226		77		202	
180	**178**	216		67		192	
200	**198**	206		57		182	
224	**222**	194		**45 ***		170	
250	**248**	181		**32 ***		157	
280	**278**	166		**17 ***		142	
315	**313**	149		**0 ***		125	
355	**353**	129		**20 ***	Y1	105	
400	**398**	106		**43 ***		82	
450	**448**	81		**68 ***		57	
500	**498**	56		**93 ***		**32 ***	

*** Extension piece (on site) necessary**

Table 3: Damper leaf projecting ends BSK-RPR-S

Nominal size	øD	Operating side (BS)		Non-operating side (NBS)			
		L=375 / 500		L=375		L=500	
100	**98**	216	x	67	Y	192	y
125	**123**	204		55		180	
140	**138**	196		**47 ***		172	
160	**158**	186		**37 ***		162	
180	**178**	176		**27 ***		152	
200	**198**	166		**17 ***		142	
224	**222**	154		**5 ***		130	
250	**248**	141		**8 ***	Y1	117	
280	**278**	126		**23 ***		102	
315	**313**	109		**40 ***		85	
355	**353**	89		**60 ***		65	
400	**398**	66		**83 ***		**42 ***	
450	**448**	**41 ***		**108 ***		**17 ***	
500	**498**	**16 ***		**133 ***		**8 ***	Y1

*** Extension piece (VT-RF) necessary**

Table 4: Damper leaf projecting ends BSK-RPR-F

"a"= 50 mm: Minimum distance between the front edge of the open damper leaf and the security grille (ASG) or flexible connection piece (FS).

Use

The fire damper type BSK-RPR can be fitted as shown in the following table.

Use		Installation	BSK-RPR Nominal size from to	Material/Model	Minimum thickness [mm]	Minimum distance [mm]	Fire resistance class	Notes Page °
WALL	solid Apparent density ≥ 450kg/m³	in	100 – 500	Wet installation in, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859	100	next to each other: 50 [9] Wall: 40 Ceiling: 40	EI 90 (v_e i↔o) S	11
		on [5]	100 – 500	Dry installation on, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859	100	next to each other: 200 [3] Wall: 75 Ceiling: 75	EI 90 (v_e i↔o) S	12
				Dry installation <u>with</u> Hilti soft seal system and mounting frame AR on, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859 [7]	100	next to each other: 200 Wall: 75 Ceiling: 75	EI 90 (v_e i↔o) S	13
		away from [1]	100 – 500	Dry installation <u>with</u> mounting frame AR away from, for example, concrete; masonry according to EN 1996 or DIN 1053; solid plaster wall boards according to EN 12859	100	200 [4] Wall: 75 [4] Ceiling: 75 [4]	EI 90 (v_e i↔o) S	16
	Lightweight partition wall; classification according to EN 13501-2 or similar national standards	in	100 –500	Wet installation in lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards	100	next to each other: 50 [9] Wall: 105 [8] Ceiling: 95 [8]	EI 90 (v_e i↔o) S	20
			100 – 250	Wet installation in lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards	75	next to each other: 200 Wall: 85 [8] Ceiling: 75	EI 30 (v_e i↔o) S	32
				Wet installation in lightweight partition walls with metal posts and panelling on one side as classified according to EN 13501-2 or comparable national standards	125	next to each other: 200 Wall: 75 Ceiling: 75	EI 90 (v_e i↔o) S	37
		on [5]	100 – 500	Dry installation <u>with</u> Hilti soft seal system and mounting frame AR on lightweight partition walls with metal posts and panelling on both sides 7	100	next to each other: 200 Wall: 113/125 [8] Ceiling: 103/115 [8]	EI 90 (v_e i↔o) S	28
				Dry installation <u>with</u> mounting frame AR on lightweight partition walls with metal posts and panelling on both sides	100	next to each other: 200 Wall: 75 Ceiling: 75	EI 90 (v_e i↔o) S	23
				Dry installation <u>with</u> additional installation kit type GDL and mounting frame AR on lightweight partition walls with metal posts and panelling on both sides; in the area of sliding ceiling connections 2	100	next to each other: 170 Wall: 75 Ceiling: 55 [8]	EI 90 (v_e i↔o) S	26
				Dry installation <u>with</u> mounting frame AR on lightweight partition walls with metal posts and panelling on both sides	75	next to each other: 200 Wall: 75 Ceiling: 75	EI 30 (v_e i↔o) S EI 60 (v_e i↔o) S	34
				Dry installation <u>with</u> mounting frame AR on lightweight partition walls with metal posts and panelling on one side	125	next to each other: 200 Wall: 75 Ceiling: 75	EI 90 (v_e i↔o) S	39

Use		Installa-tion	BSK-RPR Nominal size from to	Material/Model	Minimum thickness [mm]	Minimum distance [mm]	Fire resistance class	Notes Page
CEILING	solid Apparent density ≥ 500kg/m³	in	100 – 500	Wet installation in, for example, concrete; aerated concrete	125	next to each other: 55 [9)] Wall: 40	EI 90 (h_o i↔o) S	17
		on [5)]	100 – 500	Dry installation with mounting frame AR on, for example, concrete; aerated concrete	125	next to each other: 200 Wall: 75	EI 90 (h_o i↔o) S	18
		on [6)]	100 - 500	Wet installation with concrete base on, for example, concrete; aerated concrete	125	next to each other: 55 [9)] Wall: 100 [8)]	EI 90 (h_o i↔o) S	19

Table 5: Usability

Additional note:

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.

1) Installation only in connection with a ventilation duct devoid of openings (fire resistance duration 90 min.) between the BSK-RPR and the fire-resistant wall to be protected. Mounting only allowed in conjunction with mounting frame AR.
2) The exact wall thickness/es must be taken into account and specified when ordering. For installation, the accessories for sliding ceiling connection plus mounting frame AR are required.
3) At nominal sizes of 100 - 250, mounting is allowed at a reduced distance (mounting frame AR to mounting frame AR).
4) Due to the construction, the distance must be determined according to the manufacturer's specifications of the fire-resistant duct.
5) Mounting only allowed in conjunction with mounting frame AR.
6) Installation only in connection with a concrete base still to be made on site.
7) A maximum of two fire dampers is possible in one installation opening (soft seal).
8) Due to the construction or installation.
9) BSK-RPR-F nominal size ≥ 280 mm: distance at least 60 mm, due to flange width.

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-RS/-RF) 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 possibility to connect the ventilation ducts must be checked. Extension pieces (on site or as accessories SCHAKO type VT-RF) may be necessary, for example, 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 the like.
- The requirement of statically load-bearing lintels may have to be taken into consideration.
- If a fire damper is not filled with mortar on all four sides, installation and mounting aids on site must be removed.
- Improper transport/handling may result in damage/functional impairment. In addition, the film of the transport packaging must be removed and the delivery checked for completeness.
- During 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 °C or above 50 °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 for cleaning fire dampers in stainless steel design!

Minimum distances or projecting ends

The dimensions given must be considered an installation recommendation for the BSK-RPR 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.
There are no inspection openings on the BSK-RPR, which is why inspection openings in the connected ventilation ducts must be provided in the immediate proximity. Inspection openings must be freely accessible, which 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.

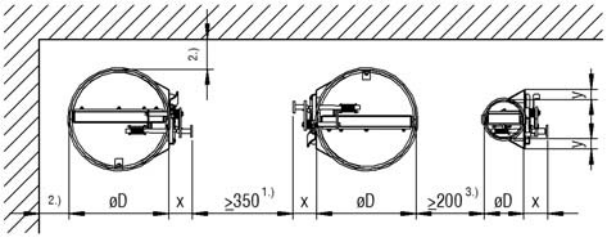


Figure 11: Minimum distances to walls, ceilings and BSK-RPR to one another

1.) Minimum distances recommended by SCHAKO for sufficient accessibility
2.) The distance between the fire damper and the adjacent component (wall/ceiling) must be determined according to the particular installation situation or adjusted to the dimensions of the projecting ends.
3.) When installing the BSK-RPR with mounting frame AR (nominal sizes 100 - 250) on solid walls, installation is allowed at a reduced distance (mounting frame AR to mounting frame AR).
When installing the BSK-RPR (nominal sizes 100 - 500) in solid ceilings, installation is allowed at a reduced distance (55 mm).
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 x is:
- approx. 80 mm for manual release, magnetic clamps MH1/MH2, pulse magnets MI1/MI2
- spring return actuators B10/B11 or B42 and S00/S01 max. approx. 90 mm
- max. approx. 170 mm for explosion-protected spring return actuator Ex-Max-5.10-BF (X10 - X15)

The dimension y is:
- max. approx. 50mm for manual release, magnetic clamps MH1/MH2, pulse magnets MI1/MI2 / max. approx. 100mm for manual release with limit switch
- spring return actuators B10/B11 or B42 and S00/S01 max. approx. 50 mm
- max. approx. 50 mm for explosion-protected spring return actuator Ex-Max-5.10-BF (X10 - X15)

Wet installation (mortar lining)

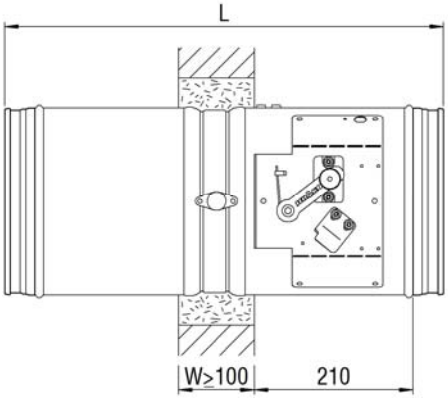
- If the fire damper is installed by means of mortar lining, it must be completely filled with mortar of class M 10 to M 15 according to EN 998-2 or fire protection mortar of corresponding grades or with concrete or plaster mortar suitable for the wall or ceiling type.
- If the fire damper is installed during the assembly of the wall/ceiling, the annular gap dimensions can be smaller than 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 wall boards according to EN 12859; apparent density ≥ 450 kg/m³ and wall thickness W ≥ 100 mm.

Installation positions

Mortar lining entire wall thickness



Mortar lining in minimum wall thickness

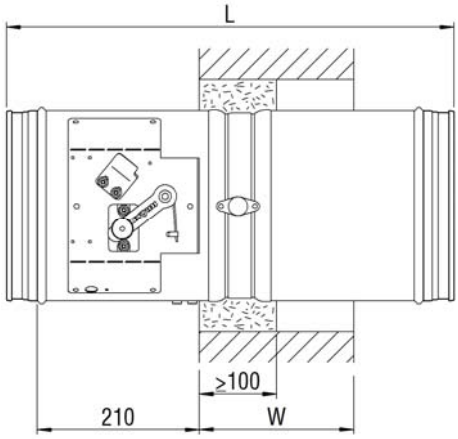


Figure 12: Wet installation in solid walls

Wet installation of a fire damper, complete mortar lining

- The minimum distance between the fire dampers must be at least 50 mm. BSK-RPR-F NG ≥ 280 mm: distance at least 60 mm, due to flange width.
- The minimum distance from adjacent components (wall/ceiling) is at least 40 mm.

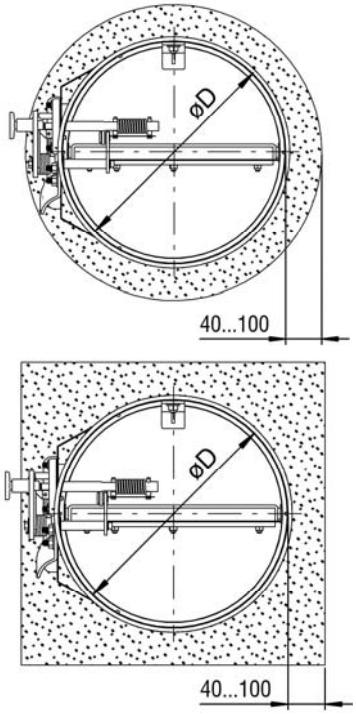


Figure 13: Annular gap dimensions for complete mortar lining in solid walls (round or rectangular recess)

Wet installation at a reduced distance

Installation of no more than 2 BSK-RPR in an installation opening in solid walls at a reduced distance next to or below each other. All annular gaps have to be filled with mortar.

- The distance between the fire dampers must be min. 50 mm. BSK-RPR-F NG ≥ 280 mm: distance at least 60 mm, due to flange width.
- The distance to adjacent components (wall/solid ceiling) is at least 40 mm.

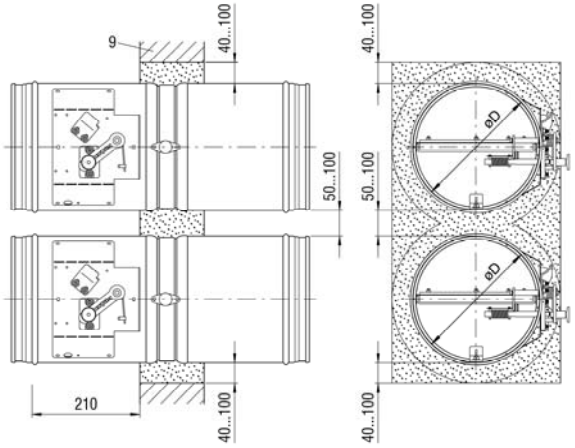


Figure 14: Installation in solid walls at a reduced distance (round or rectangular recess)

9 Solid wall, apparent density ≥ 450 kg/m³, W ≥ 100 mm

Dry installation

- Dry installation on solid walls is only possible for BSK-RPR-S with mounting frame AR.
- The installation opening of size øD+10 mm is produced using a core hole bore.
- For fastening to massive walls, only approved fastening materials (dowels, etc.) must be used. Fastening is effected on all 4 existing fixing lugs (For nominal sizes 100 - 160 all existing and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).
- The distance of the fire dampers to one another must be at least 200 mm. (For nominal sizes 100 - 250, mounting is allowed at a reduced distance - mounting frame AR to mounting frame AR of no more than 2 BSK-RPR).
- The distance to adjacent components (wall/solid ceiling) is at least 75 mm.

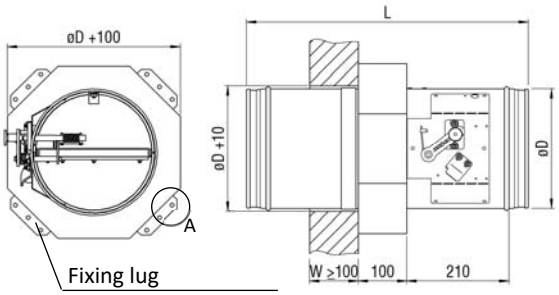


Figure 15: Dry installation on solid walls

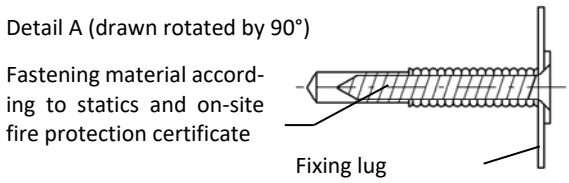


Figure 16: Detail showing fastening to solid walls

Nominal sizes 100 to ≤ 250

For nominal sizes 100 to ≤ 250, mounting at a reduced distance -mounting frame AR to mounting frame AR of no more than 2 BSK-RPR- is allowed.

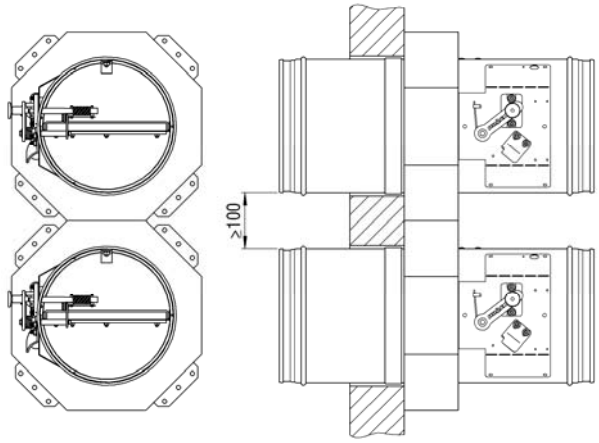


Figure 17: Dry installation on solid walls, BSK-RPR nominal size ≤ 250 – minimum distance from one another

Nominal sizes > 250 to 500

For nominal sizes > 250, the distance of fire dampers from one another must be at least 200 mm.

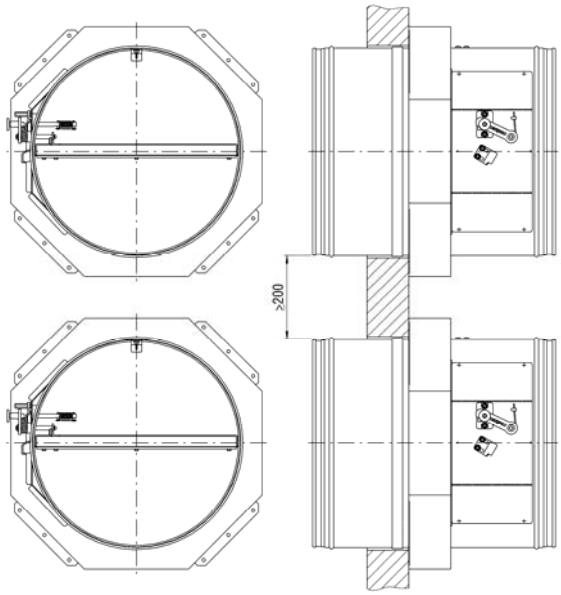


Figure 18: Dry installation on solid walls, BSK-RPR nominal size > 250 – minimum distance from one another

Dry installation with soft seal

- Dry installation with soft seal is only possible for BSK-RPR-S with mounting frame AR. Intumescent seal (outside on the housing next to the mounting frame AR) must be removed.
- The fire damper must be permanently suspended from the solid ceiling on both sides of the wall (see page 42).
- In case of short distances to the reveal and limited accessibility, the firestop boards must be installed together with the fire damper, where applicable.
- The minimum distance between the fire dampers for installation side by side must be at least 200 mm (note: a maximum of two fire dampers is allowed in one installation opening)
- The distance to adjacent components (wall/ceiling) is at least 75 mm.

Soft seal system

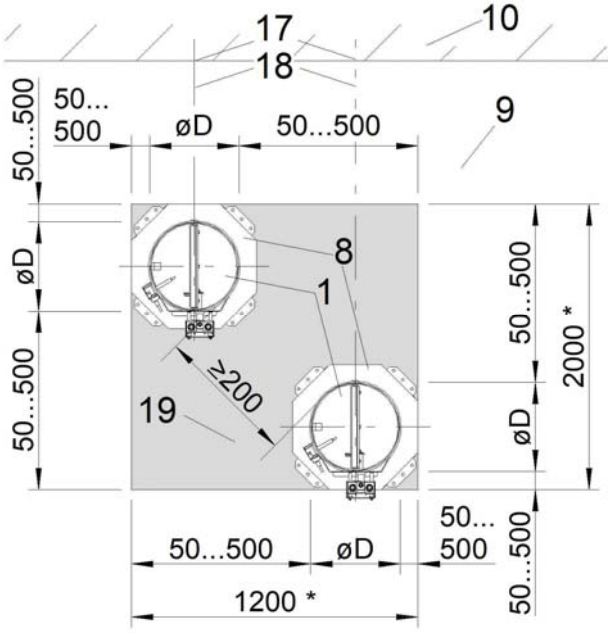
Permissible soft seal system (provided on site):

Manufacturer Hilti

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

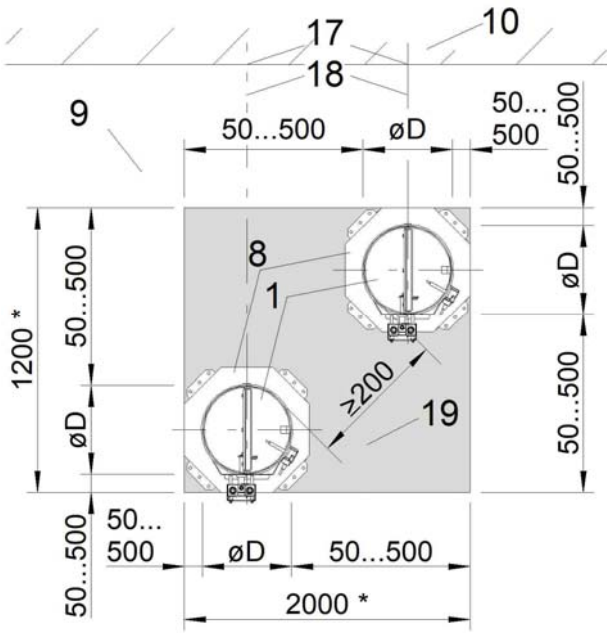
In general, the specifications and processing guidelines of the soft seal manufacturer (in particular the maximum seal dimensions) must be observed.

Dimensions of the min./max. annular gap



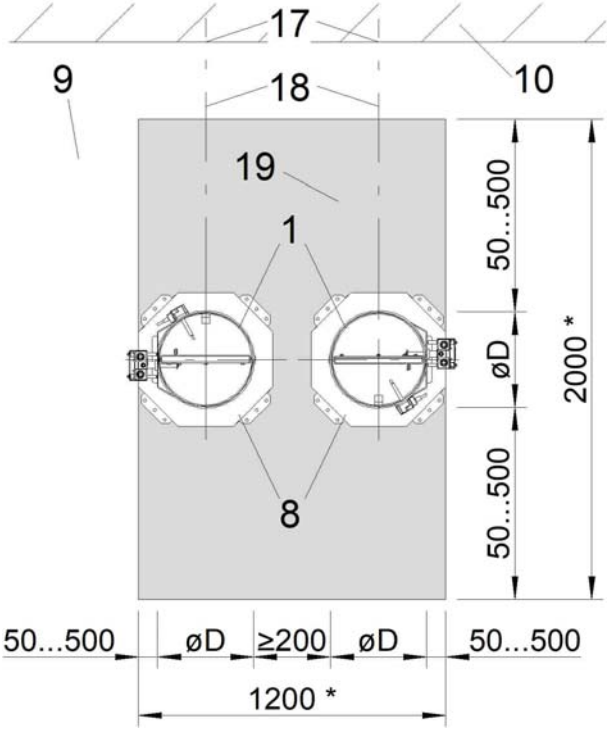
*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 19: Diagram of two installed BSK-RPR with vertical damper blade (example vertical soft seal)



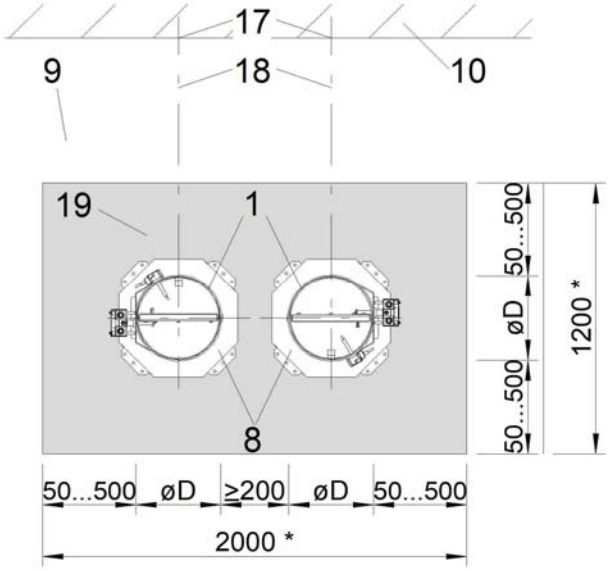
*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 20: Diagram of two installed BSK-RPR with vertical damper blade (example horizontal soft seal)



*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 21: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example vertical soft seal)



*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 22: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example horizontal soft seal)

Sectional view for wall thickness = 100 mm

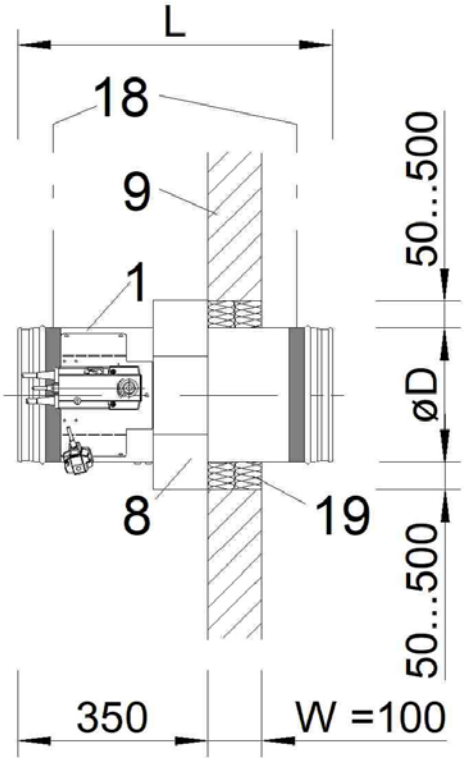


Figure 23: Installation in solid wall (wall thickness = 100 mm)

Sectional view for wall thickness > 100 mm

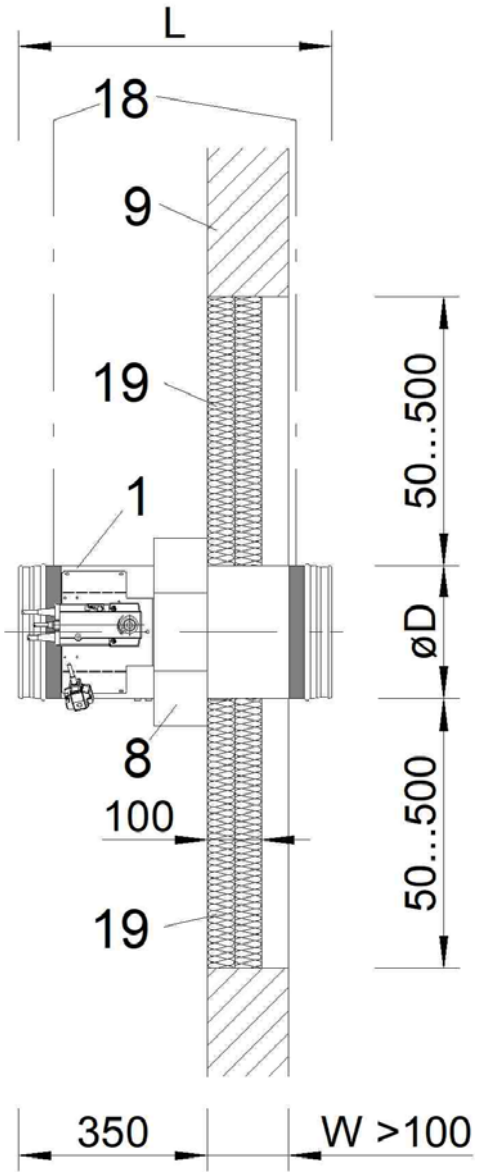


Figure 24: Installation in solid wall (wall thickness > 100 mm)

1 Fire damper BSK-RPR
8 Mounting frame AR
9 Solid wall, apparent density ≥ 450 kg/m³, W ≥ 100 mm
10 Solid ceiling, apparent density ≥ 500 kg/m³, D ≥ 125 mm
17 Fastening by means of fasteners with proven fire protection
18 The suspensions have to be executed with sufficiently dimensioned threaded rods. For information on the suspension, see page 42.
19 Hilti soft seal system (ETA-11/0429):
19.1 Firestop boards CFS-CT B 1S 140/50
19.2 Firestop coating CFS-CT
19.3 Firestop sealant CFS-S ACR

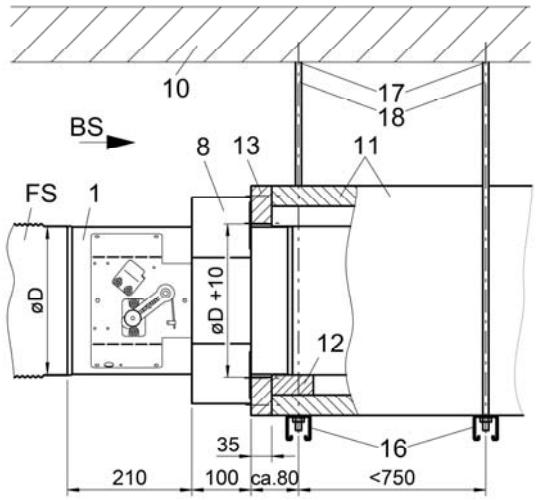
Installation procedure

- The BSK-RPR (pos. 1) along with the mounting frame AR (pos. 8) is installed in the intended installation opening after the assembly 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 positioned in the installation opening in accordance with the gap dimensions 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. 19.1) of the Hilti soft seal system (see p. 13, among others). In case of short distances to the reveal and limited accessibility, the firestop boards must be installed together with the fire damper, where applicable.
  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 housing of the fire damper, between the firestop boards and the mounting frame AR) as well as the face area and the cut surface of the boards themselves must be covered with the firestop sealant (pos. 19.3) 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. The suspension process is described on page 42.
- Mounting of flexible spigots.

Dry installation away from solid walls

- Dry installation away from solid walls is only possible for BSK-RPR-S with mounting frame AR.
- When fitting the fire damper away from solid walls, it must be suspended from the ceiling.
- Installation only in connection with a proven fire-resistant four-sided ventilation duct (L90) devoid of openings and with internal sheet steel duct and external insulation made of board material.
- The connection of the fire-resistant ventilation duct (with proven fire resistance duration of 90 minutes) between the fire damper and the fire-resistant wall to the protected must be effected by form-fit, but not by force-fit, in the area of the wall opening.
- A distance of the fire dampers from one another of at least 200 mm must be observed. However, due to the construction, the distance must be selected as a function of the particular design of the panelling.
- The same also applies to the distance from the adjacent components (wall / solid ceiling).

1 Fire damper BSK-RPR
8 Mounting frame AR
10 Solid ceiling, apparent density ≥ 500 kg/m³, D ≥ 125 mm
11 Fire-resistant ventilation duct (with proven fire resistance duration of 90 minutes)
12 Promatect-LS support 60 mm wide 200 mm long, adjust thickness to the selected fire-resistant duct
13 Promatect-LS faceplate 35 mm (opening centrally in faceplate = BSK-RPR øD +10 mm)
14 Countersunk head screw 4.5x35 or 5.0x30 or equivalent with U-washer. Fastening is effected on all 4 existing fixing lugs (For nominal sizes 100 - 160 all existing and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).
15 Drywall screws 4.0x60, distance from the edge approx. 80 mm, screw distances a ≤ 180 mm or at least 2 screws per side
16 Hilti MQ 41/3 or equivalent or U-profile 50 to DIN 1026
17 Fastening by means of fasteners with proven fire protection
18 The suspensions have to be executed with sufficiently dimensioned threaded rods. For information on the suspension, see page 42.
FS Flexible spigot type FS-RS (normally inflammable to EN 13501-1)



Wall connections as specified by duct manufacturer. form-fit, but not force-fit

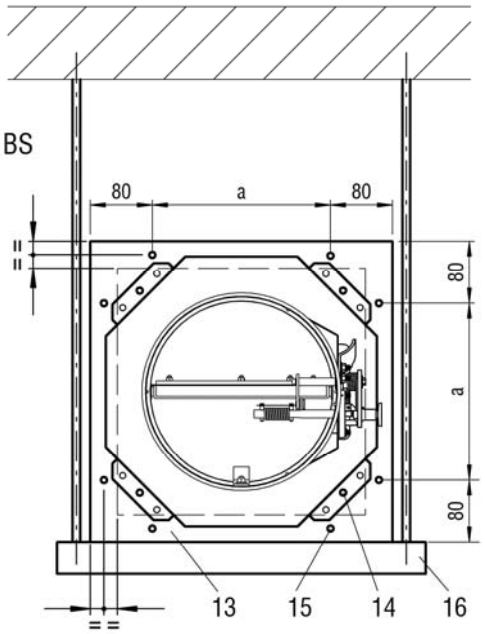


Figure 25: Installation away from solid walls

Installation procedure

- Attach fire protection insulation made of board material (pos. 11) to the existing ventilation duct according to specifications of the duct manufacturer. A Promatect-LS support (pos. 13) must be provided on the non-operating side. Attach a faceplate (pos. 13) with central installation opening.
- Suspensions and fastenings (pos. 12/15/16) of the ducts and of the insulation made of board material must be executed with sufficiently dimensioned threaded rods according to the duct manufacturer.
- Mount the BSK-RPR (pos.1) along with the mounting frame AR (pos. 8) to the existing ventilation duct made of sheet steel, if necessary, with the additional use of mounting suspensions, etc.
- Remove mounting aids (mounting suspensions etc.)

INSTALLATION IN SOLID CEILINGS

- Installation in solid ceilings made, for example, of concrete, aerated concrete, apparent density ≥ 500 kg/m³ and ceiling thickness D ≥ 125 mm.

Installation positions

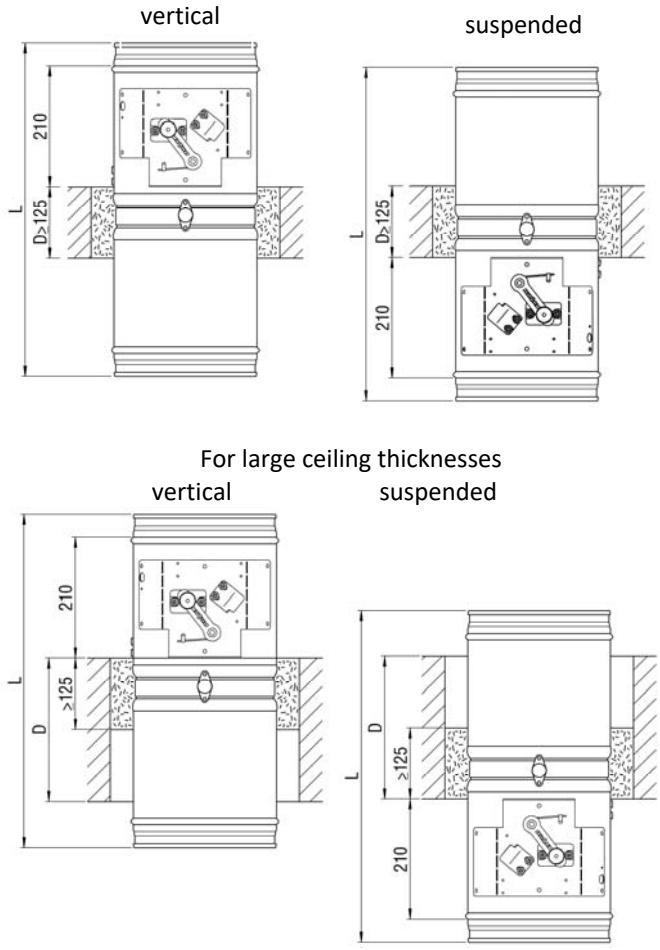


Figure 26: Installation positions in solid ceilings – (wet installation)

Wet installation of a fire damper, complete mortar lining

- The minimum distance between the fire dampers must be at least 55 mm. BSK-RPR-F NG ≥ 280 mm: distance at least 60 mm, due to flange width.
- The minimum distance from adjacent components (wall) is at least 40 mm.

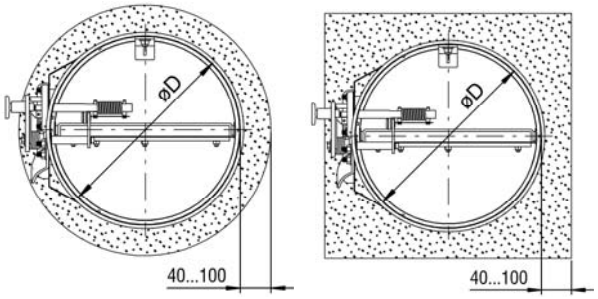


Figure 27: Annular gap dimensions for complete mortar lining, solid walls (round or rectangular recess)

Wet installation at a reduced distance

Installation of max. 2 BSK-RPR in an installation opening in solid ceilings at a reduced distance next to each other. All annular gaps have to be filled with mortar.

- The distance between the fire dampers must be min. 55 mm. BSK-RPR-F NG ≥ 280 mm: distance at least 60 mm, due to flange width.
- The distance from adjacent components (wall) is at least 40 mm.

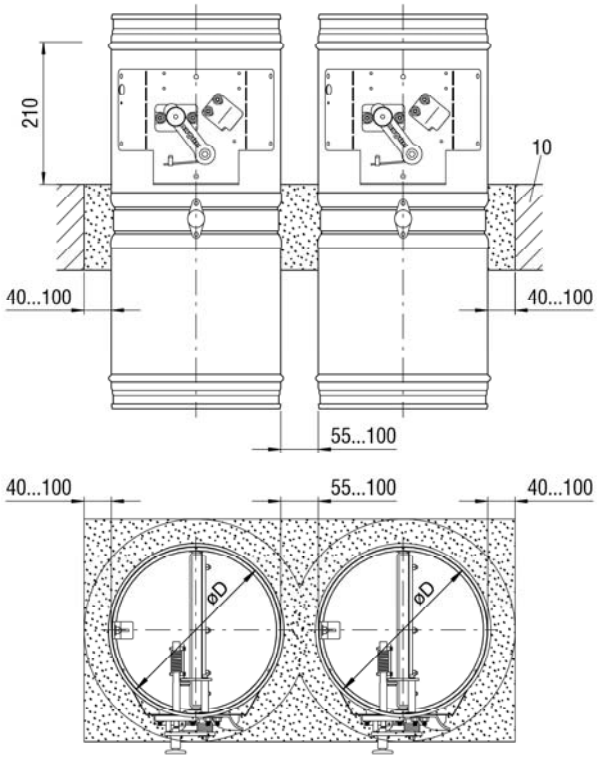


Figure 28: Wet installation at a reduced distance, solid ceilings (round or rectangular recess)

10 Solid ceiling, apparent density ≥ 500 kg/m³, D ≥ 125 mm

Dry installation

- Dry installation on (directly on/directly under) solid ceilings is only possible for BSK-RPR-S with mounting frame AR.
- The installation opening of size øD+10 mm is produced using a core hole bore.
- For fastening to solid ceilings, only approved fastening materials (dowels, etc.) must be used. Fastening is effected on all 4 existing fixing lugs (For nominal sizes 100 - 500 the central bore or one bore of each fixing lug must be used).
- The distance between the fire dampers must be min. 200 mm.
- The distance from adjacent components (wall) is at least 75 mm.

Installation positions

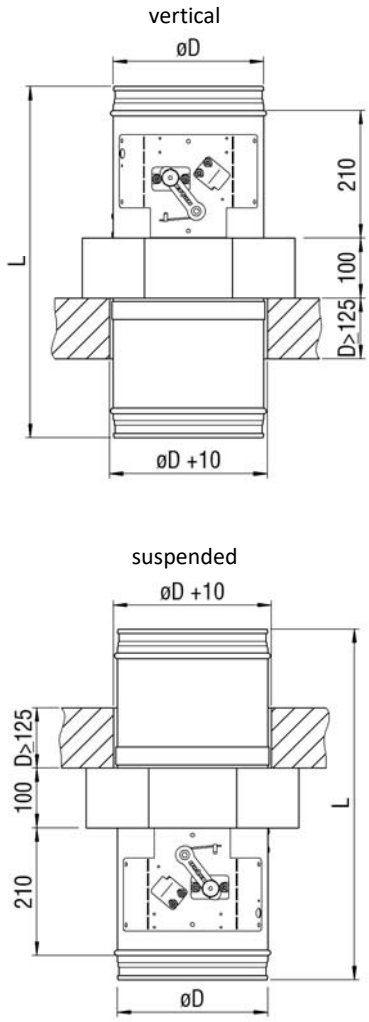
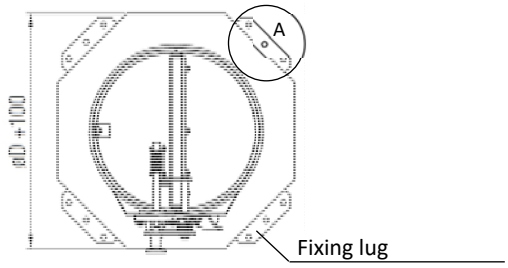


Figure 29: Installation positions on solid ceilings – (dry installation)



Detail A (drawn rotated by 90°)

Fastening material according to statics and on-site fire protection certificate

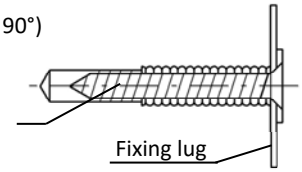


Figure 30: Detail showing fastening to solid ceilings

Wet installation with concrete base

- Construction of a circumferential, straight reinforced concrete base (concrete grade: C20/25; concrete cover ≥ 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 ≤ 550 mm.
  The damper leaf 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 prior to installation. Alternatively, extension pieces (on site or as accessories, e.g. SCHAKO type VT-RF for BSK-RPR) can be mounted.
  During the formation of the concrete base on 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 55 mm. BSK-RPR-F NG ≥ 280 mm: distance at least 60 mm, due to flange width.
- 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.

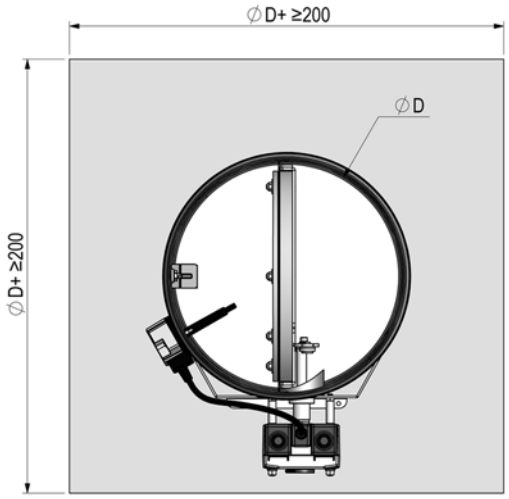


Figure 31: Installation in solid ceilings with concrete base, top view

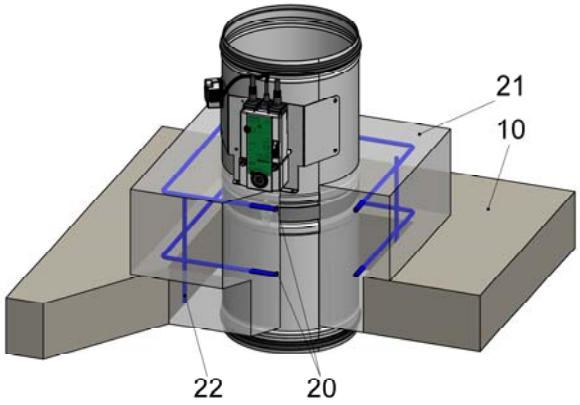


Figure 32: Installation in solid ceilings with concrete base

10 Solid ceiling
20 Horizontal reinforcement e.g. bracket (Ø 8; e ≤ 150 mm)
21 Concrete base (concrete C20/25)
22 Splice bars (Ø 8; e ≤ 500 mm; at least 4 pieces/base)

Reinforcement of the reinforced concrete upstand (Concrete cover ≥ 35 mm; Note: Mounting reinforcement not drawn):
- Horizontal reinforcement (pos. 20):
closed bracket Ø 8, e ≤ 150 mm or steel bar with appropriate overlap lengths or equivalent mesh reinforcement (Q335A); arranged in centre of base (pos. 21).

- 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:
Ø 8 e ≤ 500 mm (splice bar in ceiling, pos. 22) 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.
Ø 8 e ≤ 500 mm (splice bar in ceiling, pos. 22) 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.

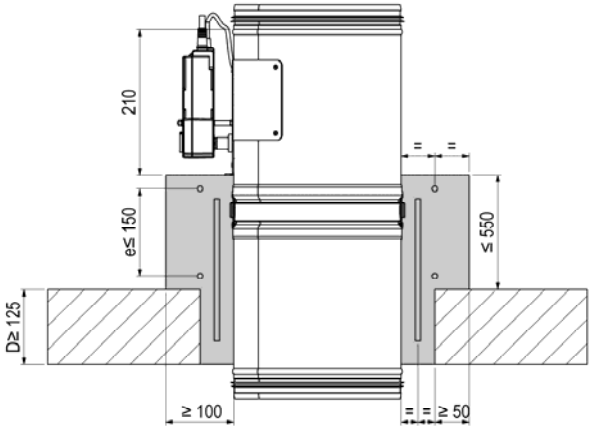


Figure 33: Installation in solid ceilings with concrete base, section

INSTALLATION IN LIGHTWEIGHT PARTITION WALLS WITH METAL POSTS

LIGHTWEIGHT PARTITION WALLS WITH PANELLING ON BOTH SIDES AND WALL THICKNESS W ≥ 100 MM

- Installation in lightweight partition walls with metal posts and panelling on both sides (gypsum-bonded wall boards; wall thickness ≥ 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 from adjacent components must be (due to the construction) at least 105 mm from the wall and at least 95 mm from the solid 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.

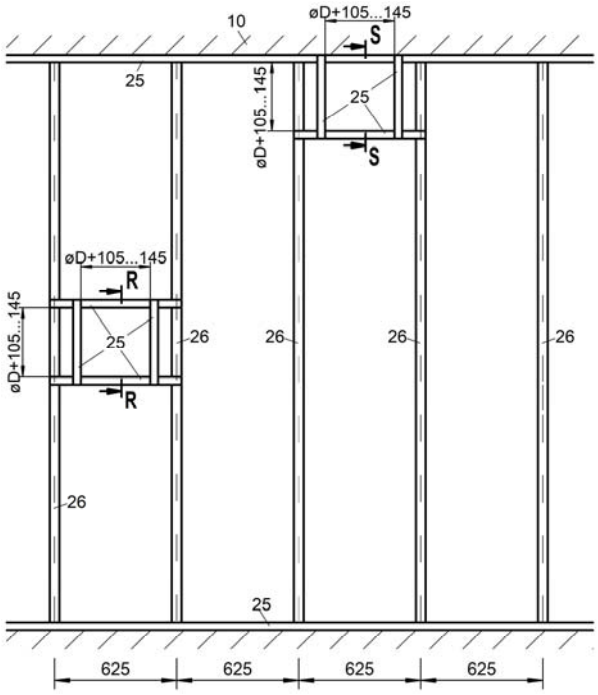


Figure 34: Metal posts plus required exchange parts for wet installation of a BSK-RPR, complete mortar lining

Mountinginformation:
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.

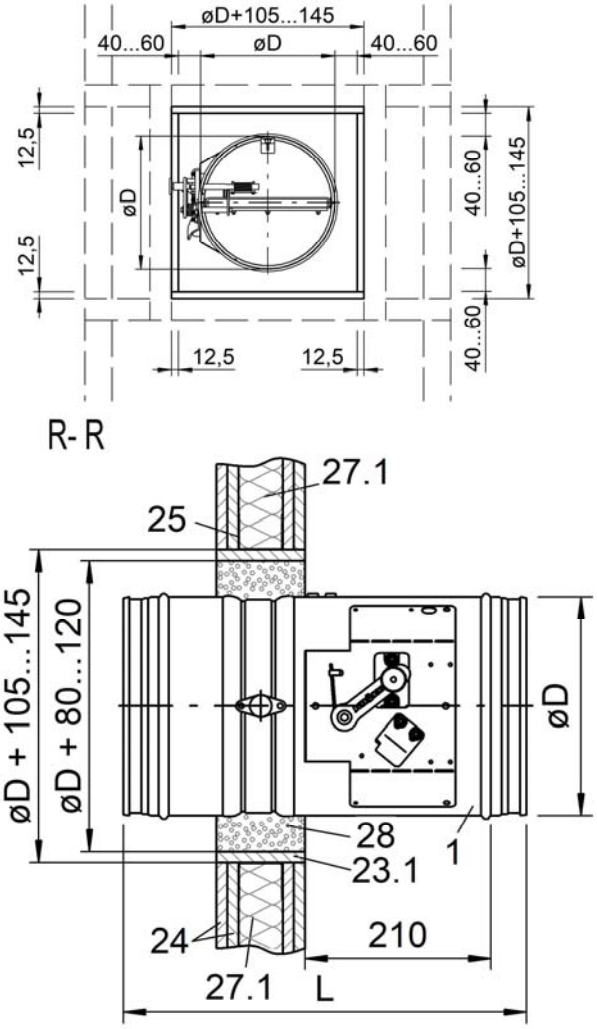


Figure 35: Wet installation of a BSK-RPR in lightweight partition wall

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 34. Take into account circumferential lining of the reveals with plasterboards (pos. 23.1).
- Insert the BSK-RPR (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 BSK-RPR. Mount the BSK-RPR with the help of mounting suspensions, etc.
- Insert mortar (pos. 28) into the circumferential gap 40 mm in width between the housing of the BSK-RPR and the wall recess.
- After the mortar has set, the mounting aids (mounting suspensions, etc.) must be removed.

Wet installation at a reduced distance

- The minimum distance of fire dampers (max. 2, in an installation opening) from one another must be at least 50 mm. BSK-RPR-F NG ≥ 280 mm: distance 60 mm, due to flange width.
- The minimum distance from adjacent components must be (due to the construction) at least 105 mm from the wall and at least 95 mm from the solid 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.

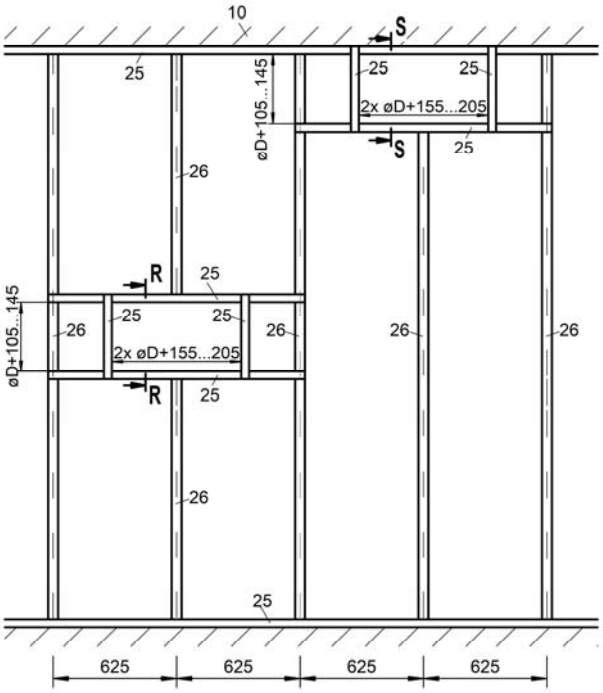


Figure 36: Metal posts plus required exchange parts for the BSK-RPR wet installation at a reduced distance

Mountinginformation:
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.

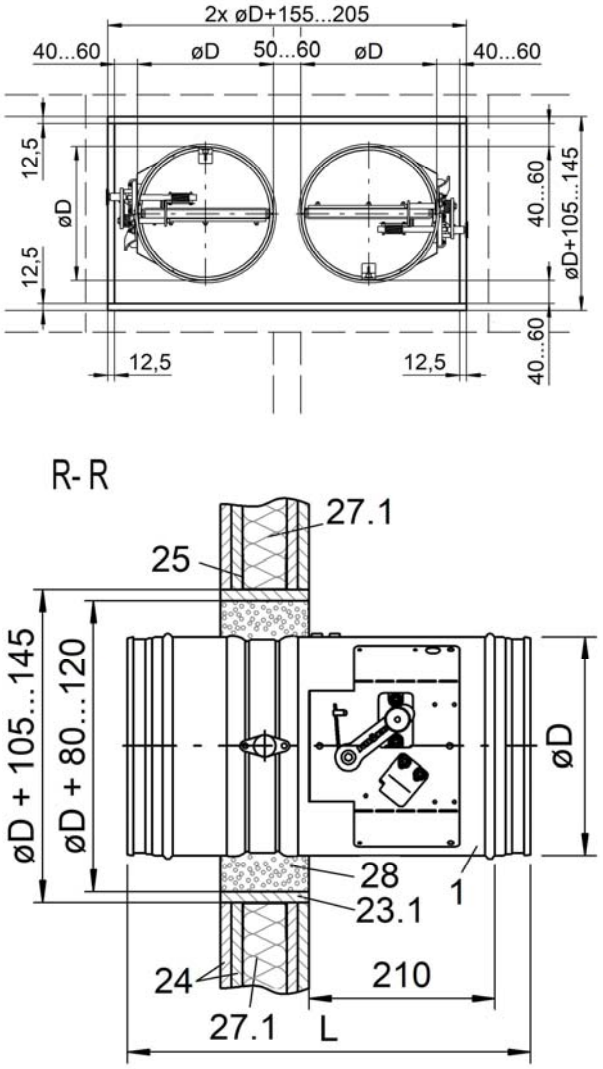


Figure 37: Wet installation in lightweight partition wall at a reduced distance

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 36. Take into account circumferential lining of the reveals with plasterboards (pos. 23.1).
- Insert the BSK-RPR (pos. 1) into the wall recess (operating side: observe the installation dimension of 210 mm). Average out the circumferential annular gaps evenly between the wall and the BSK-RPR. Mount the BSK-RPR with the help of mounting suspensions, etc.
- Insert mortar (pos. 28) into the circumferential gap 40 mm in width between the housing of the BSK-RPR and the wall recess.
- After the mortar has set, the mounting aids (mounting suspensions, etc.) must be removed.

Wet installation under solid ceiling, complete mortar lining

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

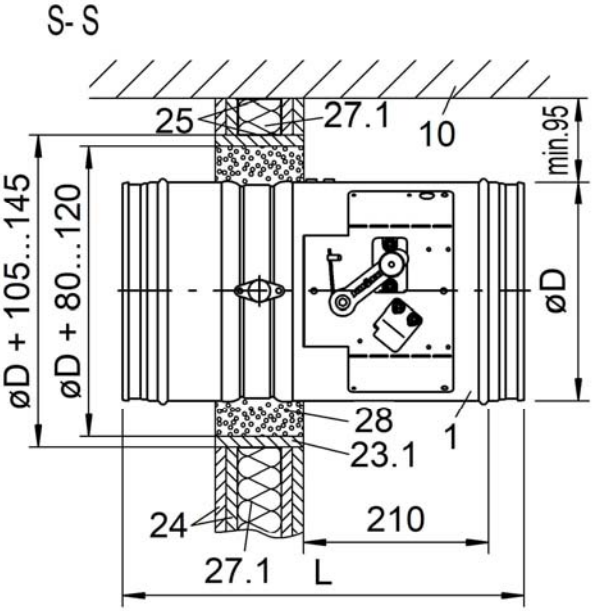


Figure 38: Wet installation under solid ceiling, complete mortar lining

1 Fire damper BSK-RPR
10 Solid ceiling
23 Circumferential reveal (on site, gypsum-bonded wall boards), screwed with metal post profiles, depending on the wall thickness
23.1 Reveal 1 x 12.5 mm
24 Panelling of the metal post wall made of gypsum-bonded wall boards.
25 Profile UW 50/40/06 (for wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
26 Profile CW 50/50/06 (for wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
27.1 Mineral wool (according to the wall manufacturer's specifications)
28 Mortar

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 36. Before attaching the UW-profile (pos. 25) necessary for the circumferential metal profile frame in the ceiling area, a mineral wool strip approx. 50x40 mm (pos. 27.1) must be incorporated in the UW-profile at the ceiling. Take into account circumferential lining of the reveals with plasterboards (pos. 23.1).
- Insert the BSK-RPR (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 BSK-RPR. Mount the BSK-RPR with the help of mounting suspensions, etc.
- Insert mortar (pos. 28) into the circumferential gap 40 mm in width between the housing of the BSK-RPR and the wall recess.
- After the mortar has set, the mounting aids (mounting suspensions, etc.) must be removed.

Dry installation

- Dry installation on the lightweight partition wall is only possible for BSK-RPR-S with mounting frame AR.
- The BSK-RPR can be installed with mounting frame AR at any desired position, taking into account the minimum distances in the lightweight partition wall, independently of the existing metal post profiles associated with the wall. This allows "subsequent" installation in a previously completely panelled wall.
- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance from adjacent components (wall / solid ceiling) must be at least 75 mm. 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.

The proposed installation shown refers to the damper sizes ø 224 to ø 500 mm. For all other nominal sizes, installation details can be seen from page 24.

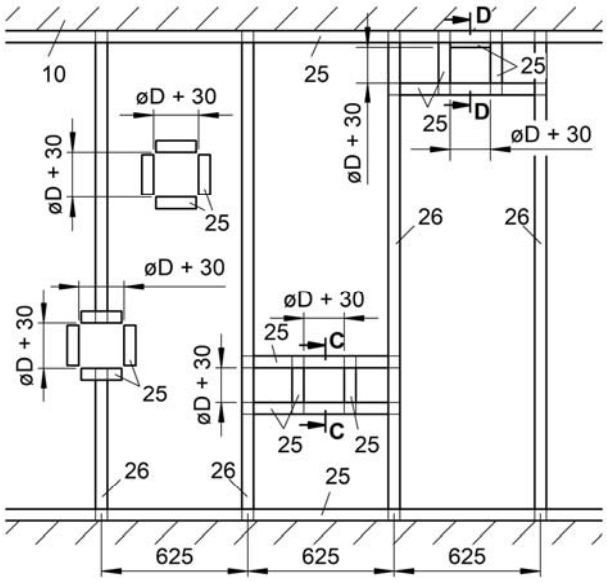


Figure 39: Metal posts plus required exchange parts for BSK-RPR with mounting frame AR (dry installation)

Mountinginformation:
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.

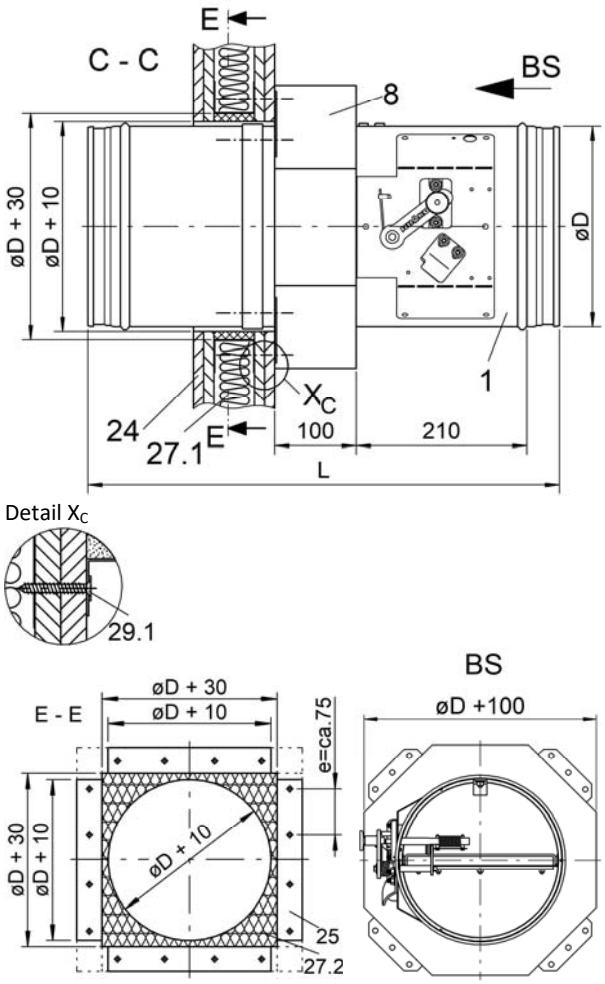
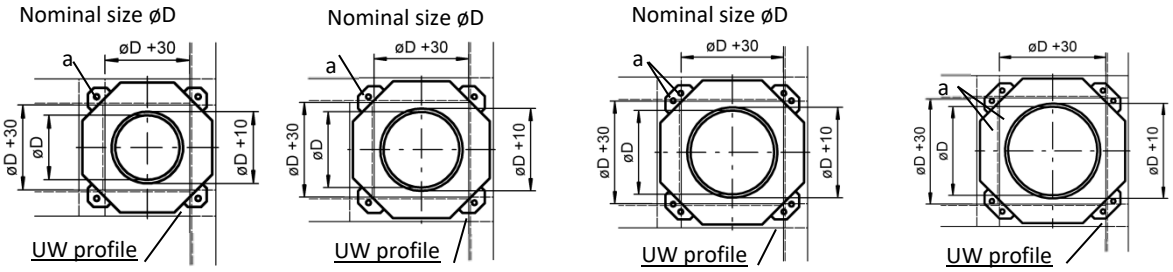


Figure 40: Dry installation on lightweight partition wall with mounting frame AR

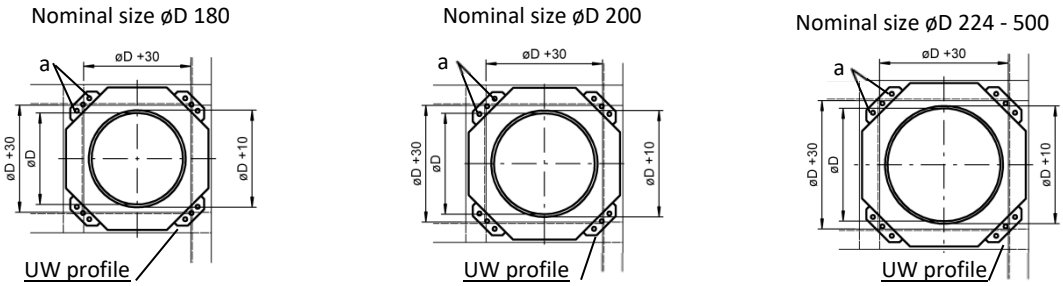
Installation procedure

- 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 39.
- Leave a recess for dry installation of the BSK-RPR (pos.1) along with the mounting frame AR (pos. 8) in the panelling (pos. 24) and provide mineral wool in the exchange area.
- If necessary, fill the square recess with the wall mineral wool. Slide in UW-exchange profiles (pos. 25) and screw them down (drywall screws TN 3.5x35) to the wall panelling.
- Introduce mineral wool into the exchange area according to the exchange dimensions.
- Insert the BSK-RPR along with the mounting frame AR into the recess of the wall (flush with the wall). Average out the circumferential annular gap evenly between the wall and the BSK-RPR.
- Fastening is effected on all 4 existing fixing lugs using drywall screws TN 3.5x45 and suitable U-washers (pos. 29.1) (For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).

Overview of the installation of the fastening profiles during wall assembly



a = for ø100 - ø160 use all fastening points per lug and screw them down in the circumferential profiles!

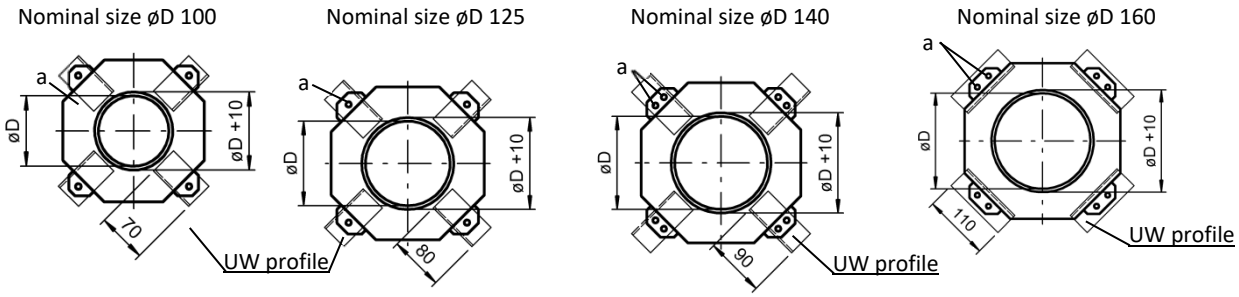


a = for ø180 - ø500 use the two outer fastening points per lug and screw them down in the circumferential profiles!

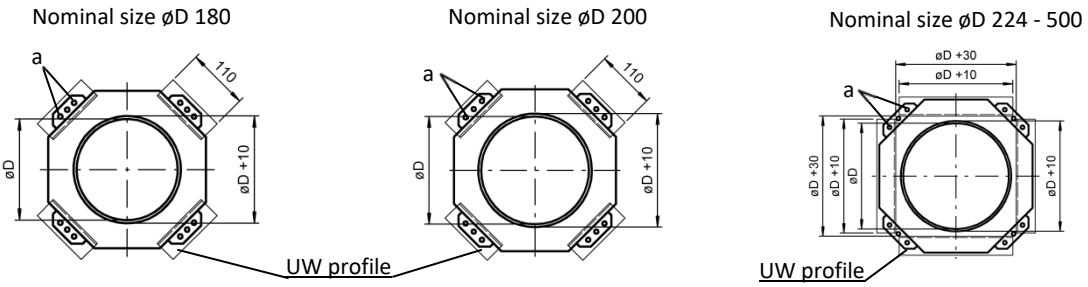
UW profile 50/40/06 for wall thickness = 100 mm, for larger wall thicknesses, the UW profiles must be adapted accordingly.

Figure 41: Dry installation on lightweight partition wall with mounting frame AR – Fastening profiles during wall assembly

Overview of the installation of the fastening profiles for subsequent mounting



a = for ø100 - ø160 use all fastening points per lug and screw them down in the UW profiles (4 pieces)!



a = for ø180 - ø500 use the two outer fastening points per lug and screw them down in the UW profiles (4 pieces)!

UW profile 50/40/06 for wall thickness = 100 mm, for larger wall thicknesses, the UW profiles must be adapted accordingly.

Figure 42: Dry installation on lightweight partition wall with mounting frame AR – Fastening profiles for subsequent mounting

Dry installation under solid ceiling

- Dry installation on the lightweight partition wall is only possible for BSK-RPR-S with mounting frame AR.
- Dry installation under solid ceiling does not constitute a sliding ceiling connection, but requires additional accessories.
- The BSK-RPR can be installed with mounting frame AR at any desired position, taking into account the minimum distances in the lightweight partition wall, independently of the existing metal post profiles associated with the wall. This allows "subsequent" installation in a previously completely panelled wall.
- The distance between the fire dampers must be min. 200 mm.
- The distance from adjacent components (wall / solid ceiling) must be at least 75 mm. 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.

The proposed installation shown refers to the damper sizes ø 224 to ø 500 mm. For all other nominal sizes, further installation details can be seen from page 24.

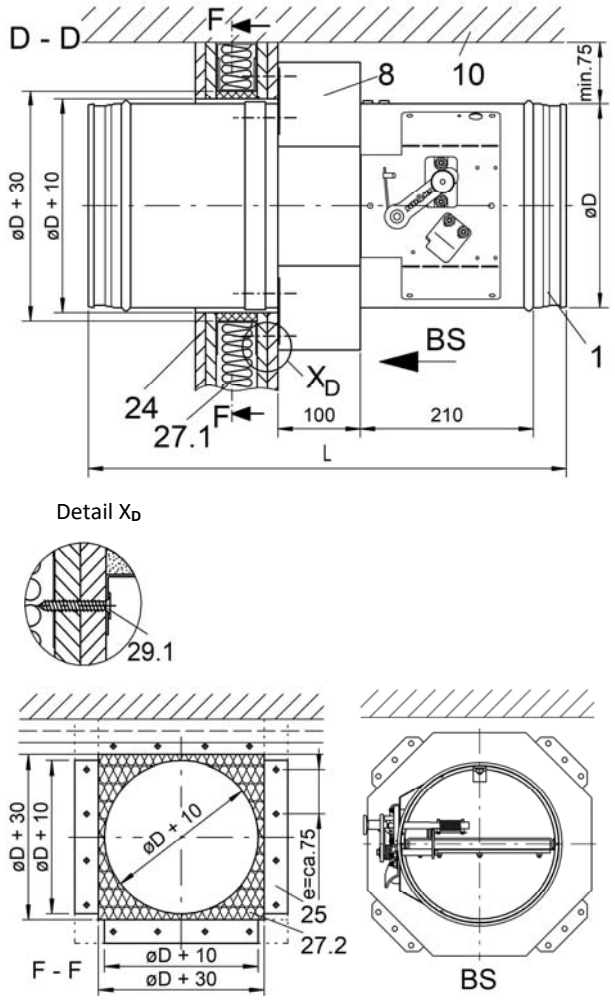


Figure 43: Dry installation on lightweight partition wall with mounting frame AR under solid ceiling

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 39.
- Leave a recess for dry installation of the BSK-RPR (pos.1) along with the mounting frame AR (pos. 8) in the panelling (pos. 24) and provide mineral wool in the exchange area.
- If necessary, fill the square recess with the wall mineral wool. Slide in UW-exchange profiles (pos. 25) and screw them down (drywall screws TN 3.5x35) to the wall panelling.
- Introduce mineral wool into the exchange area according to the exchange dimensions.
- Insert the BSK-RPR along with the mounting frame AR into the recess of the wall (flush with the wall). Average out the circumferential annular gap evenly between the wall and the BSK-RPR.
- Fastening is effected on all 4 existing fixing lugs using drywall screws TN 3.5x45 and suitable U-washers (pos. 29.1) (For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).

1 Fire damper BSK-RPR
8 Mounting frame AR
10 Solid ceiling
24 Panelling of the lightweight partition wall made of gypsum-bonded wall boards
25 Profile UW 50/40/06 (for wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
26 Profile CW 50/50/06 (for wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)
27.1 Mineral wool (according to the wall manufacturer's specifications)
27.2 Mineral wool (non-flammable according to EN13501-1, apparent density ≥ 100 kg/m³, melting point ≥ 1000 °C)
29.1 Drywall screws (on site, e.g. TN 3.5 x 45 and suitable U-washers)

Dry installation with installation kit type GDL, sliding ceiling connection

- If the installation kit type GDL is used, only the BSK-RPR-S with mounting frame AR and a housing length of L=580 is possible.
- Depending on the wall thickness, the on-site VT or duct pieces must first be fitted to the fire damper (non-operating side).
- Installation in the area of flexible ceiling connections (flexibility/ceiling bending ≤ 20 mm). They are to be constructed if the expected ceiling bending is ≥ 10 mm (wall manufacturer's specification).
- When installed next to each other, the distance of the fire dampers to one another must be at least 170 mm and they must be mounted in separated installation openings
- The distance from adjacent components (wall) must be at least 75 mm. The actual minimum distance from adjacent walls may slightly differ from the distances mentioned above and must be executed and adapted as a function of the wall connection type.
- The design of the installation kit type GDL depends on the wall thickness. The installation kit GDL is supplied loose. Consider this when ordering and selecting the installation kit type GDL and specify it based on the versions listed below.

R20 = Installation kit type GDL (for wall thickness = 100 mm, metal post, includes R04)
R21 = Installation kit type GDL (for wall thickness = 120 mm, metal post, includes R04)
R22 = Installation kit type GDL (for wall thickness = 125 mm, metal post, includes R04)
R23 = Installation kit type GDL (for wall thickness = 140 mm, metal post, includes R04)
R24 = Installation kit type GDL (for wall thickness = 150 mm, metal post, includes R04)
R25 = Installation kit type GDL (for wall thickness = 160 mm, metal post, includes R04)
R26 = Installation kit type GDL (for wall thickness = 175 mm, metal post, includes R04)
R27 = Installation kit type GDL (for wall thickness = 205 mm, metal post, includes R04)

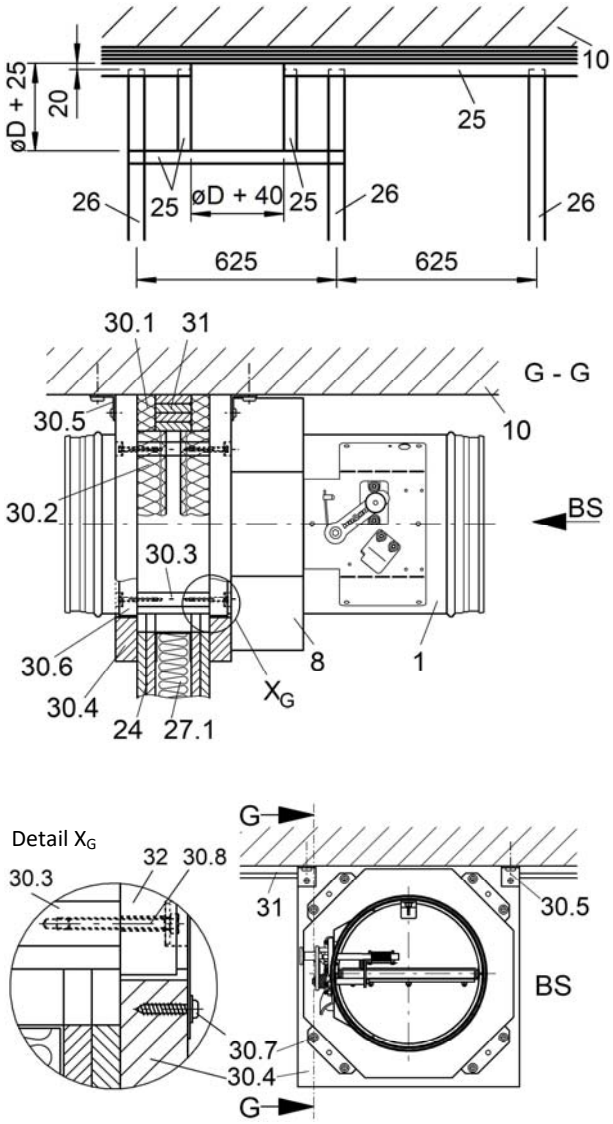


Figure 44: Installation kit GDL for installation in lightweight partition walls with metal posts and panelling on both sides with sliding ceiling connection

Installation procedure

- Mount the ceiling connection strips (pos. 31) for the sliding ceiling connection under the solid ceiling (pos. 10). 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. In the area of the sliding ceiling connection, the exchange parts and CW-profiles (pos. 26) have been mounted loosely. In the ceiling profile (UW-profile) (pos. 25), a recess (width b = ØD + 40 mm) must be made in the area of the BSK-RPR (pos. 1).
- Mount the wall panellings on both sides (pos. 24) and provide an installation opening.
- In the area of the installation opening, on both sides of the ceiling connection strips (pos. 31), attach the mineral wool strip (pos. 30.1, dimension b= 50 x d= 25 mm).
- The baffle plate (pos. 30.4) to which previously two suspension brackets (pos. 30.5) and four spacers (pos. 30.3)

had been fastened is mounted on one side to the installation opening of the solid ceiling (on-site fastening material).

- 2 mineral wool plates (pos. 30.2) are slid into the remaining wall opening.
  Finally, the still open side of the wall is sealed with the second baffle plate and screwed to the four spacers (pos. 30.3) of the first baffle plate (fastening material pos. 30.8) and also mounted on the solid ceiling using two suspension brackets (pos. 30.5) (on-site fastening material).
- Drill an installation opening in both mineral wool plates (pos. 30.2).
- Insert the BSK-RPR (pos. 1) along with the mounting frame AR (pos. 8) and the additional circumferential intumescent seal (pos. 30.6 + 32) into the recess of the wall/baffle plates (flush with the baffle plates). Average out the circumferential annular gap evenly between the baffle plate and the BSK-RPR.
- Fastening is effected on all 4 existing fixing lugs using drywall screws 5x25 and suitable U-washers (pos. 30.7) (For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).

1 Fire damper BSK-RPR

8 Mounting frame AR

10 Solid ceiling

24 Panelling of the lightweight partition wall made of gypsum-bonded wall boards

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

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

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

30 Installation kit type GDL (accessories loose; among others consisting of)
30.1 Mineral wool strips (non-flammable to EN 13501-1, apparent density ≥ 100 kg/m³, melting point ≥ 1000 °C)
30.2 Mineral wool plates (non-flammable to EN 13501-1, apparent density ≥ 100 kg/m³, melting point ≥ 1000 °C)
30.3 Spacer (length according to wall thickness). The exact wall thickness(es) must be taken into account when ordering.
30.4 Baffle plate (thickness d = 30 mm)
30.5 Suspension bracket (with corresponding fastening screws Ø 5 x 25 for fastening to pos. 30.4). Through-hole Ø 6.5 for dowel fastening to ceiling, suitable dowels or fastening material must be provided on site.
30.6 Intumescent seal (distance from the mounting frame AR ≙ wall thickness + 30 mm, mounting on site in the area of pos. 30.4)
30.7 Fastening screw Ø 5 x 25 with suitable U-washer (ø 5.3 - ISO 7093). For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used.
30.8 Spacer screw M5 x 45 (ISO 4017) with suitable U-washer (ø 5.5 - ISO 7094).

31 GKF plasterboard ceiling connection strips for the sliding ceiling connection:

- 4 strips of d = 12.5 mm and b = 50 mm each (for wall thickness = 100 mm; for larger wall thicknesses, the width b must be adjusted according to the web height of the selected post profiles) are screwed to one another with screws at a distance a < 200 mm.

32 Intumescent seal (mounted ex works)

Dry installation with soft seal

- Dry installation with soft seal is only possible for BSK-RPR-S with mounting frame AR. Intumescent seal (outside on the housing next to the mounting frame AR) must be removed.
- The fire damper must be permanently suspended from the solid ceiling on both sides of the wall (see page 42).
- In case of short distances to the reveal and limited accessibility, the firestop boards must be installed together with the fire damper, where applicable.
- The minimum distance between the fire dampers for installation side by side must be at least 200 mm (note: a maximum of two fire dampers is allowed in one installation opening)
- Depending on the wall thickness and on the reveal design, the distance from load-bearing, adjacent components is, due to the construction, at least 103/115 mm from the solid ceiling or 113/125 mm from the wall.

Soft seal system

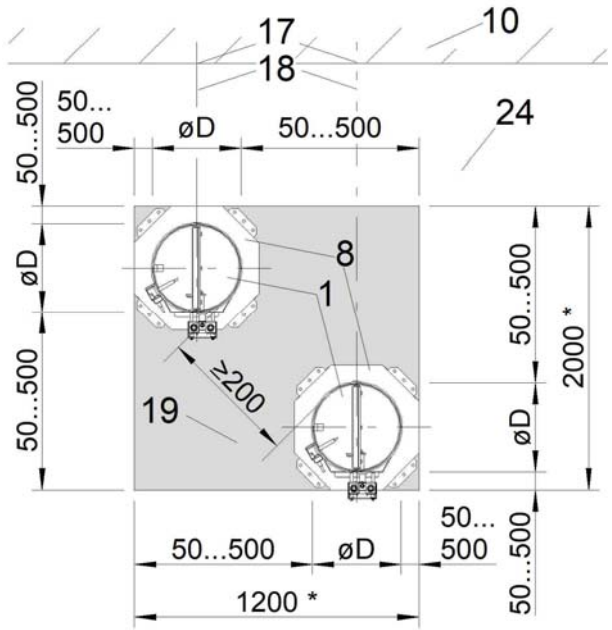
Permissible soft seal system (provided on site):

Manufacturer Hilti

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

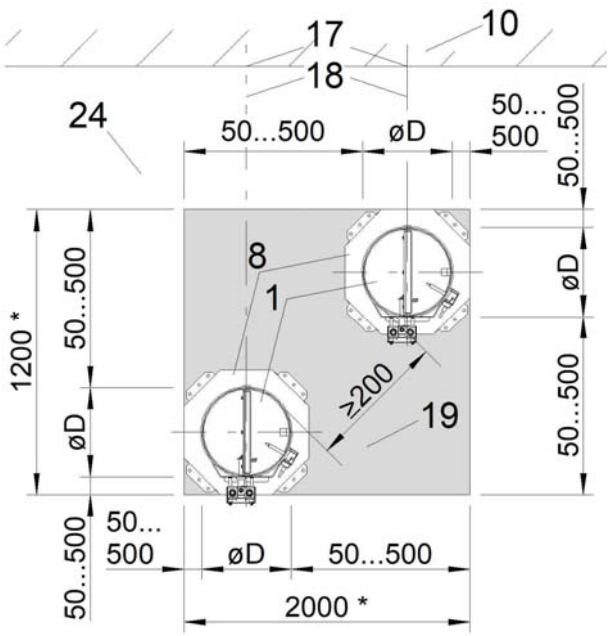
In general, the specifications and processing guidelines of the soft seal manufacturer (in particular the maximum seal dimensions) must be observed.

Dimensions of the min./max. annular gap



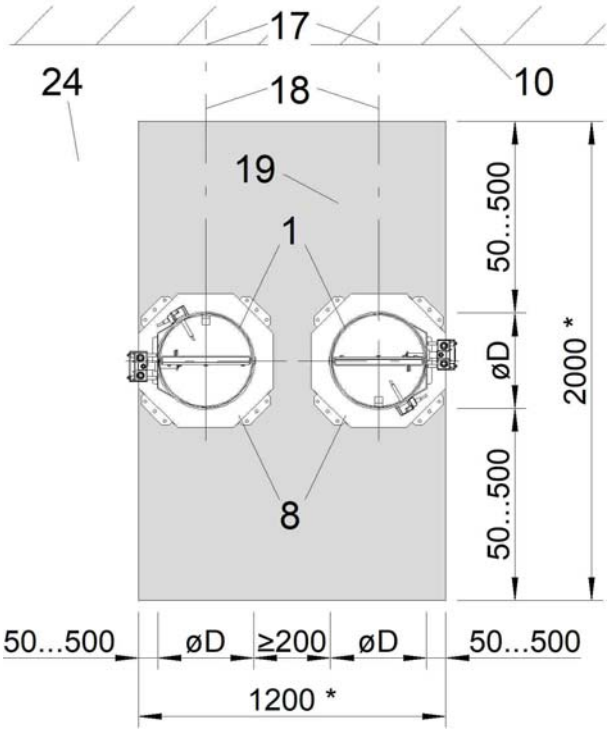
*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 45: Diagram of two installed BSK-RPR with vertical damper blade (example vertical soft seal)



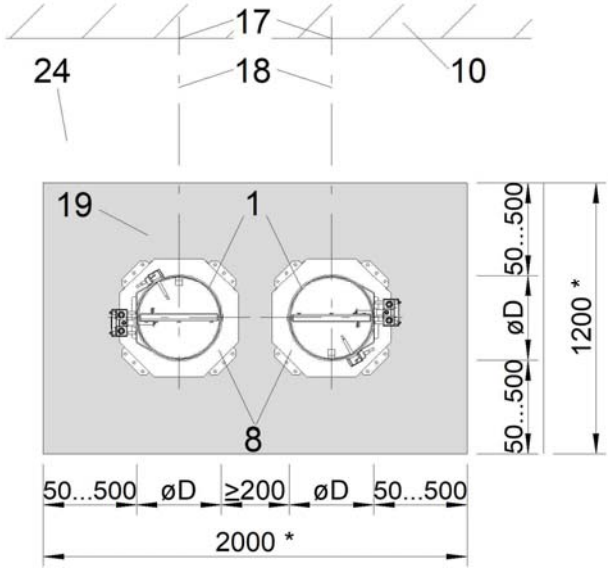
*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 46: Diagram of two installed BSK-RPR with vertical damper blade (example horizontal soft seal)



*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

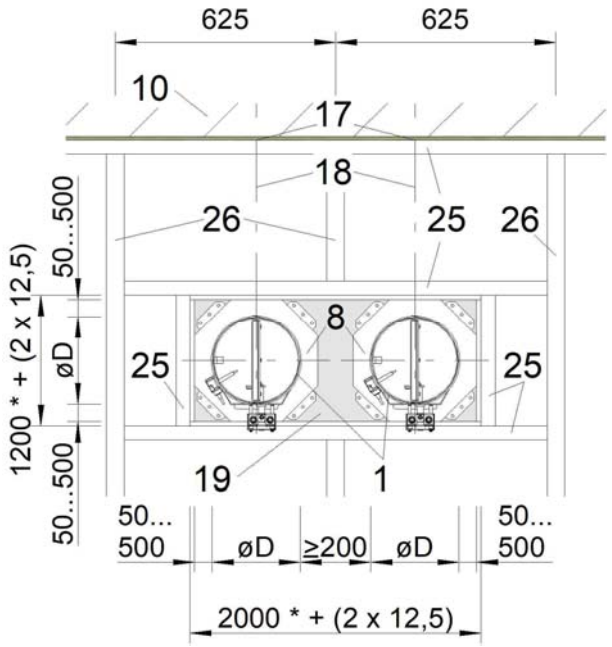
Figure 47: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example vertical soft seal)



*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 48: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example horizontal soft seal)

Wall thickness = 100 mm



*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 49: Metal posts plus required exchange parts and reveal (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

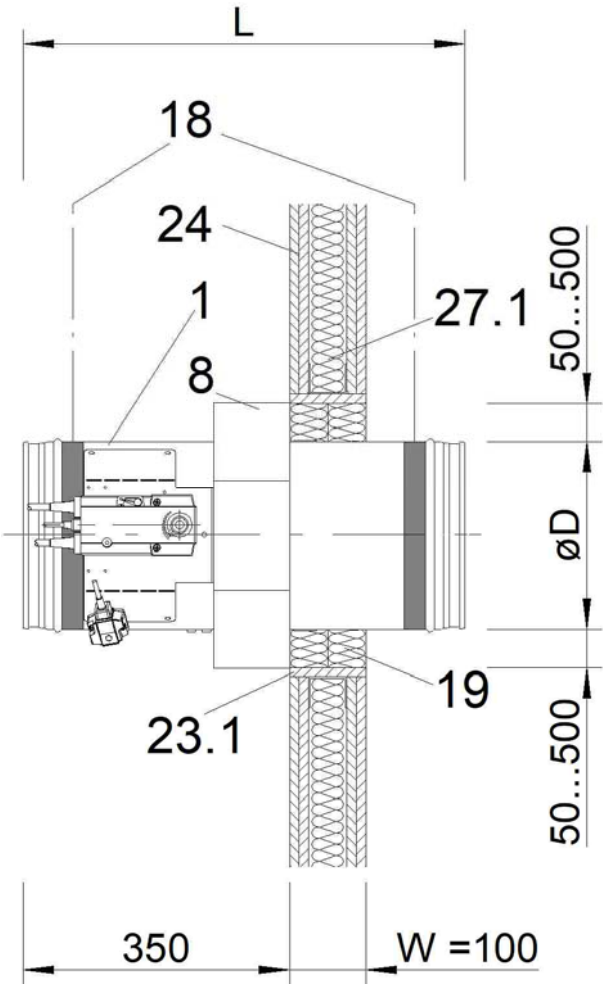
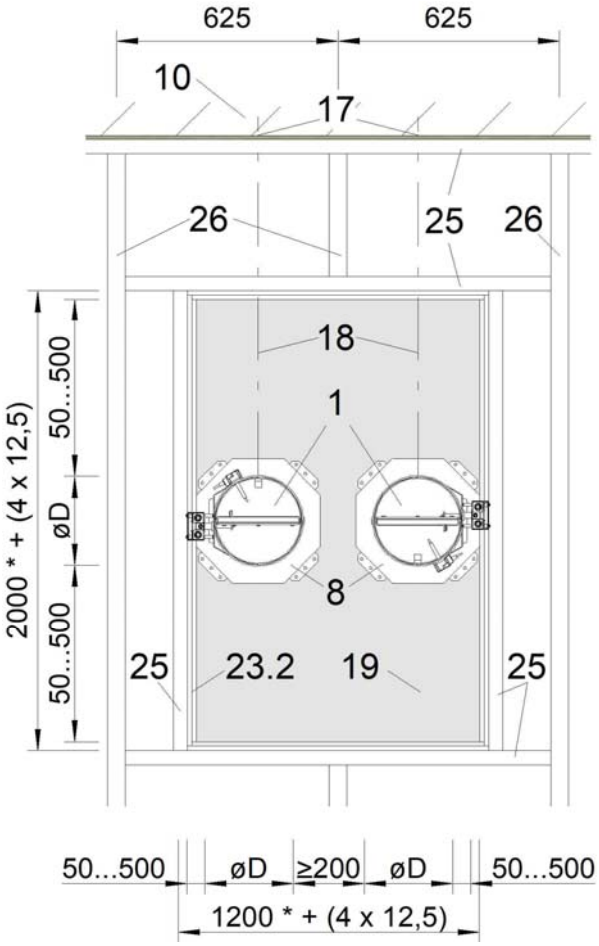


Figure 50: Installation in metal post wall (wall thickness = 100 mm)

Wall thickness > 100 mm



*) ≙ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 51: Metal posts plus required exchange parts and reveal (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

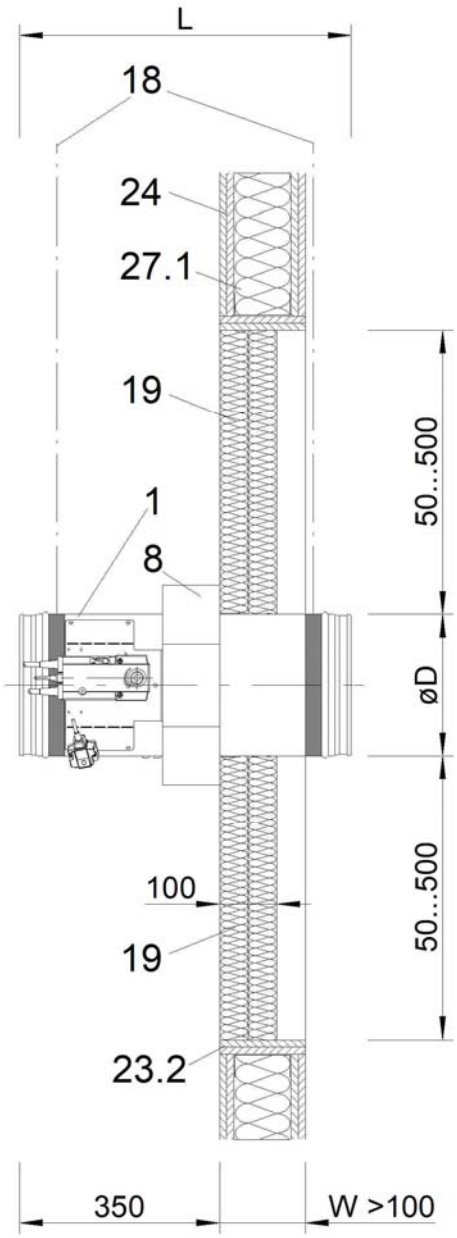


Figure 52: Installation in metal post wall (wall thickness > 100 mm)

Installation procedure

- The BSK-RPR (pos. 1) along with the mounting frame AR (pos. 8) is installed in the intended installation opening after the assembly 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 positioned in the installation opening in accordance with the gap dimensions 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. 19.1) of the Hilti soft seal system (see p. 28, among others). In case of short distances to the reveal and limited accessibility, the firestop boards must be installed together with the fire damper, where applicable.
  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 housing of the fire damper, between the firestop boards and the mounting frame AR) as well as the face area and the cut surface of the boards themselves must be covered with the firestop sealant (pos. 19.3) 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. The suspension process is described on page 42.
- Mounting of flexible spigots.

1 Fire damper BSK-RPR
8 Mounting frame AR
10 Solid ceiling
17 Fastening by means of fasteners with proven fire protection
18 The suspensions have to be executed with sufficiently dimensioned threaded rods. For information on the suspension, see page 42.
19 Hilti soft seal system (ETA-11/0429):
19.1 Firestop boards CFS-CT B 1S 140/50
19.2 Firestop coating CFS-CT
(circumferential width ≥ 25 mm, t ≥ 2.5mm)
19.3 Firestop sealant CFS-S ACR
23 Circumferential reveal (on site, gypsum-bonded wall boards), screwed with metal post profiles, depending on the wall thickness,
23.1 Reveal 1 x 12.5 mm (wall thickness = 100 mm)
23.2 Reveal according to the number of boards and to the wall thickness (wall thickness > 100 mm)
24 Panelling of a metal post wall panelled on both sides made of gypsum-bonded wall boards
25 Profile UW 50/40/06 (for wall thickness = 100 mm; for larger wall thicknesses, the profiles must be adapted accordingly)
26 Profile CW 50/50/06 (for wall thickness = 100 mm; for larger wall thicknesses, the profiles must be adapted accordingly)
27.1 Mineral wool (according to the wall manufacturer's specifications)

LIGHTWEIGHT PARTITION WALLS (F30/F60) WITH PANELLING ON BOTH SIDES AND WALL THICKNESS W ≥ 75 MM

- Installation in lightweight partition walls with metal posts and panelling on both sides (gypsum-bonded wall boards; wall thickness ≥ 75 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, nominal sizes 100 to ≤ 250

- Wet installation must be carried out during assembly of the wall.
- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance from adjacent components must be at least 85 mm from the wall and 75 mm from the solid 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.

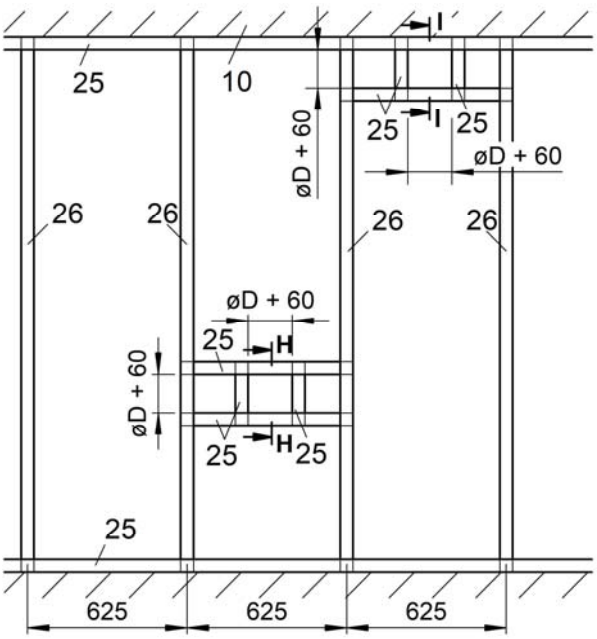


Figure 53: Metal posts plus required exchange parts for wet installation (F30; BSK-RPR 100 to ≤ 250)

Mountinginformation:
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.

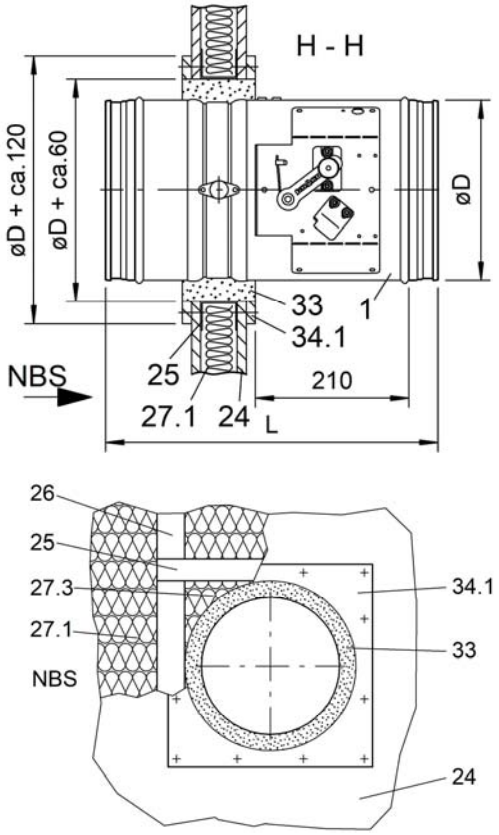


Figure 54: Wet installation in lightweight partition wall (F30; BSK-RPR 100 to ≤ 250)

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 53.
- Leave a recess for wet installation of the BSK-RPR (pos.1) in the panelling (pos. 24) and provide mineral wool (pos. 27.3) in the exchange area.
- Mount the double-board layers on both sides (pos. 34.1 - front and back). The connection and butt joints must be filled with the jointing material of the wall.
- Insert the BSK-RPR 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 BSK-RPR. Mount the BSK-RPR with the help of mounting suspensions, etc.
- Insert the jointing material of the wall (pos. 33) into the circumferential gap 30 mm in width between the housing of the BSK-RPR and the wall recess.
- After the jointing material has set, the mounting aids (mounting suspensions, etc.) must be removed.

Wet installation of a fire damper under solid ceiling, nominal sizes 100 to ≤ 250

- Installation under the solid ceiling must be carried out during assembly of the wall and does not constitute a sliding ceiling connection.
- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance from adjacent components must be at least 85 mm from the wall and 75 mm from the solid 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.

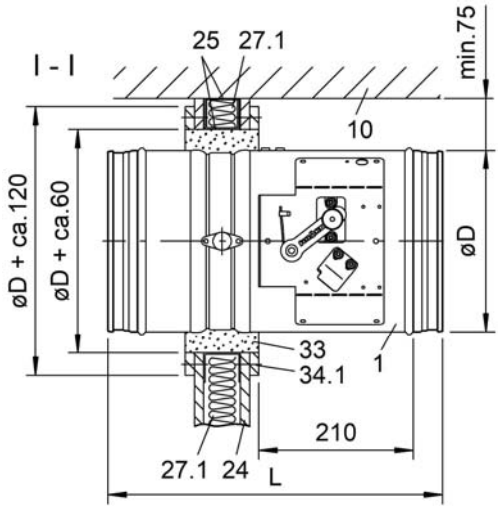


Figure 55: Wet installation in lightweight partition wall (F30) under solid ceiling (BSK-RPR 100 to ≤ 250)

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 53. Before attaching the UW-profile (pos. 25) necessary for the circumferential metal profile frame in the ceiling area, a mineral wool strip approx. 50x40 mm (pos. 27.1) must be incorporated in the UW-profile at the ceiling.
- Leave a recess for wet installation of the BSK-RPR (pos.1) in the panelling and mineral wool in the exchange area.
- Mount the double-board layers on both sides (pos. 34.1 - front and back). The connection and butt joints must be filled with the jointing material of the wall.
- Insert the BSK-RPR 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 BSK-RPR. Mount the BSK-RPR with the help of mounting suspensions, etc.
- Insert the jointing material of the wall (pos. 33) into the circumferential gap 30 mm in width between the housing of the BSK-RPR and the wall recess.
- After the jointing material has set, the mounting aids (mounting suspensions, etc.) must be removed.

1 Fire damper type BSK-RPR
10 Solid ceiling
24 Panelling of the lightweight partition wall made of gypsum-bonded wall boards
25 Profile UW 50/40/06 (for wall thickness = 75 mm; for larger wall thicknesses, the profiles must be adapted accordingly)
26 Profile CW 50/50/06 (for wall thickness = 75 mm; for larger wall thicknesses, the profiles must be adapted accordingly)
27.1 Mineral wool (according to the wall manufacturer's specifications)
27.3 Mineral wool (non-flammable according to EN 13501-1, apparent density ≥ 30kg/m³, melting point ≥ 1000 °C)
33 Plaster joint filling with jointing material of the wall
34.1 Double-board layer (plasterboards GKF, on both sides d = 12.5 mm). Fastening: Drywall screws, for example, TN 3.5x35, a ≤ 250 mm, or at least 2 screws per side, connection and butt joints of the double-board layers must be filled with the jointing material of the wall.

Dry installation

- Dry installation on the lightweight partition wall is only possible for BSK-RPR-S with mounting frame AR.
- The BSK-RPR can be installed with mounting frame AR at any desired position, taking into account the minimum distances in the lightweight partition wall, independently of the existing metal post profiles associated with the wall. This allows "subsequent" installation in a previously completely panelled wall.
- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance from adjacent components (wall / solid ceiling) must be at least 75 mm. 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.

The proposed installation shown refers to the damper sizes dia. 224 to dia. 500 mm. For all other nominal sizes, installation details can be seen from page 35.

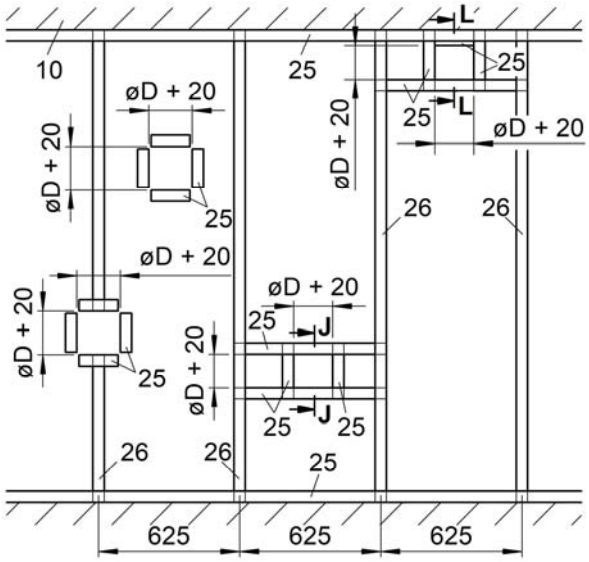


Figure 56: Metal posts plus required exchange parts for dry installation with mounting frame AR (F30/F60)

Mountinginformation:
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.

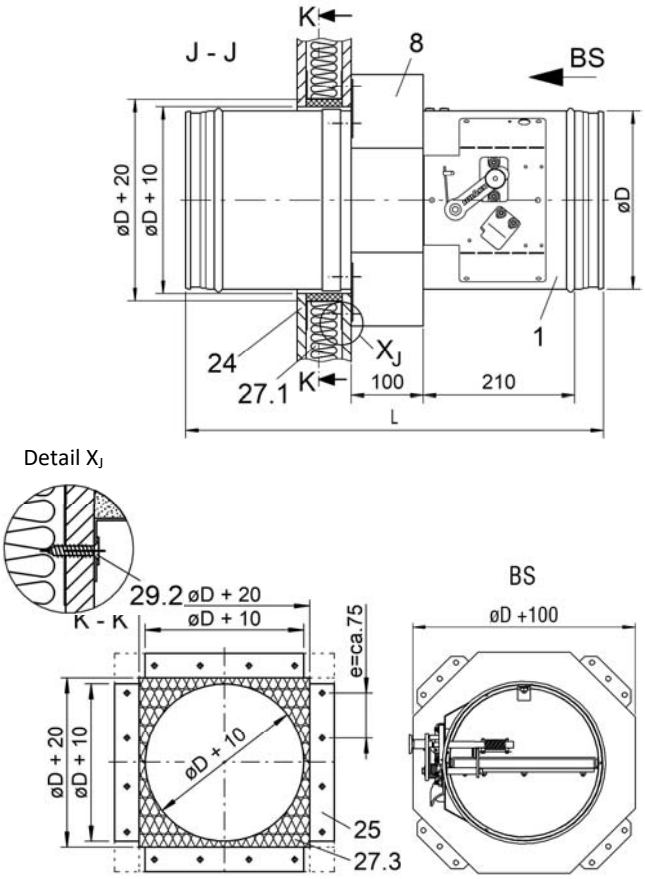
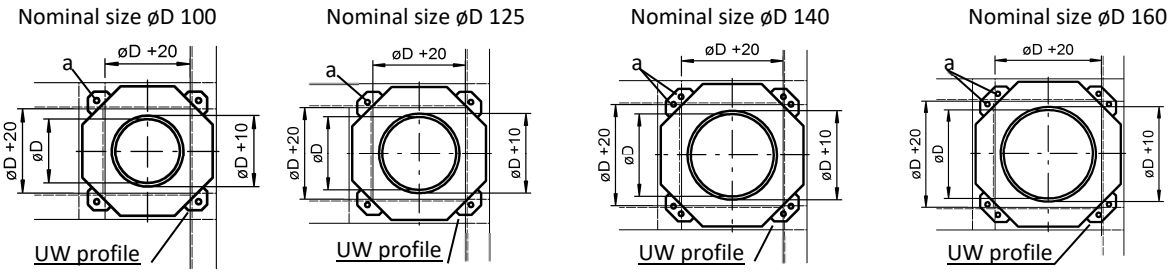


Figure 57: Dry installation on lightweight partition wall with mounting frame AR (F30/F60)

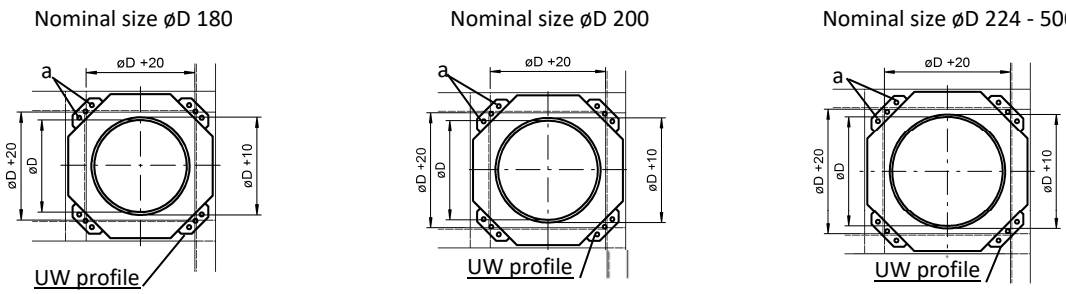
Installation procedure

- 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 56.
- Leave a recess for dry installation of the BSK-RPR (pos.1) along with the mounting frame AR (pos. 8) in the panelling (pos. 24) and provide mineral wool in the exchange area.
- Fill the square recess with the wall mineral wool. Slide in UW-exchange profiles (pos. 25) and screw them down (drywall screws TN 3.5x35) to the wall panelling.
- Introduce mineral wool (pos. 27.3) into the exchange area according to the exchange dimensions.
- Insert the BSK-RPR along with the mounting frame AR into the recess of the wall (flush with the wall). Average out the circumferential annular gap evenly between the wall and the BSK-RPR.
- Fastening is effected on all 4 existing fixing lugs using drywall screws TN 3.5x35 and suitable U-washers (pos. 29.2) (For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).

Overview of the installation of the fastening profiles during wall assembly



a = for ø100 - ø160 use all fastening points per lug and screw them down in the circumferential profiles!

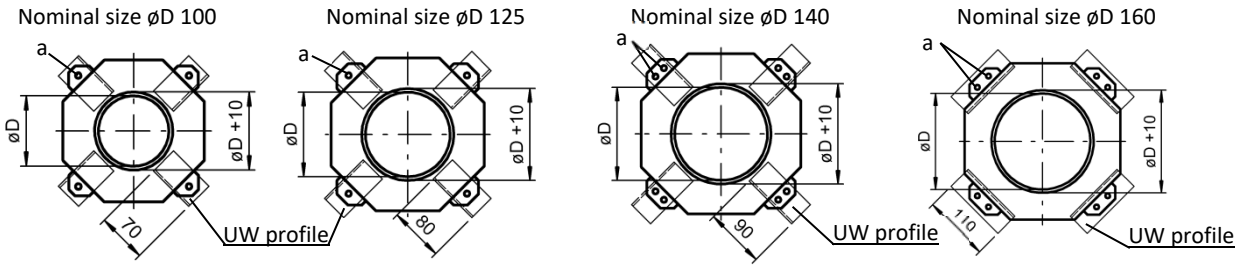


a = for ø180 - ø500 use the two outer fastening points per lug and screw them down in the circumferential profiles!

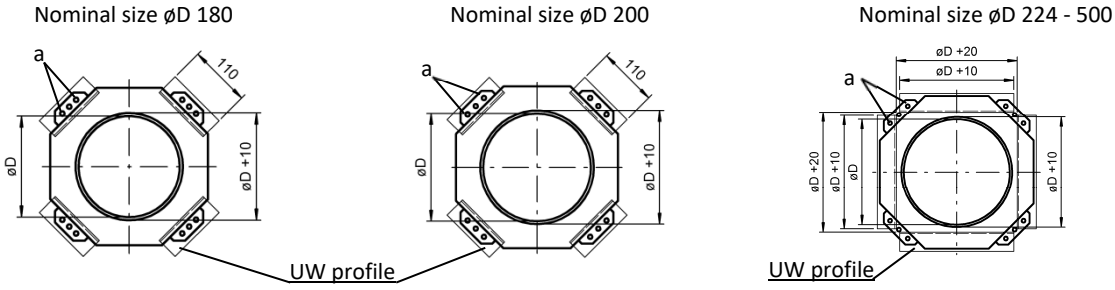
UW profile 50/40/06 for wall thickness = 75 mm, for larger wall thicknesses, the UW profiles must be adapted accordingly.

Figure 58: Dry installation on lightweight partition wall with mounting frame AR (F30/F60) – Fastening profiles during wall assembly

Overview of the installation of the fastening profiles for subsequent mounting



a = for ø100 - ø160 use all fastening points per lug and screw them down in the UW profiles (4 pieces)!



a = for ø180 - ø500 use the two outer fastening points per lug and screw them down in the UW profiles (4 pieces)!

UW profile 50/40/06 for wall thickness = 75 mm, for larger wall thicknesses, the UW profiles must be adapted accordingly.

Figure 59: Dry installation on lightweight partition wall with mounting frame AR (F30/F60) – Fastening profiles for subsequent mounting

Dry installation under solid ceiling

- Dry installation on the lightweight partition wall is only possible for BSK-RPR-S with mounting frame AR.
- Dry installation under solid ceiling does not constitute a sliding ceiling connection, but requires additional accessories.
- The BSK-RPR can be installed with mounting frame AR at any desired position, taking into account the minimum distances in the lightweight partition wall, independently of the existing metal post profiles associated with the wall. This allows "subsequent" installation in a previously completely panelled wall.
- The distance between the fire dampers must be min. 200 mm.
- The distance from adjacent components (wall / solid ceiling) must be at least 75 mm. 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.

The proposed installation shown refers to the damper sizes ø 224 to ø 500 mm. For all other nominal sizes, installation details can be seen from page 35.

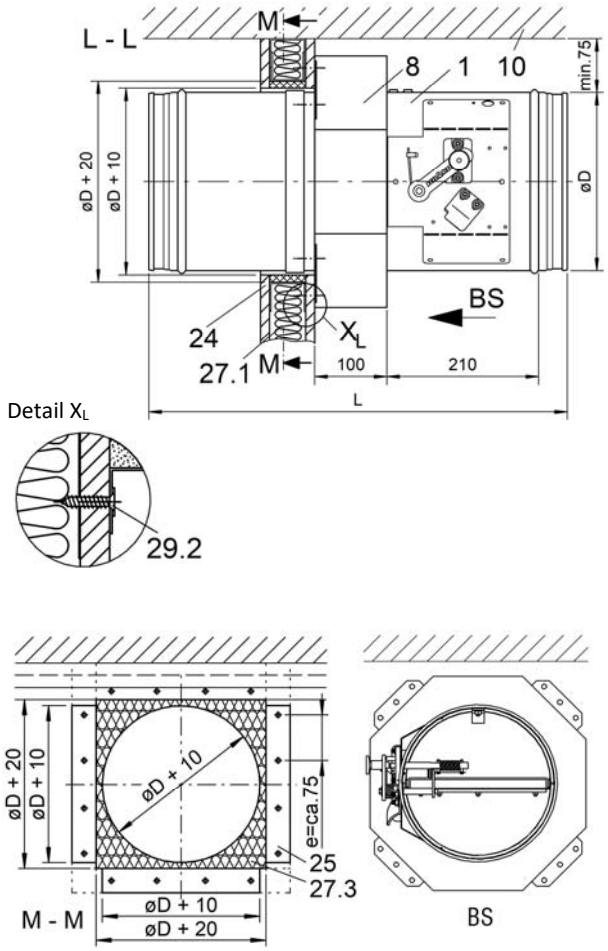


Figure 60: Dry installation on lightweight partition wall with mounting frame AR (F30/F60) under solid ceiling

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 56.
- Leave a recess for dry installation of the BSK-RPR (pos.1) along with the mounting frame AR (pos. 8) in the panelling (pos. 24) and provide mineral wool in the exchange area.
- Fill the square recess with the wall mineral wool. Slide in UW-exchange profiles (pos. 25) and screw them down (drywall screws TN 3.5x35) to the wall panelling.
- Introduce mineral wool into the exchange area according to the exchange dimensions.
- Insert the BSK-RPR along with the mounting frame AR into the recess of the wall (flush with the wall). Average out the circumferential annular gap evenly between the wall and the BSK-RPR.
- Fastening is effected on all 4 existing fixing lugs using drywall screws TN 3.5x35 and suitable U-washers (pos. 29.2) (For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).

1 Fire damper BSK-RPR
8 Mounting frame AR
10 Solid ceiling
24 Panelling of the lightweight partition wall made of gypsum-bonded wall boards
25 Profile UW 50/40/06 (for wall thickness = 100 mm; for larger wall thicknesses, the profiles must be adapted accordingly)
26 Profile CW 50/50/06 (for wall thickness = 100 mm; for larger wall thicknesses, the profiles must be adapted accordingly)
27.1 Mineral wool (according to the wall manufacturer's specifications)
27.3 Mineral wool (non-flammable according to EN 13501-1, apparent density ≥30 kg/m³, melting point ≥ 1000 °C)
29.2 Drywall screws (on site, e.g. TN 3.5 x 35 and suitable U-washers)

LIGHTWEIGHT PARTITION WALLS WITH PANELLING ON ONE SIDE AND WALL THICKNESS W ≥ 125 MM

- Installation in lightweight partition walls (shaft walls) with metal posts and panelling on one side (gypsum-bonded wall boards; wall thickness ≥ 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, nominal sizes 100 to ≤ 250

- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance from adjacent components must be at least 85 mm from the wall and 75 mm from the solid 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.

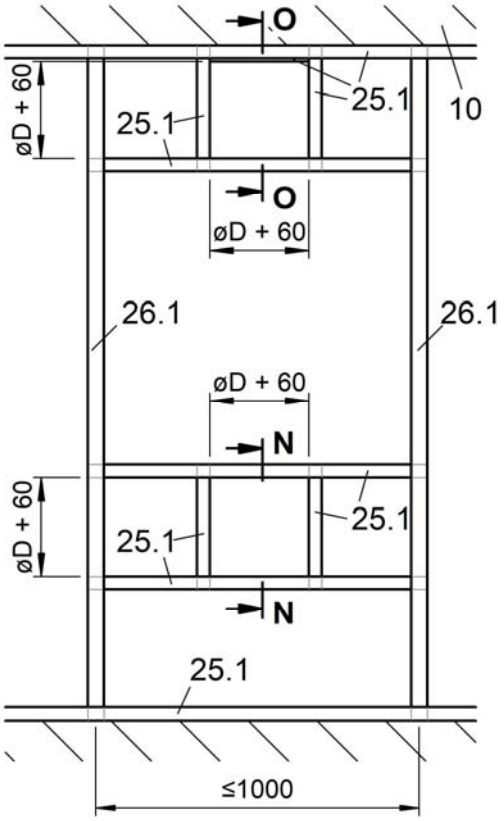


Figure 61: Metal posts plus required exchange parts (shaft wall) for wet installation (BSK-RPR 100 to ≤ 250)

Mountinginformation:
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.

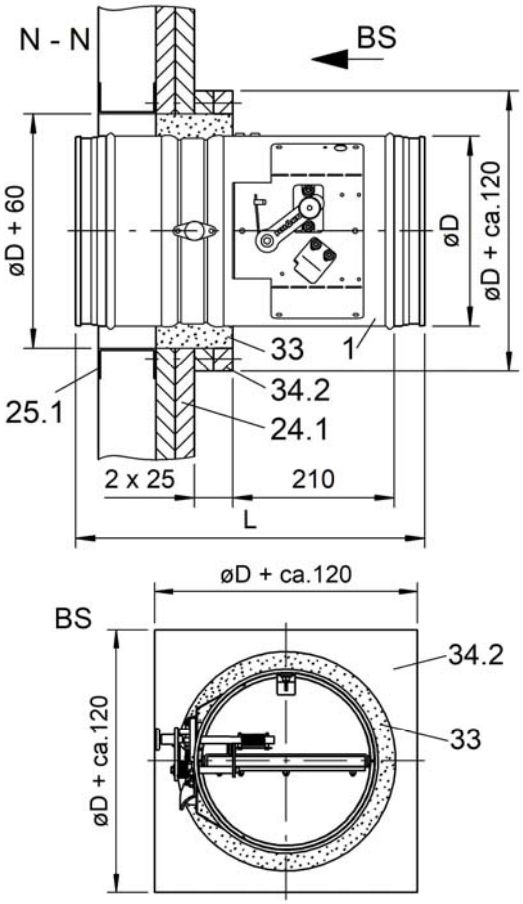


Figure 62: Wall panelling and double-board layers (shaft wall) BSK-RPR nominal sizes 100 to ≤ 250

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 61.
- Mount the wall panelling (pos. 24.1) and double-board layer (pos. 34.2) and drill the installation opening for installation of the BSK-RPR.
- If desired, mount a filling stop on the non-operating side of the BSK-RPR (pos. 1) (Must not be screwed to the housing of the BSK-RPR! - The filling stop is not required by fire protection regulations).
- Mount the BSK-RPR with the help of mounting suspensions, etc.
- Insert the BSK-RPR 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 BSK-RPR.
- Carry out the joint filling with the jointing material of the wall (pos. 33). The connection and butt joints of the double-board layers must also be filled with the jointing material of the wall.
- Remove mounting aids (mounting suspensions etc.)

Wet installation of a fire damper under solid ceiling, nominal sizes 100 to ≤ 250

- Installation under the solid ceiling must be carried out during assembly of the wall and does not constitute a sliding ceiling connection.

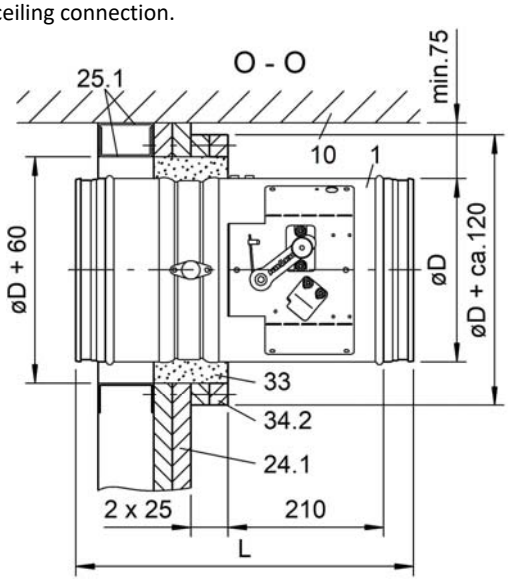


Figure 63: Wet installation in shaft wall under solid ceiling (BSK-RPR 100 to ≤ 250)

1 Fire damper BSK-RPR
10 Solid ceiling
24.1 Panelling (on one side) of the shaft wall made of gypsum-bonded wall boards. The specifications of the wall manufacturer must be observed.
25.1 Profile UW 75/40/06 - 150 profiles
26.1 Profile CW 75/50/06 - 150 profiles
33 Plaster joint filling with jointing material of the wall
34.2 Double-board layer (gypsum-bonded wall boards, 2 x d=25 mm)

- First double-board layer, fastening: Drywall screws, for example, ø 4.2x90, a ≤ 300 mm, or at least 2 screws per side, connection and butt joints of the double-board layers must be filled with the jointing material of the wall.
- Second double-board layer, fastening: Drywall screws, for example, ø 5.1x110, a ≤ 200 mm, or at least 2 screws per side, connection and butt joints of the double-board layers must be filled with the jointing material of the wall.

Installation procedure

- Mount the metal posts and the wall according to the wall manufacturer's specifications and provide the exchange parts as shown on Figure 61 (mount the wall UW-profile (pos. 25.1) on the ceiling and attach the UW-profile necessary for the circumferential metal profile frame in the ceiling area).
- Mount the wall panelling (pos. 24.1) and double-board layer (pos. 34.2) and drill the installation opening for installation of the BSK-RPR.
- If desired, mount a filling stop on the non-operating side of the BSK-RPR (pos. 1) (Must not be screwed to the housing of the BSK-RPR! - The filling stop is not required by fire protection regulations).
- Mount the BSK-RPR with the help of mounting suspensions, etc.
- Insert the BSK-RPR 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 BSK-RPR.
- Carry out the joint filling with the jointing material of the wall (pos. 33). The connection and butt joints of the double-board layers must also be filled with the jointing material of the wall.
- Remove mounting aids (mounting suspensions etc.)

Dry installation of a fire damper

- Dry installation on a shaft wall panelled on one side is only possible for BSK-RPR-S with mounting frame AR.
- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance from adjacent components (wall / solid ceiling) must be at least 75 mm. 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.

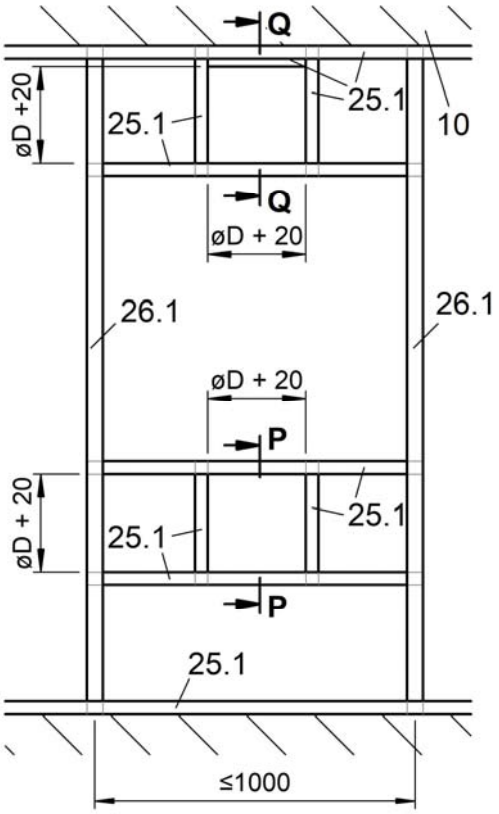


Figure 64: Metal posts plus required exchange parts for dry installation with mounting frame AR

Mountinginformation:
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.

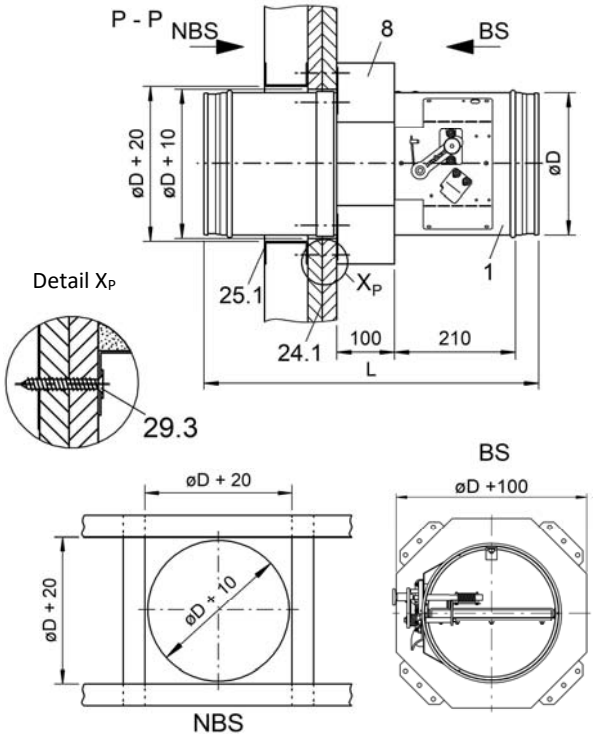


Figure 65: Dry installation on shaft wall with mounting frame AR

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 64.
- Mount the wall panelling (pos. 24.1) and drill an installation opening for installation of the BSK-RPR (pos. 1) with mounting frame AR (pos. 8).
- Insert the BSK-RPR along with the mounting frame AR into the recess of the wall (flush with the wall). Average out the annular gap evenly between the circumferential metal profiles of the wall and the housing of the BSK-RPR.
- Fastening is effected on all 4 existing fixing lugs using drywall screws, for example, TN 4.5x70 and suitable U-washers (pos. 29.3) (For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).

Dry installation of a fire damper under a solid ceiling

- Dry installation on a shaft wall panelled on one side is only possible for BSK-RPR-S with mounting frame AR.
- The minimum distance between the fire dampers must be at least 200 mm.
- The minimum distance from adjacent components (wall / solid ceiling) must be at least 75 mm. 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.

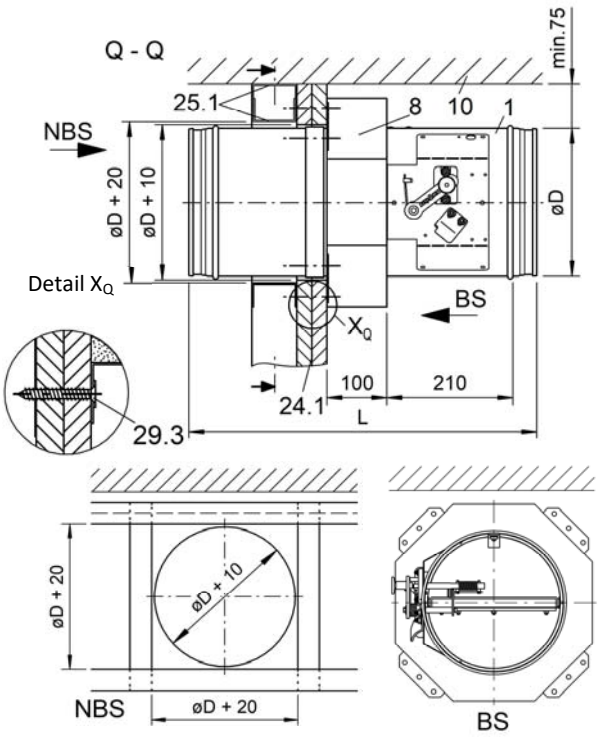


Figure 66: Dry installation on shaft wall with mounting frame AR under solid ceiling

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 64.
- Mount the wall panelling (pos. 24.1) and drill an installation opening for installation of the BSK-RPR (pos. 1) with mounting frame AR (pos. 8).
- Insert the BSK-RPR along with the mounting frame AR into the recess of the wall (flush with the wall). Average out the annular gap evenly between the circumferential metal profiles of the wall and the housing of the BSK-RPR.
- Fastening is effected on all 4 existing fixing lugs using drywall screws, for example, TN 4.5x70 and suitable U-washers (pos. 29.3) (For nominal sizes 100 - 160 all existing bores of the fixing lugs and for nominal sizes 180 - 500 the two outer bores of each fixing lug must be used).

1 Fire damper BSK-RPR
8 Mounting frame AR
10 Solid ceiling
24.1 Panelling (on one side) of the shaft wall made of gypsum-bonded wall boards. The specifications of the wall manufacturer must be observed.
25.1 Profile UW 75/40/06 - 150 profiles
26.1 Profile CW 75/50/06 - 150 profiles
29.3 Drywall screws (on site, e.g. TN 4.5 x 70 and suitable U-washers)

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, security grilles made of non-flammable building materials (EN13501-1) must be provided on opposite sides. 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

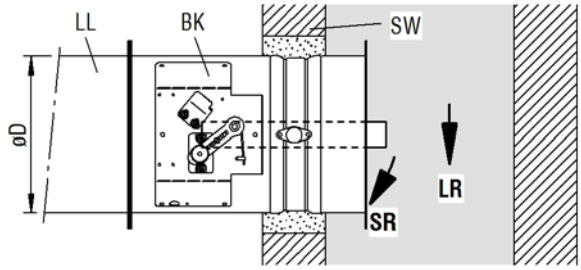


Figure 67: Connection example of a ventilation duct in solid shaft walls

With ventilation duct arranged on one side and security grille

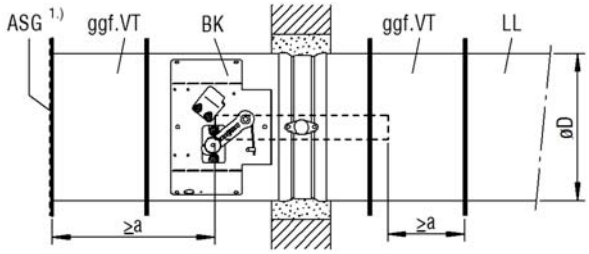


Figure 68: Connection example of a ventilation duct arranged on one side and security grille

On both sides with ventilation ducts

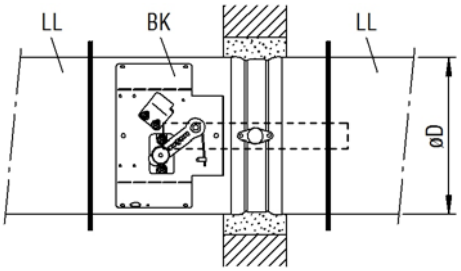


Figure 69: Connection example of ventilation ducts on both sides

On both sides with flexible spigot and ventilation ducts

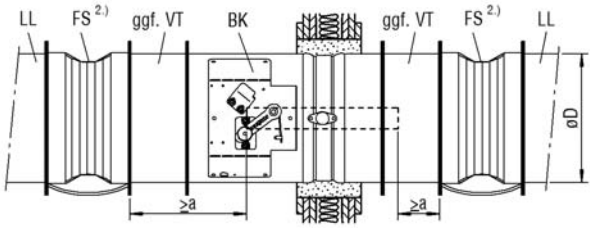


Figure 70: Connection example on both sides with flexible spigot and ventilation ducts

BK	Fire damper BSK-RPR
ASG	Security grille, type ASG-RF/ASG-RS
VT	Extension piece type VT-RF
FS	Flexible spigot type FS-RF / FS-RS
LL	Ventilation duct
SW	Shaft wall
SR	Closing direction
LR	Air flow direction
BS	Operating side
NBS	Non-operating side

1.) made of non-combustible building materials (EN 13501-1)
2.) min. standard flammable according to EN 13501-1

„a“	=50mm	Minimum distance between the front edge of the open damper blade and the security grille (ASG-RF/RS) or the flexible spigot (FS-RF/RS)

Suspension of the fire damper for dry installation with mounting frame AR away from solid walls

The suspensions have to be executed with sufficiently dimensioned threaded rods. Starting with suspension lengths I ≥ 1500 mm (lower edge of raw ceiling to lower edge of duct), suspensions and pole braces must be fitted with a fire protection insulation. Execution in accordance with the manufacturer's specifications for the system selected in each case.

Pole brace bearing

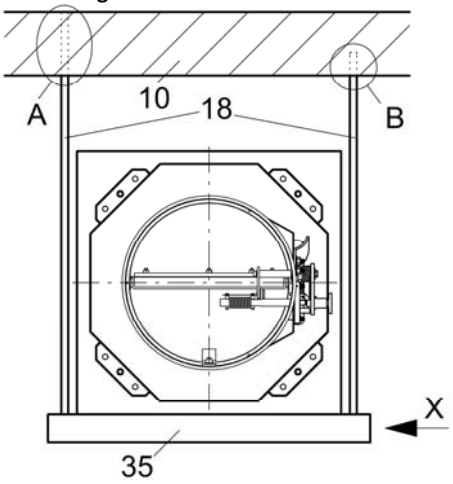
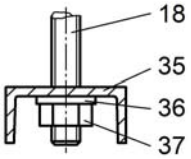


Figure 71: Pole brace bearing

View X



The tension rod distance must be selected in such a way that the tension rods are situated as closely as possible to the insulation. Fastening of the tension rods to mounting rails must be done in undamaged exterior

Figure 72: Detail of pole brace

Continuous fastening (detail A)

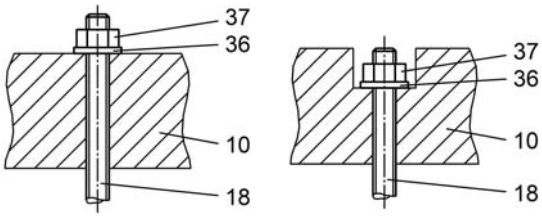


Figure 73: Continuous fastening for solid ceilings

Dowel fastening (detail B)

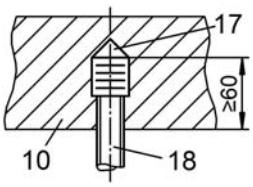


Figure 74: Dowel fastening in solid ceilings

Dowels that are suitable according to fire protection standards must be dimensioned and built in accordance with the corresponding approval document or test certificate. Dowels that do not meet this standard must be made of steel and have a minimum nominal diameter of M8. The minimum mounting depth must be twice as high as requested in the approval certificate in question, but be at least 60 mm deep and have a max. tensile load ≤ 500 N.

10 Solid ceiling
17 Fastening by means of fasteners with proven fire protection
18 The suspensions have to be executed with sufficiently dimensioned threaded rods
35 Hilti MQ 41/3 or equivalent or U-profile 50 to DIN 1026
36 Washer EN 7089/7090
37 Hexagon nut to EN ISO 4034

Table "Admissible load F_{zul} [N] for suspensions – tension rods made of steel threaded rods, for a fire resistance duration of 90 minutes"

Size	per unit	per pair
M8	220	440
M10	348	696
M12	506	1012
M14	690	1380
M16	942	1884
M20	1470	2940

Table 6: Allowed loads

Calculated tensile stresses in suspensions ≤ 6 N/mm² and calculated shear stresses ≤ 10 N/mm²

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

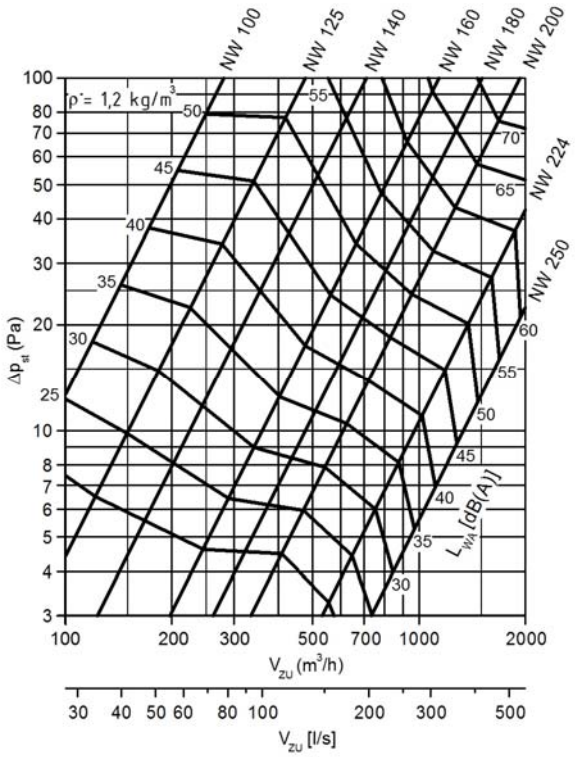
The suspensions have to be executed with sufficiently dimensioned threaded rods. Starting with a length I ≥ 1500 mm, suspensions must be fitted with a fire protection insulation. Execution in accordance with the manufacturer's specifications for the system selected in each case.
Dowels that are suitable according to fire protection standards must be dimensioned and built. Dowels that do not meet these standards must be made of steel and have a minimum nominal diameter of M8. The minimum mounting depth must be twice as high as requested in the approval certificate in question, but be at least 60 mm deep. The max. tensile stress should be limited to ≤ 500 N.
Calculated tensile stresses in suspensions ≤ 6 N/mm² and calculated shear stresses ≤ 10 N/mm².
The fire damper must be permanently suspended from the solid ceiling on both sides of the wall.
The threaded rods must be attached to the solid ceiling in a movable manner. 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.

TECHNICAL DATA

Pressure loss and noise level

Pressure loss and flow generated noise
BSK-RPR (without security grille)

Nominal sizes 100 to ≤ 250



Nominal sizes > 250 to 500

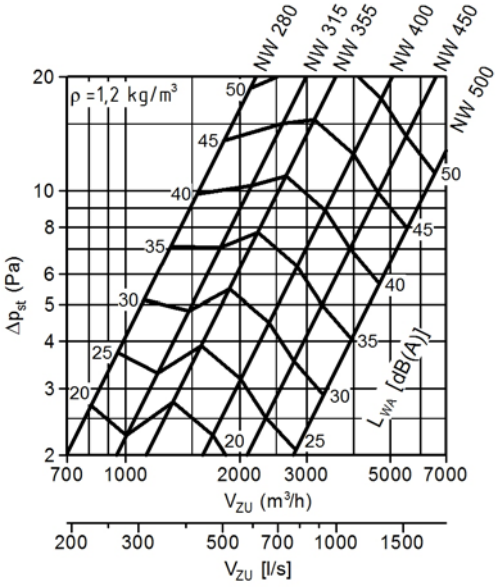
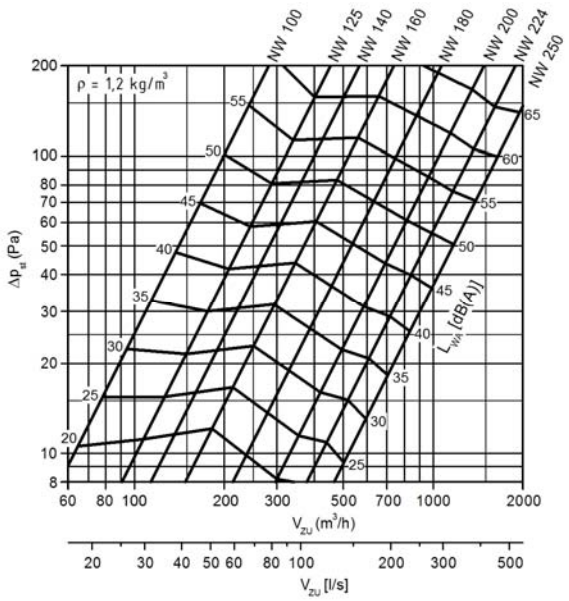


Diagram 1: Pressure loss and flow generated noise without security grille

Application limits:
max. operating pressure of 1000 Pa at v_{face} ≤ 10 m/s.

Pressure loss and flow generated noise
BSK-RPR (with security grille type ASG, on one side)

Nominal sizes 100 to ≤ 250



Nominal sizes > 250 to 500

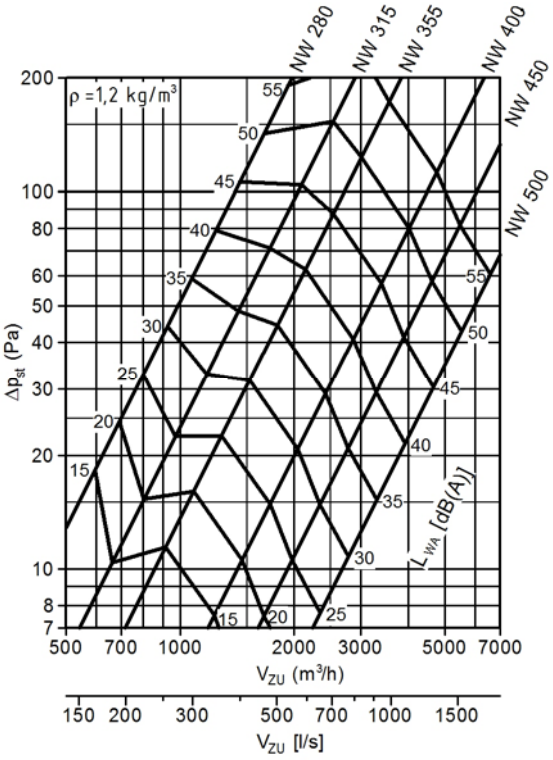
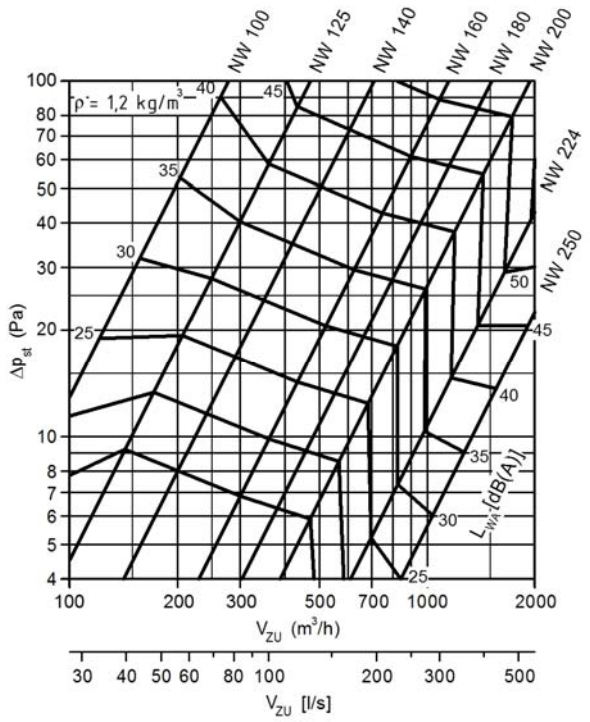


Diagram 2: Pressure loss and flow generated noise without security grille on one side

Application limits:
max. operating pressure of 1000 Pa at v_{face} ≤ 10 m/s.

Pressure loss and radiated noise

Nominal sizes 100 to ≤ 250



Nominal sizes > 250 to 500

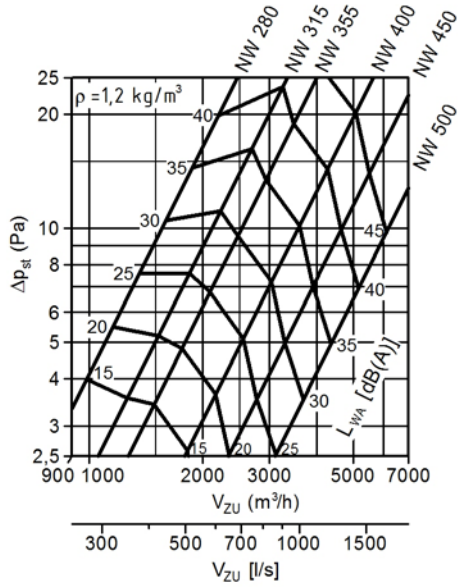


Diagram 3: Pressure loss and radiated noise

Application limits:
max. operating pressure of 1000 Pa at v_{face} ≤ 10 m/s.

Free cross-section [m²]

Nominal size	Ø [mm]	Free cross-section [m²]
100	98	0.0046
125	123	0.0081
140	138	0.0107
160	158	0.0147
180	178	0.0193
200	198	0.0246
224	222	0.0317
250	248	0.0404
280	278	0.0492
315	313	0.0641
355	353	0.0836
400	398	0.1086
450	448	0.1401
500	498	0.1755

Table 7: Free cross-section [m²]

Weight table [kg]

Nominal size	øD [mm]	L=455				L=580			
		Manual release		Spring return actuator		Manual release		Spring return actuator	
100	**98**	2.44	6.73 [1)]	3.89	8.18 [1)]	2.74	7.03 [1)]	4.19	8.48 [1)]
125	**123**	2.83	7.69 [1)]	4.28	9.14 [1)]	3.21	8.07 [1)]	4.66	9.52 [1)]
140	**138**	3.06	8.27 [1)]	4.51	9.72 [1)]	3.49	8.70 [1)]	4.94	10.15 [1)]
160	**158**	3.35	9.02 [1)]	4.80	10.47 [1)]	3.84	9.51 [1)]	5.29	10.96 [1)]
180	**178**	3.65	9.79 [1)]	5.10	11.24 [1)]	4.20	10.34 [1)]	5.65	11.79 [1)]
200	**198**	3.97	10.59 [1)]	5.42	12.04 [1)]	4.59	11.21 [1)]	6.04	12.66 [1)]
224	**222**	4.37	11.58 [1)]	5.82	13.03 [1)]	5.07	12.28 [1)]	6.52	13.73 [1)]
250	**248**	4.80	12.62 [1)]	6.25	14.07 [1)]	5.58	13.40 [1)]	7.03	14.85 [1)]
280	**278**	6.31	16.55 [1)]	7.79	18.03 [1)]	7.17	17.41 [1)]	8.56	18.89 [1)]
315	**313**	7.14	18.40 [1)]	8.62	19.88 [1)]	8.13	19.39 [1)]	9.61	20.87 [1)]
355	**353**	8.08	20.53 [1)]	9.56	22.01 [1)]	9.19	21.64 [1)]	10.67	23.12 [1)]
400	**398**	9.09	22.89 [1)]	10.57	24.37 [1)]	10.34	24.14 [1)]	11.82	25.62 [1)]
450	**448**	10.50	25.84 [1)]	11.98	27.32 [1)]	11.91	27.25 [1)]	13.39	28.73 [1)]
500	**498**	11.85	28.75 [1)]	13.33	30.23 [1)]	13.42	30.32 [1)]	14.90	31.80 [1)]

Table 8: Weight table [kg] BSK-RPR-S

[1)] approx. weight with additional mounting frame

Nominal size	øD [mm]	L=375		L=500	
		Manual release	Spring return actuator	Manual release	Spring return actuator
100	**98**	2.49	3.94	2.80	4.25
125	**123**	2.89	4.34	3.29	4.74
140	**138**	3.13	4.58	3.57	5.02
160	**158**	3.43	4.88	3.93	5.38
180	**178**	3.74	5.19	4.31	5.76
200	**198**	4.07	5.52	4.70	6.15
224	**222**	4.48	5.93	5.19	6.64
250	**248**	4.93	6.38	5.71	7.16
280	**278**	6.45	7.93	7.33	8.81
315	**313**	7.30	8.78	8.29	9.77
355	**353**	8.26	9.74	9.37	10.85
400	**398**	9.29	10.77	10.55	12.03
450	**448**	10.73	12.21	12.14	13.62
500	**498**	12.10	13.58	13.67	15.15

Table 9: Weight table [kg] BSK-RPR-F

All data given are approximate

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-containing two-component top coat based on polyurethane varnish - RAL 7035/light grey) inside/outside (replaceable, non-coated parts 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, B42, S00/S01, X10/X11/X12/X13/X14/X15, J30/J31/J40 upon request
- 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 [3.)]
- Assembly part type REBT for smoke detector RMSII-L of the smoke detection system type RMS

- Signaling and switching bus system type EasyBus [3.)]
- Fire damper mini-controller BKSYS [3.)]
- Extension piece type VT-RF [1.)]
- Duct connection spigot type RS [1.)]
- Flexible spigot type FS-RF/FS-RS; PVC (normally inflammable to EN 13501-1), connection profile made of sheet steel with FS-RF [2.)]
- Security grille type ASG-RF/ASG-RS [1.)]

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 mm². 250 V AC, I_e 6A, IP67 -using suitable cable glands M20 (on site).

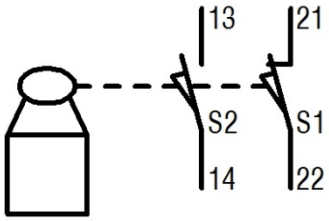


Figure 75: Circuit diagram limit switch type ES

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

II 2G Ex d IIC T6/T5 Gb,

II 2D Ex tb IIIC T 80°C/ 95°C Db

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

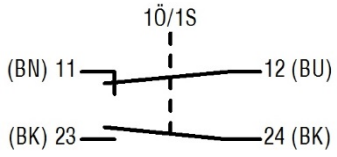


Figure 76: Circuit diagram limit switch type ES-Ex

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")

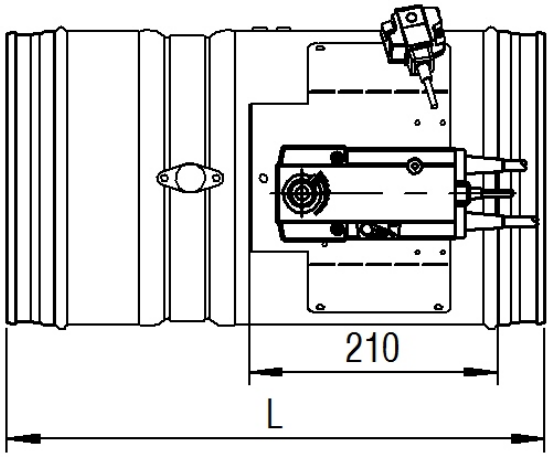
Limit switch type EasyF-ETX

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

Spring return actuators B10/B11

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



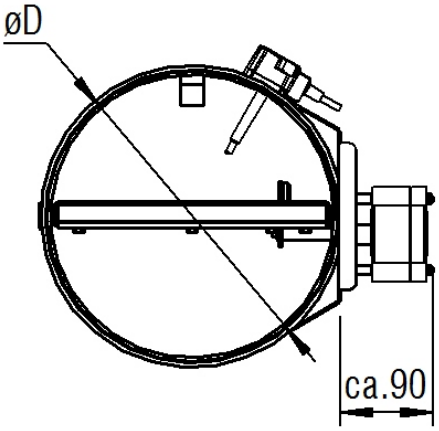


Figure 77: BSK-RPR with spring return actuator B10/B11

Connection diagram B10/B11

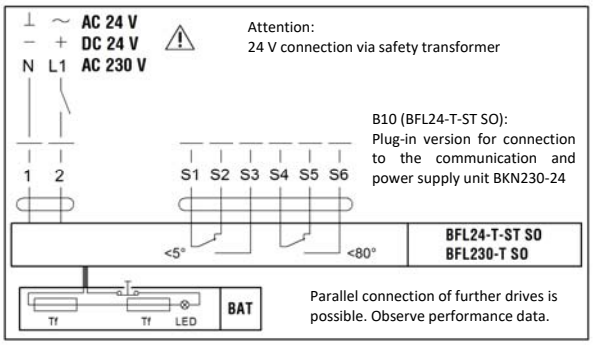


Figure 78: Connecting diagram B10/B11

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

Electric spring return actuator with thermoelectric release device BAT.

- 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 °C) respond. Reaction of the thermal fuses interrupts the supply voltage permanently.
- Display of the damper end positions is possible by means of integrated micro switches via potential-free changeover contacts (S1 – S3 "CLOSED" indicates the closed position; S4 – S6 "OPEN" indicates the opened 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 internal duct temperature fuse from the thermoelectric release device and replace it with a new internal duct temperature fuse (ZBAT...). Screw the thermo-electrical release 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

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

Actuator type	**B10** (BFL24-T-ST SO)	**B11** (BFL230-T SO)
Rated voltage [V]	AC/DC 24	AC 230
Rated voltage frequency [Hz]	50/60	
Functional range [V]	AC 19.2…28.8 / DC 21.6…28.8	AC 198…264
Power consumption during operation [W]	2.5	3.5
Power consumption in idle position [W]	0.8	1.1
Power consumption/dimensioning	4 VA / I_{max} 8.3 A @ 5 ms	6.5 VA / I_{max} 4 A @ 5 ms
Auxiliary switch	2 x EPU	
Switching capacity of auxiliary switch	1 mA…3 (0.5 inductive) A, AC 250 V	
Connection of supply / control	Cable 1 m, 2 x 0.75 mm² (halogen-free) + 3-pin connector	
Auxiliary switch connection	Cable 1 m, 6 x 0.75 mm² (halogen-free) + 6-pin connector	
Motor runtime	<60 s /90°	<60 s /90°
Spring return runtime	20 s @ -10…55°C / <60 s @ -30…-10°C	
Protection class IEC/EN	Safety extra low voltage III	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	
Storage temperature	-40…55°C	
Ambient humidity	95% r.H., non-condensing	

Table 10: Technical data B10/B11

Spring return actuators S00/S01

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

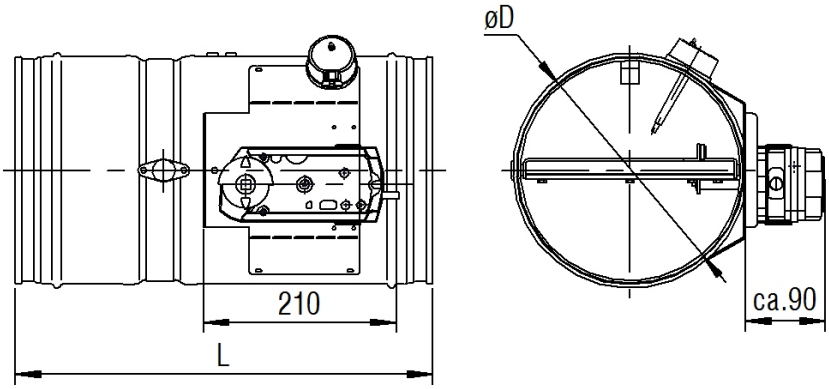
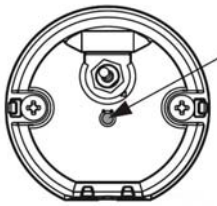


Figure 79: BSK-RPR with spring return actuator S00/S01

LED functions

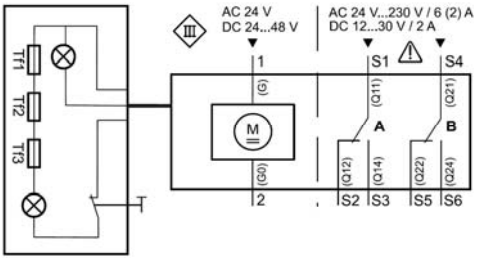


○ red = operating voltage OK
Thermal sensor defective
○ green = operating voltage OK
Thermal sensor OK
● dark = no operating voltage

Figure 80: LED functions of spring return actuators S00/S01

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

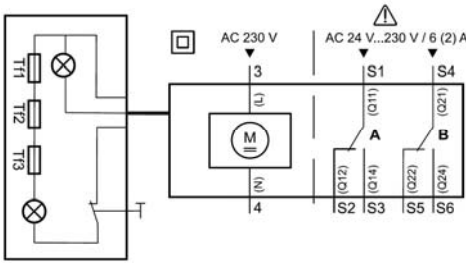
Connection diagram
Spring return actuator S00 (24V AC/ 24…48V DC)



AC 24 V
DC 24…48 V
(SELV/PELV)

Figure 81: Connection diagram S00

Connection diagram
Spring return actuator S01 (230V AC)



AC 230 V

Figure 82: Connection diagram S01

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

Table 11: Cable designation S00/S01

Electric spring return actuator with temperature monitoring unit

- 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.
- Display of the damper end positions is possible by means of integrated auxiliary switches via potential-free changeover contacts (S1 - S3 "CLOSED" indicates the closed position; S4 - S6 "OPEN" indicates the 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.

Technical data S00/S01

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

Actuator type	**S00** (GRA126.1E/SO3)	**S01** (GRA326.1E/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	7 VA / 4.5 W
Power consumption in idle position	AC/DC: 2 W	3.5 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 mm² (halogen-free) + 3-pin connector	
Auxiliary switch cable (wires S1…S6)	Cable 0.9 m, 6 x 0.75 mm² (halogen-free) + 6-pin connector	
Motor runtime (angle of rotation 90°) [s]	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 12: Technical data S00/S01

Spring return actuator B42

B42 (BF24TL-TN-ST SO; Top Line)

Connection diagram

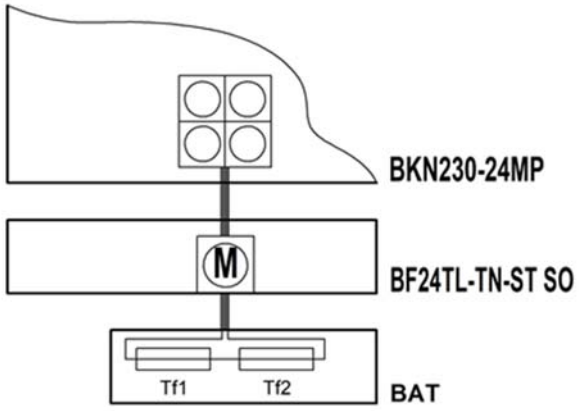


Figure 83: Connection diagram B42

Electric spring return actuator with thermoelectric release device BAT72TL.

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

Further technical information available upon request.

Spring return actuator ExMax-5.10-BF

ExMax-5.10-BF (**X10 - X15**)

Explosion-protected electric spring return actuator with safety temperature limiter (FireSafe or ExPro-TT).

- Release temperature (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 BSK-RPR operating instructions according to ATEX 2014/34/EU.

MAGNETS

Magnetic clamps MH1/MH2 and pulse magnets MI1/MI2

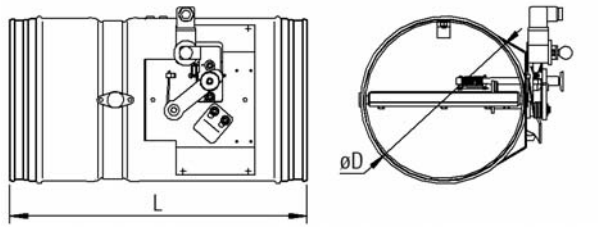


Figure 84: Magnetic clamp/pulse magnet (MH1/MH2/MI1/MI2) mounted to BSK-RPR (shown with optional accessories)

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:

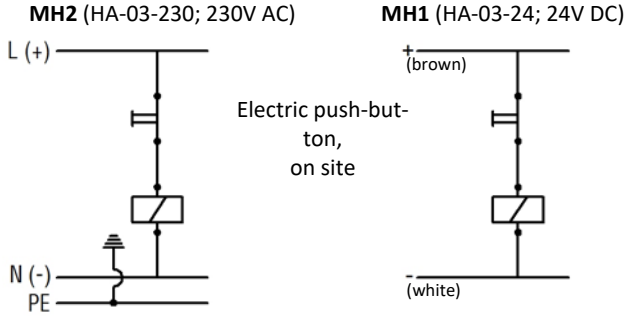


Figure 85: Wiring information magnetic clamps MH1/MH2

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 magnet IM-03-24 / IM-03-130

Wiring information:

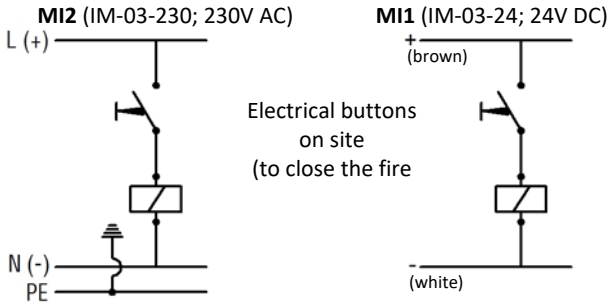


Figure 86: Wiring information pulse magnets MI1/MI2

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-RS/-RF

FS-RS

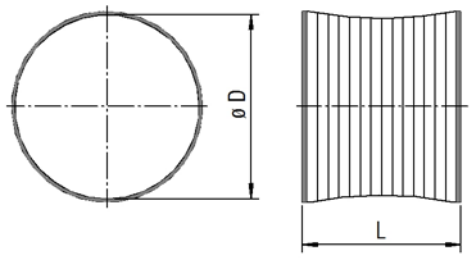


Figure 87: Flexible spigot type FS-RS

FS-RF

For information on the flange bores (BSK-RPR-F) see Figure 8 / Table 2 page 6 .

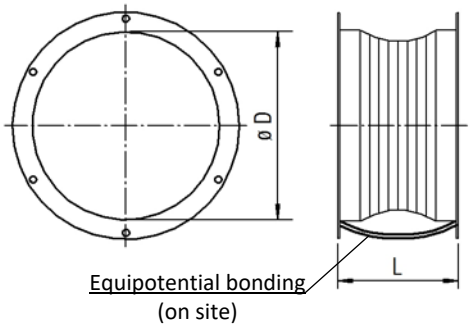


Figure 88: Flexible spigot type FS-RF

- 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-RS/-RF) 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 (galvanised sheet steel for FS-RF) or without profiled connection flanges (FS-RS) with elastic intermediate piece made of polyester fabric PVC-coated on both sides, normally inflammable to EN 13501-1, with welded lip seals (tightness class C to EN 13180 / EN 1507; temperature-resistant from -20°C to +80°C). The flexible part of the spigot (polyester fabric) must have a minimum length L_{min} of 100 mm when mounted, resulting in an installation dimension of approx. L = 160 mm for type FS-RF and an installation dimension of approx. L = 190 mm for type FS-RS. 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-RF

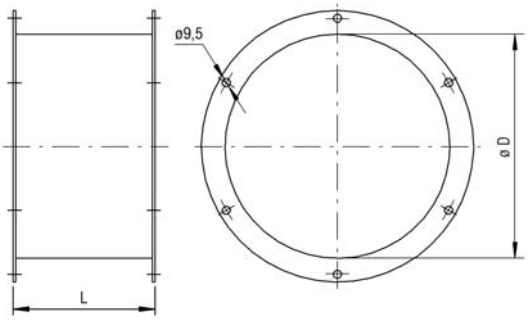


Figure 89: Extension piece type VT-RF

- Extension part 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 leaf when fitting a security grille type ASG or a flexible spigot type FS.

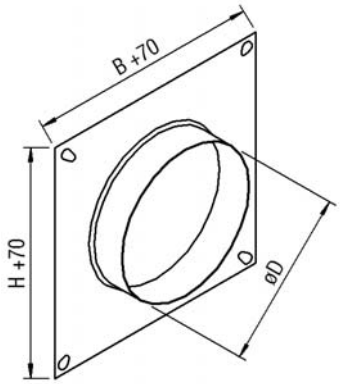
For information on the flange bores (BSK-RPR-F) see Figure 8 / Table 2 page 6.

Nominal size	øD [mm]	L [mm]	
100	98		The dimension depends on the nominal size.
125	123		
140	138		
160	158		
180	178		
200	198		
224	222	160	
250	248		
280	378		
315	313		
355	353		
400	398		
450	448		
500	498	190	

Table 13: Length of the extension piece type VT-RF as a function of the fire damper size

An extension piece for the BSK-RPR-S must be provided **on site** (e.g. duct piece).

Duct connection spigot type RS



B x H	øD
200x200	98 - 198
225x225	223
250x250	248
325x325	278 - 313
375x375	353
400x400	398
450x450	448
500x500	498

The spigot diameter øD must be smaller then the smallest side dimension (width(B)/height(H)). Further dimensions are available upon request.

Figure 90: Duct connection spigot type RS

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

Security grille type ASG-RS/-RF

ASG-RS for BSK-RPR-S

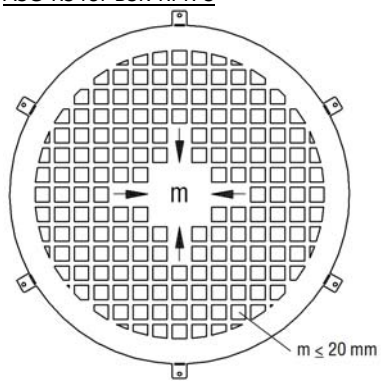


Figure 91: Security grille type ASG-RS

ASG-RF for BSK-RPR-F

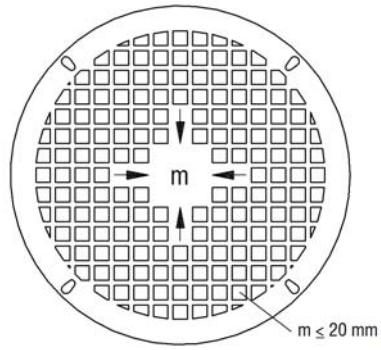


Figure 92: Security grille type ASG-RF

- Wire or punch grille with a mesh size of ≤ 20 mm
- Intended use:
  to be fitted for one-sided connection
- Remember that the minimum distance to the open damper leaf a_{min} is 50 mm, if necessary, use extension piece

Installation kit GDL

Consisting of baffle plates, mineral wool, incl. fastening material (without ceiling fastener) and spacer, for installation of the BSK-RPR with AR (absolutely required) 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 sliding ceiling connections (sliding/ceiling bending ≤ 20 mm).
The exact wall thickness/es must be taken into account and specified when ordering.

Position indicator type MSZ

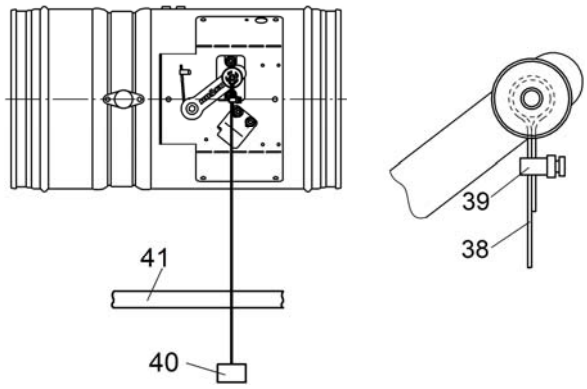


Figure 93: Position indicator type MSZ

- Galvanised steel cable (pos. 38) with clamping nipple (pos. 39) and position indicator (pos. 40) made of plastic material. The steel cable and position indicator must be mounted perpendicularly.
- Intended use:
  Mechanical position indicator for false ceilings (pos. 41). Usable for each mechanically operated BSK-RPR with hand lever.

38	Steel cable -galvanised-	40	Position indicator
39	Clamping nipple	41	False ceilings

Legend

V_{ZU}	(m³/h) [l/s]	=	Supply air volume
Δp_{st}	(Pa)	=	Static pressure
L_{WA}	[dB(A)]	=	A-weighted sound power level
v_{stirn}	(m/s)	=	Face velocity
ρ	(kg/m³)	=	Density
B	(mm)	=	Width
H	(mm)	=	Height
min.		=	at least
or		=	or
approx.		=	approximately
BS		=	Operating side
NBS		=	Non-operating side
OK		=	OKAY

CE MARKING

CE 0761	12
SCHAKO Klima-Luft **Ferdinand Schad KG** **Weidenäcker 9** **D-88605 Meßkirch** 2020 DoP-BSK-RPR-2020-09-01	
EN 15650:2010 Fire Damper Type/version **BSK-RPR**	
Nominal conditions of activation / sensitivity: - Load bearing capacity of the temperature-sensitive measuring sensor - Response temperature of the temperature-sensitive measuring sensor	passed
Response delay (Response time): - Closing time	passed
Operational safety: - Cyclic testing (50 cycles)	passed
Fire resistance: - Cross-section maintained	
- Integrity E - Heat insulation I - Smoke leakage S - Mechanical strength (under E) - Cross-section (under E)	EI 90 (v_e, h_o i↔o) S
Durability of the response delay: - temperature-sensitive measuring sensor Response temperature and load bearing capacity	passed
Durability of the operational safety: - Test of the opening and closing cycle	passed

ORDER CODE

01	02	03	04	05	06
Type	Model	Nominal size	Length	Material (housing)	Coating (housing)
Example					
BSKRPR	-S	-200	-580	-SV	-1

07	08	09	10	11	12
Damper blade version	Release temperature	Actuator type	Accessories	Additional frame	Field modules
-2	-72	-B10	-Z00	-R04	-22

EXAMPLE
BSKRPR-S-200-580-SV-1-2-72-B10-Z00-R04-22
Type **BSKRPR** = Fire damper BSK-RPR | Model = **S** (plug-in connection) | Nominal size = **200** mm | Length = **580** mm | Material (housing) **SV** = Galvanised sheet steel | Coating (housing) **1** = DD coating inside | Damper leaf version **2** = coated with DD paint | Release temperature **72** = 72 °C | Type of drive **B10** = type BFL24-T-ST SO | Accessories **Z00** = without accessories | Additional frame **R04** = Mounting frame AR | Field module **22** = EasyF-ADC-MASD-01 (corresponds to the module mounted to BSK incl. connection to the drive unit, with flat cable connection, with addressing)

ORDER DETAILS

01 - TYPE

BSKRPR = BSK-RPR

02 - MODEL

S = Plug-in connection
F = Flanged connection

03 - NOMINAL SIZE

100 - 125 - 140 - 160 - 180 - 200 - 224 - 250 - 280 - 315 - 355 - 400 - 450 - 500
in mm - always three digits

04 - LENGTH

580 or. 455 (-S model)
500 or. 375 (-F model)
in mm - always three digits

05 – MATERIAL (HOUSING)

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

06 – COATING (HOUSING)

0 = Without coating
1 = DD coating, inside (RAL7035)
3 = DD coating inside and outside (RAL7035)

07 - DAMPER BLADE VERSION

0 = Without coating
2 = DD coating

08 – RELEASE TEMPERATURE

72 = 72°C
98 = 98(95)°C

09 - ACTUATOR TYPE

HAN = thermo-mechanical manual release *
B10 = BFL24-T-ST SO *
B11 = BFL230-T SO *
B42 = BF24TL-TN-ST SO *
S00 = GRA126.1E/SO3 (24V)*
S01 = GRA326.1E/SO2 (230V)*
J30 = SFL 1.90 T / 12 (24V) *
J31 = SFL 2.90 T / 12 (230V) *
J40 = SFL 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 connection with the respective module, e.g. safety module BSLC (provided on site); suitable for all dimension combinations*

10 - ACCESSORIES

Z00 = without accessories
ZB0 = BKN230-24 ** (suitable for B10)
ZB3 = BKN230-24-C-MP (suitable for B10)
ZB4 = BKN230-24-MOD (suitable for B10)
ZB5 = BKN230-MOD (suitable for B11)
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 HAN/MH1+2/MI1+2)
EZA = ES-2Z/A (limit switch Closed/Open; suitable for HAN/MH1+2/MI1+2))
ETZ = EasyF-ETX (radio limit switch, position CLOSED; (suitable for field modules 40-43 and 50-53) ***
ETA = EasyF-ETX (radio limit switch, position OPEN; (suitable for field modules 40-43 and 50-53) ***
ETX = EasyF-ETX radio limit switch (limit switch position OPEN + CLOSED; suitable for field modules 40-43 and 50-53) ***

*** 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
R04 = Mounting frame AR (only ex works with -S model) [II)]

R20 = Installation kit type GDL (for wall thickness = 100 mm, metal post, includes R04) [I)]
R21 = Installation kit type GDL (for wall thickness = 120 mm, metal post, includes R04) [I)]
R22 = Installation kit type GDL (for wall thickness = 125 mm, metal post, includes R04) [I)]
R23 = Installation kit type GDL (for wall thickness = 140 mm, metal post, includes R04) [I)]
R24 = Installation kit type GDL (for wall thickness = 150 mm, metal post, includes R04) [I)]
R25 = Installation kit type GDL (for wall thickness = 160 mm, metal post, includes R04) [I)]
R26 = Installation kit type GDL (for wall thickness = 175 mm, metal post, includes R04) [I)]
R27 = Installation kit type GDL (for wall thickness = 205 mm, metal post, includes R04) [I)]

[I)] Additional frame supplied loose
[II)] Additional frame mounted ex works

12 – FIELD MODULES

00 = without field module
01 = Preparation of mounting console for field module (only mounting plate mounted to BSK-RPR, but without field module!)

10 = BKSYS-ADM (module mounted to BSK-RPR, incl. connection to drive unit)

<u>24V drive module</u>
20 = EasyF-ADC-MASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, without addressing)
21 = EasyF-ADC-OASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, without flat cable connection, without addressing)
22 = EasyF-ADC-MASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)
23 = EasyF-ADC-OASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)

<u>230V drive module</u>
30 = EasyF-ADC-MASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, without addressing)
31 = EasyF-ADC-OASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, without flat cable connection, without addressing)
32 = EasyF-AAC-MASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)
33 = EasyF-AAC-OASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)

<u>Input/output modules for up to 4 limit switches</u>
40 = EasyF-IOM-MASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, without addressing)
41 = EasyF-IOM-OASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, without flat cable connection, without addressing)
42 = EasyF-IOM-MASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)
43 = EasyF-IOM-OASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)

<u>Input modules for up to 8 limit switches</u>
50 = EasyF-I8M-MASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, without addressing)
51 = EasyF-I8M-OASD-00 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, without addressing)
52 = EasyF-I8M-MASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)
53 = EasyF-I8M-OASD-01 (module mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)

SPECIFICATION TEXTS

The fire damper BSK-RPR conforms to the product standard EN 15650.
The BSK-RPR has been tested according to EN 1366-2. CE marking and Declaration of Performance (DoP) in accordance with the German Construction Products Regulation.
Its classification according to EN 13501-3 is EI 30 (v_e i↔o) S to EI 90 (v_e, h_o i↔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 - X 15), including safety temperature limiter (FireSafe or ExPro-TT), but also with mechanical trigger via fusible link (manual actuation with or without ATEX limit switch ES-Ex). The fire damper has the following ATEX marking:

II 2 G Ex h IIC T6 Gb
II 2 D Ex h IIIC T80°C Db
II 3 D Ex h IIIC T80°C Dc*)

EPS 09 ATEX 2 153 X

*) when using the safety temperature limiter FireSafe.

Housing made of galvanised sheet steel, with moulded-on plug-in connections (model -S) or with connection flanges to EN 12220 or DIN 24154-1 (model -F)
Damper blade made of abrasion-resistant, mineral silicate boards Wear-resistant elastomer seal on the damper blade and intumescent seal on the housing to meet the cold and hot leakage requirements according to EN 1366-2.
Any accessories that may be required for the respective mounting situation (flexible spigots, 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.
When using the smoke detection system type RMS, 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.
- in connection with the mounting frame AR on solid walls, (directly on/under) 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 the Hilti soft seal system and in connection with the mounting frame AR in solid walls and lightweight partition walls with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards.
- in connection with the mounting frame AR away from solid walls.
- with installation kit type GDL and in connection with the mounting frame AR on 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 sliding ceiling connections (The design of the installation kit type GDL depends on the wall thickness and is only possible for BSK-RPR-S L=580 with the mounting frame AR).
- in connection with the mounting frame AR on lightweight partition walls (F30) with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards.
- in connection with the mounting frame AR on lightweight partition walls with metal posts and panelling on one side as classified according to EN 13501-2 or comparable national standards.
- in lightweight partition walls (F30) with metal posts and panelling on both sides as classified according to EN 13501-2 or comparable national standards (nominal sizes 100 - 250).
- in lightweight partition walls with metal posts and panelling on one side according to classification to EN 13501-2 or comparable national standards. (Nominal sizes 100 - 250).

Product: SCHAKO **type BSK-RPR**
Declaration of Performance no. DoP-BSK-RPR-2020-09-01

Dimensions:
Diameter: ..... mm
Length (L): 455/**580** mm (**-S** model)
375/500 mm (-F model)

(Unless stated otherwise, the mechanical -S model (plug-in connection), length 580 mm and fusible link release temperature 72°C will be delivered)

Alternative models or accessories (at an extra charge) ("Select as desired")

- Model with mounting frame AR (mounting exclusively ex works and for "S" model)
- 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 are made of stainless steel material no. 1.4301)
- Model for sliding ceiling connection installation kit type GDL (BSK-RPR-S, L=580, with mounting frame AR and accessories)
- 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 for "OPEN" or/and "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 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 release device BAT (B10/B11) or temperature monitoring unit (S00/S01)
  - Releases at an ambient temperature of 72 °C and an internal duct temperature of 72 °C (optionally: 95 °C) containing integrated micro switches/auxiliary switches for indication of damper end positions (24 V drive, including connector):
    - Type B10 (BFL24-T-ST SO) or B11 (BFL230-T SO)
    - Type S00 (GRA126.1E/SO3) or S01 (GRA326.1E/SO2)
- Spring return actuator with thermoelectric release device BAT72TL
  - Releases at an ambient temperature of 72 °C and an internal duct temperature of 72 °C (optionally: 95 °C) and integrated micro switches for indication of damper positions, connection to Belimo MP bus systems possible via a communication device. Available for all dimensions.
    - Type B42 (BF24TL-TN-ST SO; 24V AC/DC)
    - Communication device ZB6 (BKN230-24MP) for connection to Belimo MP bus system
- Explosion-protected electric spring return actuator with safety temperature limiter (FireSafe or 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 (X10 - X15; universal power supply 24 - 240 V AC/DC).
- Actuators J30/J31/J40 upon request
- Magnetic clamps MH1 (24V DC) / MH2 (230V AC)
- Pulse magnet MI1 (24V DC) / MI2 (230V AC)

Extension piece type VT-RF (flange connection), for installation with large wall/ceiling thicknesses; to maintain the minimum distance a_{min} = 50 mm from the open damper leaf when fitting security grille type ASG-RF or flexible spigot type FS-RF. Extension piece made of profiled galvanised sheet steel with connection flanges, L=160 mm (nominal sizes 100 - 450), L=190 mm (nominal size 500).
Product: SCHAKO **type VT-RF**

Dimensions:
Diameter: ..... 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 type FS-RF (flange connection), consisting of profiled connection flanges made of galvanised sheet steel with elastic intermediate piece made of polyester fabric PVC-coated on both sides, normally inflammable to EN 13501-1, with welded sealing lips (tightness class C to EN 13180 / EN 1507; temperature-resistant from -20°C to +80°C). Flexible part of the spigot (polyester fabric) must have a minimum length L_{min} of 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-RF**

Dimensions:
Diameter: ..... mm

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

Flexible spigot type FS-RS (plug-in connection) consisting of polyester fabric PVC-coated on both sides, normally inflammable to EN 13501-1, with welded sealing lips (tightness class C to EN 13180 / EN 1507; temperature-resistant from -20°C to 80°C). The flexible part of the spigot (polyester fabric) must have a minimum length Lmin of 100 mm when mounted, resulting in an installation dimension of approx. L = 190 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-RS**

Dimensions:
Diameter: ..... mm

Duct connection spigot type RS, for connecting the assembly part type EBT to BSK-RPR or to round ventilation ducts, consisting of a joining plate with bores and duct connection spigot, galvanised sheet steel.
Product: SCHAKO **type RS**

Dimensions: (W/H according to size of assembly part):
Width (W): ..... mm
Height (H): ..... mm
Duct connection spigot ø (øD): 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)

Security grille type ASG-RF (-RS) (flange connection) for connection with ventilation duct connection on only one side, wire or punch grille, galvanised sheet steel, mesh width ≤ 20 mm, minimum distance a_{min} = 50 mm from the open damper leaf must be taken into account, if necessary, use extension part type VT-RF or duct piece.
Product: SCHAKO **type ASG-RF**

Dimensions:
Diameter: ..... 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)

Security grille type ASG-RS (plug-in connection), for installation with ventilation duct connection on only one side, wire or punch grille, galvanised sheet steel, mesh width ≤ 20 mm, minimum distance a_{min} = 50 mm from the open damper leaf must be taken into account, if necessary, use extension piece (on site).
Product: SCHAKO **type ASG-RS**

Dimensions:
Diameter: ..... 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)

Position indicator type MSZ, consisting of a steel cable - galvanised - with clamping nipple and position indicator made of plastic material. The mechanical position indicator for false ceilings is usable for each mechanically operated BSK-RPR with hand lever.
Product: SCHAKO **type MSZ**

Installation kit GDL, consisting of baffle plates, mineral wool, incl. fastening material (without ceiling fastening) and spacer, for installation of the BSK-RPR with AR (absolutely required) in lightweight partition walls with metal posts and panelling on both sides according to classification to EN 13501-2 or comparable national standards.
The exact wall thickness/es must be taken into account and specified when ordering.

Dimensions:
Diameter: ..... mm

SERVICE

FUNCTIONAL CHECKING, CLEANING, REPAIR

Polluted and damp air can impair the continuous operational safety. Therefore, after commissioning of the ventilation installation, the function of all fire dampers must be checked semi-annually.
If two consecutive functional checks do not show any defects, the fire dampers only have to be tested once a year. If maintenance are made for ventilation systems, it is recommended including the functional checks of the fire dampers in these agreements.
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. 42) at the hand lever (pos. 3), thus removing the lock of (in the open position) of the locking bolt (pos. 44) in the release device (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. 42) at the hand lever (pos. 3) and move it toward the trigger device (pos. 5)
- Locking bolt (pos. 44) must snap into the trigger device (pos. 5)
- The fire damper is ready for operation again. (Damper blade is locked in the open position).

S = Lubricate moving parts (bearing) only if they are not running smoothly (lubricant: free of resin and acid).

When the fusible link becomes damaged, its replacement must be carried out as follows.

- 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. 43; 2 pieces), pull the release device out by turning it 90° and remove it from the housing.
- Compress the locating pins of the fusible link holder (pos. 45) using a suitable tool (e.g. pliers) and replace the fusible link with 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.

BSK-RPR with manual release

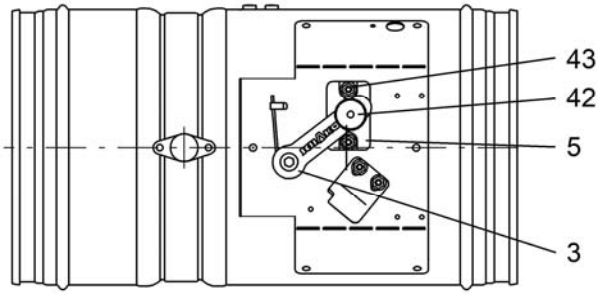


Figure 94: Side view BSK-RPR (manual release)

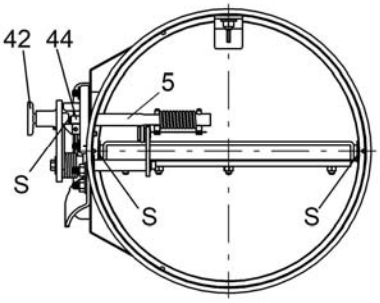


Figure 95: Front view BSK-RPR (manual release)

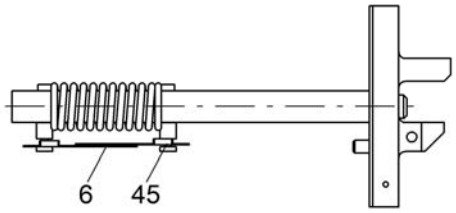


Figure 96: Release device BSK-RPR (fusible link)

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 release – Closing the fire damper

- Press the button (pos. 48) on the thermoelectric release device/temperature monitoring unit (pos. 47), thus removing the electric power from the spring return actuator (pos. 46) (alternatively: interrupt on-site power supply).
- Fire damper must close automatically, locking is performed by blocking the spring return actuator.
- If the button is no longer actuated or the on-site current interruption is discontinued, the spring return actuator will move back into the Open position.

When the fusible link becomes damaged, its replacement must be carried out as follows.

- Replacement takes place by unscrewing both screws of the thermoelectric release device/temperature monitoring unit (pos. 47).
  Remove the thermoelectric release device from the drive unit. Pull the internal duct temperature fuse/duct tip (pos. 49) off the thermoelectric release device/temperature monitoring unit and replace it with a new internal duct temperature fuse (ZBAT72 or ZBAT95) or duct tip (ASK79.4 or ASK79.5), depending on the type of the actuator.
  Insert the thermoelectric release device/temperature monitoring unit back into the drive unit and screw it down.
  Carry out a functional check.

BSK-RPR with spring return actuator

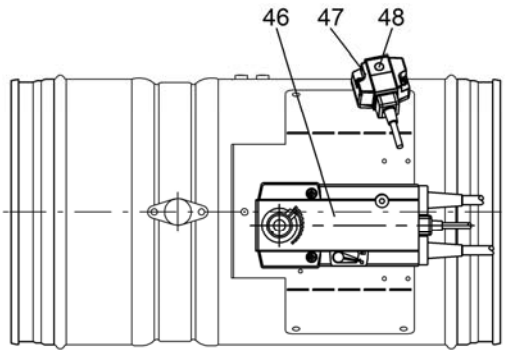


Figure 97: Side view BSK-RPR (spring return actuator)

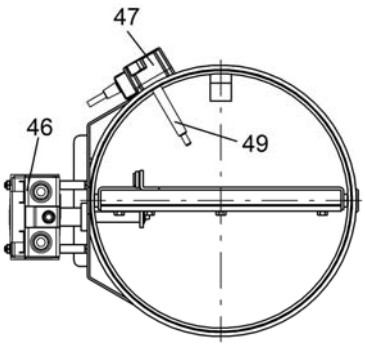


Figure 98: Front view BSK-RPR (spring return actuator)

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 manual unlocking disc (pos. 42) at the hand lever (pos. 3), this removes the locking (in the open position) of the locking bolt (pos. 44) in the trigger device (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).

3.3 Magnetic clamp release – Closing the fire damper

- De-energise the magnetic clamp (pos. 50) on site, thus removing the lock of 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 removing the lock of 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. 42) at the hand lever (pos. 3) and move it toward the release rocker (pos. 51).
- The locking bolt (pos. 44) must snap into the release rocker (pos. 51).
- The fire damper is ready for operation again (damper blade is locked in the open position).

S = Lubricate moving parts (bearing) only if they are not running smoothly (lubricant: free of resin and acid).

When the fusible link becomes damaged, its replacement must be carried out as follows.

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. 43), pull the release device out of the housing by turning it by 90°.
- Compress the locating pins of the fusible link holder (pos. 45) using a suitable tool (e.g. pliers) and replace the fusible link with 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.

BSK-RPR with manual release by means of magnetic clamp or pulse magnet

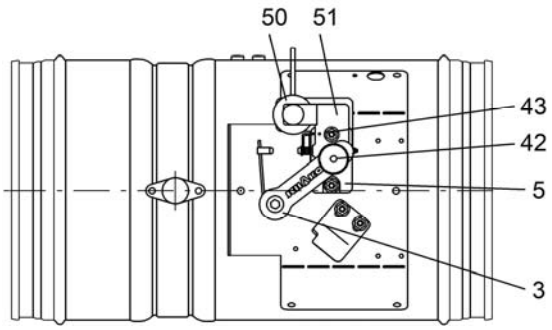


Figure 99: Side view BSK-RPR (manual release and magnet)

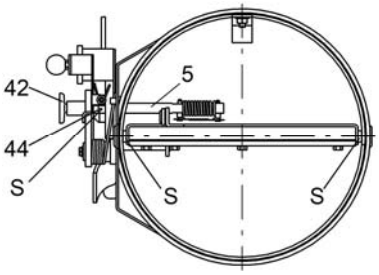


Figure 100: Front view BSK-RPR (manual release and magnet)

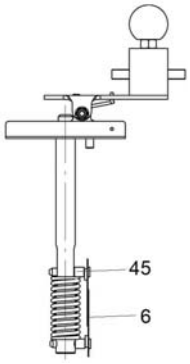


Figure 101: Release device BSK-RPR (with magnet)

SAMPLE OF FUNCTIONAL CHECK PROTOCOL

SCHAKO
Ferdinand Schad KG
Steigstrasse 25-27
D-78600 Kolbingen
Phone: +49- (0)7463 / 980-0
Fax: +49- (0)7463 / 980-200
E-mail: info@schako.de
Web: schako.com

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					

SCHAKO
Ferdinand Schad KG
Steigstrasse 25-27
D-78600 Kolbingen
Phone: +49- (0)7463 / 980-0
Fax: +49- (0)7463 / 980-200
E-mail: info@schako.de
Web: 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: _____

FOREIGN BRANCH OFFICES

Belgium SCHAKO S.A.R.L. 165, rue des Pommiers L-2343 Luxembourg Phone: +352 / 403 157 1 Fax: +352 / 403 157 66 info@schako.be www.schako.be	**Denmark** Venti AS Banevænget 3 8362 Hørning Phone: +45 / 86 92 22 66 Fax: +45 / 86 92 22 26 info@venti.dk www.venti.dk	**England** SCHAKO Ltd. Index House St Georges Lane, Ascot SL5 7EU Berkshire Phone: +44 / 13 44 63 63 89 Fax: +44 / 13 44 87 46 58 admin@schako.uk.com www.schako.co.uk	**France** SCHAKO s.a.r.l. 16 Boulevard de la Croix Rousse F-69001 Lyon Phone: +33 / 4 / 78 34 97 34 Fax: +33 / 4 / 78 34 97 31 contact@schako.fr www.schako.fr
Greece EUROPERSIS Odisea Androutsou 2 GR-56224 Evosmos/Tessaloniki Phone: +30 / 310 / 68 57 79 Fax: +30 / 310 / 75 76 13 info@europersis.gr www.europersis.gr	**Israel** Insupco Industrial Supply Ltd. 40 Hayarkon St. Yavne 811 00 Phone: +972 / 8 / 94 20 080 Fax: +972 / 8 / 94 20 311 insupco@netvision.net.il www.insupco.com	**Italy** SCHAKO Italia S.r.l. Via XXV Aprile, 17 20097 S.Donato Milanese-MI Phone: +39 / 02 / 51 64 02 01 Fax: +39 / 02 / 51 62 09 46 info@schako.it www.schako.it	**Croatia** Intel Trade Dr. Ante Mandica 10 HR-51410 Opatija Phone: +385 / 51 741 100 Fax: +385 / 51 701 470 ri@intel-trade.hr www.intel-trade.hr
Luxembourg SCHAKO S.A.R.L. 165, rue des Pommiers L-2343 Luxembourg Phone: +352 / 403 157 1 Fax: +352 / 403 157 66 info@schako.lu www.schako.lu	**Netherlands** SCHAKO S.A.R.L. 165, rue des Pommiers L-2343 Luxembourg Phone: +352 / 403 157 1 Fax: +352 / 403 157 66 Info@schako-nederland.nl www.schako-nederland.nl	**Austria** SCHAKO Vertriebs GmbH Mariahilfer Straße 103/1/TOP 12 A-1060 Wien Phone: +43 / 1 / 890 24 62 Fax: +43 / 1 / 890 24 62 50 info@schako.at www.schako.at	**Poland** SCHAKO Polska Sp. z o.o ul. Pulawska 38 PL-05-500 Piaseczno Phone: +48 / 22 / 7263570 Fax: +48 / 22 / 7263571 info@schako.pl www.schako.pl
Romania SCHAKO Klima Luft SRL Str. Elena Caragiani nr.21 014212 Bucuresti, Phone: +40 / 0 / 21 / 232 13 75 Fax: +40 / 0 / 21 / 232 13 75 info@schakoromania.ro www.schako.ro	**Sweden** EXOTHERM AB Box 60036 21610 Limhamn Phone: +46 / 40 / 631 61 16 Fax: +46 / 40 / 15 60 95 info@exotherm.se www.exotherm.se	**Switzerland** SCHAKO Suisse SA Rue Jean-Prouvé 28 1762 Givisiez Phone: +41 / 26 / 460 88 00 Fax: +41 / 26 / 460 88 05 schako@schako.ch www.schako.ch	**Serbia & Montenegro** TERMOMEHANIKA d.o.o. Koste Glavinica 2 RS-11000 BEOGRAD Phone: +381 / 11 / 369 99 93 Fax: +381 / 11 / 369 09 93 termomehanika@sbb.rs www.termomehanika.rs
Slovakia SCHAKO SK s.r.o. Modrová 187 91635 Modrová Phone: +421 / 337 / 774 1843 Fax: +421 / 337 / 774 1843 schako@schako.sk www.schako.sk	**Spain** SCHAKO IBERIA S.L. Departamento de Ventas Pol. Ind. Río Gállego, Calle B, nave 3 50840 San Mateo de Gállego / Zaragoza Phone: +34 / 976 / 531 999 Fax: +34 / 976 / 690 709 ventas@schako.es www.schako.es	**Czech Republic** SCHAKO s.r.o. Pred Skalkami II. 184/5 CZ-10600 Praha 10-Zabehlice Phone: +42 / 02 / 727 680 43 Fax: +42 / 02 / 727 693 94 info@schako.cz www.schako.cz	**Turkey** EMO-SCHAKO Klima Havalandirma San. ve Tic. Ltd. Sti. Pursaklar Sanayi Sitesi, Karacaören Mah.1638.Cad. No:98 06145 Altindag - Ankara Phone: +90 / 312 527 16 05 Fax: +90 / 312 527 16 08 emo@emo-schako.com.tr www.emo-schako.com.tr
Hungary SCHAKO Kft. Tó Park 6 H-2045 Törökbálint Phone: +36 / 23 / 445670 Fax: +36 / 23 / 445679 e-mail@schako.hu www.schako.hu			

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