

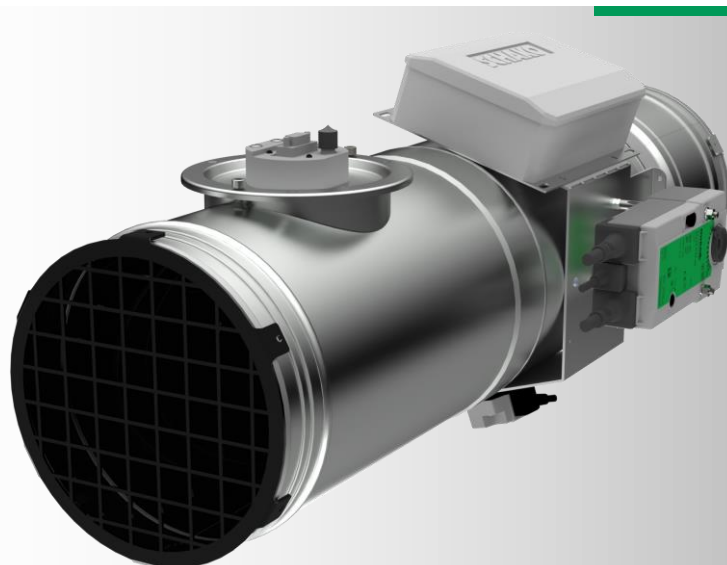


Fig.: BKRUE (overflow damper)

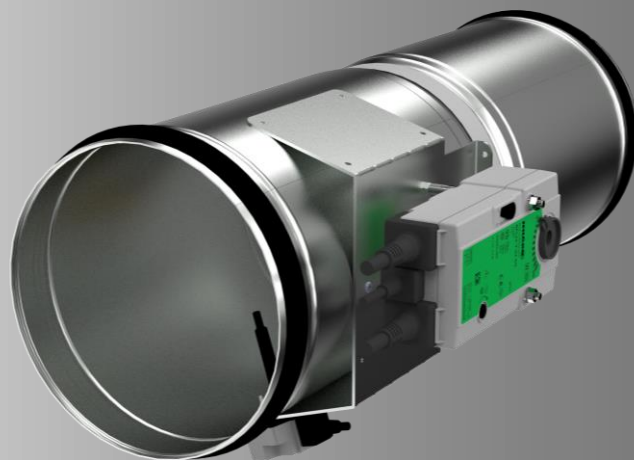


Fig.: BSK-RPR with B10 drive

BSK-RPR Fire damper

USABILITY CERTIFICATES

- **BSK-RPR**
Declaration of Performance DoP-BSK-RPR-2020-09-01
- **BKRUE**
General type approval (aBG) no. Z-6.50-2628
Fire-resistant damper type "BKRUE" of special design and application, hereinafter referred to as overflow damper

PERFORMANCE DATA

- BSK-RPR – for automatic closure of fire sections
- For use or connection of a smoke release device with abZ (e.g. SCHAKO smoke detection system RMS; consisting of smoke detector RMSII-L and relay module RM) in combination with suitable release devices (e.g. spring return actuator)
- BKRUE – as a fire-resistant damper of special design and application for closing openings in fire-resistant walls and ceilings

BSK-RPR CLASSIFICATION AND STANDARDS

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

SPECIAL FEATURES

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

TABLE OF CONTENTS

Table of Contents.....	2
Description.....	3
Models and dimensions.....	4
Installation in solid walls.....	11
Wet installation of a fire damper, complete mortar lining	11
Wet installation at a reduced distance	11
Dry installation.....	12
Dry installation with soft seal	13
Dry installation away from solid walls	16
Installation in solid ceilings.....	17
Wet installation of a fire damper, complete mortar lining	17
Wet installation at a reduced distance	17
Dry installation.....	18
Wet installation with concrete base.....	19
Installation in lightweight partition walls with metal posts	20
Lightweight partition walls with panelling on both sides and wall thickness $W \geq 100$ mm	20
Wet installation of a fire damper, complete mortar lining	20
Wet installation at a reduced distance	21
Wet installation under solid ceiling, complete mortar lining	22
Dry installation.....	23
Dry installation with installation kit type GDL, sliding ceiling connection.....	29
Dry installation with soft seal	31
Lightweight partition walls (F30/F60) with panelling on both sides and wall thickness $W \geq 75$ mm.....	35
Wet installation of a fire damper, nominal sizes 100 to ≤ 250	35
Wet installation of a fire damper under solid ceiling, nominal sizes 100 to ≤ 250	36
Dry installation.....	37
Lightweight partition walls with panelling on one side and wall thickness $W \geq 125$ mm	41
Wet installation of a fire damper, nominal sizes 100 to ≤ 250	41
Wet installation of a fire damper under solid ceiling, nominal sizes 100 to ≤ 250	42
Dry installation of a fire damper	43
Dry installation of a fire damper under a solid ceiling	44
Installation information	45
Suspended fire damper	46
Suspension of the fire damper for dry installation with mounting frame type AR away from solid walls	46
Suspension of the fire damper in case of dry installation with soft seal.....	46
Technical data	47
Accessories	50
limit switch.....	50

Spring return actuators	51
Magnets	56
Add-on parts.....	57
Legend	58
CE marking	58
Order code BSK-RPR.....	59
Order code (add-on parts BSK-RPR)	61
Specification texts BSK-RPR (fire damper)	63
Commissioning and maintenance	66
BKRUE (overflow damper).....	69
Order code BKRUE (overflow damper).....	71
Specification texts BKRUE (overflow damper)	72
Commissioning and maintenance	73
Foreign branch offices.....	74
List of figures/tables/diagrams	75

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 (X14/X15), including safety temperature limiter (ExPro-TT), but also with mechanical fusible link triggering (manual actuation with or without ATEX limit switch ES-Ex).

The fire damper is marked as follows according to ATEX:



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

EPS 09 ATEX 2 153 X

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.

When used in HVAC systems, the fire damper BSK-RPR must be connected to the ventilation ducts of the HVAC system on one or both sides. When connected on one side, finishing protective gratings made of non-flammable building materials (EN13501-1) must be provided on the opposite side.

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

- Housing made of galvanised sheet steel (standard), optionally (at an extra charge):
 - Housing from stainless steel material no. 1.4301 or 1.4571 (replaceable, non-coated parts are made of stainless steel material no. 1.4301)
 - Housing with DD coating (two-component top coat based on polyurethane varnish) inside or inside and outside (replaceable, non-coated parts are made of stainless steel material no. 1.4301)
- 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/general type approval (e.g. SCHAKO smoke detection system RMS; consisting of smoke detector RMSII-L and relay module RM, see technical documentation smoke detection system RMS) in combination 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).
- Use as an overflow damper according to general type approval (aBG) no. Z-6.50-2628

ATTENTION

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

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

MODELS AND DIMENSIONS

BSK-RPR – Nominal sizes 100 to ≤ 250

BSK-RPR-S (plug-in connection)

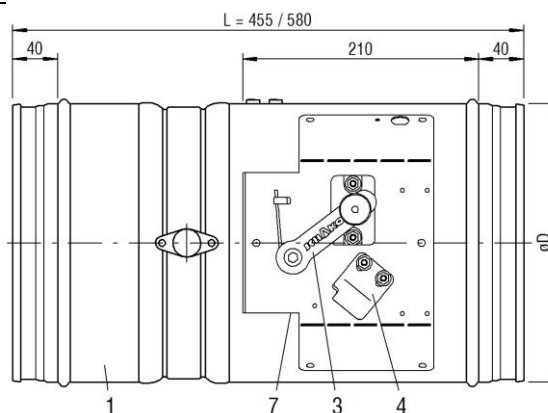
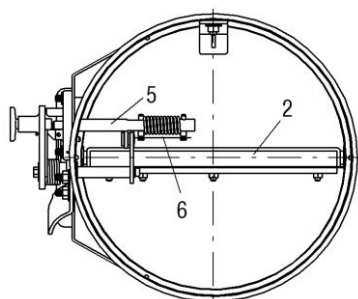


Figure 1: Dimension BSK-RPR-S – Nominal sizes 100 to ≤ 250

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)

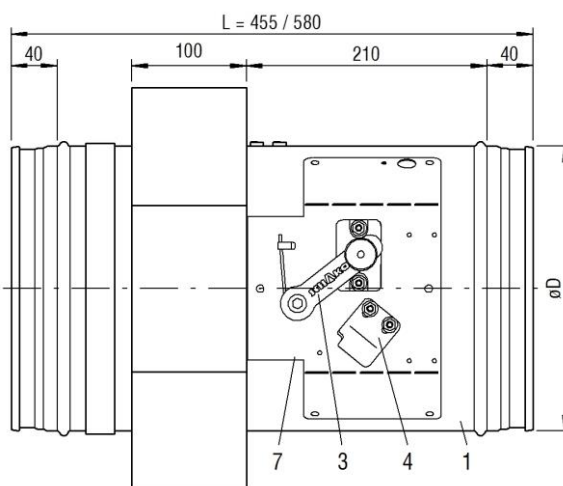
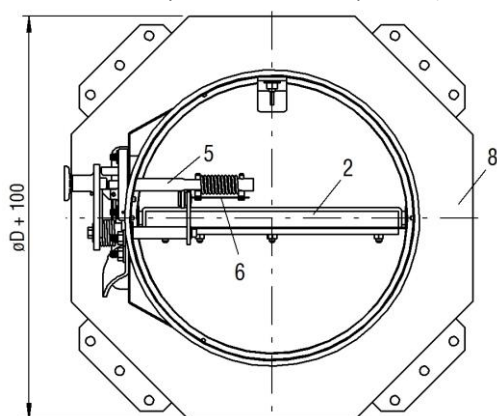


Figure 2: Dimension BSK-RPR-S with mounting frame AR – Nominal sizes 100 to ≤ 250

BSK-RPR-F (flanged connection)

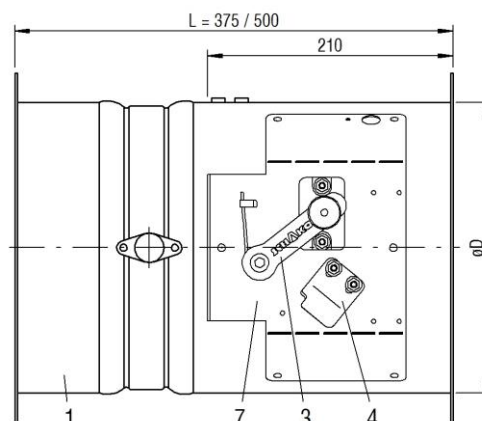
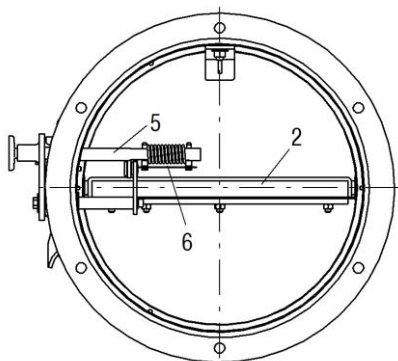


Figure 3: Dimension BSK-RPR-F – Nominal sizes 100 to ≤ 250

- | | |
|-----------------------|---------------------|
| 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)

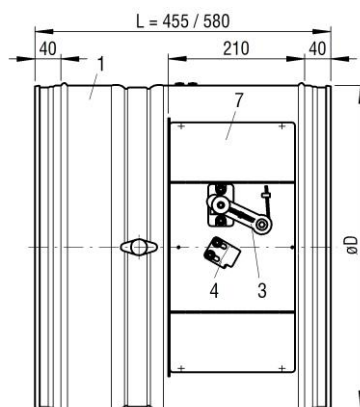
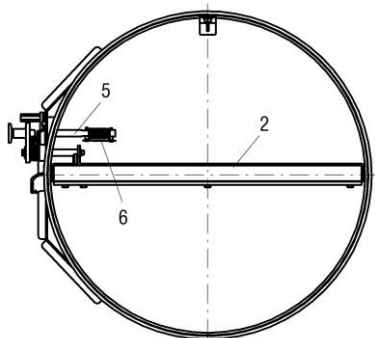


Figure 4: Dimension BSK-RPR-S – Nominal sizes >250 to 500

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)

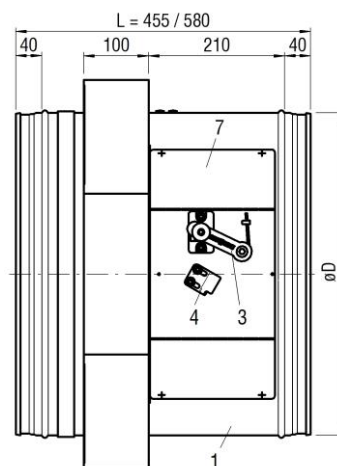
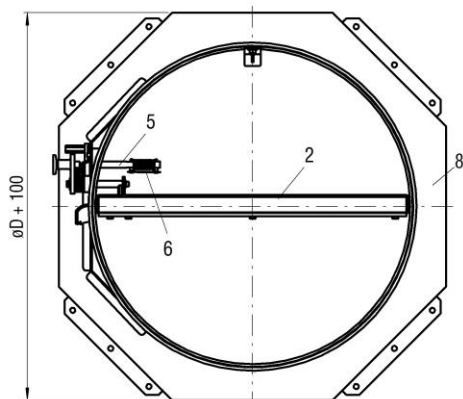


Figure 5: Dimension BSK-RPR-S with mounting frame - Nominal sizes > 250 to 500

BSK-RPR-F (flanged connection)

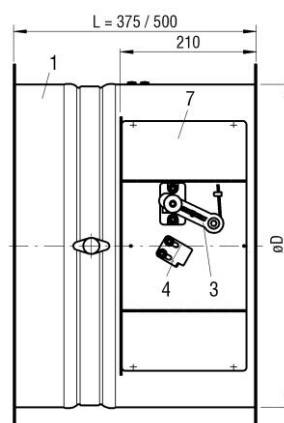
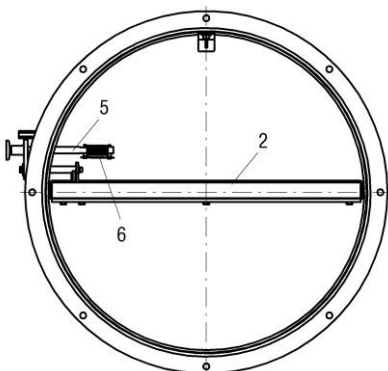


Figure 6: Dimension BSK-RPR-F - Nominal sizes > 250 to 500

- | | |
|-----------------------|---------------------|
| 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	BSK-RPR-F
100	98	455	375
125	123		
140	138		
160	158		
180	178		
200	198	oder	oder
224	222		
250	248		
280	278	580 (standard)	500
315	313		
355	353		
400	398		
450	448		
500	498		

Table 1: Available sizes BSK-RPR

Rubber lip seal for BSK-RPR-S

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

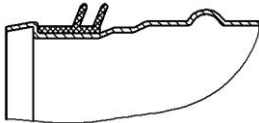


Figure 7: Rubber lip seal

Flange bores BSK-RPR-F

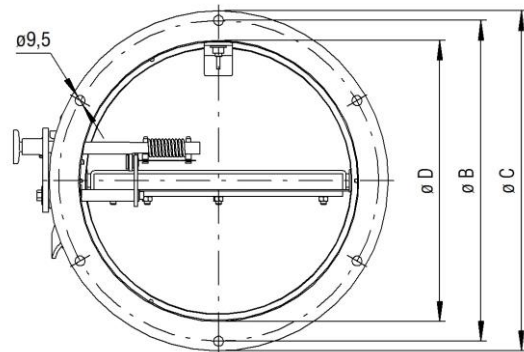


Figure 8: Flange bores

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

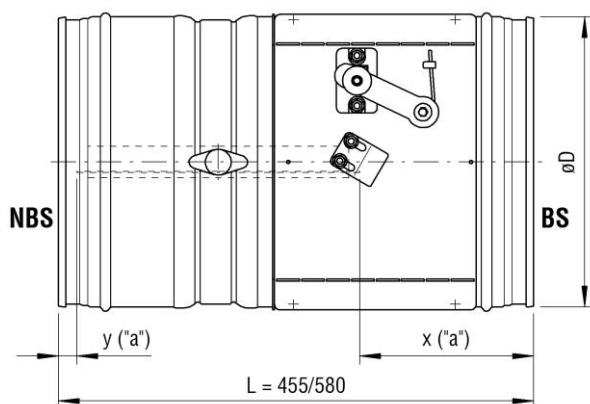


Figure 9: Damper blade projecting ends BSK-RPR-S

No- minal size	ØD	Operating side (BS)		Non-operating side (NBS)		
		L=455 / 580		L=455	L=580	
100	98	256		107	232	
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 *	105	
400	398	106		43 *	82	
450	448	81		68 *	57	
500	498	56		93 *	32 *	

* Extension piece or ventilation duct (on site) required

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

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

BSK-RPR-F

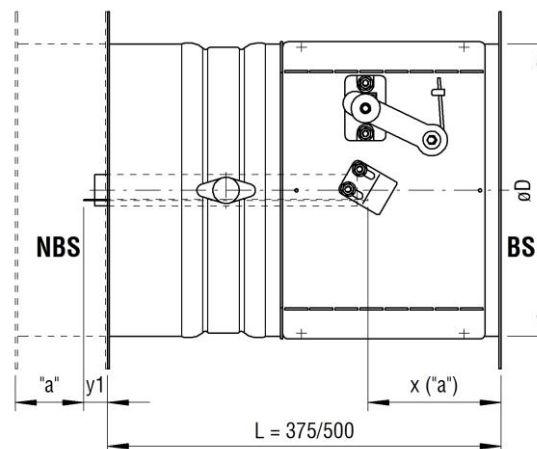


Figure 10: Damper blade projecting ends BSK-RPR-F

No- minal size	ØD	Operating side (BS)		Non-operating side (NBS)		
		L=375 / 500		L=375	L=500	
100	98	216		67	192	
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 *	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) or ventilation duct required

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

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⁾	EI 90 (v _e i↔o) S	11
						Wall: 40		
						Ceiling: 40		
		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⁾	EI 90 (v _e i↔o) S	12
						Wall: 75		
						Ceiling: 75		
				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	EI 90 (v _e i↔o) S	13
						Wall: 75		
	Ceiling: 75							
	away from ^{1) 10)}	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⁾	EI 90 (v _e i↔o) S	16	
					Wall: 75 ⁴⁾			
					Ceiling: 75 ⁴⁾			
	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⁾	EI 90 (v _e i↔o) S	20
						Wall: 105 ⁸⁾		
						Ceiling: 95 ⁸⁾		
			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	EI 30 (v _e i↔o) S	35
						Wall: 85 ⁸⁾		
						Ceiling: 75		
100 – 250		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	EI 90 (v _e i↔o) S	41		
				Wall: 85 ⁸⁾				
				Ceiling: 75				
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	EI 90 (v _e i↔o) S	31	
					Wall: 113/125 ⁸⁾			
					Ceiling: 103/115 ⁸⁾			
			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	EI 90 (v _e i↔o) S	23	
					Wall: 75			
	Ceiling: 75							
	Dry installation <u>with</u> additional installation kit type GDL and mounting frame AR on lightweight partition walls with metal stud frame and panelling on both sides; in the area of sliding ceiling connections ²⁾		100	next to each other: 170	EI 90 (v _e i↔o) S	29		
				Wall: 75				
Ceiling: 55 ⁸⁾								
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	EI 30 (v _e i↔o) S EI 60 (v _e i↔o) S	37				
		Wall: 75						
		Ceiling: 75						
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	EI 90 (v _e i↔o) S	43				
		Wall: 75						
		Ceiling: 75						

Use		Installation	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
				Wet installation with concrete base ⁶⁾ in, for example, concrete; aerated concrete	125	next to each other: 55 ⁹⁾ Wall: 100 ⁸⁾	EI 90 (h _o i↔o) S	19
		on ⁵⁾	100 - 500	Dry installation <u>with</u> mounting frame AR on, for example, con- crete; aerated concrete	125	next to each other: 200	EI 90 (h _o i↔o) S	18
						Wall: 75		

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. 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 design or installation (needs to be adapted to local conditions).
- 9) BSK-RPR-F nominal size ≥ 280 mm: distance at least 60 mm, due to flange width.
- 10) Not possible for BKRUE

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.

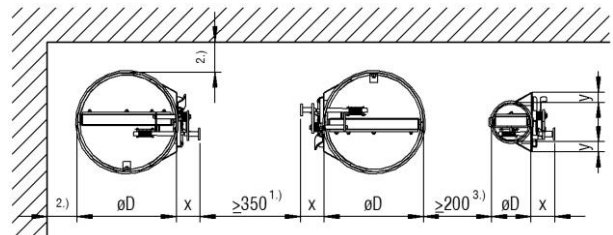


Figure 11: Minimum distances to walls, ceilings and BSK-RPR to one another

- 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:

- manual release, magnetic clamps MH1/MH2, pulse magnet MI1 approx. 80 mm
- 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 (X14/X15)

The dimension y is:

- max. approx. 50 mm for manual release, magnetic clamps MH1/MH2, pulse magnets MI1 / max. approx. 100 mm 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 (X14/X15)

Wet installation (mortar lining)

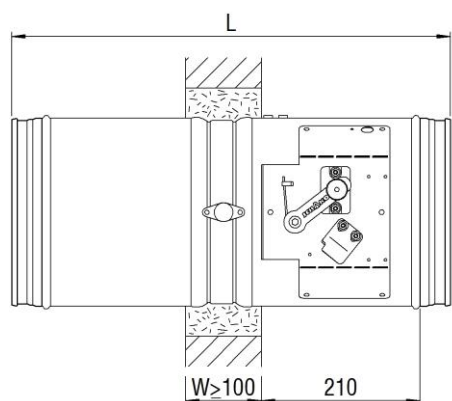
- If the fire damper is installed by means of mortar lining, it must be completely filled with mortar of class M 10 to M 15 according to EN 998-2 or fire protection mortar of corresponding grades or with concrete or plaster mortar suitable for the wall or ceiling type.
- If the fire damper is installed 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 $\geq 450 \text{ kg/m}^3$ and wall thickness $W \geq 100 \text{ mm}$.

Installation positions

Mortar lining entire wall thickness



Mortar lining in minimum wall thickness

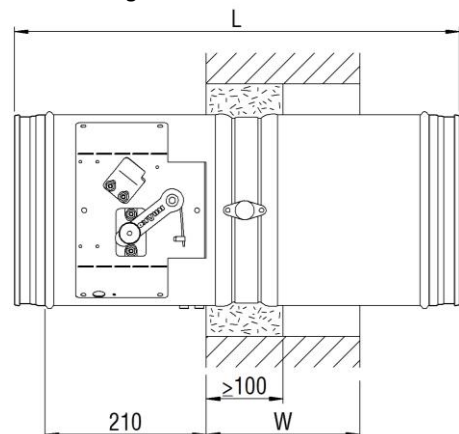


Figure 12: Wet installation in solid walls

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 $\geq 280 \text{ mm}$: distance at least 60 mm, due to flange width.
- The minimum distance from adjacent components (wall/ceiling) is at least 40 mm.

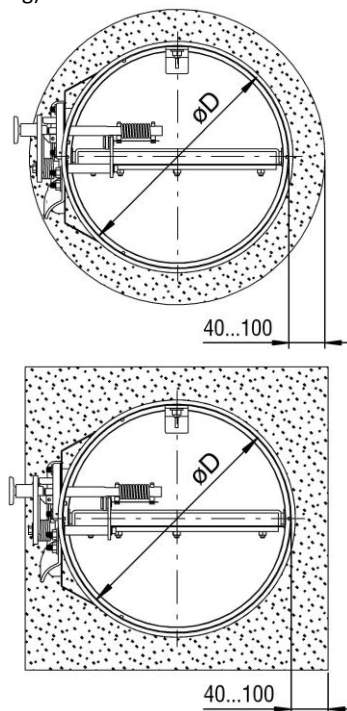


Figure 13: Annular gap dimensions for complete mortar lining in solid walls (round or rectangular recess)

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 $\geq 280 \text{ mm}$: distance at least 60 mm, due to flange width.
- The distance to adjacent components (wall/solid ceiling) is at least 40 mm.

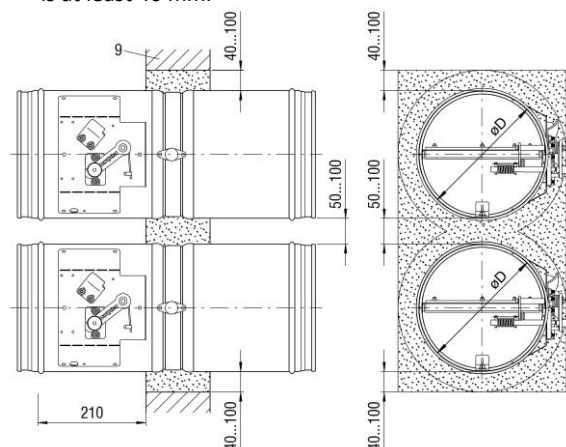


Figure 14: Installation in solid walls at a reduced distance (round or rectangular recess)

9 Solid wall, apparent density $\geq 450 \text{ kg/m}^3$, $W \geq 100 \text{ mm}$

Dry installation

- Dry installation on solid walls is only possible for BSK-RPR-S with mounting frame AR.
- The installation opening of size $\varnothing D + 10$ 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- is allowed).
- The distance to adjacent components (wall/solid ceiling) is at least 75 mm.

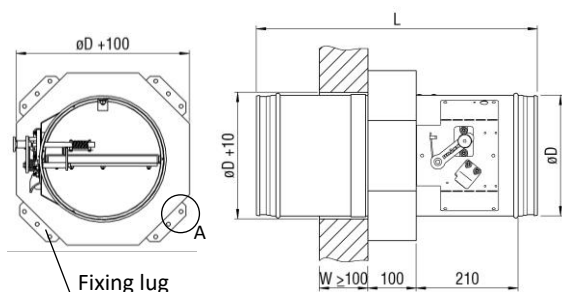


Figure 15: Dry installation on solid walls

Detail A (drawn rotated by 90°)

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

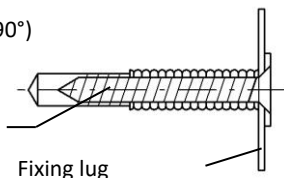


Figure 16: Detail showing fastening to solid walls

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.

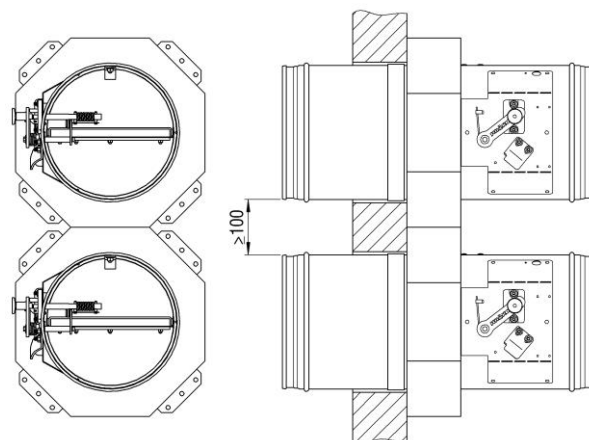


Figure 17: Dry installation on solid walls, BSK-RPR nominal size ≤ 250 – minimum distance from one another

Nominal sizes > 250 to 500

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

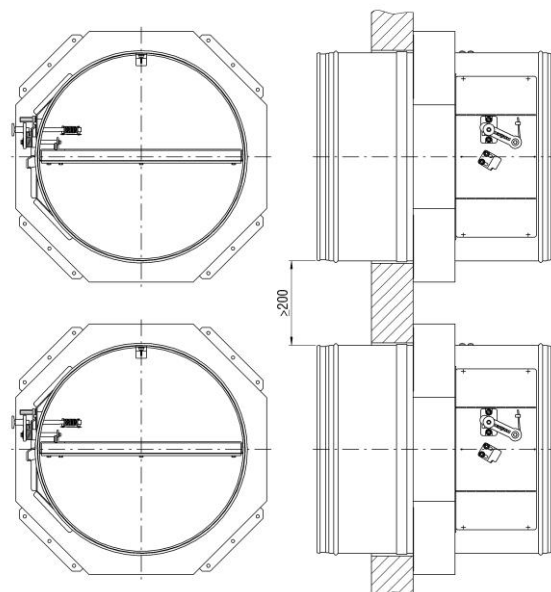


Figure 18: Dry installation on solid walls, BSK-RPR nominal size > 250 – minimum distance from one another

Installation video (YouTube):



<https://bit.ly/49CBdZS>

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 46).
- 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

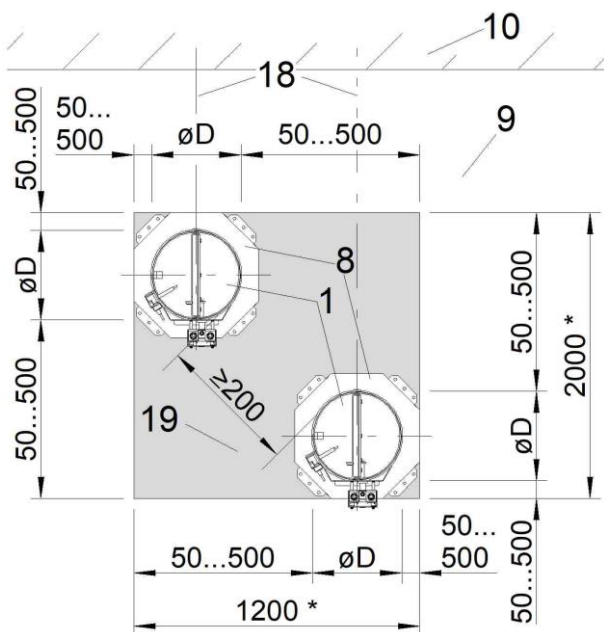
Permissible soft seal system (provided on site):

Manufacturer Hilti

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

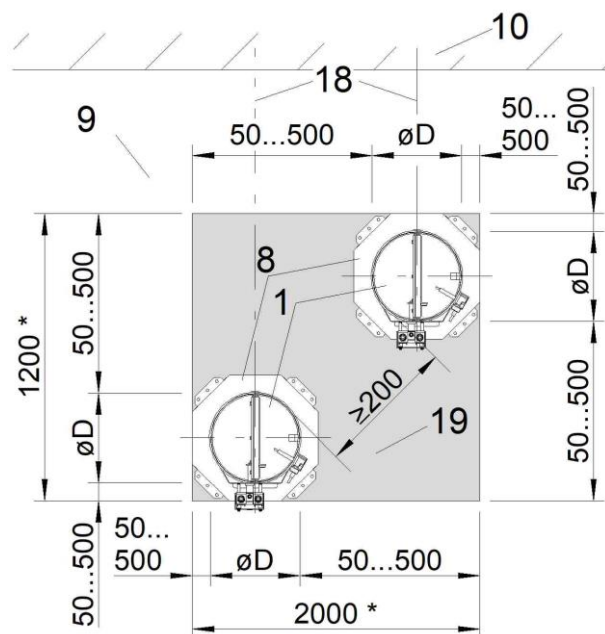
In general, the specifications and processing guidelines of the soft seal manufacturer (in particular the maximum seal dimensions) must be observed.

Dimensions of the min./max. annular gap



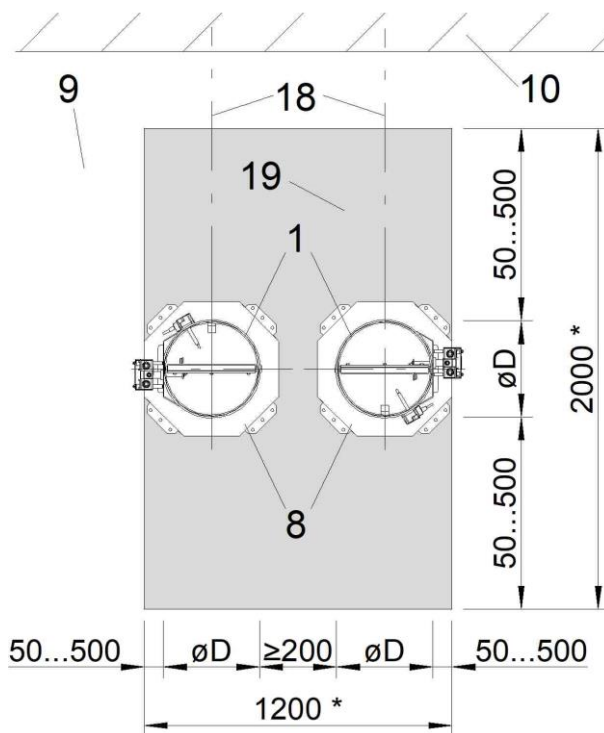
*) $\triangleq$ max. seal dimensions according to the manufacturer's specifications Hilti

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



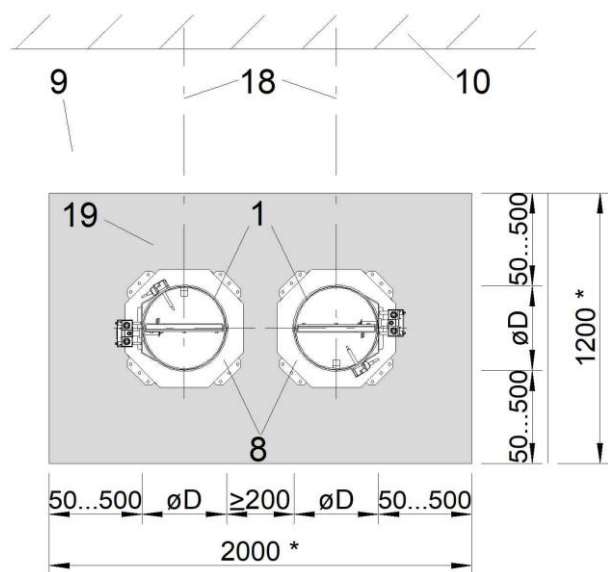
*) $\triangleq$ max. seal dimensions according to the manufacturer's specifications Hilti

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



*) $\triangleq$ 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)



*) $\triangleq$ 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

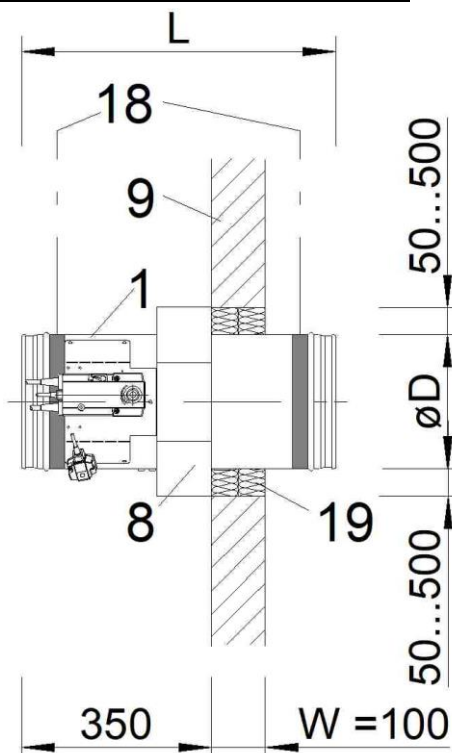


Figure 23: Installation in solid wall (wall thickness = 100 mm)

Sectional view for wall thickness > 100 mm

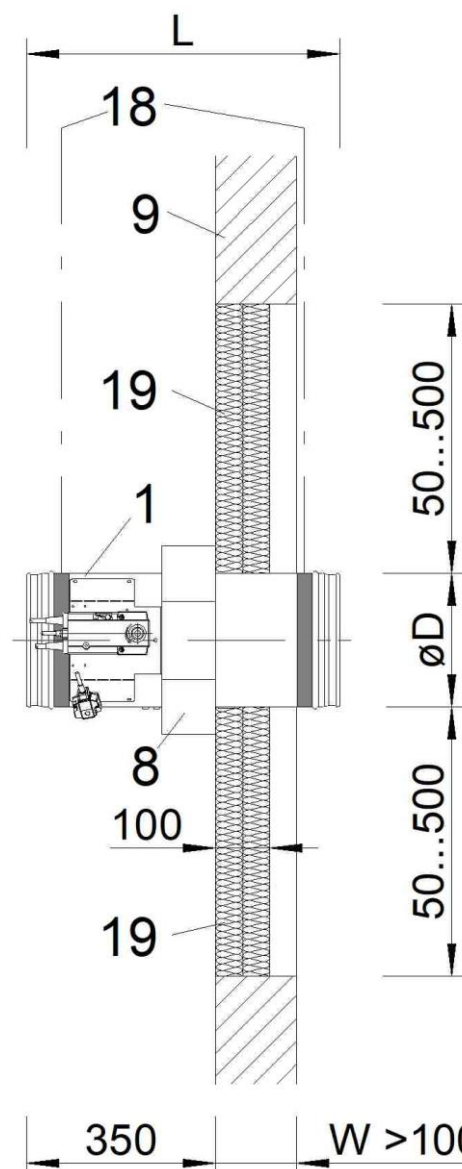


Figure 24: Installation in solid wall (wall thickness > 100 mm)

- 1 Fire damper BSK-RPR
- 8 Mounting frame AR
- 9 Solid wall, apparent density $\geq 450 \text{ kg/m}^3$, $W \geq 100 \text{ mm}$
- 10 Solid ceiling, apparent density $\geq 500 \text{ kg/m}^3$, $D \geq 125 \text{ mm}$
- 18 Suspension (provided on site)
- 19 Hilti soft seal system (ETA-11/0429):
 - 19.1 Firestop boards CFS-CT B 1S 140/50 or CP 673 PF
 - 19.2 Firestop coating CFS-CT or CP 673
 - 19.3 Firestop sealant CFS-S ACR

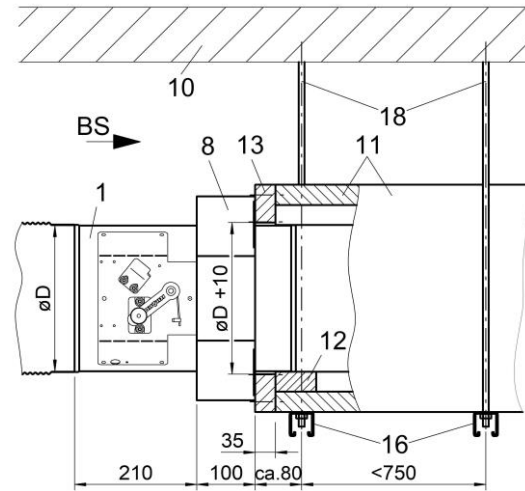
Installation procedure

- 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 complied 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 46.

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 area 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 $\geq 500 \text{ kg/m}^3$, $D \geq 125 \text{ mm}$
- 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 $\varnothing D + 10 \text{ mm}$)
- 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 $a \leq 180 \text{ mm}$ or at least 2 screws per side
- 16 Hilti MQ 41/3 or equivalent or U-profile 50 to DIN 1026
- 18 Suspension (provided on site) according to Promat® manual, design 478, in the current version; for information on the suspension, see page 46.



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

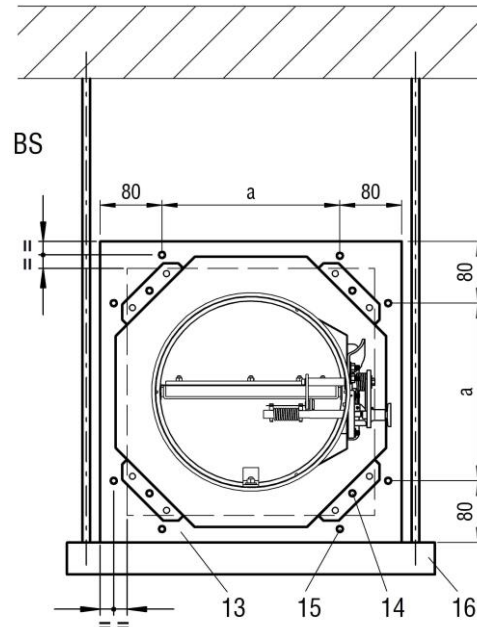


Figure 25: Installation away from solid walls

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 $\geq 500 \text{ kg/m}^3$ and ceiling thickness $D \geq 125 \text{ mm}$.

Installation positions

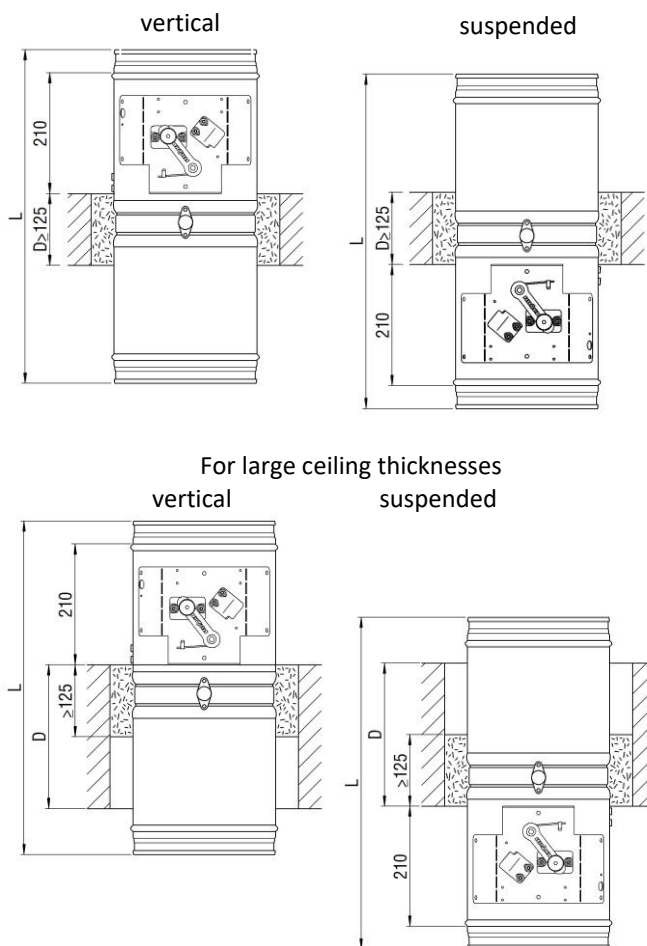


Figure 26: Installation positions in solid ceilings – (wet installation)

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 $\geq 280 \text{ mm}$: distance at least 60 mm, due to flange width.
- The minimum distance from adjacent components (wall) is at least 40 mm

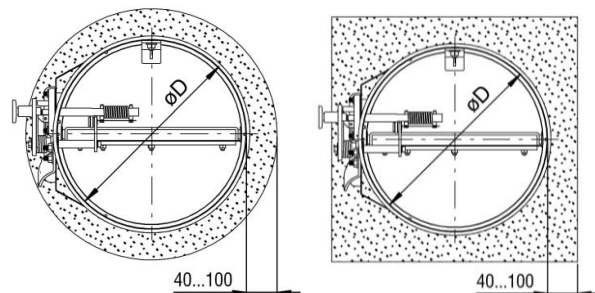


Figure 27: Annular gap dimensions for complete mortar lining, solid walls (round or rectangular recess)

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 $\geq 280 \text{ mm}$: distance at least 60 mm, due to flange width.
- The distance from adjacent components (wall) is at least 40 mm.

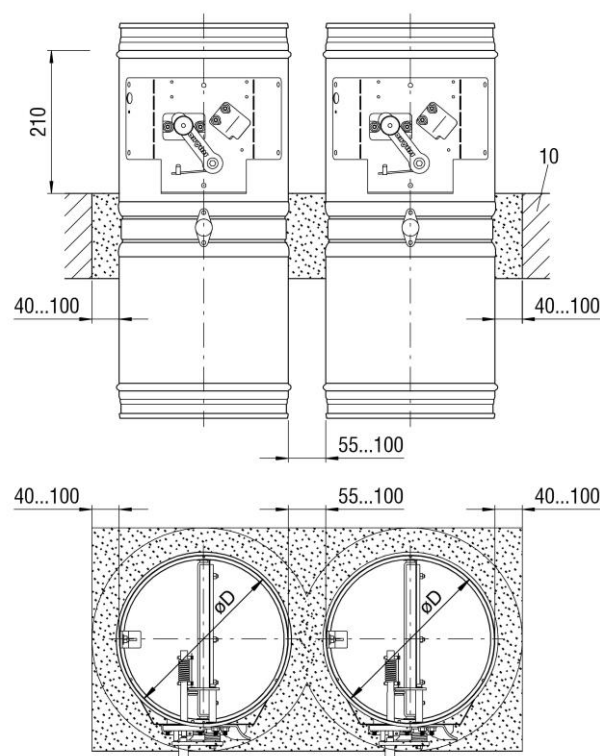


Figure 28: Wet installation at a reduced distance, solid ceilings (round or rectangular recess)

10 Solid ceiling, apparent density $\geq 500 \text{ kg/m}^3$, $D \geq 125 \text{ mm}$

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 $\varnothing D + 10$ 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

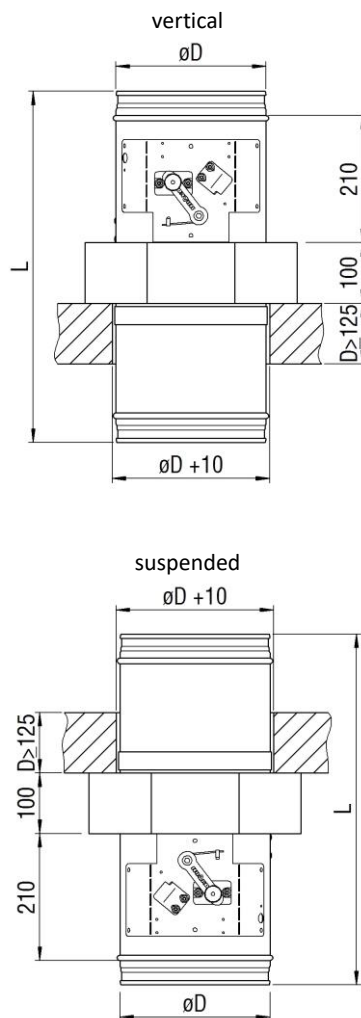
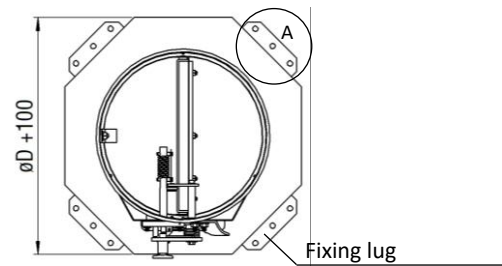


Figure 29: Installation positions on solid ceilings – (dry installation)



Detail A (drawn rotated by 90°)

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

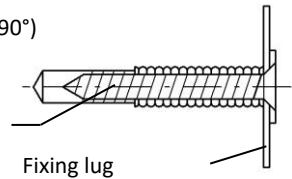


Figure 30: Detail showing fastening to solid ceilings

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

Prior to installation of the fire damper, fastening materials (e.g. screws, press-in nuts, etc.) must be provided and attached on the non-operating side for mounting duct components or, if subsequent mounting is no longer possible, the ventilation duct must be connected 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.

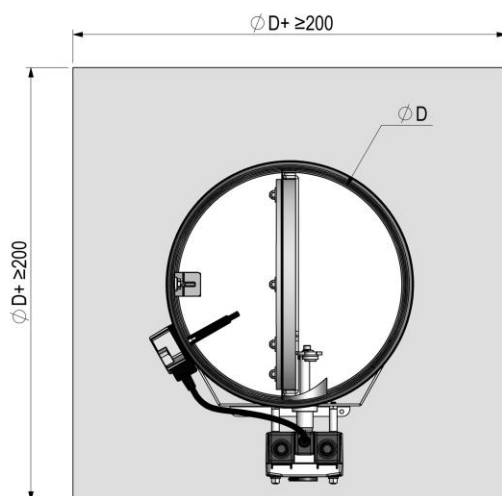


Figure 31: Installation in solid ceilings with concrete base, top view

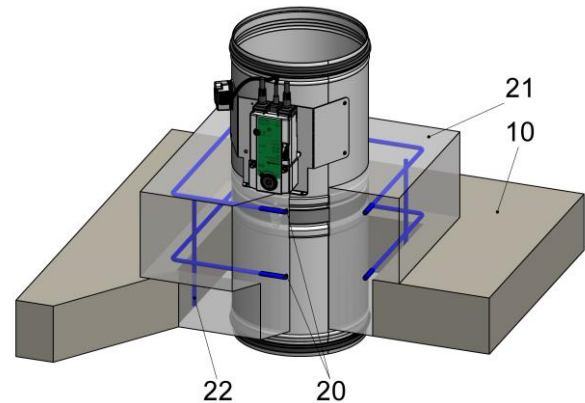


Figure 32: Installation in solid ceilings with concrete base

10 Solid ceiling

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

21 Concrete base (concrete C20/25)

22 Splice bars ($\varnothing 8$; $e \leq 500$ 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 $\varnothing 8$, $e \leq 150$ 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:

$\varnothing 8$ $e \leq 500$ 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.

$\varnothing 8$ $e \leq 500$ 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.

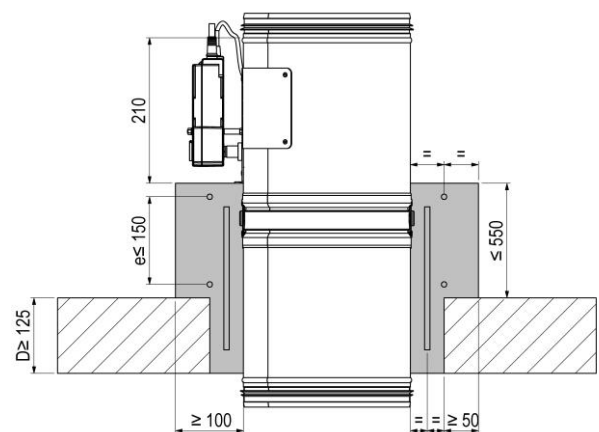


Figure 33: Installation in solid ceilings with concrete base, section

INSTALLATION IN LIGHTWEIGHT PARTITION WALLS WITH METAL POSTS

General mounting information

Metal posts and exchangeable profiles must be riveted, crimped or screwed at least once on both sides in the overlap area (e.g. blind rivets diameter 4-5 mm, crimping or drywall screws TN3.5x25 or comparable tapping screws).

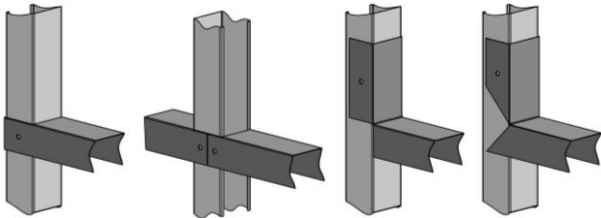


Figure 34: Example designs of the overlap area

LIGHTWEIGHT PARTITION WALLS WITH PANELLING ON BOTH SIDES AND WALL THICKNESS $w \geq 100$ MM

- Installation in lightweight partition walls with metal posts and panelling on both sides (gypsum-bonded wall boards; wall thickness ≥ 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.

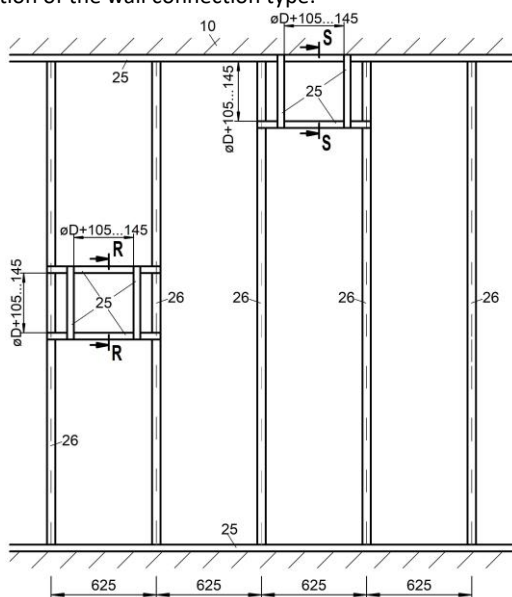


Figure 35: Metal posts plus required exchange parts for wet installation of a BSK-RPR, complete mortar lining

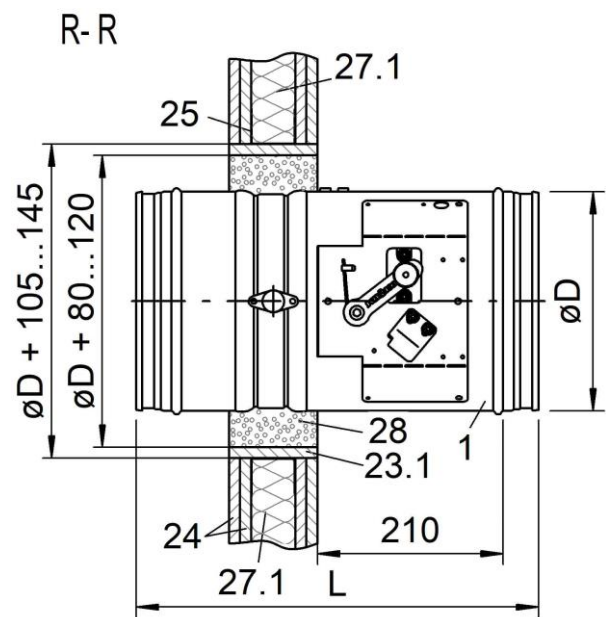
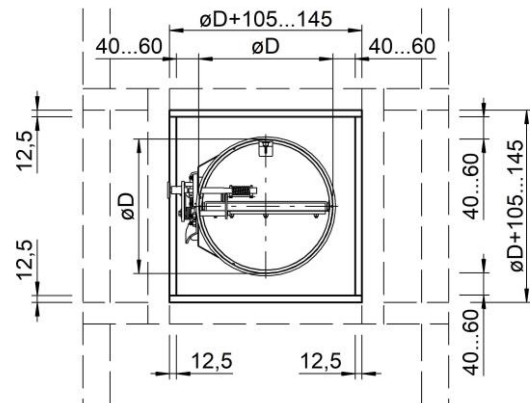


Figure 36: Wet installation of a BSK-RPR in lightweight partition wall

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 35. 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.

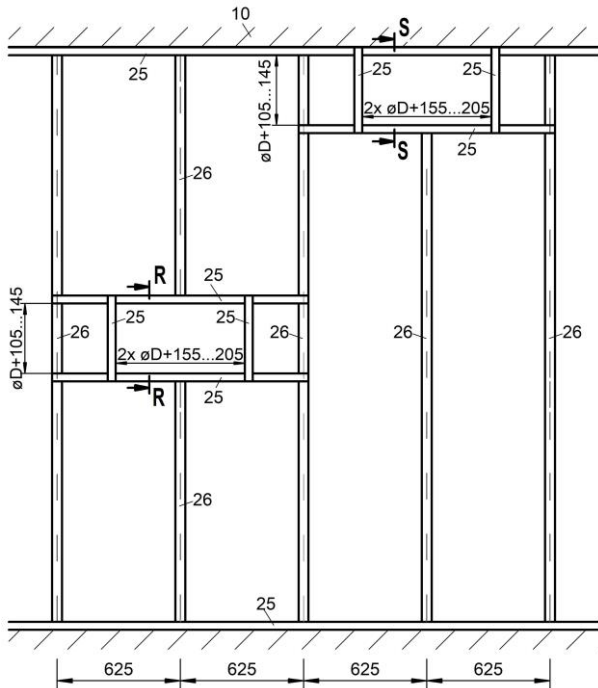


Figure 37: Metal posts plus required exchange parts for the BSK-RPR wet installation at a reduced distance

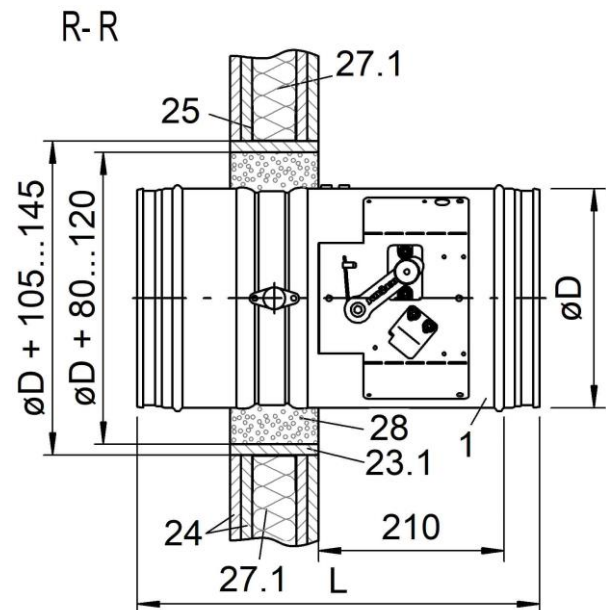
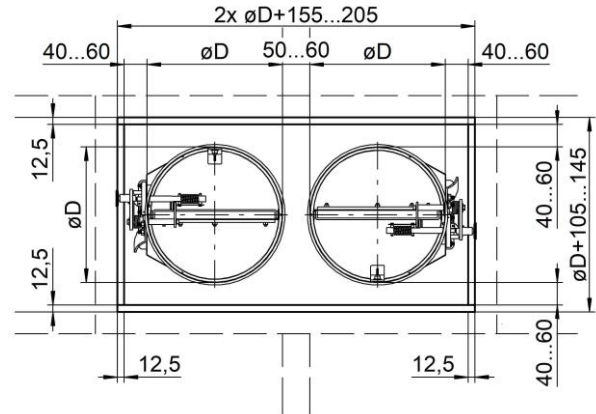


Figure 38: Wet installation in lightweight partition wall at a reduced distance

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 37. 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.

S-S

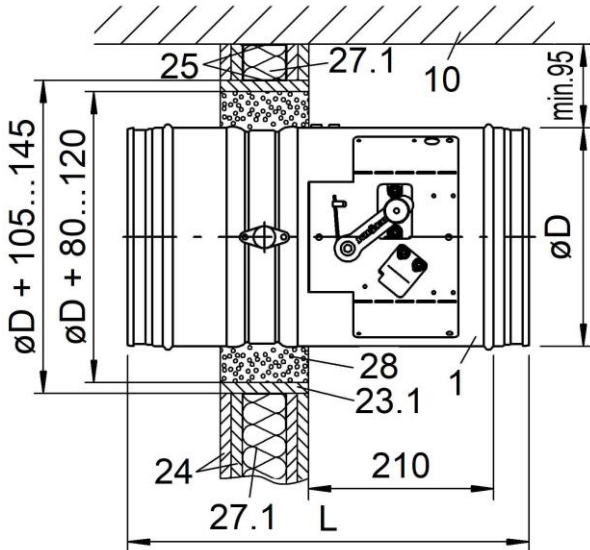


Figure 39: Wet installation under solid ceiling, complete mortar lining

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 37. 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.

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

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 also allows "subsequent" installation in a previously completely panelled wall. This requires the existing wall to be made of mineral wool (non-flammable according to EN 13501-1, apparent density $\geq 100 \text{ kg/m}^3$, melting point $\geq 1000^\circ\text{C}$).
- 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.

During the assembly of the wall

The installation proposal shown refers to the positioning of the metal posts and exchange parts during the assembly of the wall

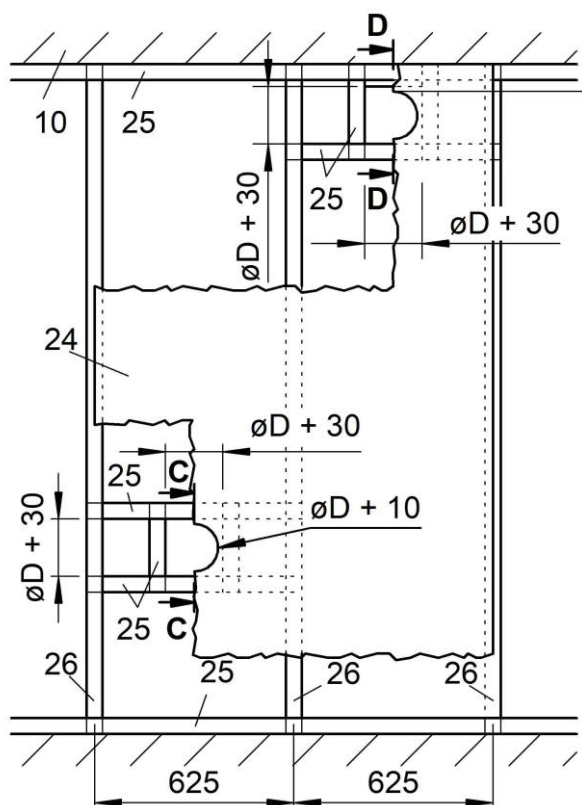


Figure 40: Metal stud frame plus required exchange parts for BSK-RPR with mounting frame AR (dry installation), during the assembly of the wall

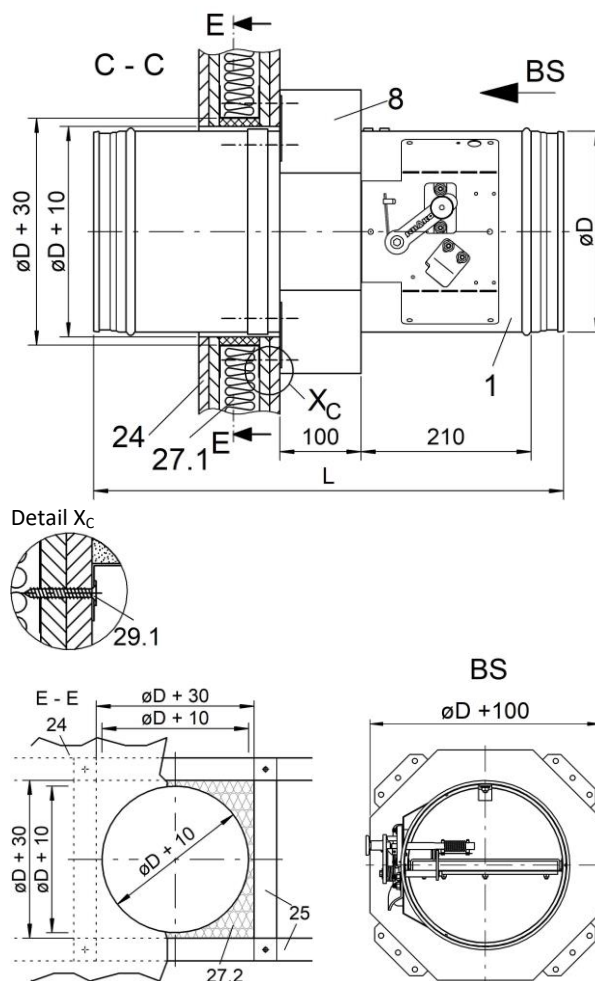


Figure 41: Dry installation on lightweight partition wall with mounting frame AR, during the assembly of the wall

During the assembly of the wall under solid ceiling

- Dry installation, during the assembly of the wall, under solid ceiling does not constitute a sliding ceiling connection, but requires additional accessories.

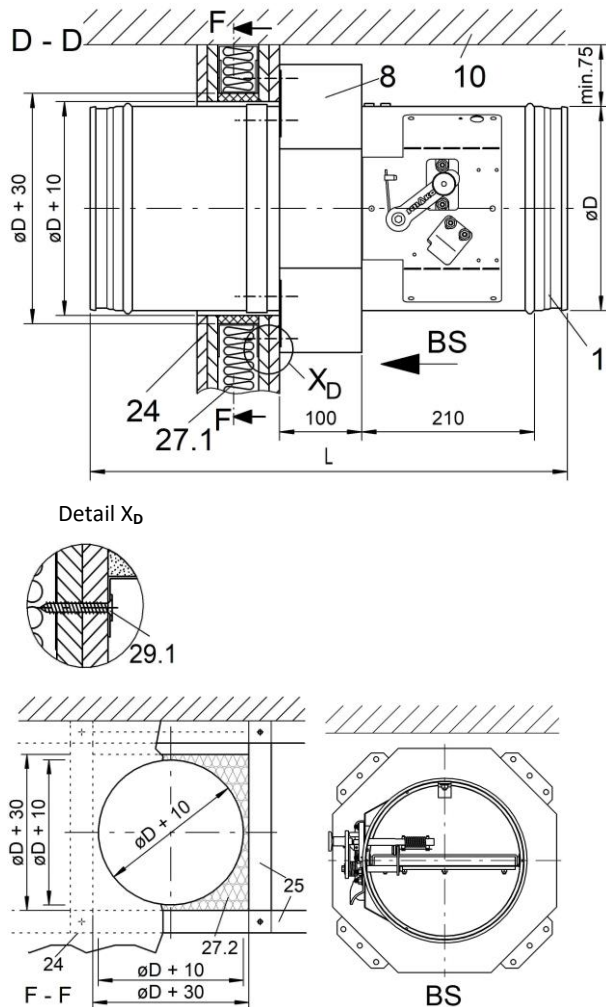


Figure 42: Dry installation on lightweight partition wall with mounting frame AR under solid ceiling, during the assembly of the wall

Installation procedure during the assembly of the wall

- Mount the metal stud frame, provide necessary metal post exchange parts (pos. 25) as shown on Figure 40 and Figure 41.
- Insert the mineral wool (of the wall), also in the area of the metal post exchange parts. If no mineral wool is to be used for the wall itself, mineral wool (pos. 27.2) must be inserted in the area of the exchange parts.
- Mount the wall panellings on both sides (pos. 24).
- Make the required circular recess in the centre of the circumferential metal post exchange parts (diameter: $\varnothing D + 10$ mm, see Figure 41/41).
- Mount (slide in) the BSK-RPR (pos. 1) together with the mounting frame AR (pos. 8) flush with the wall. Align the damper (an even circumferential annular gap is visible on the side of the mounting frame opposite the wall/the operating side of the damper). Fasten the BSK-RPR as shown on Figure 43 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)

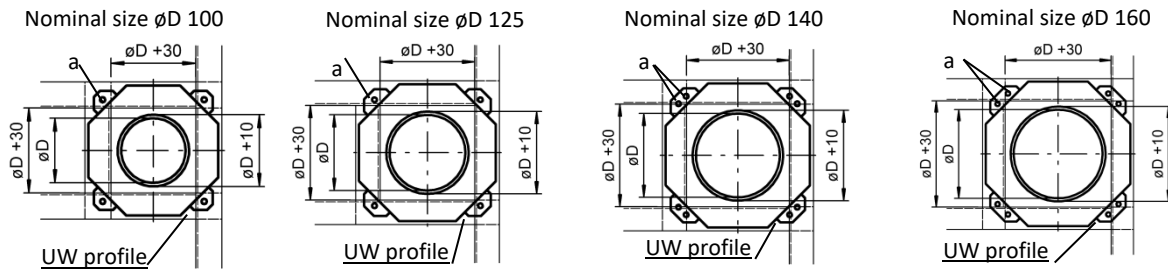
26 Profile CW 50/50/06 (for wall thickness = 100 mm, for larger wall thicknesses, the profiles must be adapted accordingly)

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

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

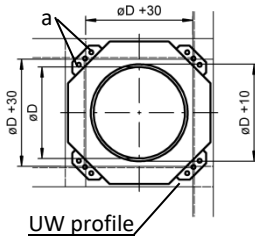
29.1 Drywall screws (on site, e.g. TN 3.5 x 45 and suitable U-washers)

Overview of the installation of metal posts and exchange parts, during the assembly of the wall

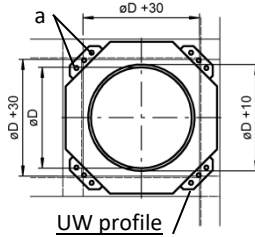


a = for Ø100 - Ø160 use all fastening points per lug and screw them down in the circumferential profiles!

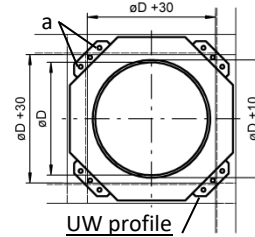
Nominal size ØD 180



Nominal size ØD 200



Nominal size ØD 224 - 500



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 43: Dry installation on lightweight partition wall with mounting frame AR – metal posts and exchange parts, during the assembly of the wall

After the assembly of the wall

The installation proposal shown refers to the positioning of the metal posts and exchange parts after the assembly of the wall

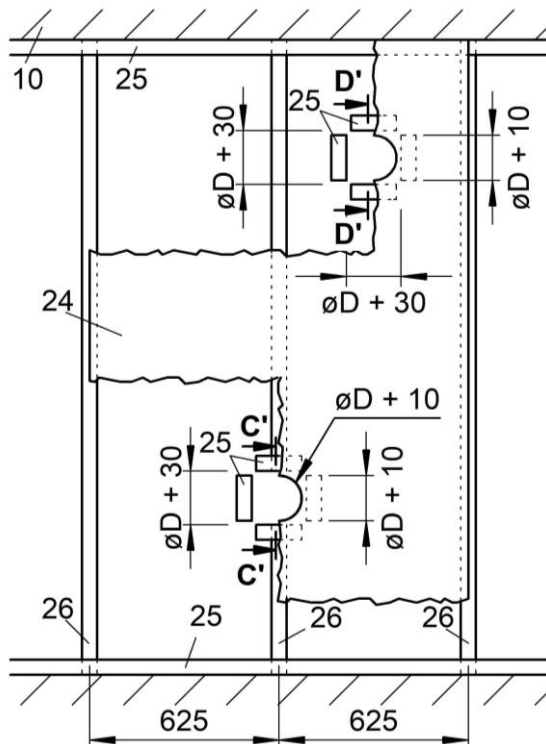


Figure 44: Metal stud frame plus required exchange parts for BSK-RPR with mounting frame AR (dry installation), after the assembly of the wall

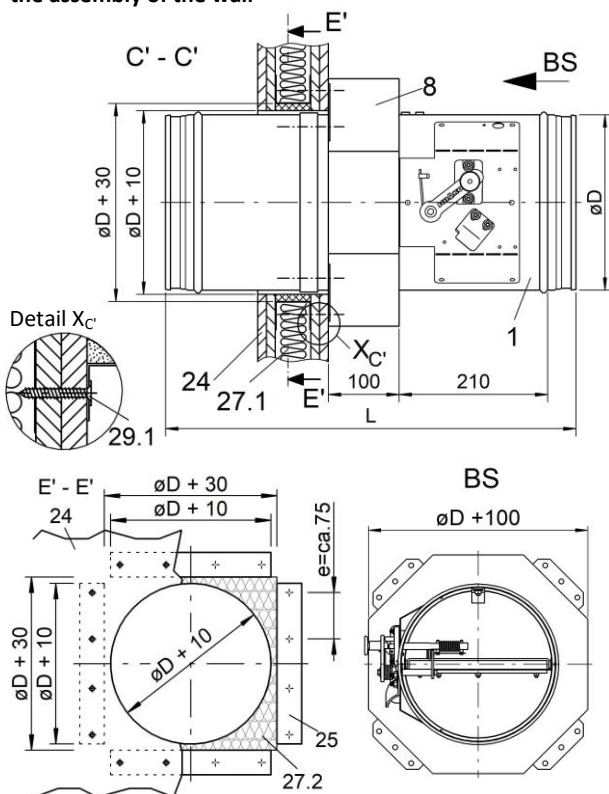


Figure 45: Dry installation on lightweight partition wall with mounting frame AR, after the assembly of the wall

After the assembly of the wall under solid ceiling

- Dry installation, after the assembly of the wall ("subsequently"), under solid ceiling does not constitute a sliding ceiling connection, but requires additional accessories.

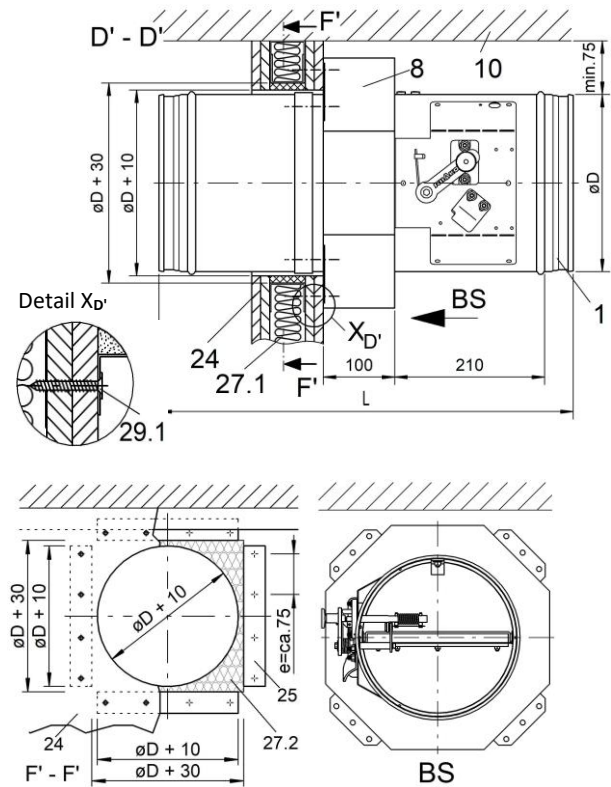


Figure 46: Dry installation on lightweight partition wall with mounting frame AR under solid ceiling, after the assembly of the wall

Installation procedure after the assembly of the wall

- Mount the metal stud frame and assemble the wall according to the specifications of the wall manufacturer.
- Provide a recess for subsequent dry installation of the BSK-RPR (pos. 1) along with the mounting frame AR (pos. 8) in the wall (diameter: ØD + 10 mm, see Figure 44/44).
- Slide in UW-exchange profiles (pos. 25) and screw them down (drywall screws TN 3.5x35) to the wall panelling.
- The empty spaces/cavities created when inserting the UW-exchange profiles must be filled/stuffed with mineral wool (pos. 27.2) up to the recess, see Figure 45.
- Mount (slide in) the BSK-RPR (pos. 1) together with the mounting frame AR (pos. 8) flush with the wall. Align the damper (an even circumferential annular gap is visible on the side of the mounting frame opposite the wall/the operating side of the damper). Fasten the BSK-RPR as shown on Figure 47 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 EN 13501-1, apparent density $\geq 100 \text{ kg/m}^3$, melting point $\geq 1000 \text{ °C}$)
- 29.1 Drywall screws (on site, e.g. TN 3.5 x 45 and suitable U-washers)

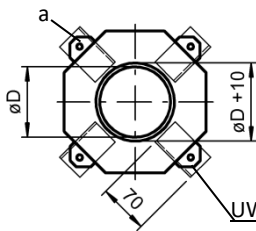
Installation video (YouTube):



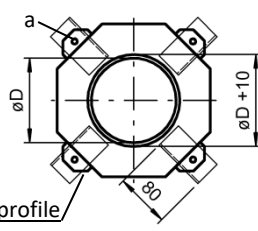
<https://bit.ly/3xqrEzM>

Overview of the installation of the UW-exchange profiles after the assembly of the wall

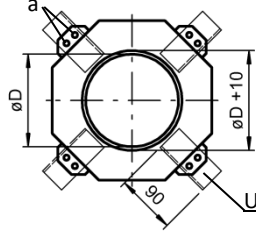
Nominal size $\varnothing D 100$



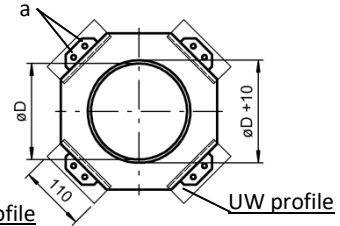
Nominal size $\varnothing D 125$



Nominal size $\varnothing D 140$

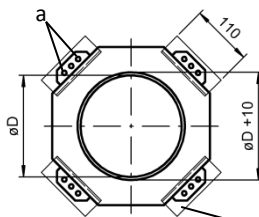


Nominal size $\varnothing D 160$

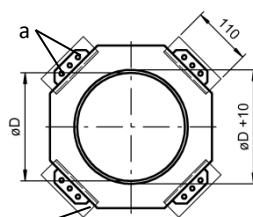


a = for $\varnothing D 100 - \varnothing D 160$ use all fastening points per lug and screw them down in the UW profiles (4 pieces)!

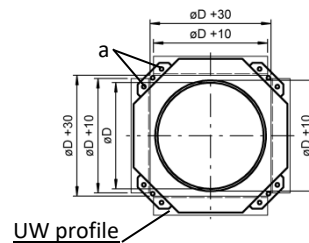
Nominal size $\varnothing D 180$



Nominal size $\varnothing D 200$



Nominal size $\varnothing D 224 - 500$



a = for $\varnothing D 180 - \varnothing D 500$ 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 47: Dry installation on lightweight partition wall with mounting frame AR – UW-exchange profiles after the assembly of the wall

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)

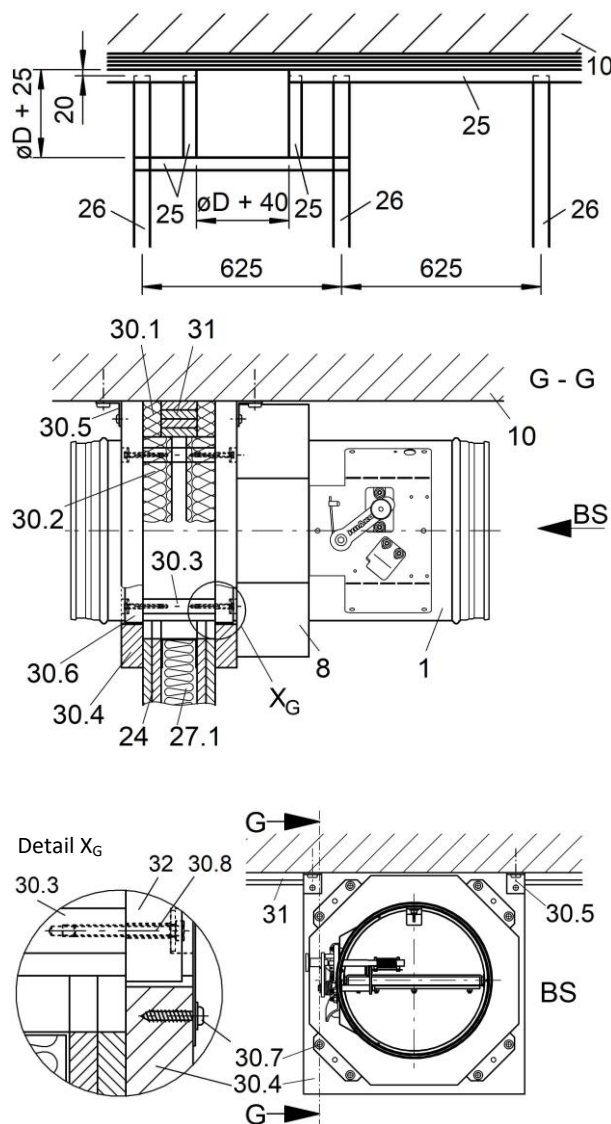


Figure 48: Installation kit GDL for installation in lightweight partition walls with metal posts and panelling on both sides with sliding ceiling connection

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 48. 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 $b = \varnothing D + 40$ 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 $b = 50 \times d = 25$ 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 dry-wall 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 $\geq 100 \text{ kg/m}^3$, melting point $\geq 1000^\circ\text{C}$)

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

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 $d = 30 \text{ mm}$)

30.5 Suspension bracket (with corresponding fastening screws $\varnothing 5 \times 25$ for fastening to pos. 30.4). Through-hole $\varnothing 6.5$ for dowel fastening to ceiling, suitable dowels or fastening material must be provided on site.

30.6 Intumescent seal (distance from the mounting frame $AR \triangleq \text{wall thickness} + 30 \text{ mm}$, mounting on site in the area of pos. 30.4)

30.7 Fastening screw $\varnothing 5 \times 25$ with suitable U-washer ($\varnothing 5.3 - \text{ISO } 7093$). 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 $M5 \times 45$ (ISO 4017) with suitable U-washer ($\varnothing 5.5 - \text{ISO } 7094$).

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

- 4 strips of $d = 12.5 \text{ mm}$ and $b = 50 \text{ mm}$ 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 $a < 200 \text{ mm}$.

32 Intumescent seal (mounted ex works)

Installation video (YouTube):



<https://bit.ly/3J9WgYM>

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 46).
- 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

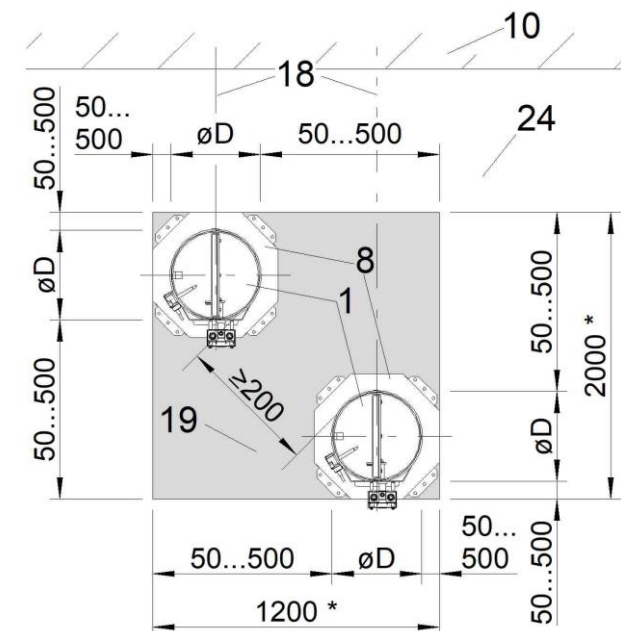
Permissible soft seal system (provided on site):

Manufacturer Hilti

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

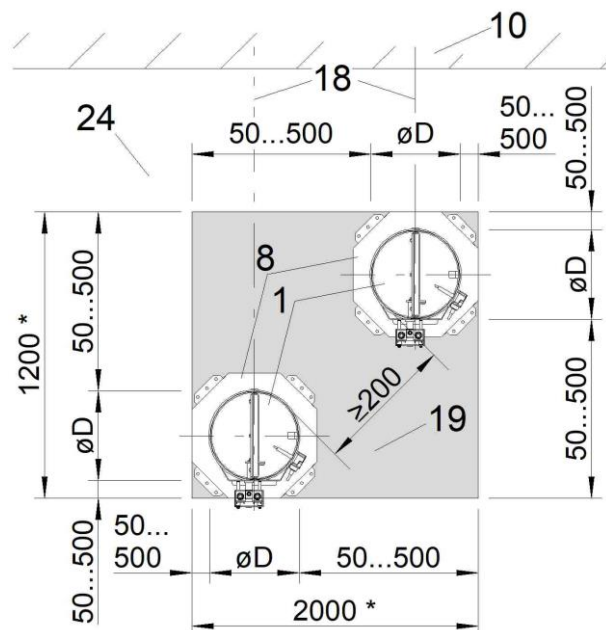
In general, the specifications and processing guidelines of the soft seal manufacturer (in particular the maximum seal dimensions) must be observed.

Dimensions of the min./max. annular gap



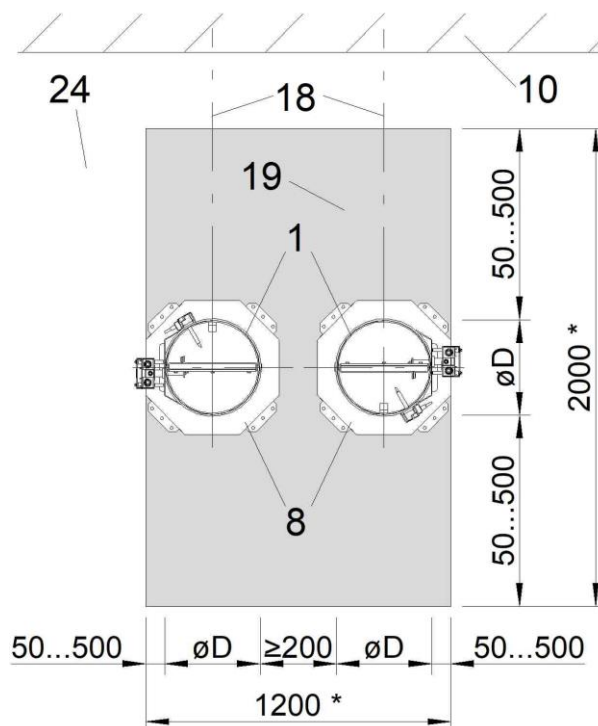
*) $\triangleq$ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 49: Diagram of two installed BSK-RPR with vertical damper blade (example vertical soft seal)



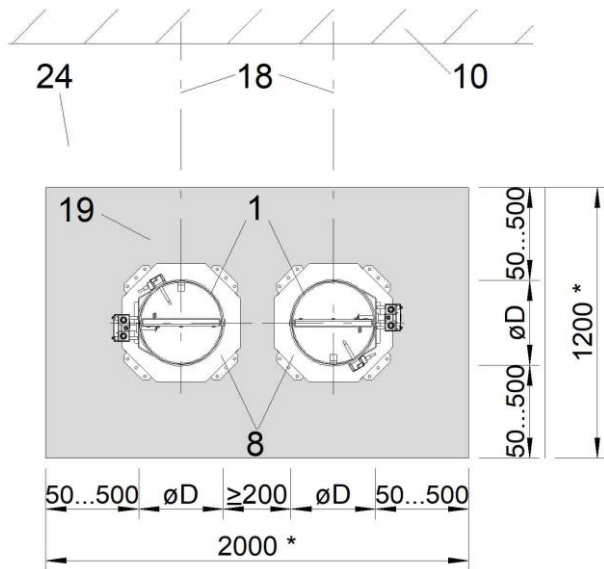
*) $\triangleq$ max. seal dimensions according to the manufacturer's specifications Hilti

Figure 50: Diagram of two installed BSK-RPR with vertical damper blade (example horizontal soft seal)



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

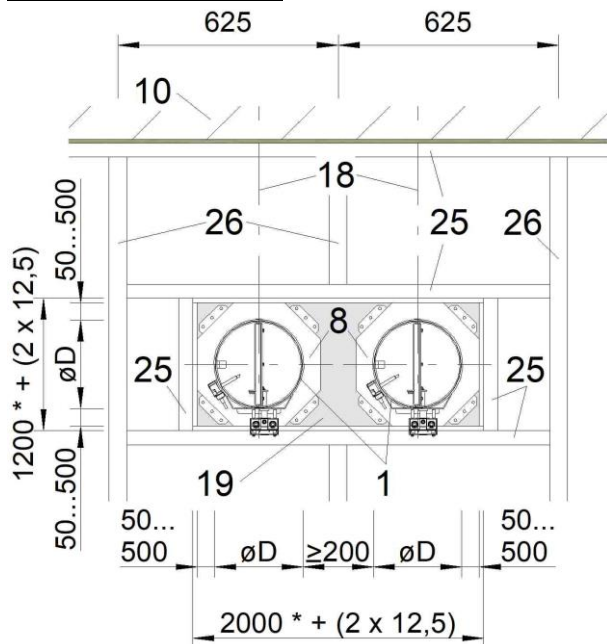
Figure 51: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example vertical soft seal)



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

Figure 52: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example horizontal soft seal)

Wall thickness = 100 mm



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

Figure 53: Metal posts plus required exchange parts and reveal (for wall thickness = 100 mm)

Sectional view for wall thickness = 100 mm

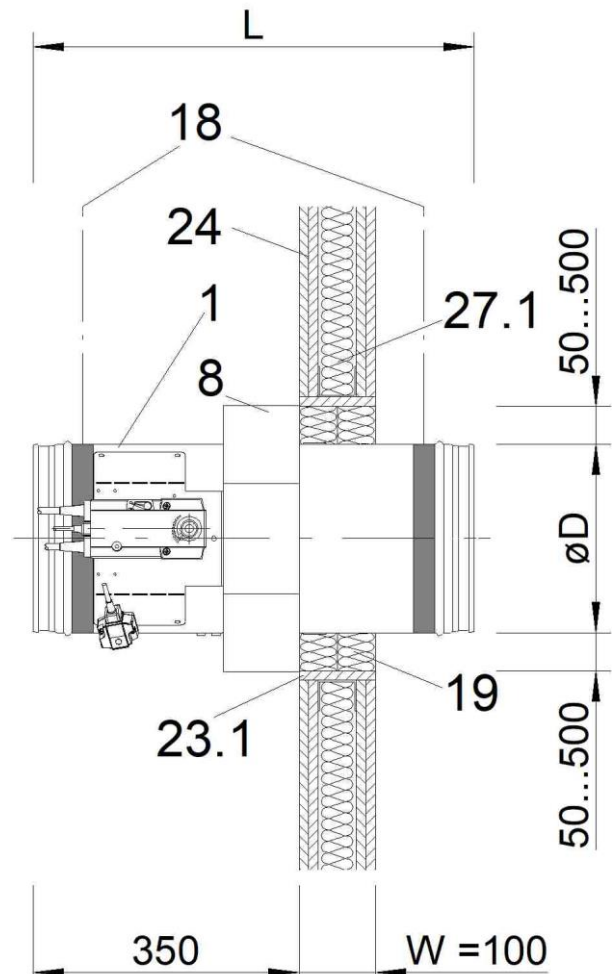
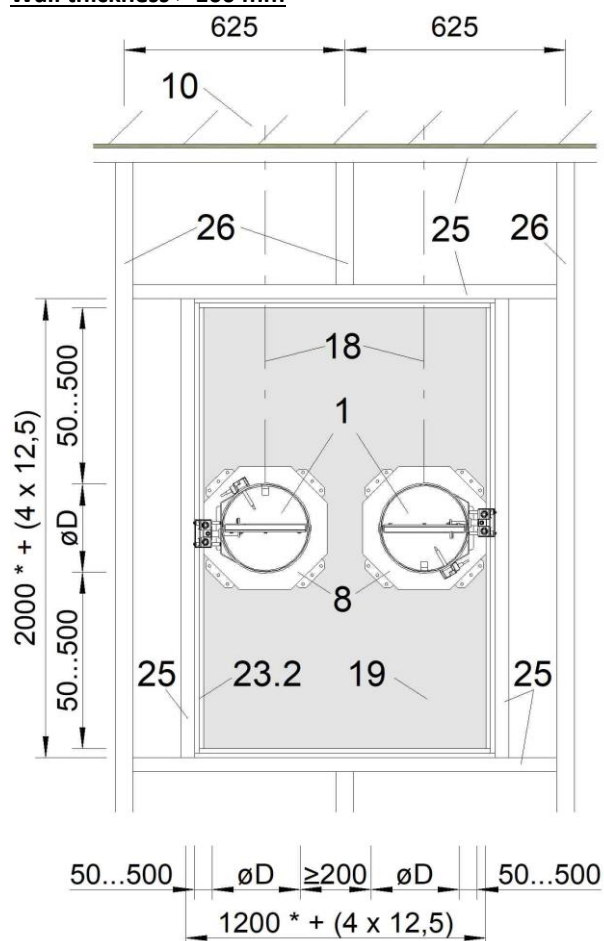


Figure 54: Installation in metal post wall (wall thickness = 100 mm)

Wall thickness > 100 mm



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

Figure 55: Metal posts plus required exchange parts and reveal (for wall thickness > 100 mm)

Sectional view for wall thickness > 100 mm

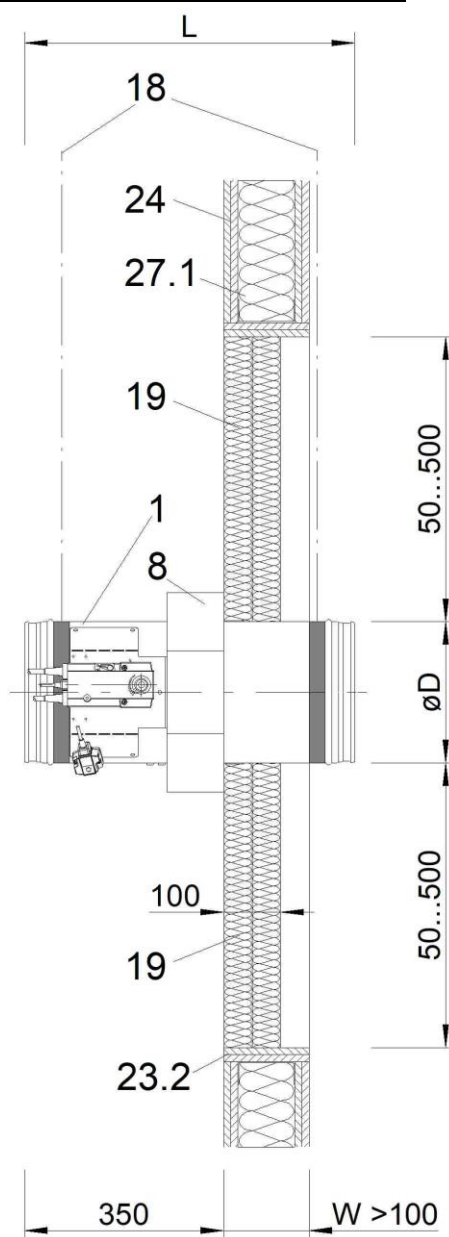


Figure 56: Installation in metal post wall (wall thickness > 100 mm)

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 complied with. The annular gap must be sealed with two layers of firestop boards (pos. 19.1) of the Hilti soft seal system (see p. 31, 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 46.

- 1 Fire damper BSK-RPR
- 8 Mounting frame AR
- 10 Solid ceiling
- 18 Suspension (provided on site)
- 19 Hilti soft seal system (ETA-11/0429):
 - 19.1 Firestop boards CFS-CT B 1S 140/50 or CP 673 PF
 - 19.2 Firestop coating CFS-CT or CP 673
 - 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 $W \geq 75$ 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.

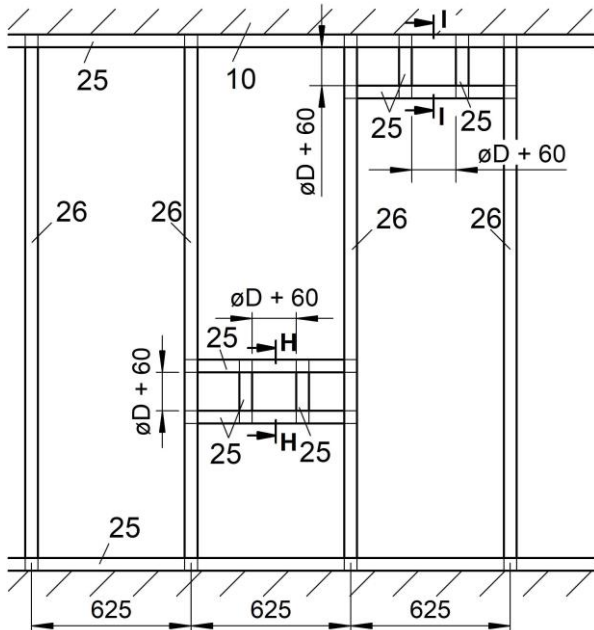


Figure 57: Metal posts plus required exchange parts for wet installation (F30; BSK-RPR 100 to ≤ 250)

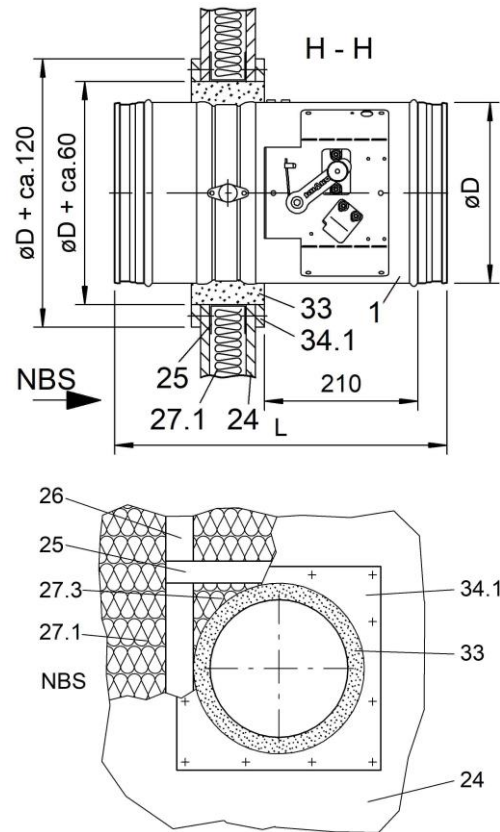


Figure 58: Wet installation in lightweight partition wall (F30; BSK-RPR 100 to ≤ 250)

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 57.
- 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.

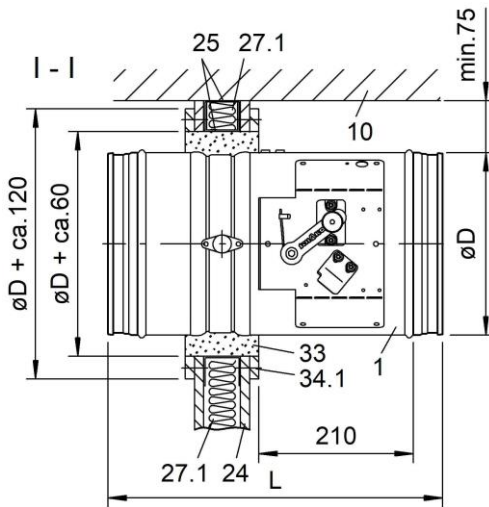


Figure 59: Wet installation in lightweight partition wall (F30) under solid ceiling (BSK-RPR 100 to ≤ 250)

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 57. 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 $\geq 30\text{kg/m}^3$, melting point $\geq 1000^\circ\text{C}$)

33 Plaster joint filling with jointing material of the wall

34.1 Double-board layer (plasterboards GKF, on both sides $d = 12.5\text{ mm}$). Fastening: Drywall screws, for example, TN 3.5x35, $a \leq 250\text{ mm}$, 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 also allows "subsequent" installation in a previously completely panelled wall. This requires the existing wall to be made of mineral wool (non-flammable according to EN 13501-1, apparent density $\geq 30 \text{ kg/m}^3$, melting point $\geq 1000^\circ\text{C}$).
- 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.

During the assembly of the wall

The installation proposal shown refers to the positioning of the metal posts and exchange parts during the assembly of the wall

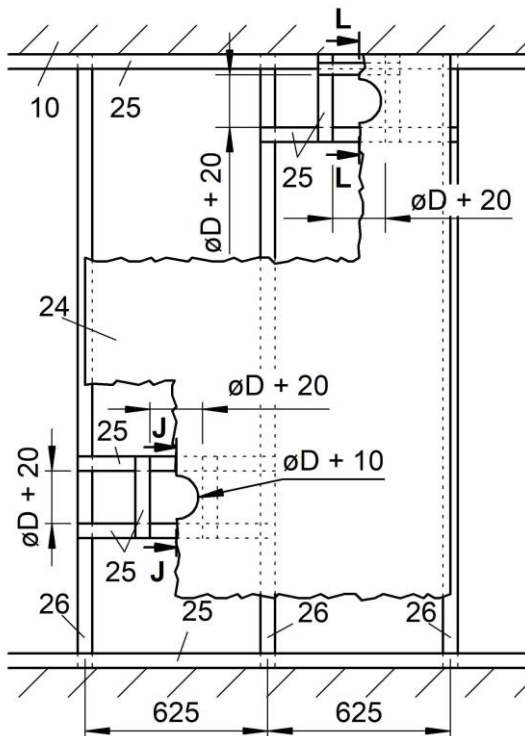


Figure 60: Metal stud frame plus required exchange parts for BSK-RPR with mounting frame AR (dry installation F30/F60), during the assembly of the wall

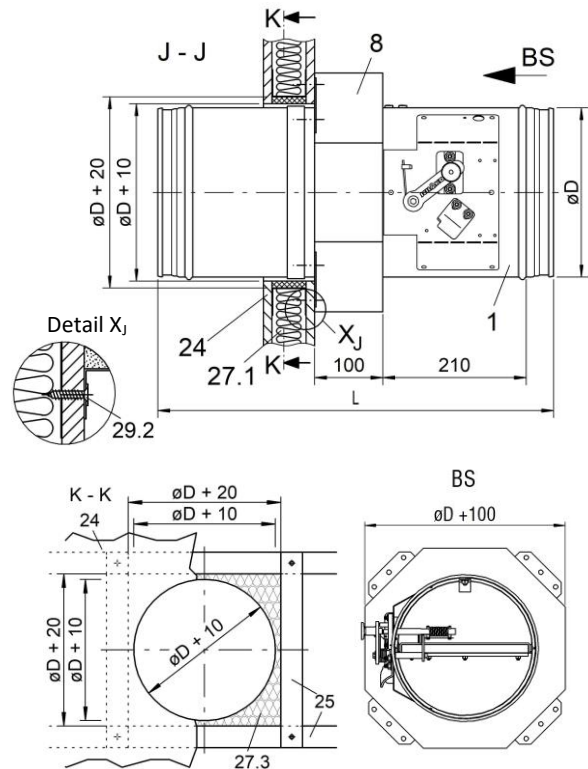


Figure 61: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR, during the assembly of the wall

During the assembly of the wall under solid ceiling

- Dry installation, during the assembly of the wall, under solid ceiling does not constitute a sliding ceiling connection.

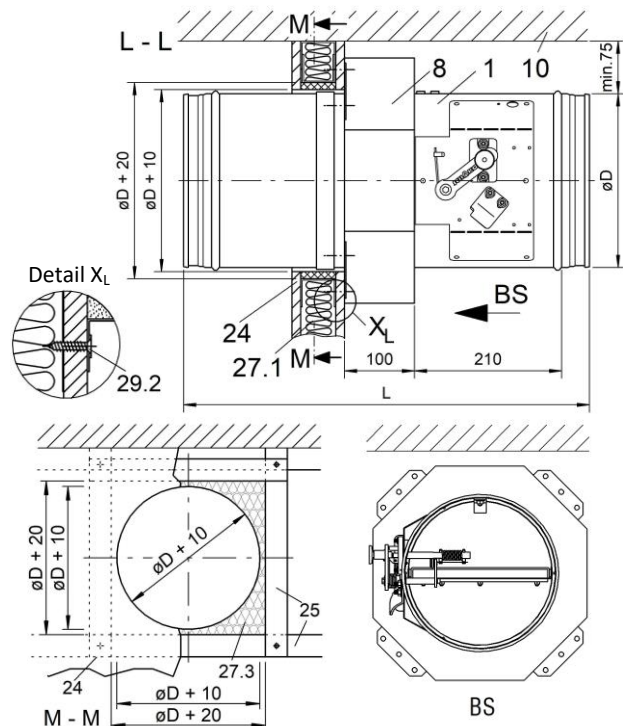


Figure 62: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR under solid ceiling, during the assembly of the wall

Installation procedure during the assembly of the wall

- Mount the metal stud frame, provide necessary metal post exchange parts (pos. 25) as shown on Figure 60 and Figure 61.
- Insert the mineral wool (of the wall), also in the area of the metal post exchange parts. If no mineral wool is to be used for the wall itself, mineral wool (pos. 27.3) must be inserted in the area of the exchange parts.
- Mount the wall panellings on both sides (pos. 24).
- Make the required circular recess in the centre of the circumferential metal post exchange parts (diameter: $\varnothing D + 10$ mm, see Figure 61).
- Mount (slide in) the BSK-RPR (pos. 1) together with the mounting frame AR (pos. 8) flush with the wall. Align the damper (an even circumferential annular gap is visible on the side of the mounting frame opposite the wall/the operating side of the damper). Fasten the BSK-RPR as shown on Figure 63 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 = 75 mm, for larger wall thicknesses, the profiles must be adapted accordingly)

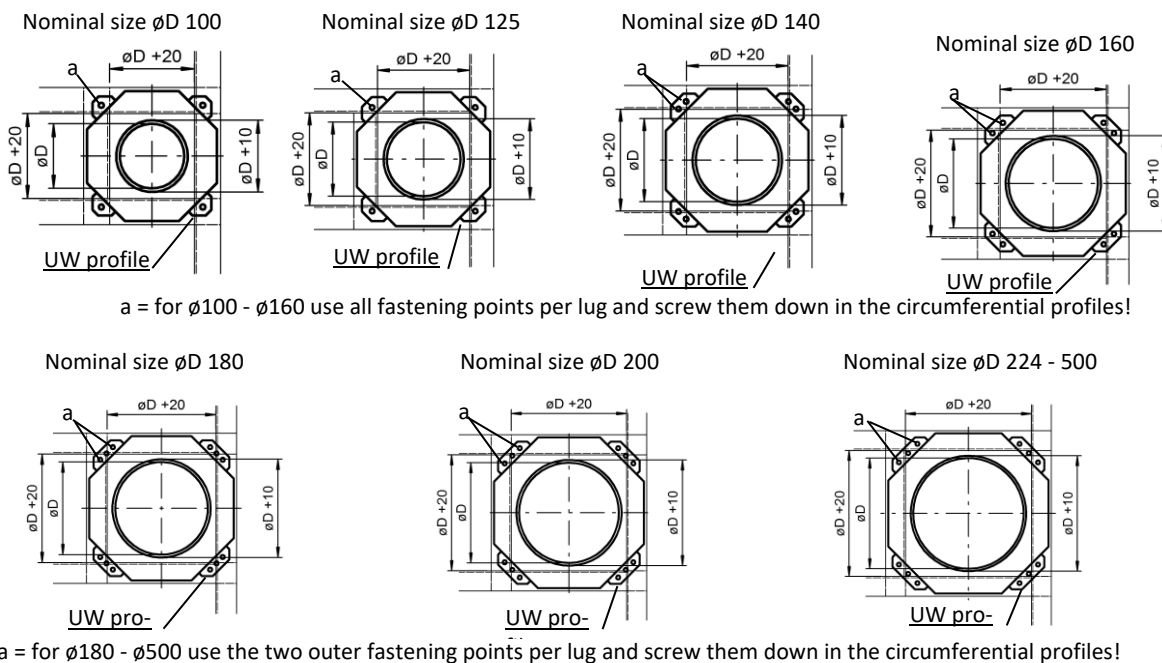
26 Profile CW 50/50/06 (for wall thickness = 75 mm, for larger wall thicknesses, the profiles must be adapted accordingly)

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

27.3 Mineral wool (non-flammable according to EN 13501-1, apparent density $\geq 30 \text{ kg/m}^3$, melting point $\geq 1000^\circ\text{C}$)

29.2 Drywall screws (on site, e.g. TN 3.5 x 35 and suitable U-washers)

Overview of the installation of metal posts and exchange parts, during the assembly of the wall



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

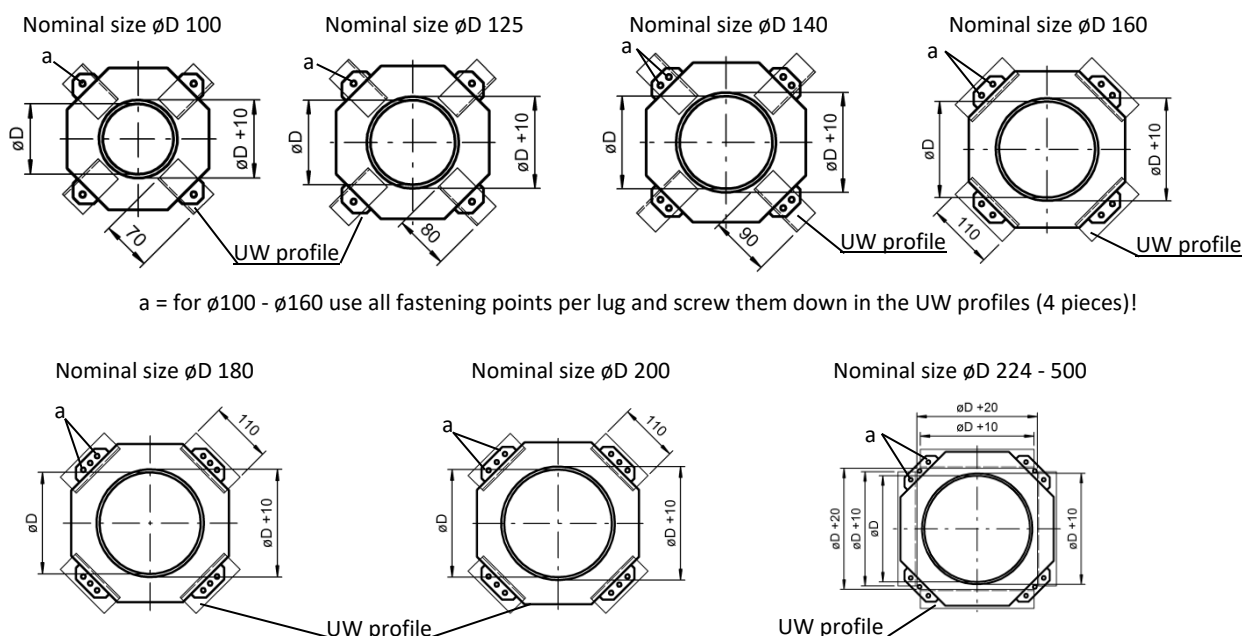
Figure 63: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR – metal posts and exchange parts, during the assembly of the wall



- Mount the metal stud frame and assemble the wall according to the specifications of the wall manufacturer.
- Provide a recess for subsequent dry installation of the BSK-RPR (pos. 1) along with the mounting frame AR (pos. 8) in the wall (diameter: ØD + 10 mm, see Figure 64/64).
- Slide in UW-exchange profiles (pos. 25) and screw them down (drywall screws TN 3.5x25) to the wall panelling.
- The empty spaces/cavities created when inserting the UW-exchange profiles must be filled/stuffed with mineral wool (pos. 27.3) up to the recess, see Figure 67.
- Mount (slide in) the BSK-RPR (pos. 1) together with the mounting frame AR (pos. 8) flush with the wall. Align the damper (an even circumferential annular gap is visible on the side of the mounting frame opposite the wall/the operating side of the damper). Fasten the BSK-RPR as shown on Figure 67 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).

- 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 = 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 $\geq 30 \text{ kg/m}^3$, melting point $\geq 1000^\circ \text{C}$)
- 29.2 Drywall screws (on site, e.g. TN 3.5 x 35 and suitable U-washers)

Overview of the installation of the UW-exchange profiles after the assembly of the wall



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

Figure 67: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR – UW-exchange profiles after the assembly of the wall

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

- Installation in lightweight partition walls (shaft walls) with metal 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.

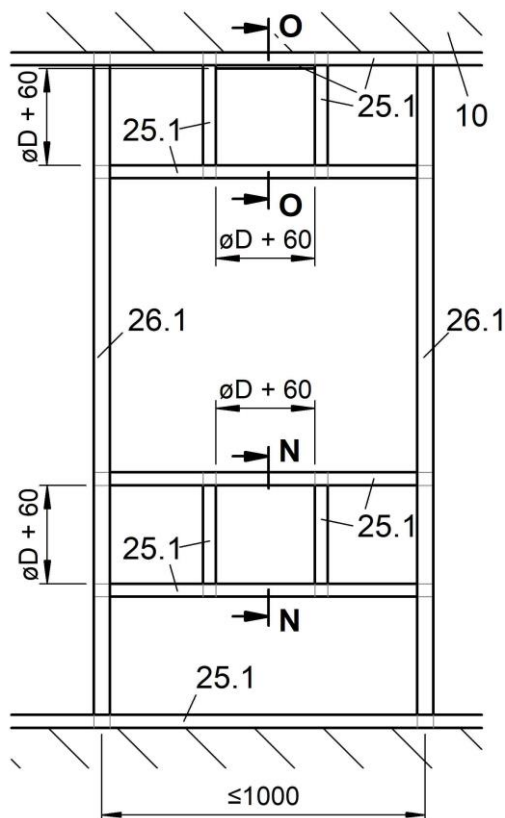


Figure 68: Metal posts plus required exchange parts (shaft wall) for wet installation (BSK-RPR 100 to ≤ 250)

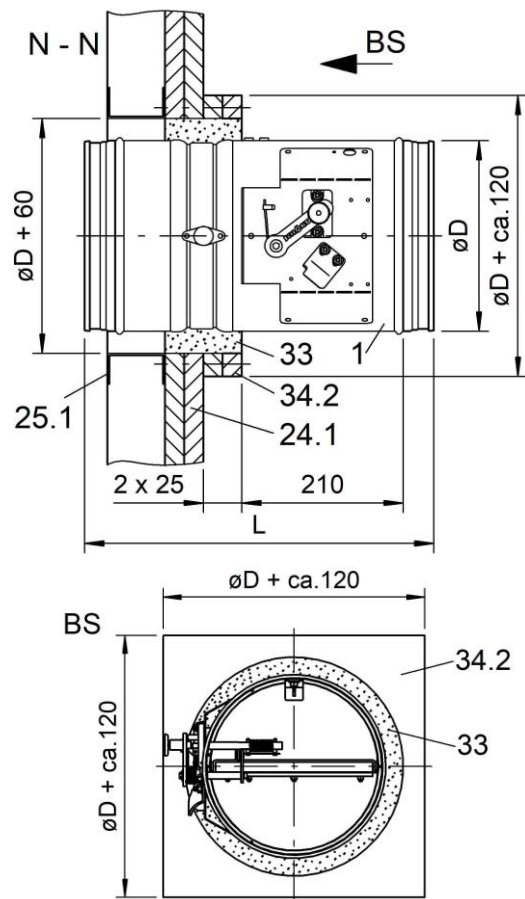


Figure 69: Wall panelling and double-board layers (shaft wall) BSK-RPR nominal sizes 100 to ≤ 250

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 68.
- 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.

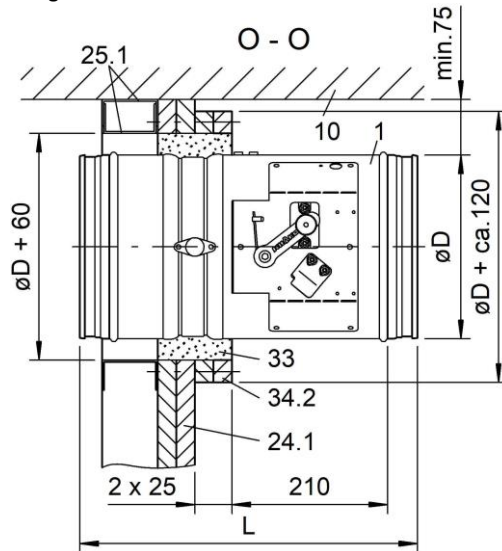


Figure 70: Wet installation in shaft wall under solid ceiling (BSK-RPR 100 to ≤ 250)

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 68 (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.)

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, $\varnothing 4.2 \times 90$, $a \leq 300$ 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, $\varnothing 5.1 \times 110$, $a \leq 200$ 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.

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.

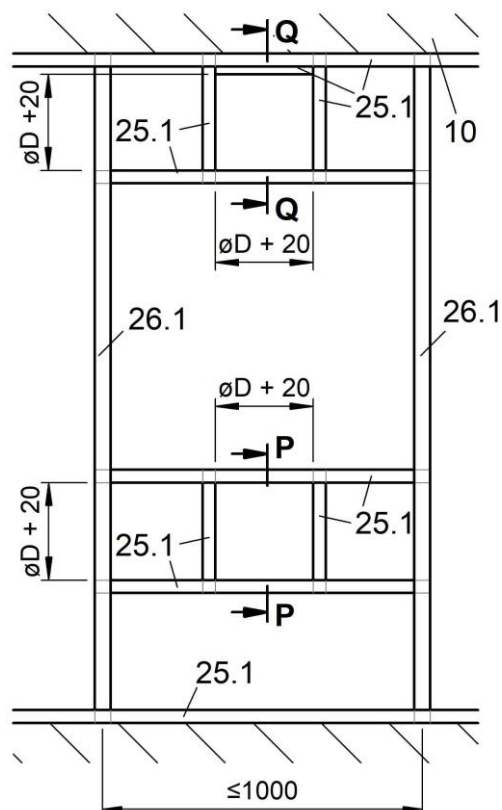


Figure 71: Metal posts plus required exchange parts for dry installation with mounting frame AR

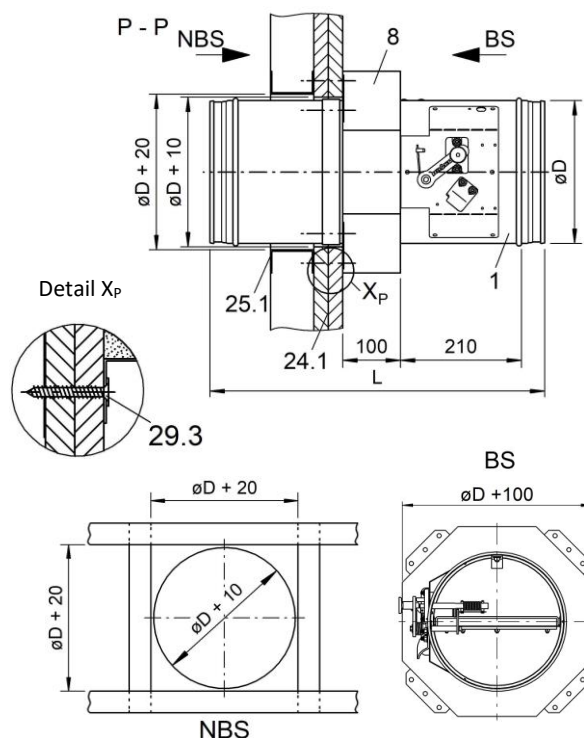


Figure 72: Dry installation on shaft wall with mounting frame AR

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 71.
- 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 dry-wall 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.

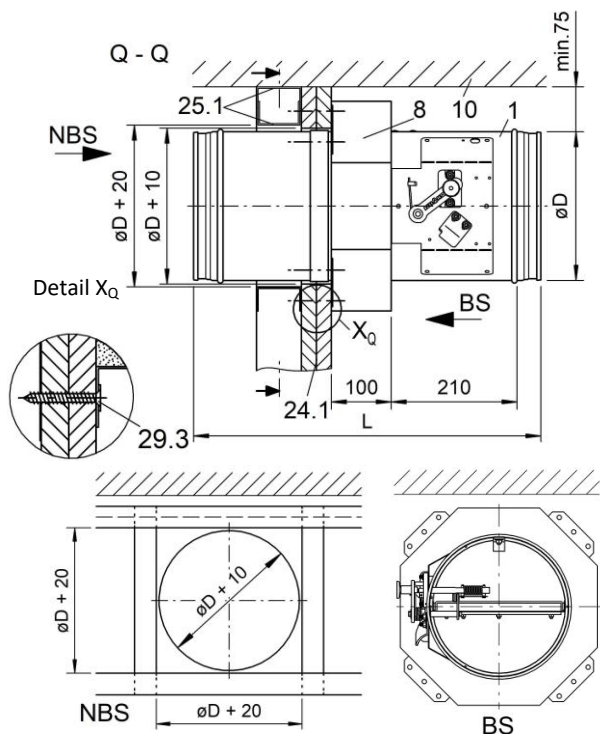


Figure 73: Dry installation on shaft wall with mounting frame AR under solid ceiling

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 71.
- 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 dry-wall 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

When used in HVAC systems, the fire damper BSK-RPR must be connected to the ventilation ducts of the HVAC system on one or 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. 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.

If flexible spigots (SCHAKO type FS) are used and the spigots can also be mounted directly to the damper, the free movement of the damper blade must always be ensured. The free cross-section may be reduced due to installation. Alternatively, flexible ventilation ducts can be used.

In solid shaft walls

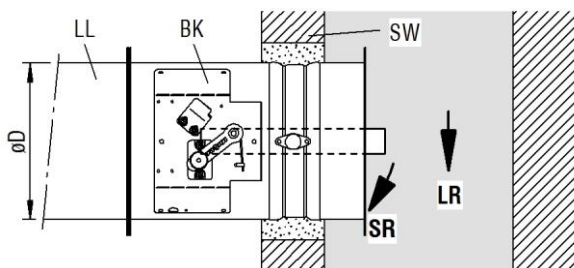


Figure 74: Connection example of a ventilation duct in solid shaft walls

With ventilation duct arranged on one side and security grille

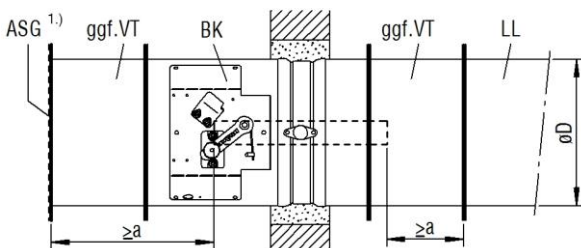


Figure 75: Connection example of a ventilation duct arranged on one side and security grille

On both sides with ventilation ducts

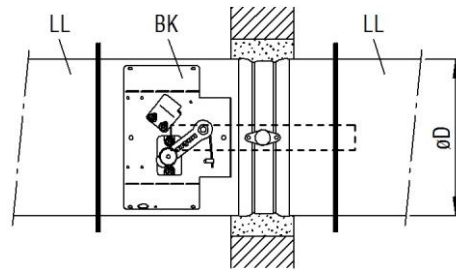


Figure 76: Connection example of ventilation ducts on both sides

On both sides with flexible spigot and ventilation ducts

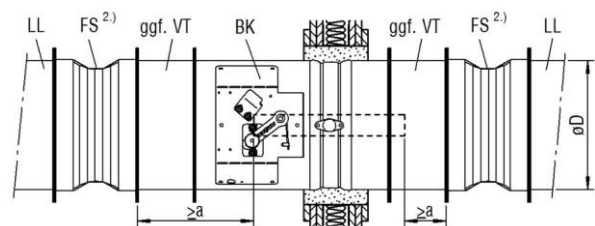


Figure 77: Connection example on both sides with flexible spigot and ventilation ducts

- | | |
|-----|---|
| 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)

SUSPENDED FIRE DAMPER

General

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

- Dry installation away from solid walls with mounting frame AR
- Dry installation with soft seal

For dry installation away from solid walls with mounting frame AR, the following suspensions must be provided in the immediate area of the fire damper (see Figure 79):

- 2 M10 threaded rods per fire damper

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

For dry installation with soft seal, 2 M10 threaded rods must be provided for each fire damper. Threaded rods from a length of 1500 mm must be coated, for example according to the current version of the Promat® Manual, Design 478.

For static design of the suspension systems, the calculated tensile stress must be limited to 6 N/mm² and shear stress to 10 N/mm².

Suspension systems must be fastened to solid ceilings. For this purpose, fastening systems such as dowels, anchor rods, injection systems, etc., with proven fire resistance duration must be used and matched to the ceiling designs. Push-through mounting with fasteners above the solid ceilings is also possible, see Figure 78.

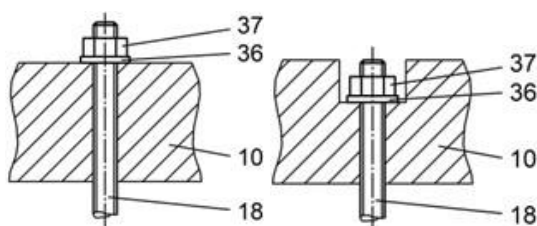


Figure 78: Push-through mounting (Detail A)

- 10 Solid ceiling
- 11 Fire-resistant ventilation duct (L90)
- 16 Hilti MQ 41/3 or equivalent
- 18 M10 threaded rod
- 36 Washer, e.g. DIN EN ISO 7089/7090 (suitable for pos. 18)
- 37 Hexagon nut e.g. ISO 4032 (suitable for pos. 18)

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

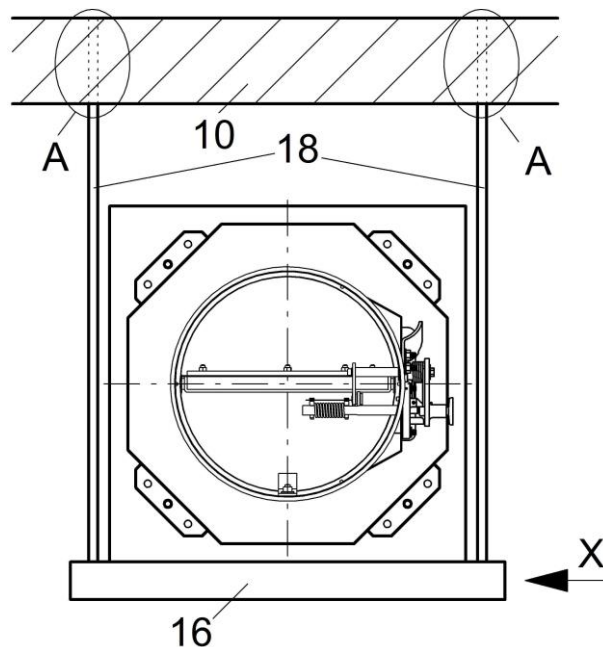


Figure 79: Suspension in the immediate area of the fire damper

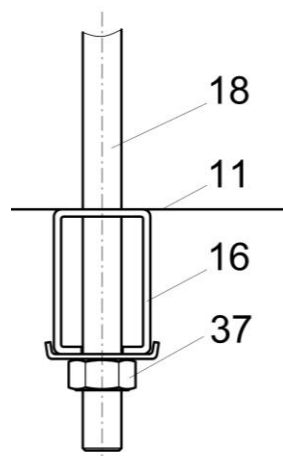


Figure 80: Mounting rail (view X)

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

The fire damper must be permanently suspended from the solid ceiling on both sides of the wall.

For both dowel mounting and push-through mounting, the threaded rods must be hinged to the solid ceiling. To do so, components with fire protection certificate are required (e.g. sliding hangers, pendulum hangers).

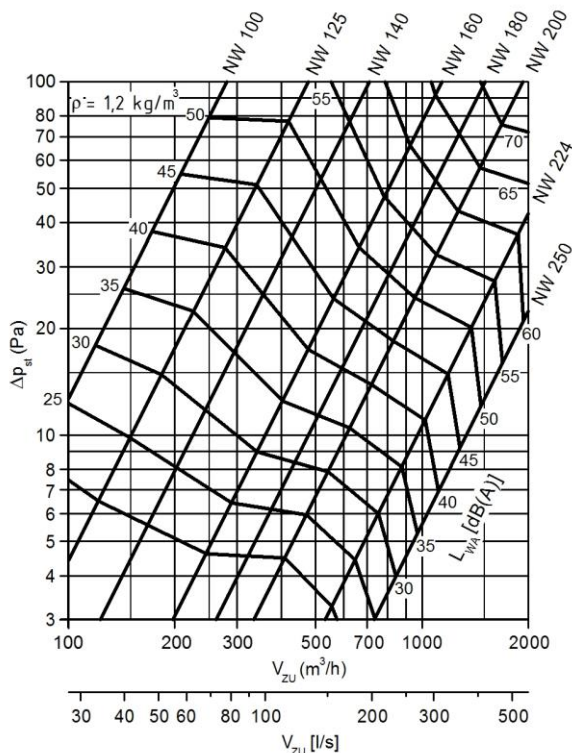
In general, building regulations can differ from country to country; these are mandatory.

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

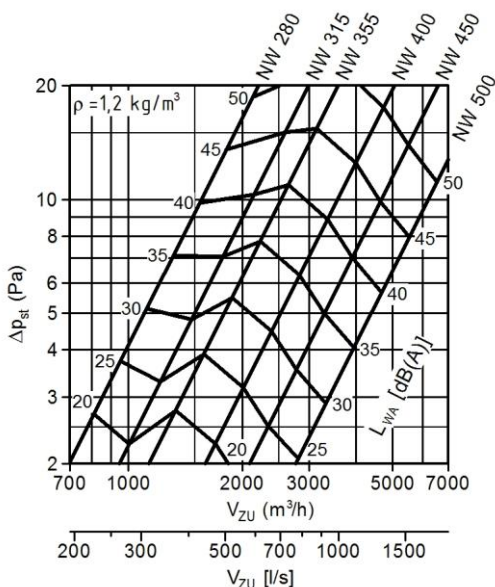


Diagram 1: Pressure loss and flow generated noise without security grille

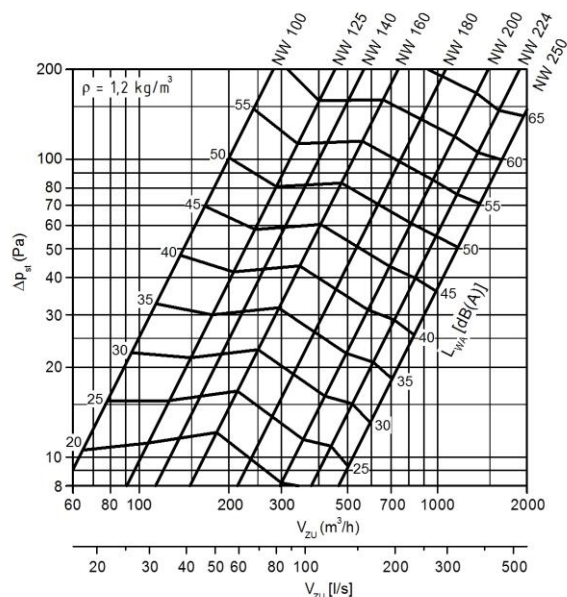
Application limits:

max. operating pressure of 1000 Pa at $v_{\text{face}} \leq 10$ m/s.

Construction subject to change
No return possible

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

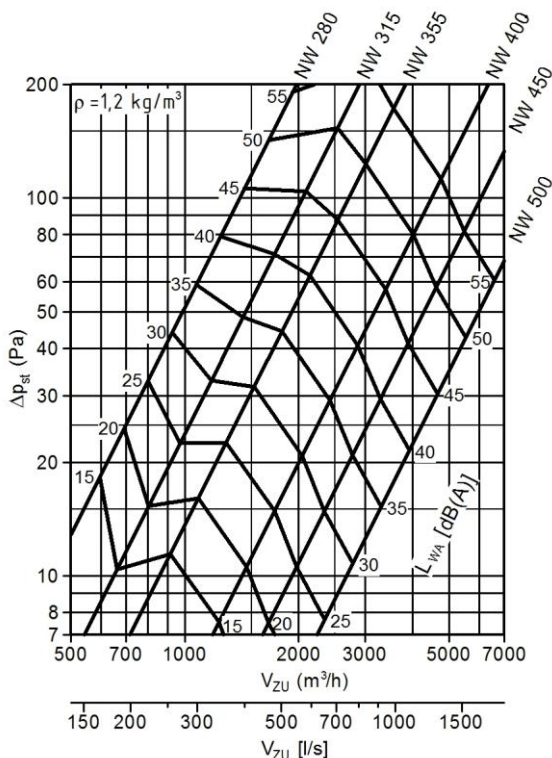


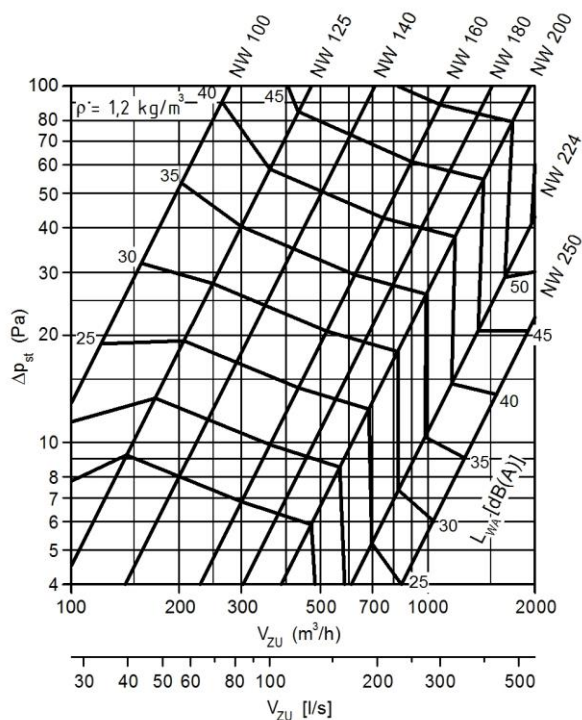
Diagram 2: Pressure loss and flow generated noise without security grille on one side

Application limits:

max. operating pressure of 1000 Pa at $v_{\text{face}} \leq 10$ m/s.

Pressure loss and radiated noise

Nominal sizes 100 to ≤ 250



Nominal sizes > 250 to 500

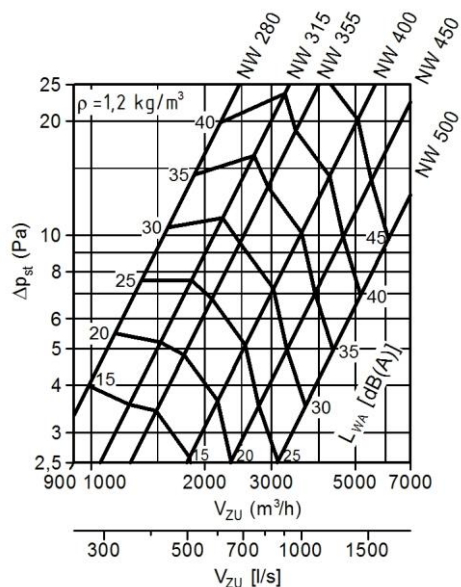


Diagram 3: Pressure loss and radiated noise

Application limits:

max. operating pressure of 1000 Pa at $v_{face} \leq 10$ 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 6: Free cross-section [m²]

Weight table [kg]

No- minal 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 7: Weight table [kg] BSK-RPR-S ¹⁾ approx. weight with additional mounting frame

Nomi- nal size	øD [mm]	L = 375		L = 500	
		Manual release	Spring return actua- tor	Manual release	Spring return actua- tor
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 8: Weight table [kg] BSK-RPR-F

All data given are approximate

ACCESSORIES

Available at an extra charge

- Housing 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)
- Housing 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
- Spring return actuators B10/B11, B42, S00/S01, X14/X15
- Magnetic clamps MH1 (24 V DC) / MH2 (230 V AC)
- Pulse magnet MI1 (24 V DC)
- Smoke detection system type RMS (consisting of smoke detector RMSII-L and relay module RM), 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.)}
- 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, DD coating (RAL 7035 / light-grey) possible.
 2.) Standard design galvanised sheet steel.
 3.) For technical descriptions and documents, see respective valid 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).

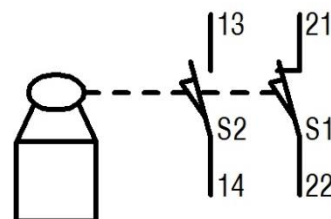


Figure 81: Circuit diagram limit switch type ES

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

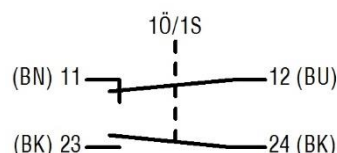


Figure 82: Circuit diagram limit switch type ES-Ex

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")

SPRING RETURN ACTUATORS

Spring return actuators B10/B11

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

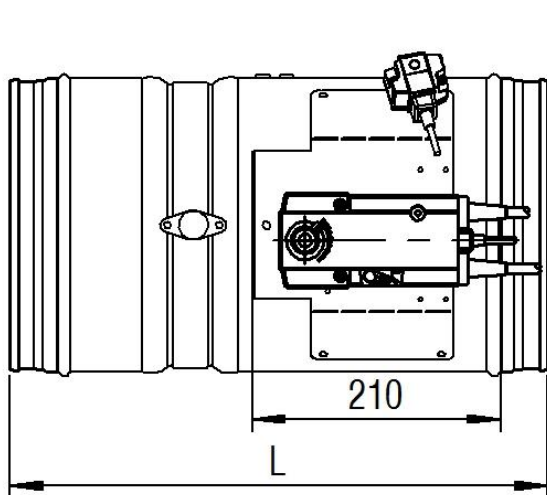
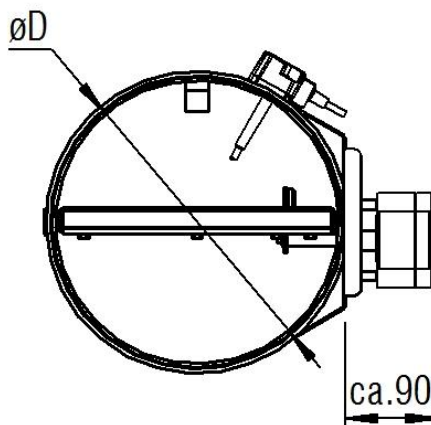


Figure 83: BSK-RPR with spring return actuator B10/B11



Electric spring return actuator with thermoelectric release device BAT.

Connection diagram B10/B11

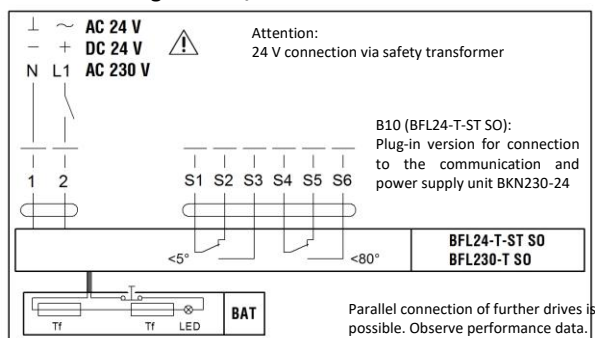


Figure 84: Connecting diagram B10/B11

Attention!

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

- 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 mm ² (halogen-free) + 3-pin connector	
Auxiliary switch connection	Cable 1 m, 6 x 0.75 mm ² (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	III Safety extra low voltage	II protective insulation
Protection class auxiliary switch IEC/EN	II protective insulation	
Degree of protection IEC/EN	IP 54	
Ambient temperature Normal operation	-30...55°C	
Storage temperature	-40...55°C	
Ambient humidity	95% r.H., nicht kondensierend	

Table 9: Technical data B10/B11

Spring return actuators S00/S01

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

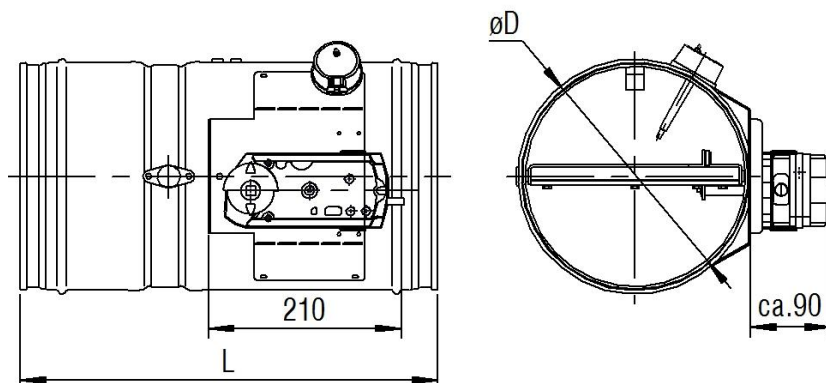


Figure 85: BSK-RPR with spring return actuator S00/S01

LED functions

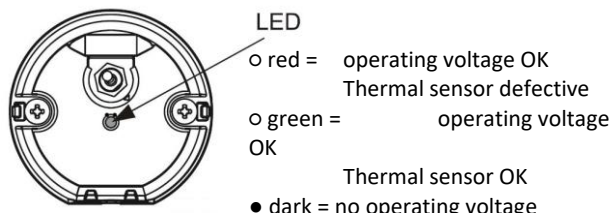


Figure 86: LED functions of spring return actuators S00/S01

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)

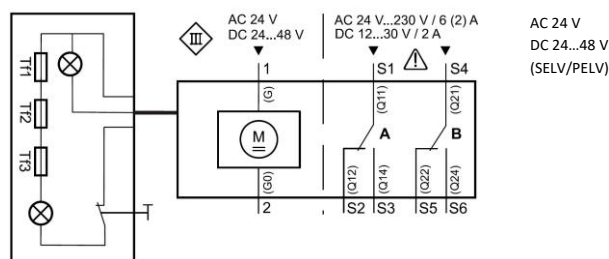


Figure 87: Connection diagram S00

Connection diagram

Spring return actuator S01 (230V AC)

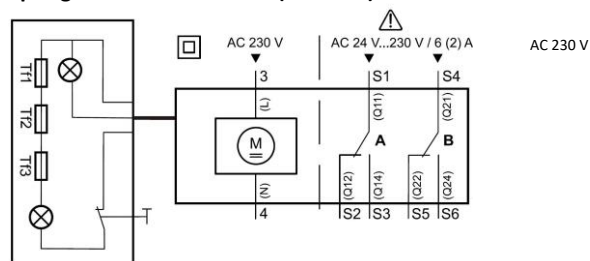


Figure 88: Connection diagram S01

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

Table 10: 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 change-over 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 mm ² (halogen-free) + 3-pin connector	
Auxiliary switch cable (wires S1...S6)	Cable 0.9 m, 6 x 0.75 mm ² (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	IP 54	
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.F. / ohne Betauung (Antrieb) 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 11: Technical data S00/S01

Spring return actuator B42

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

Connection diagram

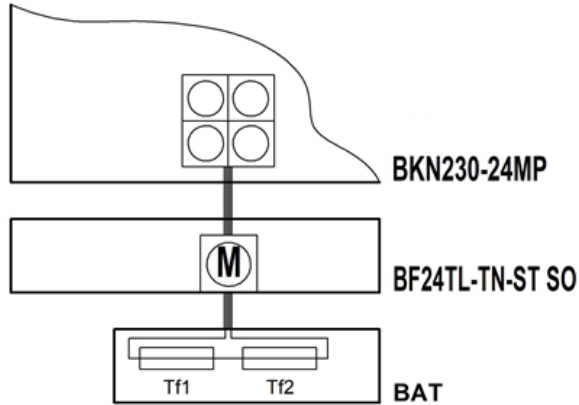


Figure 89: Connection diagram B42

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 X14/X15

X14/X15 (ExMax-5.10-BF)

Electric explosion-protected spring return actuator with safety temperature limiter (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 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 magnet MI1

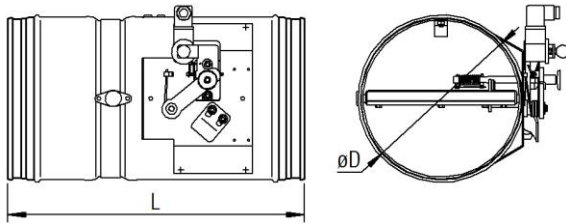


Figure 90: Magnetic clamp/pulse magnet (MH1/MH2/MI1) mounted to BSK-RPR (shown with optional accessories)

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:

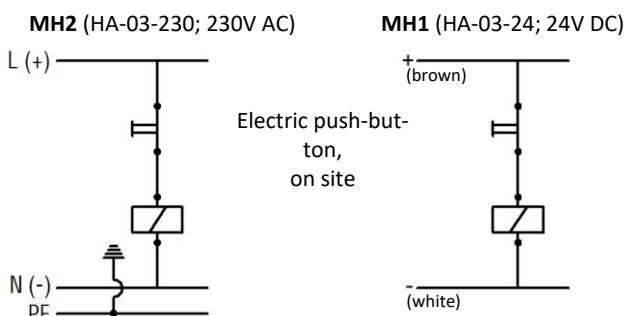


Figure 91: Wiring information magnetic clamps MH1/MH2

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 MI1

Wiring information:

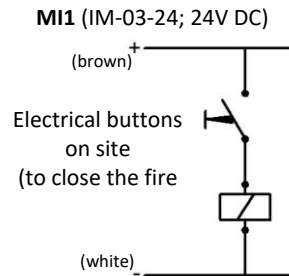


Figure 92: Wiring information for pulse magnet MI1

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

- 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 spigots can also be mounted directly to the damper. During installation, the free movement of the damper blade must always be ensured. The free cross-section may be reduced due to installation.
- 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.

FS-RS

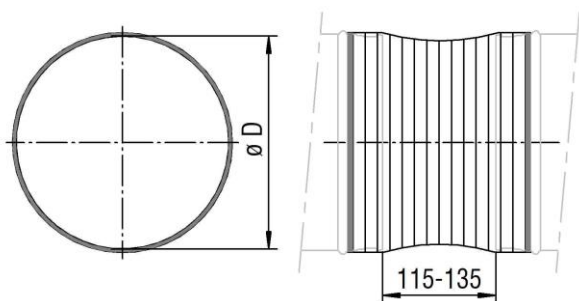


Figure 93: Flexible spigot type FS-RS

FS-RF

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

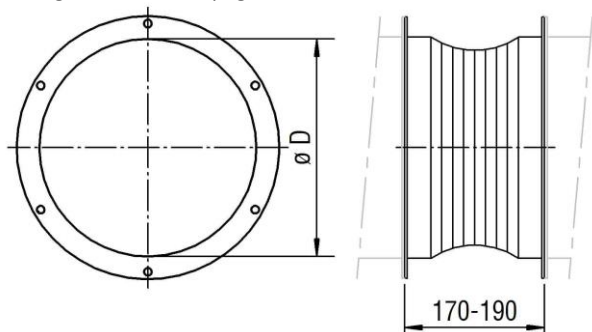


Figure 94: Flexible spigot type FS-RF

Extension piece type VT-RF

- Intended use:
For large wall/ceiling thickness; to ensure the free movement of the damper blade when fitting a finishing protective grating type ASG or a flexible spigot type FS-RF.
- Extension piece made of profiled sheet steel fitted with connecting flanges (VT-RF).

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

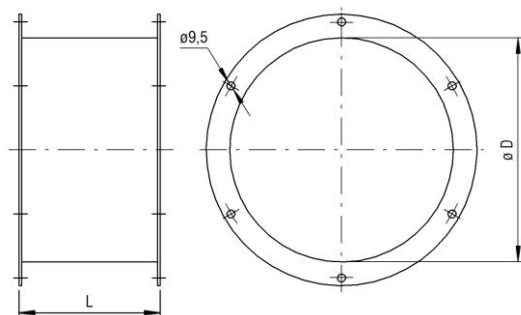


Figure 95: Extension piece type VT-RF

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

Table 12: Length of the extension piece type VT-RF as a function of the nominal size of the fire damper

Note:

Extension pieces for BSK-RPR-S must be made on site from ventilation duct parts.

Finishing protective grating type ASG-RS/-RF

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

ASG-RS for BSK-RPR-S

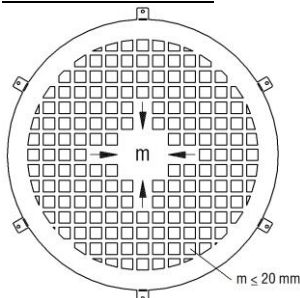


Figure 96: Security grille type ASG-RS

ASG-RF for BSK-RPR-F

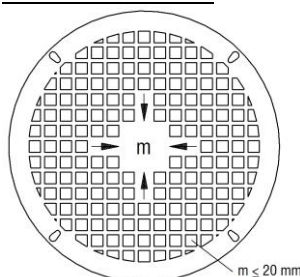


Figure 97: Security grille type ASG-RF

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.

Legend

V_{ZU}	(m^3/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/m^3)	=	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 KG Weidenäcker 9 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	passed	
- Response temperature of the temperature-sensitive measuring sensor		
Response delay (Response time):		passed
- Closing time		
Operational safety:		passed
- Cyclic testing (50 cycles)		
Fire resistance:		
- Cross-section maintained		
- Integrity E		
- Heat insulation I		
- Smoke leakage S		
- Mechanical strength (under E)		
- Cross-section (under E)		
Durability of the Response delay:		passed
- temperature-sensitive measuring sensor		
- Response temperature and load bearing capacity		
Durability of the operational safety:		passed
- Test of the opening and closing cycle		

ORDER CODE BSK-RPR

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	-26

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 **26** = EasyF-B01-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 = fire damper BSK-RPR

02 - MODEL

S = plug-in connection (standard)
 F = Flanged connection

03 - NOMINAL SIZE

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

04 - LENGTH

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

05 – MATERIAL (HOUSING)

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

06 – COATING (HOUSING)

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

07 – DAMPER BLADE VERSION

0 = without coating (standard)
 2 = DD coating

08 – RELEASE TEMPERATURE

72 = 72 °C (standard)
 98 = 98(95)°C

09 - ACTUATOR TYPE

HAN = thermomechanical and manual triggering * (standard)
 B10 = BFL24-T-ST SO *
 B11 = BFL230-T SO *
 B42 = BF24TL-TN-ST SO *
 S00 = GRA126.1E/SO3 (24V)*
 S01 = GRA326.1E/SO2 (230V)*
 MH1 = MAGNETIC CLAMP HA-03-24 *
 MH2 = MAGNETIC CLAMP HA-03-230 *
 MI1 = PULSE MAGNET IM-03-24 *

** suitable for all dimension combinations*

10 - ACCESSORIES

Z00 = without accessories (standard)
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)

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

11 – ADDITIONAL FRAME

R00 = without additional frame (standard)
R04 = Mounting frame AR (only ex works with -S model) ¹⁾

R20 = Installation kit type GDL (for wall thickness = 100 mm, metal post, includes R04) ¹⁾
R21 = Installation kit type GDL (for wall thickness = 120 mm, metal post, includes R04) ¹⁾
R22 = Installation kit type GDL (for wall thickness = 125 mm, metal post, includes R04) ¹⁾
R23 = Installation kit type GDL (for wall thickness = 140 mm, metal post, includes R04) ¹⁾
R24 = Installation kit type GDL (for wall thickness = 150 mm, metal post, includes R04) ¹⁾
R25 = Installation kit type GDL (for wall thickness = 160 mm, metal post, includes R04) ¹⁾
R26 = Installation kit type GDL (for wall thickness = 175 mm, metal post, includes R04) ¹⁾
R27 = Installation kit type GDL (for wall thickness = 205 mm, metal post, includes R04) ¹⁾

¹⁾ Additional frame supplied loose

¹⁾ Additional frame mounted ex works

12 – FIELD MODULES

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

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

24V drive module

24 = EasyF-B01-MASD-00 (mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, without addressing)
25 = EasyF-B01-OASD-00 (mounted to BSK-RPR, incl. connection to drive unit, without flat cable connection, without addressing)
26 = EasyF-B01-MASD-01 (mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)
27 = EasyF-B01-OASD-01 (mounted to BSK-RPR, incl. connection to drive unit, without flat cable connection, with addressing)

230V drive module

34 = EasyF-B11-MASD-00 (mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, without addressing)
35 = EasyF-B11-OASD-00 (mounted to BSK-RPR, incl. connection to drive unit, without flat cable connection, without addressing)
36 = EasyF-B11-MASD-01 (mounted to BSK-RPR, incl. connection to drive unit, with flat cable connection, with addressing)
37 = EasyF-B11-OASD-01 (mounted to BSK-RPR, incl. connection to drive unit, without flat cable connection, with addressing)

Input/output modules for up to 4 limit switches

40 = EasyF-IOM-MASD-00 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; with flat cable connection, without addressing)
41 = EasyF-IOM-OASD-00 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; without flat cable connection, without addressing)
42 = EasyF-IOM-MASD-01 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; with flat cable connection, with addressing)
43 = EasyF-IOM-OASD-01 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; without flat cable connection, with addressing)

Input modules for up to 8 limit switches

50 = EasyF-I8M-MASD-00 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; with flat cable connection, without addressing)
51 = EasyF-I8M-OASD-00 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; without flat cable connection, without addressing)
52 = EasyF-I8M-MASD-01 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; with flat cable connection, with addressing)
53 = EasyF-I8M-OASD-01 (mounted to BSK-RPR, incl. connection to ESZ, ESA or EZA; without flat cable connection, with addressing)

ORDER CODE (ADD-ON PARTS BSK-RPR)

Flexible spigot type FS-RS/-RF

01	02	02
Type	Fire damper type	Model
FS	-BSKRPR	-RS

03	04	05
Nominal size	Material	Version
-200	-SV	-ST

EXAMPLE

FS-BSKRPR-RS-200-SV-ST

Type **FS** = flexible spigot | **BSKRPR** = fire damper type BSK-RPR | Model = **RS** (plug-in connection to BSK-RPR-S) | Nominal size = **200** mm | Material **SV** = galvanised sheet steel | Version **ST** = standard

ORDER DETAILS

01 - TYPE

FS = Flexible spigot type FS

02 - FIRE DAMPER TYPE

BSKRPR = BSK-RPR

03 - MODEL

RS = plug-in connection (standard) to BSK-RPR-S
 RF = flanged connection to BSK-RPR-F

04 - NOMINAL SIZE

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

05 - MATERIAL

SV = Galvanised sheet steel

06 – VERSION

ST = Standard
 EX = model ATEX

Extension piece type VT-RF

01	02	03
Type	Fire damper type	Model
VT	-BSKRPR	-RF

04	05	06	07
Nominal size	Length	Material	Paint
-500	-190	-SV	-0

EXAMPLE

VT-BSKRPR-RF-500-190-SV-0

Type **VT** = extension piece | **BSKRPR** = fire damper type BSK-RPR | Model = **RF** (flanged connection to BSK-RPR-F) | Nominal size = **500** mm | Length = **190** mm | Material **SV** = galvanised sheet steel | Lackierung **0** = without coating

ORDER DETAILS

01 - TYPE

VT = Extension piece type VT

02 - FIRE DAMPER TYPE

BSKRPR = BSK-RPR

03 - MODEL

RF = flanged connection to BSK-RPR-F

04 - NOMINAL SIZE

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

05 - LENGTH

160 (standard)
 190 (only for nominal size = 500)
 (in mm - always with three digits)

06 – MATERIAL

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

07 – PAINT

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

Finishing protective grating type ASG-RS/-RF

01	02	03
Type	Fire damper type	Model
ASG	-BSKRPR	-RS

04	05	06
Nominal size	Material	Paint
-200	-SV	-7

EXAMPLE

ASG-BSKRPR-RS-200-SV-7

Type **ASG** = finishing protective grating | **BSKRPR** = fire damper type BSK-RPR | Model = **RS** (plug-in connection to BSK-RPR-S) | Nominal size = **200** mm | Material **SV** = galvanised sheet steel | Paint **7** = black matt on both sides (RAL 9005)

ORDER DETAILS

01 - TYPE

ASG = Security grille type ASG

02 - FIRE DAMPER TYPE

BSKRPR = BSK-RPR

03 - MODEL

RS = plug-in connection (standard) to BSK-RPR-S
 RF = flanged connection to BSK-RPR-F

04 - NOMINAL SIZE

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

05 - MATERIAL

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

06 - PAINT

0 = without paint (standard)
 3 = DD coating on both sides (RAL7035)
 7 = painted black matt on both sides (RAL 9005, required for fitting to REBT)

Installation kit type GDL (loose) (R20-R27)

01	02	03
Type	Fire damper type	Model
GDL	-BSKRPR	-RS

04	05
Nominal size	Version
-500	-R20

EXAMPLE

GDL-BSKRPR-RS-500-R20

Type **GDL** = installation kit GDL | **BSKRPR** = fire damper type BSK-RPR | Model = **RS** (plug-in connection to BSK-RPR-S) | Nominal size = **500** mm | Version **R20** = for wall thickness 100 mm

ORDER DETAILS

01 - TYPE

GDL = installation kit type GDL ^{III)}

02 - FIRE DAMPER TYPE

BSKRPR = BSK-RPR

03 - MODEL

RS = plug-in connection (standard) to BSK-RPR-S

04 - NOMINAL SIZE

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

05 - VERSION

R20 = for wall thickness 100 mm
 R21 = for wall thickness 120 mm
 R22 = for wall thickness 125 mm
 R23 = for wall thickness 140 mm
 R24 = for wall thickness 150 mm
 R25 = for wall thickness 160 mm
 R26 = for wall thickness 175 mm
 R27 = for wall thickness 205 mm

^{III)} Can only be used with BSK-RPR-S with mounting frame AR and housing length L=580

SPECIFICATION TEXTS BSK-RPR (FIRE DAMPER)

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 ($v_e i \leftrightarrow o$) S to EI 90 ($v_e, h_o i \leftrightarrow o$) S.

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



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

EPS 09 ATEX 2 153 X

Housing made of galvanised sheet steel, 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/general type approval possible.

When using the smoke detection system type RMS (consisting of smoke detector RMSII-L and relay module RM), 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:

Nominal size: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)
- Housing made of stainless steel material no. 1.4301 (V2A)
- Housing 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 position indicators "OPEN" or/and "CLOSED", switching element with an NC and NO contact respectively:
 - 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")

- 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 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
- Electric explosion-protected spring return actuator with safety temperature limiter (ExPro-TT).
 - Releases at a room temperature of 72°C and an internal duct temperature of 72°C (optionally: 95°C), end position signalling by integrated auxiliary switches:
 - Type ExMax-5.10-BF (X14/X15; universal power supply 24 - 240 V AC/DC).
- Magnetic clamps MH1 (24V DC) / MH2 (230V AC)
- Pulse magnet MI1 (24V DC)

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:

Nominal size: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)

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).

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:

Nominal size:mm

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 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:

Nominal size:mm

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:

Nominal size: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)
 - Painted black matt (RAL 9005)

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:

Nominal size: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)
 - Painted black matt (RAL 9005)

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 stud frame 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:

Nominal size:mm

Wall thickness:mm

COMMISSIONING AND MAINTENANCE

COMMISSIONING

Before the ventilation and air-conditioning system and thus also the fire damper are put into operation for the first time, they must undergo an inspection in order to determine and assess the installation and function.

FUNCTIONAL CHECKING, CLEANING, REPAIR

The owner or operator of a ventilation and air-conditioning system must arrange for its function to be checked. The intervals for this should correspond to the national building regulations and guidelines.

In Germany, the inspection must be carried out at least every six months. If two successive functional tests at intervals of half a year do not reveal any defects, the interval may be increased to one year.

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

- EN 13306
- DIN 31051
- EN 15423

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

Ventilation systems must be cleaned at appropriate intervals for operational reasons. This must include fire dampers.

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 using suitable means.

1.2 Manual release – Closing the fire damper

- Pull the manual unlocking disc (pos. 42) at the hand lever (pos. 3), thus releasing the lock (in the "OPEN" position) of the locking bolt (pos. 44) in the trigger (pos. 5).
- Hand lever has been released and is moved toward the CLOSED position by spring force.

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

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

1.3 Opening the fire damper

- Pull manual unlocking disc (pos. 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).

1.4 Replacing the fusible link (if necessary)

- If, for example, the fusible link is damaged or corroded, it is must be replaced.
- Perform manual release as described in section 1.2.
- Unscrew the fastening screws (pos. 43; 2 pieces), pull the release device out by turning it 90° and remove it from the housing.
- Compress the retainer screws of the fusible link holder (pos. 45) using a suitable tool (e.g. pliers) and replace the fusible link by a replacement fusible link (pos. 6).
- Insert the release device and fasten it with screws (make sure that the position of the coding screw with regard to the coding hole is correct).
- Finally, a functional test must be carried out.

BSK-RPR with manual release

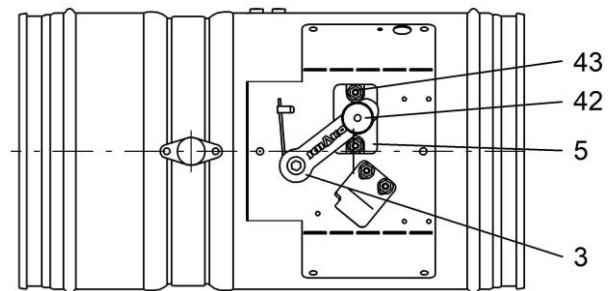


Figure 98: Side view BSK-RPR (manual release)

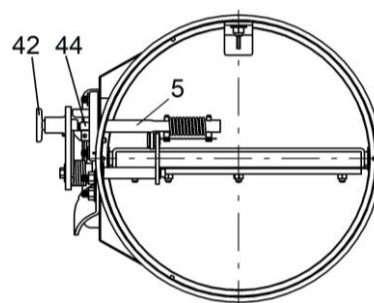


Figure 99: Front view BSK-RPR (manual release)

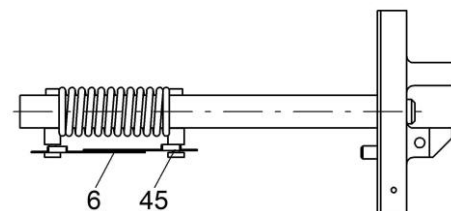


Figure 100: Release device BSK-RPR (fusible link)

2. Release device with spring return actuator

2.1. Visual inspection

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

2.2 Thermoelectric release – Closing the fire damper

- Press the button/switch (pos. 48) on the thermoelectric release device (pos. 47). When the supply voltage is interrupted, the damper is returned to the safety position ("CLOSED" position) by means of spring energy.
- The button/switch must be pressed until the "CLOSED" position is reached.
- Once the button/switch is no longer pressed, the drive must return the damper to the "OPEN" operating position.

2.3 Replacement of the thermoelectric release device (if necessary)

- Replacement takes place by unscrewing both screws of the thermoelectric release device (pos. 47). Remove the thermoelectric release device from the drive unit. Remove the internal duct temperature fuse (pos. 49) from the thermoelectric release device and replace it with a new internal duct temperature fuse (ZBAT...). Screw the thermo-electrical trigger device back onto the actuator unit.
- Finally, a functional test must be carried out.

BSK-RPR with spring return actuator

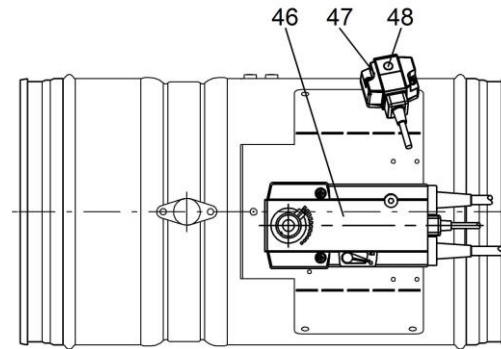


Figure 101: Side view BSK-RPR (spring return actuator)

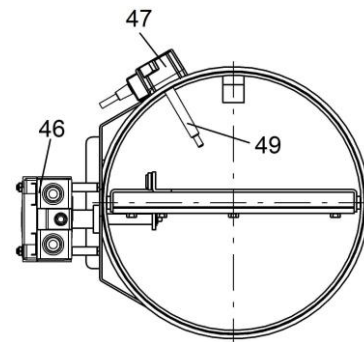


Figure 102: Front view BSK-RPR (spring return actuator)

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 using suitable means.

3.2 Manual release – Closing the fire damper

- Pull the manual unlocking disc (pos. 42) on the hand lever (pos. 3), thus releasing the lock (in "OPEN" position) of the locking bolt (pos. 44) in the release rocker (pos. 51).
- Hand lever has been released and is moved toward the CLOSED position by spring force.

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

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

3.3 Magnetic clamp release – Closing the fire damper

- De-energise the magnetic clamp (pos. 50) on site, thus 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).

3.6 Replacing the fusible link (if necessary)

- If, for example, the fusible link is damaged or corroded, it 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 retainer screws of the fusible link holder (pos. 45) using a suitable tool (e.g. pliers) and replace the fusible link by a replacement fusible link (pos. 6).
- Insert the release device and fasten it with screws (make sure that the position of the coding screw with regard to the coding hole is correct).
- Finally, a functional test must be carried out.

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

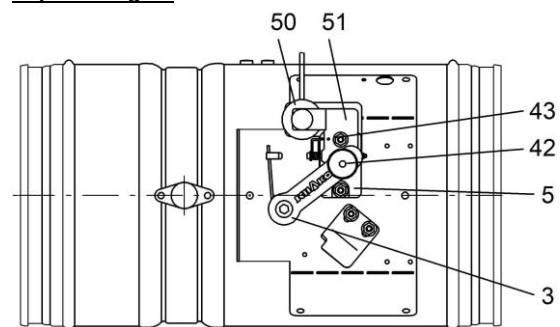


Figure 103: Side view BSK-RPR (manual release and magnet)

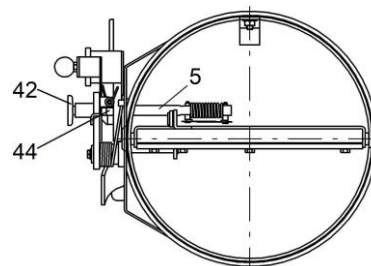


Figure 104: Front view BSK-RPR (manual release and magnet)

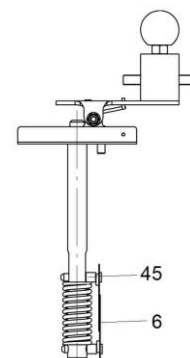


Figure 105: Release device BSK-RPR (with magnet)

BKRUE (OVERFLOW DAMPER)

When installing or using overflow or air vent dampers (without duct connection on both sides), national building regulations and guidelines must be observed, for example the model administrative regulation Technical Building Regulations (MVV TB) for Germany.

The following applies to Germany:

If, as part of ventilation planning, openings are required in fire-resistant inner walls or ceilings for the air intake, which must be closed in the event of fire, fire-resistant dampers of special design and application (overflow dampers) are used. The competent building supervisory authority will decide whether the opening is admissible, for example because it differs or in connection with the approval of the fire protection concept. The required dampers are fire-resistant dampers which are closed in case of fire driven by a suitable smoke detecting triggering device in the event of a fire, thus preventing the propagation of fire and smoke through the component opening. Dampers of this type must not be connected to ventilation ducts in connection with RLT systems in buildings.

The general type approval (aBG) Z-6.50-2628 in its currently valid form, the installation, mounting and operating instructions must be observed.

The construction company which has built the fire damper must provide a confirmation for each building project to verify its conformity with the general type approval in accordance with the Model Building Regulation (MBO) or building regulations of the federal states/Regional Building Regulations (LBO). The confirmation must be executed in writing and must include at least the following information:

- Z-6.50-2628
- Fire-resistant damper type “BKRUE” of special design and application
- Name and address of the construction company
- Designation of the building
- Date of construction /date of completion
- Place and date of issue and signature of the person responsible

This declaration of compliance has to be handed over to the building owner for possible forwarding to the responsible building supervision authority.

The standard fire-resistant damper BKRUE consists of the following components (fitted and wired ex works):

- SCHAKO fire damper BSK-RPR with Declaration of Performance (DoP), housing made of galvanised sheet steel with spring return actuator 24 V.
- SCHAKO round duct assembly part type REBT, galvanised sheet steel model (painted black matt on the inside).
- Connection sleeve (Metu® pipe sleeve MU)
- SCHAKO finishing protective grating type ASG-RS on both sides, galvanised sheet steel model (REBT side: painted black matt).
- SCHAKO smoke detection system RMS (consisting of smoke detector RMSII-L and relay module RM V4.00 or RM V5.00), according to general building supervisory approval (abZ)/general type approval (aBG) no. Z-78.6-58.

The smoke detection system RMS activates and triggers the overflow damper. Smoke is detected at an early stage, possibly even before the trigger temperature of the fire damper is reached.

In addition to the smoke detection system RMS, the thermoelectric release device of the spring return actuator is also triggered. When the trigger temperature of 72 °C is reached, the supply voltage of the spring return actuator is permanently interrupted via the relay module RM. The damper is moved to the safety position (damper “CLOSED”).

In tight installation situations (near the ceiling, when using the installation kit type GDL, etc.), the REBT incl. smoke detector RMSII-L can be rotated up to 70° in both directions (see Figure 106 or Figure 107).

In addition, the relay module RM can be dismounted, repositioned and mounted on the adjacent wall or ceiling.

The above mentioned rotation or repositioning must be carried out on site in compliance with this technical documentation.

Available sizes BKRUE

Nominal size (NG)	øD [mm]	L [mm]
100	98	757
125	123	757
140	138	757
160	158	757
180	178	757
200	198	757
224	222	882
250	248	882
280	278	882
315	313	882
355	353	882
400	398	882
450	448	882
500	498	882

Table 13: Available sizes BKRUE

- 1 Fire-resistant damper BKRUE
- 8 Mounting frame AR
- 46 Spring return actuator 24 V
- 47 Thermo-electric trigger device
- 57 Round duct assembly part REBT
- 58 Finishing protective grating ASG-RS (REBT side: painted black matt)
- 59 Smoke detector RMSII-L (standard positioning in the specified position 0° (see Figure 106 or Figure 107) on the operating side. For installation in the immediate area of the ceiling, the RMSII-L can be positioned by rotating the REBT on site within the specified range (see Figure 106 or Figure 107, up to 70° in both directions). The connecting cable with protective sheathing between smoke detector RMSII-L and relay module RM is pluggable.
- 60 Relay module RM (can be installed on the wall or ceiling)
- 61 Connection sleeve (Metu® pipe sleeve MU)

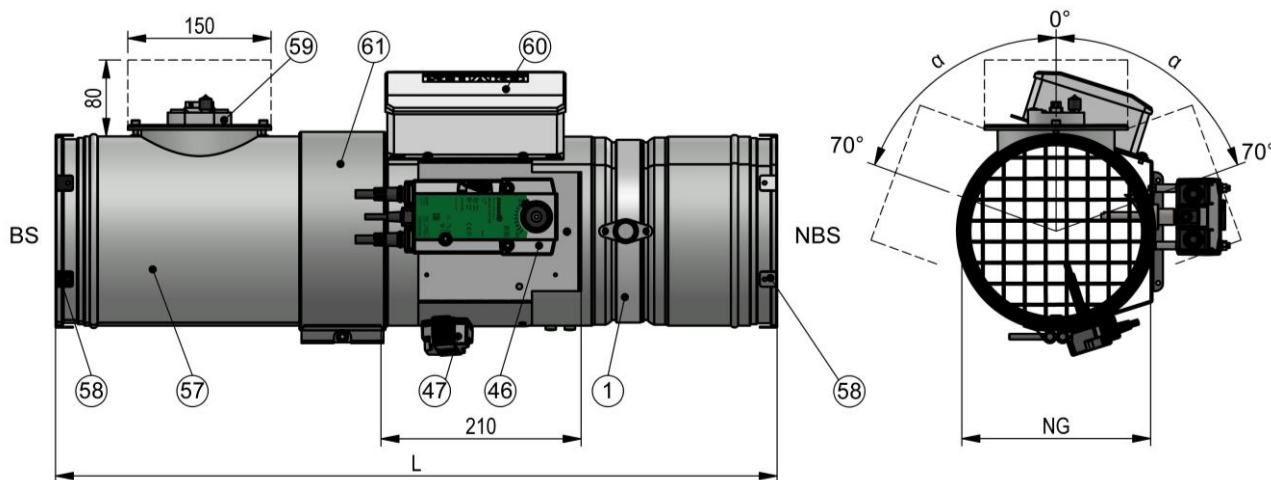


Figure 106: BKRUE

Example installation (BSK-RPR ≤ 200 with AR; flush with the wall at W ≈ 106 mm):

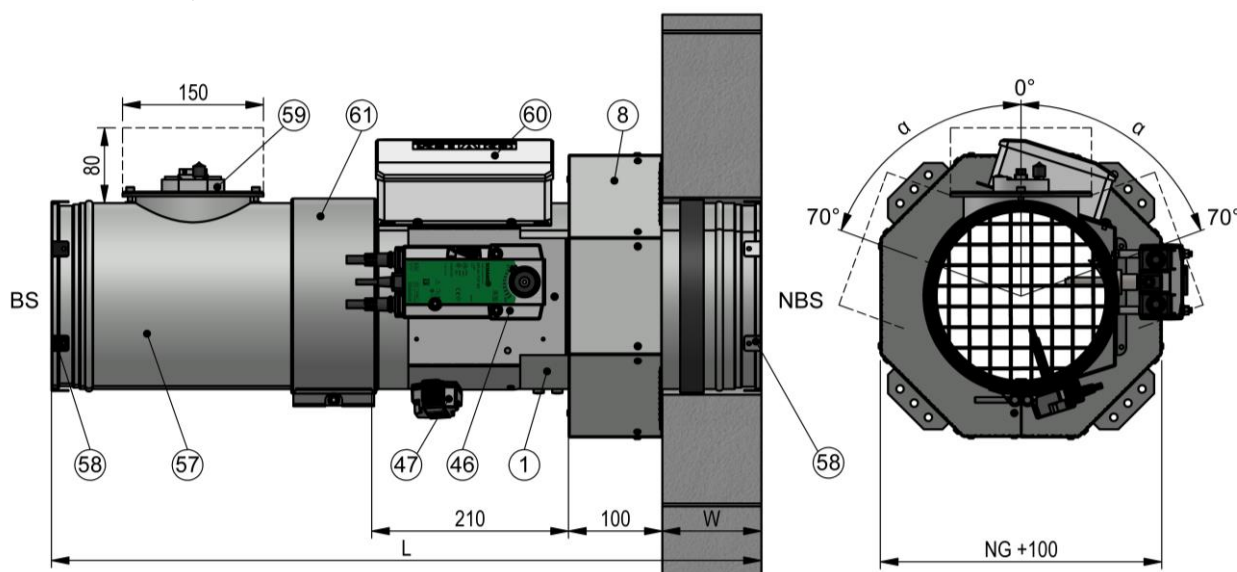


Figure 107: BKRUE with mounting frame AR

ORDER CODE BKRUE (OVERFLOW DAMPER)

01	02	03	04
Type	Nominal size	Actuator type	Additional frame
Example			
BKRUE	-200	-B10	-R00

EXAMPLE

BKRUE-200-B10-R04

Type **BKRUE** = overflow damper BKRUE | Nominal size = **200** mm | Type of drive **B10** = type BFL24-T-ST SO |
 Additional frame **R00** = without additional frame

ORDER DETAILS

01 - TYPE

BKRUE = overflow damper BKRUE

02 – NOMINAL SIZE

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

03 - ACTUATOR TYPE

B10 = BFL24-T-ST SO * (standard)

S00 = GRA126.1E/SO3 (24V)*

* suitable for all dimension combinations

04 – ADDITIONAL FRAME

R00 = without additional frame (standard)

R04 = Mounting frame AR (only ex works with -S model) ¹⁾

R20 = installation kit type GDL ¹⁾ (for wall thickness = 100 mm, metal stud frame, includes R04 ¹⁾)

R21 = installation kit type GDL ¹⁾ (for wall thickness = 120 mm, metal stud frame, includes R04 ¹⁾)

R22 = installation kit type GDL ¹⁾ (for wall thickness = 125 mm, metal stud frame, includes R04 ¹⁾)

R23 = installation kit type GDL ¹⁾ (for wall thickness = 140 mm, metal stud frame, includes R04 ¹⁾)

R24 = installation kit type GDL ¹⁾ (for wall thickness = 150 mm, metal stud frame, includes R04 ¹⁾)

R25 = installation kit type GDL ¹⁾ (for wall thickness = 160 mm, metal stud frame, includes R04 ¹⁾)

R26 = installation kit type GDL ¹⁾ (for wall thickness = 175 mm, metal stud frame, includes R04 ¹⁾)

R27 = installation kit type GDL ¹⁾ (for wall thickness = 205 mm, metal stud frame, includes R04 ¹⁾)

¹⁾ Additional frame supplied loose

¹⁾ Additional frame mounted ex works

SPECIFICATION TEXTS BKRUE (OVERFLOW DAMPER)

Fire-resistant dampers of special design and application (overflow dampers) are used if, as part of ventilation planning, openings are required in fire-resistant inner walls or ceilings for the air intake, which must be closed in the event of a fire.

The competent building supervisory authority will decide whether the opening is admissible, for example because it differs or in connection with the approval of the fire protection concept.

The required dampers are fire-resistant dampers which are closed in case of fire driven by a suitable smoke detecting triggering device in the event of a fire, thus preventing the propagation of fire and smoke through the component opening. Dampers of this type must not be connected to ventilation ducts in connection with RLT systems in buildings.

The general type approval (aBG) no. Z-6.50-2628 in its currently valid form, the installation, mounting and operating instructions and the relevant national standards and directives must be observed.

The standard fire-resistant damper BKRUE consists of the following components:

- SCHAKO fire damper BSK-RPR, to DIN EN 15650 and Declaration of Performance (DoP) in accordance with the Construction Products Ordinance, housing made of galvanised sheet steel with spring return actuator 24 V (B10).
- SCHAKO installation part type REBT, galvanised sheet steel model (painted black matt on the inside).
- SCHAKO finishing protective grating type ASG on both sides, galvanised sheet steel model (REBT side: painted black matt).
- SCHAKO smoke detection system RMS (consisting of smoke detector RMSII-L and relay module RM), according to general building supervisory approval (abZ)/general type approval (aBG) no. Z-78.6-58

Installation takes place in interior walls and ceilings. In doing so, the general building supervisory approval (aBG) no. Z-6.50-2628, the Declaration of performance (DoP) of BSK-RPR and the general building supervisory approval (abZ)/general type approval (aBG) no. Z-78.6-58 and the associated technical documentation must be observed.

Product:

SCHAKO type **BKRUE**

General type approval (aBG) no. Z-6.50-2628

Dimensions

Nominal size: mm

Length (L): 757-882 mm (length depends on the model and nominal size of the BSK-RPR)

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

- Model with mounting frame AR (mounting exclusively ex works and for "S" model)
- Spring return actuator with temperature monitoring unit (S00)
 - Releases at an ambient temperature of 72 °C and an internal duct temperature of 72 °C containing integrated micro switches for indication of damper end positions:
 - Type S00 (GRA126.1E/SO3)

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 stud frame 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:

Nominal size:mm

Wall thickness:mm

COMMISSIONING AND MAINTENANCE

COMMISSIONING

Prior to the start-up of the fire-resistant damper “BKRUE” of a special design and application, it must be inspected to determine and assess its installation and function.

FUNCTIONAL CHECKING, CLEANING, REPAIR

The owner or operator of the system must arrange for its function to be checked. The intervals for this should correspond to the national building regulations and guidelines.

In Germany, the inspection must be carried out at least every six months. If two successive functional tests at intervals of half a year do not reveal any defects, the interval may be increased to one year.

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

- EN 13306
- DIN 31051
- EN 15423

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

Cleaning work must be carried out at appropriate intervals for operational reasons.

1. Release device with spring return actuator

1.1. Visual inspection

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

1.2 Thermoelectric release – Closing the fire damper

- Press the button/switch (pos. 48) on the thermoelectric release device (pos. 47). When the supply voltage is interrupted, the damper is returned to the safety position (“CLOSED” position) by means of spring energy.
- The button/switch must be pressed until the “CLOSED” position is reached.
- Once the button/switch is no longer pressed, the drive must return the damper to the “OPEN” operating position.

1.3 Replacement of the thermoelectric release device (if necessary)

- Replacement takes place by unscrewing both screws of the thermoelectric release device (pos. 47).
 Remove the thermoelectric release device from the drive unit. Remove the internal duct temperature fuse-(pos. 49) from the thermoelectric release device and replace it with a new internal duct temperature fuse (ZBAT72).
 Screw the thermo-electrical trigger device back onto the actuator unit.
- Finally, a functional test must be carried out.

BKRUE (overflow damper)

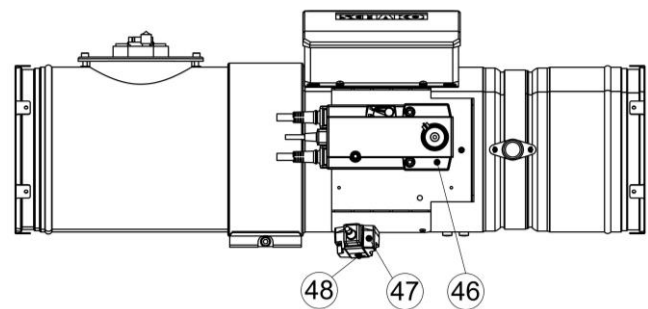


Figure 108: Side view BKRUE

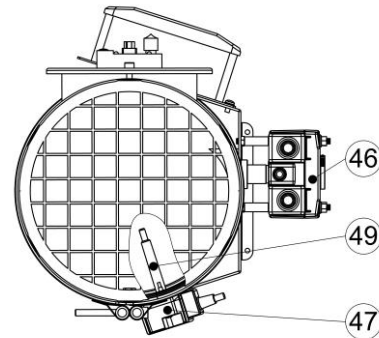


Figure 109: Front view BKRUE

2. Smoke alarm system RMS

Measures to be taken (maintenance, inspection and cleaning) are described in the valid technical documentation for the SCHAKO smoke detection system RMS (schako.com).

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 schako.com/be/	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 schako.com/en/	France SCHAKO s.a.r.l. 16 Boulevard de la Croix Rousse 69001 Lyon Phone: +33 / 4 / 78 34 97 34 Fax: +33 / 4 / 78 34 97 31 contact@schako.fr schako.com/fr/	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 schako.com/it/
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 schako.com/lx/	Netherlands SMITSAIR B.V. SMITSAIR Jetsystemen B.V. Industrieweg 6 1422 AJ Uithoorn - Nederlands Phone +31 297 564 455 verkoop@smitsair.nl jetsystemen@smitsair.nl schako.com/nl/	Austria SCHAKO Vertriebs GmbH Adamovichgasse 3 1230 Wien Phone: +43 / 1 / 890 24 62 Fax: +43 / 1 / 890 24 62 50 info@schako.at schako.com/at/	Poland SCHAKO Polska Sp. z o.o ul. Pulawska 38 05-500 Piaseczno Phone: +48 / 22 / 7263570 Fax: +48 / 22 / 7263571 info@schako.pl schako.com/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 schako.com/ro/	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 schako.com/ch/	Slovakia SCHAKO SK s.r.o. Modrová 187 91635 Modrová Phone: +421 / 337 / 774 1843 Fax: +421 / 337 / 774 1843 info@schako.sk schako.com/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 schako.com/es/
Czech Republic SCHAKO s.r.o. Pred Skalkami II. 184/5 10600 Praha 10-Zabehlice Phone: +42 / 02 / 727 680 43 Fax: +42 / 02 / 727 693 94 info@schako.cz schako.com/cz/	Hungary SCHAKO Kft. Tópark utca 6 2045 Törökbálint Phone: +36 / 23 / 445670 Fax: +36 / 23 / 445679 e-mail@schako.hu schako.com/hu/		

LIST OF FIGURES/TABLES/DIAGRAMS

List of figures

Figure 1: Dimension BSK-RPR-S – Nominal sizes 100 to ≤ 2504	
Figure 2: Dimension BSK-RPR-S with mounting frame AR – Nominal sizes 100 to ≤ 250	4
Figure 3: Dimension BSK-RPR-F – Nominal sizes 100 to ≤ 2504	
Figure 4: Dimension BSK-RPR-S – Nominal sizes >250 to 500 5	
Figure 5: Dimension BSK-RPR-S with mounting frame - Nominal sizes > 250 to 500	5
Figure 6: Dimension BSK-RPR-F - Nominal sizes > 250 to 500 5	
Figure 7: Rubber lip seal.....	6
Figure 8: Flange bores	6
Figure 9: Damper blade projecting ends BSK-RPR-S.....	7
Figure 10: Damper blade projecting ends BSK-RPR-F.....	7
Figure 11: Minimum distances to walls, ceilings and BSK-RPR to one another	10
Figure 12: Wet installation in solid walls.....	11
Figure 13: Annular gap dimensions for complete mortar lining in solid walls (round or rectangular recess).....	11
Figure 14: Installation in solid walls at a reduced distance (round or rectangular recess).....	11
Figure 15: Dry installation on solid walls.....	12
Figure 16: Detail showing fastening to solid walls	12
Figure 17: Dry installation on solid walls, BSK-RPR nominal size ≤ 250 – minimum distance from one another.....	12
Figure 18: Dry installation on solid walls, BSK-RPR nominal size > 250 – minimum distance from one another.....	12
Figure 19: Diagram of two installed BSK-RPR with vertical damper blade (example vertical soft seal)	13
Figure 20: Diagram of two installed BSK-RPR with vertical damper blade (example horizontal soft seal).....	13
Figure 21: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example vertical soft seal)	13
Figure 22: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example horizontal soft seal)	14
Figure 23: Installation in solid wall (wall thickness = 100 mm)	14
Figure 24: Installation in solid wall (wall thickness > 100 mm)	14
Figure 25: Installation away from solid walls	16
Figure 26: Installation positions in solid ceilings – (wet installation)	17
Figure 27: Annular gap dimensions for complete mortar lining, solid walls (round or rectangular recess).....	17
Figure 28: Wet installation at a reduced distance, solid ceilings (round or rectangular recess)	17
Figure 29: Installation positions on solid ceilings – (dry installation)	18
Figure 30: Detail showing fastening to solid ceilings.....	18
Figure 31: Installation in solid ceilings with concrete base, top view	19

Figure 32: Installation in solid ceilings with concrete base..	19
Figure 33: Installation in solid ceilings with concrete base, section	19
Figure 34: Example designs of the overlap area	20
Figure 35: Metal posts plus required exchange parts for wet installation of a BSK-RPR, complete mortar lining	20
Figure 36: Wet installation of a BSK-RPR in lightweight partition wall	20
Figure 37: Metal posts plus required exchange parts for the BSK-RPR wet installation at a reduced distance	21
Figure 38: Wet installation in lightweight partition wall at a reduced distance	21
Figure 39: Wet installation under solid ceiling, complete mortar lining	22
Figure 40: Metal stud frame plus required exchange parts for BSK-RPR with mounting frame AR (dry installation), during the assembly of the wall	23
Figure 41: Dry installation on lightweight partition wall with mounting frame AR, during the assembly of the wall	23
Figure 42: Dry installation on lightweight partition wall with mounting frame AR under solid ceiling, during the assembly of the wall	24
Figure 43: Dry installation on lightweight partition wall with mounting frame AR – metal posts and exchange parts, during the assembly of the wall	25
Figure 44: Metal stud frame plus required exchange parts for BSK-RPR with mounting frame AR (dry installation), after the assembly of the wall	26
Figure 45: Dry installation on lightweight partition wall with mounting frame AR, after the assembly of the wall	26
Figure 46: Dry installation on lightweight partition wall with mounting frame AR under solid ceiling, after the assembly of the wall	26
Figure 47: Dry installation on lightweight partition wall with mounting frame AR – UW-exchange profiles after the assembly of the wall	28
Figure 48: Installation kit GDL for installation in lightweight partition walls with metal posts and panelling on both sides with sliding ceiling connection.....	29
Figure 49: Diagram of two installed BSK-RPR with vertical damper blade (example vertical soft seal).....	31
Figure 50: Diagram of two installed BSK-RPR with vertical damper blade (example horizontal soft seal)	31
Figure 51: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example vertical soft seal)	31
Figure 52: Diagram of two BSK-RPR installed next to each other with horizontal damper blade (example horizontal soft seal)	32
Figure 53: Metal posts plus required exchange parts and reveal (for wall thickness = 100 mm).....	32
Figure 54: Installation in metal post wall (wall thickness = 100 mm)	32
Figure 55: Metal posts plus required exchange parts and reveal (for wall thickness > 100 mm).....	33

Figure 56: Installation in metal post wall (wall thickness > 100 mm)	33
Figure 57: Metal posts plus required exchange parts for wet installation (F30; BSK-RPR 100 to ≤ 250)	35
Figure 58: Wet installation in lightweight partition wall (F30; BSK-RPR 100 to ≤ 250)	35
Figure 59: Wet installation in lightweight partition wall (F30) under solid ceiling (BSK-RPR 100 to ≤ 250)	36
Figure 60: Metal stud frame plus required exchange parts for BSK-RPR with mounting frame AR (dry installation F30/F60), during the assembly of the wall	37
Figure 61: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR, during the assembly of the wall	37
Figure 62: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR under solid ceiling, during the assembly of the wall	37
Figure 63: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR – metal posts and exchange parts, during the assembly of the wall	38
Figure 64: Metal stud frame plus required exchange parts for BSK-RPR with mounting frame AR (dry installation F30/F60), after the assembly of the wall	39
Figure 65: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR, after the assembly of the wall	39
Figure 66: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR under solid ceiling, after the assembly of the wall	39
Figure 67: Dry installation on lightweight partition wall (F30/F60) with mounting frame AR – UW-exchange profiles after the assembly of the wall	40
Figure 68: Metal posts plus required exchange parts (shaft wall) for wet installation (BSK-RPR 100 to ≤ 250)	41
Figure 69: Wall panelling and double-board layers (shaft wall) BSK-RPR nominal sizes 100 to ≤ 250	41
Figure 70: Wet installation in shaft wall under solid ceiling (BSK-RPR 100 to ≤ 250)	42
Figure 71: Metal posts plus required exchange parts for dry installation with mounting frame AR	43
Figure 72: Dry installation on shaft wall with mounting frame AR	43
Figure 73: Dry installation on shaft wall with mounting frame AR under solid ceiling	44
Figure 74: Connection example of a ventilation duct in solid shaft walls	45
Figure 75: Connection example of a ventilation duct arranged on one side and security grille	45
Figure 76: Connection example of ventilation ducts on both sides	45
Figure 77: Connection example on both sides with flexible spigot and ventilation ducts	45
Figure 78: Push-through mounting (Detail A)	46
Figure 79: Suspension in the immediate area of the fire damper	46

Figure 80: Mounting rail (view X)	46
Figure 81: Circuit diagram limit switch type ES	50
Figure 82: Circuit diagram limit switch type ES-Ex	50
Figure 83: BSK-RPR with spring return actuator B10/B11 ...	51
Figure 84: Connecting diagram B10/B11	51
Figure 85: BSK-RPR with spring return actuator S00/S01	53
Figure 86: LED functions of spring return actuators S00/S01	53
Figure 87: Connection diagram S00	53
Figure 88: Connection diagram S01	53
Figure 89: Connection diagram B42	55
Figure 90: Magnetic clamp/pulse magnet (MH1/MH2/MI1) mounted to BSK-RPR (shown with optional accessories)	56
Figure 91: Wiring information magnetic clamps MH1/MH2	56
Figure 92: Wiring information for pulse magnet MI1	56
Figure 93: Flexible spigot type FS-RS	57
Figure 94: Flexible spigot type FS-RF	57
Figure 95: Extension piece type VT-RF	57
Figure 96: Security grille type ASG-RS	58
Figure 97: Security grille type ASG-RF	58
Figure 98: Side view BSK-RPR (manual release)	66
Figure 99: Front view BSK-RPR (manual release)	66
Figure 100: Release device BSK-RPR (fusible link)	66
Figure 101: Side view BSK-RPR (spring return actuator)	67
Figure 102: Front view BSK-RPR (spring return actuator)	67
Figure 103: Side view BSK-RPR (manual release and magnet)	68
Figure 104: Front view BSK-RPR (manual release and magnet)	68
Figure 105: Release device BSK-RPR (with magnet)	68
Figure 106: BKRUE	70
Figure 107: BKRUE with mounting frame AR	70
Figure 108: Side view BKRUE	73
Figure 109: Front view BKRUE	73

List of tables

Table 1: Available sizes BSK-RPR	6
Table 2: Flange bores	6
Table 3: Damper leaf projecting ends BSK-RPR-S.....	7
Table 4: Damper leaf projecting ends BSK-RPR-F.....	7
Table 5: Usability	9
Table 6: Free cross-section [m ²].....	48
Table 7: Weight table [kg] BSK-RPR-S.....	49
Table 8: Weight table [kg] BSK-RPR-F.....	49
Table 9: Technical data B10/B11	52
Table 10: Cable designation S00/S01	53
Table 11: Technical data S00/S01.....	54
Table 12: Length of the extension piece type VT-RF as a function of the nominal size of the fire damper	57
Table 13: Available sizes BKRUE	70

List of diagrams

Diagram 1: Pressure loss and flow generated noise without security grille	47
Diagram 2: Pressure loss and flow generated noise without security grille on one side	47
Diagram 3: Pressure loss and radiated noise	48