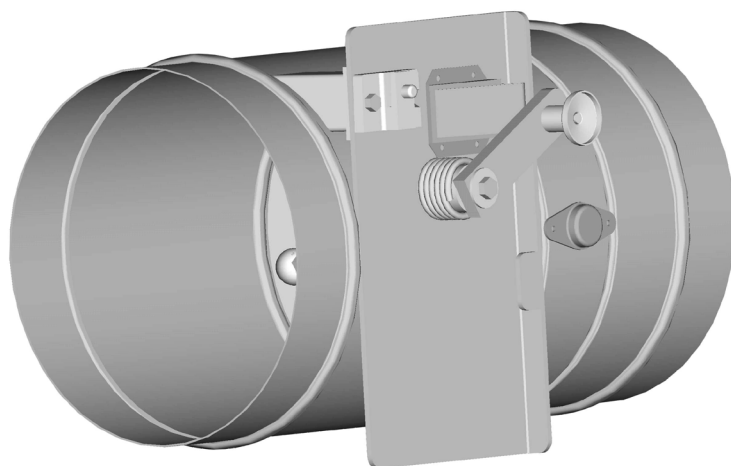




Fire damper

BSK-RB



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Fire damper BSK-RB

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Fire damper BSK-RB

Description

The fire damper type BSK-RB serves as a shut-off device against fire lobbies in ventilation and air-conditioning installations. In connection with non-flammable ventilation ducts connected on both sides, the fire damper BSK-RB has resistance class K90. The fire test was carried out according to DIN 4102 Part 6 and the approval requirements for shut-off devices against fire and smoke in ventilation ducts. The fire damper BSK-RB has the approval certificate number Z-41.3-628. The fire damper is triggered by an integrated thermal trigger device at temperatures $\geq 72^{\circ}\text{C}$. Useable up to a pressure of 1000 Pa at a duct speed of 10 m/s.

The fire damper BSK-RB can be installed in walls and ceilings or lightweight partition walls. Assembly can take place with vertical or horizontal axis and independently of the air flow direction. The suitability of the fire damper in ventilation ducts, which are particularly prone to internal contamination by fats (e.g. return air ducts of commercial kitchens) is not proven.

The housing is made of galvanised sheet steel. The metal damper flap is absolutely abrasion-proof and mounted on a continuous axis in maintenance-free bearings. In the damper area, a 140°C foaming seal ensures an air-tight lock of the fire damper against smoke transmission.

The outside damper adjusting lever serves simultaneously as position indicator of the damper blade. As a standard feature, the damper adjusting lever is fitted on the right.

For maintenance, servicing, retrofitting, etc., it may be necessary to provide on-site inspection openings in suspended ceilings, shaft walls, etc. They must be built in in sufficient numbers and size.

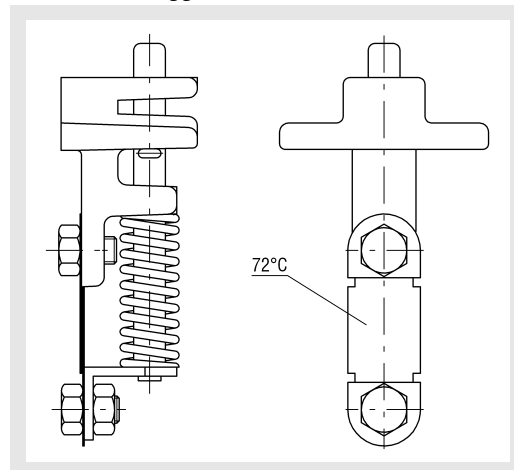
Quality assurance

Constant self-control and external monitoring by the MPA Baden-Württemberg guarantee a high quality production. Manufactured in accordance with the QM process, certified to DIN ISO 9001.

Caution!

Each builder and designer is required, according to the Model Industrial Construction Guidelines (MINDBAURL) and the DIN 18232-2, to build in such a way that the formation and spreading of smoke and fire is prevented and that in case of fire no-one is injured. Spreading of smoke through the ventilation and air-conditioning systems can only be prevented effectively by means of motorised fire dampers in connection with smoke detection triggers (smoke detectors type RMS or RSA). We therefore recommend fitting the fire damper with actuators that can be triggered by the smoke detector.

Fusible link trigger



The fire dampers are supplied as standard with a thermal fusible link trigger with a trigger temperature of 72°C . When the fuse link breaks, the damper blade closes and can no longer be locked in the OPEN position until the fusible link is replaced.

Construction

Housing - Galvanised sheet steel

Model

BSK-RB-F - with flange
BSK-RB-S - without flange

Accessories

Finishing protective grating (-ASG-RF / -ASG-RS)

- Galvanised sheet steel

Electric spring return actuator (-E)

- Type ELD-BLF-B 24 V AC / 24 V DC / 230 V AC, to open and close the shut-off damper (up to size 560)

- Type ELD-BLF-B 24 V AC / 24 V DC / 230 V AC, to open and close the shut-off damper (up to size 630)

Limit switch (-ES)

- with/without KESS, protection class IP 66

Flexible connection piece (-FS-RF / -FS-RS)

- PVC, connection profile galvanised sheet steel

Anticorrosive paint (-DD)

- DD coating, inside and/or outside, two-component varnish based on polyurethane, colour light grey

Smoke detector (-RMS / -RSA)

- for smoke detection

Extension piece (-VT-RF)

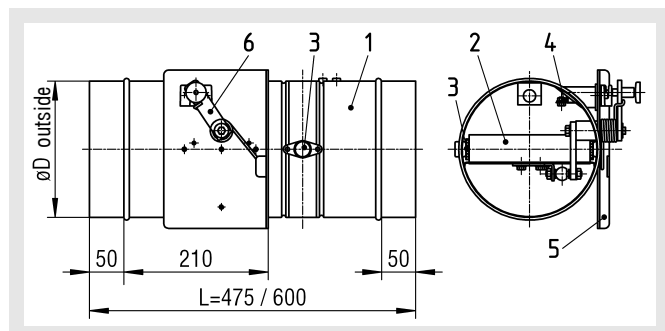
- Galvanised sheet steel (only for BSK-RB-F)

Fire damper BSK-RB

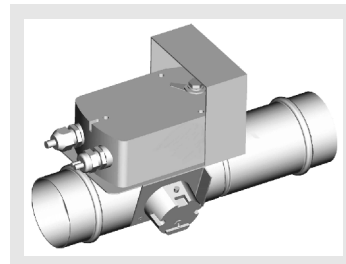
Models and dimensions

Dimensions

BSK-RB-S

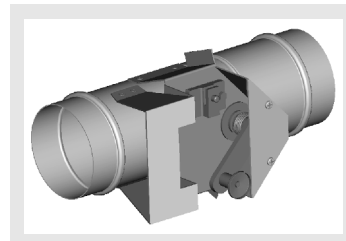


Picture showing fitted console BSK-RB-F-E 80/ BSK-RB-S-E 80

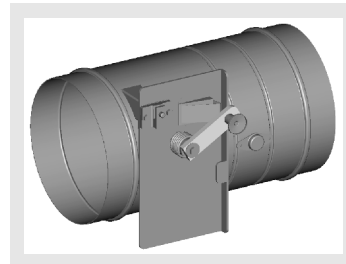


only possible with electric actuator.

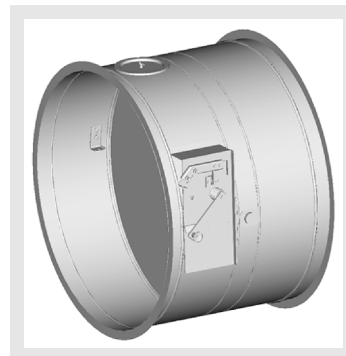
BSK-RB-F 100-160 / BSK-RB-S 100-160



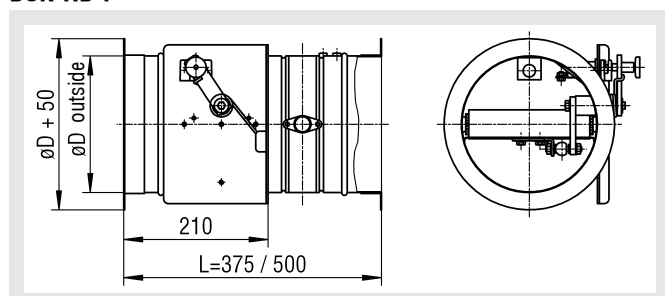
BSK-RB-F 200-500 / BSK-RB-S 200-500



BSK-RB-F 560-710 / BSK-RB-S 560-710



BSK-RB-F



- 1 = Housing
- 2 = Shut-off damper
- 3 = Shut-off damper housing
- 4 = Trigger device
- 5 = Fitted console
- 6 = Damper adjusting lever

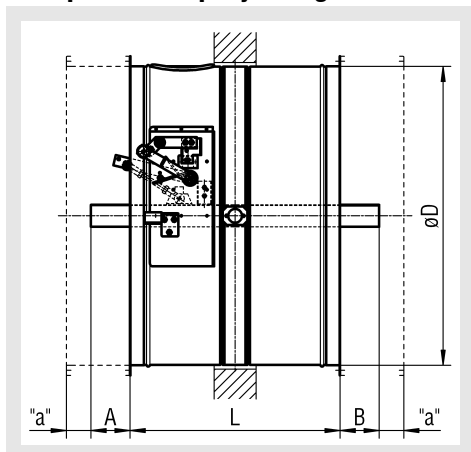
Available sizes

Size	$\varnothing D$	BSK-RB-S		BSK-RB-F	
		L=475	L=600	L=375	L=500
80	78	+	+	+	+
100	98	+	+	+	+
125	123	+	+	+	+
160	158	+	+	+	+
200	198	+	+	+	+
224	222	+	+	+	+
250	248	+	+	+	+
280	278	+	+	+	+
315	313	+	+	+	+
355	353	+	+	+	+
400	398	+	+	+	+
450	448	+	+	+	+
500	498	+	+	+	+
560	558	-	-	+	+
630	628	-	-	+	+
710	708	-	-	+	+

- + = available
- = not available

Fire damper BSK-RB

Damper blade projecting ends



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

Size	øD	BSK-RB-S			BSK-RB-F		
		A	B		A	B	
			L=475	L=600		L=375	L=500
80	78	-	-	-	-	-	-
100	98	-	-	-	-	-	-
125	123	-	-	-	-	-	-
160	158	-	-	-	-	13*	-
200	198	-	-	-	-	33*	-
224	222	-	-	-	-	45*	-
250	248	-	8*	-	-	58*	-
280	278	-	23*	-	-	73*	-
315	313	-	40*	-	-	90*	-
355	353	-	60*	-	-	110*	-
400	398	-	83*	-	-	133*	8*
450	448	-	108*	-	13*	158*	33*
500	498	-	133*	-	38*	183*	58*
560	558	x	x	x	68*	213*	88*
630	628	x	x	x	103*	248*	123*
710	708	x	x	x	143*	288*	163*

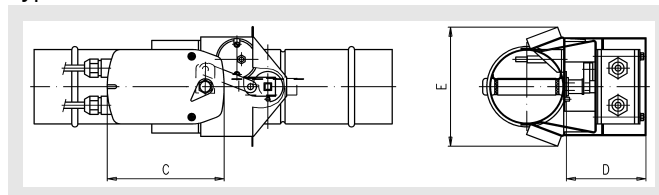
x = not available

* Extension piece (VT) necessary

Dimensions of accessories

with electric spring return actuator (-E)

Type ELD-BLF-B or ELD-BF 24 V AC / 24 V DC / 230 V AC



Size 80 only available with electric spring return actuator.

Available sizes (-E)

Size	C	D	E
80	155	100	142
100	155	100	158
125	155	100	158
160	155	100	172
200	155	84	230
224	155	84	230
250	155	84	230
280	155	84	230
315	155	84	230
355	155	84	230
400	155	84	230
450	155	84	230
500	155	84	230
560	155	84	230
630	248	90	320
710	248	90	320

Selection chart

	BSK-RB-S		BSK-RB-F		Size
	-E		-E		
x	•	x	•		80
•	•	•	•		100-160
•	•	•	•		200-500
x	x	•	•		560-710
	x		•		375
	•		x		475
	x		•		500
	•		x		600

• = available

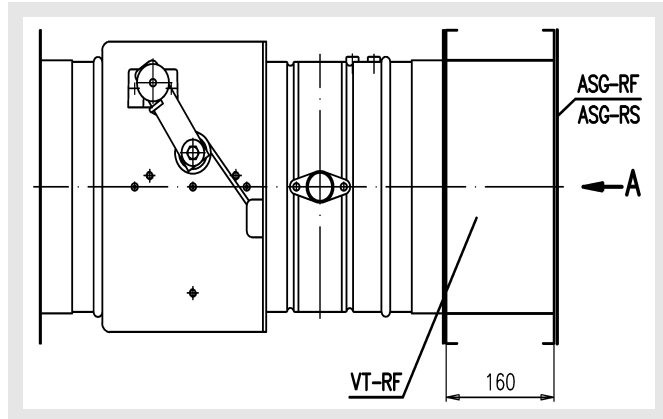
x = not available

-M = mechanical

-E = electrical

Fire damper BSK-RB

**Finishing protective grating (ASG-RF / ASG-RS)
Extension piece (-VT-RF)**



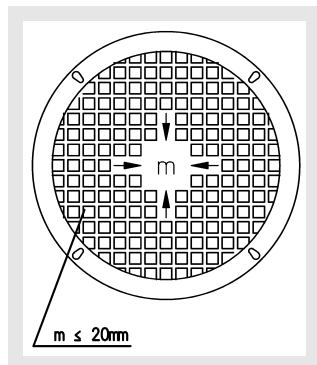
VT-RF only for BSK-RB-F (with flange) available.

When fitting the finishing protective grating type ASG-RF or ASG-RS care must be taken that the free run of the damper leaf is not impaired. However, no special minimum distance between the finishing protective grating and the damper blade is prescribed.

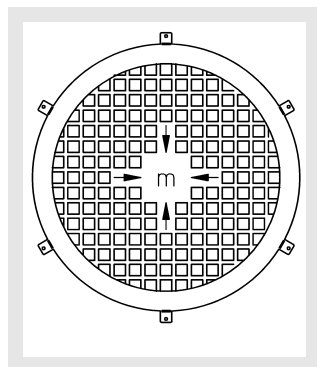
An extension piece type VT-RF should be provided for the ends of the damper blade projecting over the housing.

View A

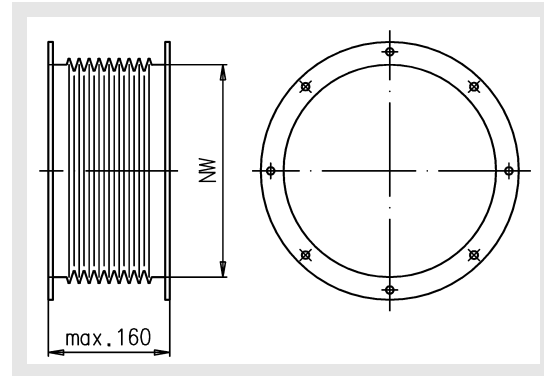
ASG-RF for BSK-RB-F



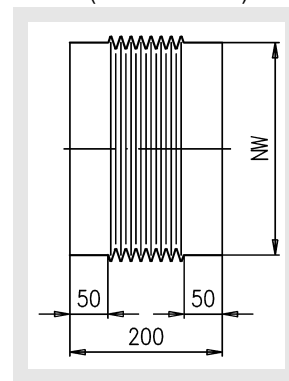
ASG-RS for BSK-RB-S



**Flexible connection piece (FS-RF / -FS-RS)
FS-RF (for BSK-RB-F)**



FS-RS (for BSK-RB-S)



The equipotential bonding must be carried out on-site by authorised personnel according to the VDE regulations. In case of a fire (breakdown), no mechanical stress from the equipotential bonding must operate on the fire damper, and the fire damper must not be impaired in its function.

Installation

Installation in walls and ceilings to DIN 1053 < 100 mm thickness:

- FS-RF / FS-RS on both sides

Installation in front of walls and ceilings:

- FS-RF / FS-RS on the side of the shut-off device pointing away from the fire-resistant duct

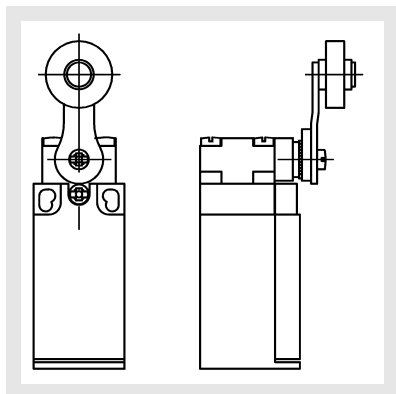
Installation in lightweight partition walls:

- FS-RF / FS-RS on both sides

Fire damper BSK-RB

Electric limit switch type ES

with / without KESS



Switching elements include 1 NC contact and 1 NO contact each, with jump feed, 4 connections, screw clamp M 3.5 for max. 2 mm². Operating temperature: -20°C to +70°C
Protection class: IP 66 using suitable screwed joints le max. 6 A 250 V AC (wiring on-site).

As position indicator or for switching functions, electric limit switches can be mounted.

Mounting options:

for damper position "Closed"	1 limit switch type ES 1 Z
for damper position "Open"	1 limit switch type ES 1 A
for damper position "Closed" / "Open"	2 limit switches type ES 2

Special limit switch in EX design (on request) type ES 1 Ex.

The limit switches are fitted ex works.

The analogue limit switches ES1 and ES2 can be connected to the communicative signalling and switching bus system KOMES via the compatible KESS limit switch modules.

The BSK-RB with a 24 V actuator can be connected to the communicative signalling and switching bus system KOMES via an SMB module.

Fire damper BSK-RB

Installation

Installation in walls and ceilings

The round fire damper type BSK-RB can be fitted as shown in the following tables.

Fire resistance classification

Installation in walls and ceilings:

- One side duct, opposite side protective grating K90
- both sides with non-flammable ventilation duct at least 1.5 x size K90

Lightweight partition wall

- both sides with non-flammable ventilation duct at least 1.5 x size K90

Minimum thickness (mm) for installation in walls and ceilings

The classification of the fire dampers into the individual fire resistance classes can be seen from the table below.

Fire resistance class:

into walls:	K30	K60	K90
Gas concrete and lightweight concrete	≥75 2.)	≥75 2.)	≥100
other types of concrete	≥80 2.)	≥80 2.)	≥100
other type of masonry	≥71 1.) 2.)	≥71 1.) 2.)	≥115
Plaster boards	≥60 2.)	≥80 2.)	≥100
into ceilings:			
Concrete, including lightweight concrete and gas concrete	(≥100)	(≥100)	≥100

- 1.) Additional plaster on both sides (2 x 15 mm thick) masonry to DIN 1053.
- 2.) Fire dampers in massive walls of less than 100 mm in thickness must be connected on both sides to the ventilation ducts by means of flexible connection pieces type FS-RF or FS-RS.

Fitting arrangement in walls and ceilings

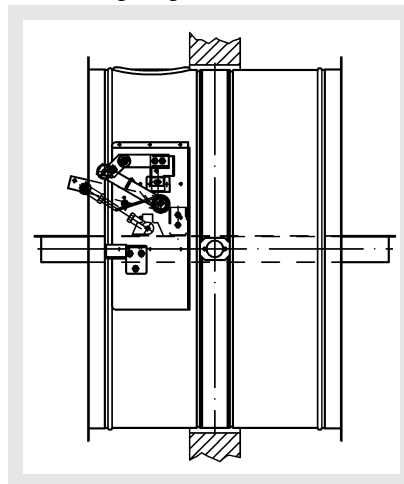
Installation can also take place during construction of the walls or during cementing (in which case the surrounding mortar is not required). The concrete must **not** be compacted.

Mounting options

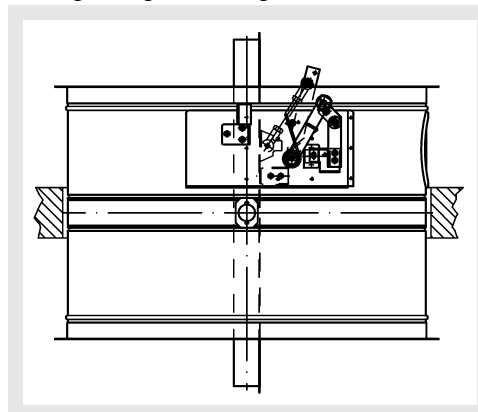
Fitting arrangement in walls and ceilings

Installation position:

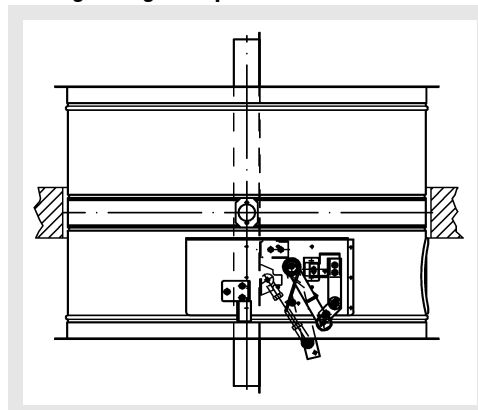
Wall fitting - right



Ceiling fitting - standing

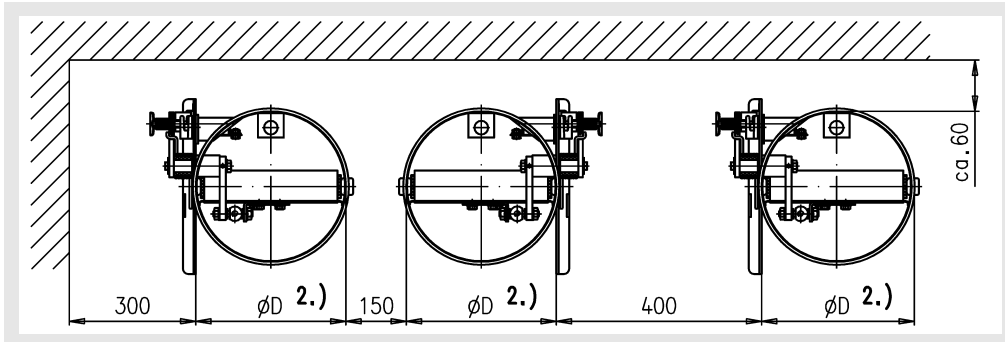


Ceiling fitting - suspended



Fire damper BSK-RB

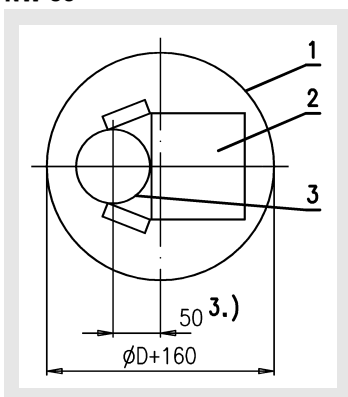
Minimum distances for fitting in walls and ceilings



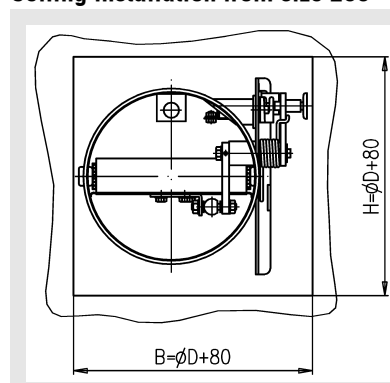
Distance dimensions correspond to standard design. For additional installations, the projecting ends can be seen from the relevant column.

2.) = inside

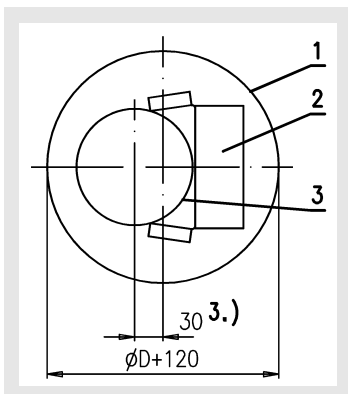
Wall and ceiling installation NW 80



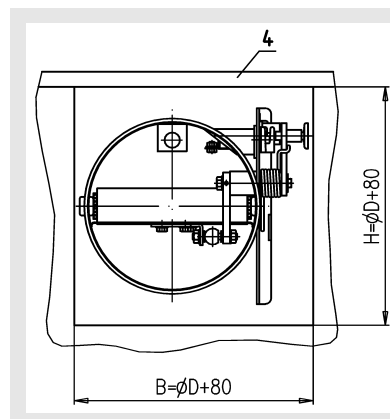
Ceiling installation from size 200



NW 100-160

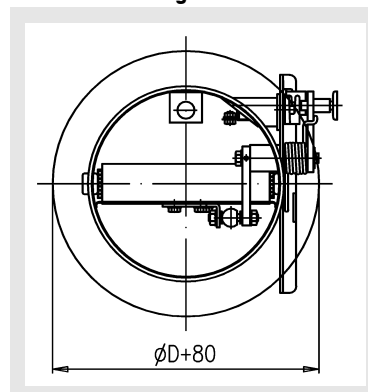


Wall installation from size 200



- 1 = Installation opening
- 2 = Motor box
- 3 = Damper housing
- 4 = Plunge
- 3.) = distance from centre

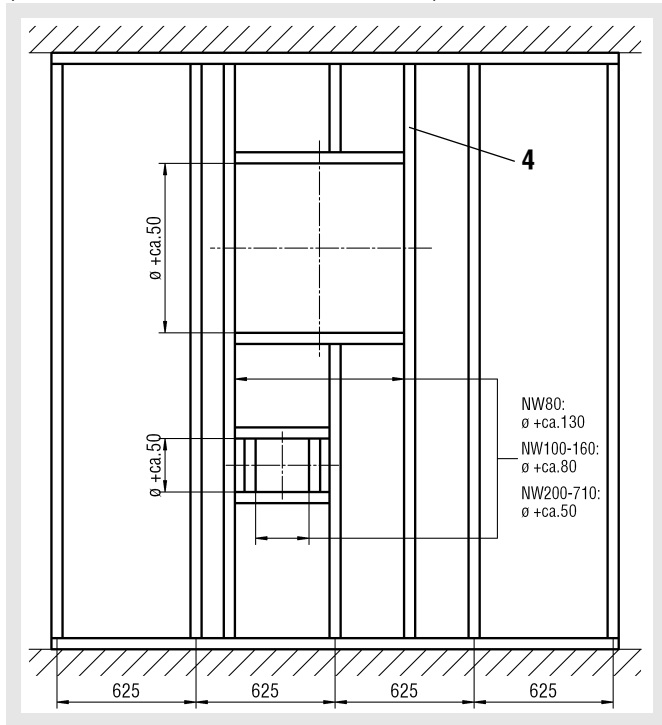
Wall and ceiling installation from size 200



with mortar group II or III to DIN 1053 or cement.

Fire damper BSK-RB

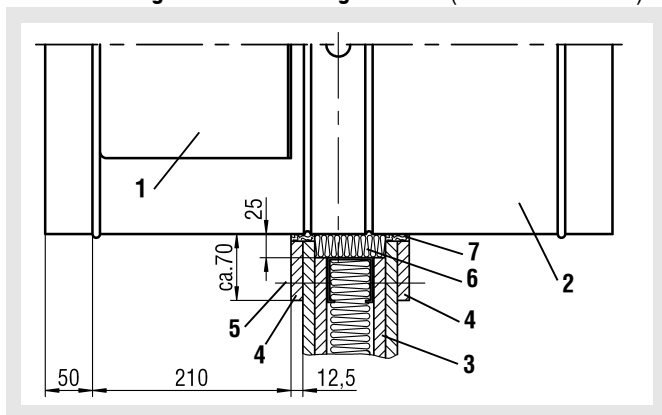
Installation in lightweight partition wall
 according to Table 48 of DIN 4102 Part 4 (Edition March 1994)
 (Drawn without showing the GKF boards)



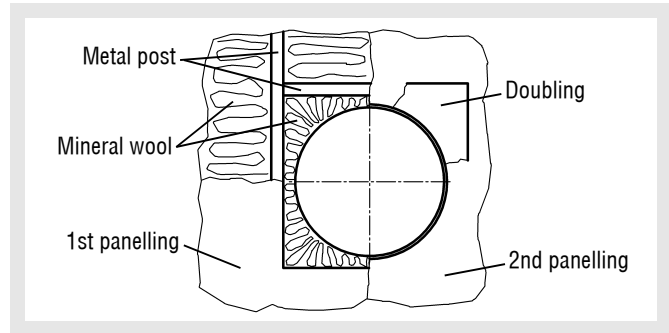
4.) = Profile

Minimum distance between two BSK-RB is 120 mm to each other. In the overlap / connection area of the exchangeable profiles, they must be riveted, crimped or screwed once per connection point. The horizontal change profiles must be executed as UW 50/40/0.6, the vertical change profiles as GW 50/50/0.6 to DIN 18182.

Section through wall containing BSK-RB (drawn NW \geq 200)



- 1 = Fitted console
- 2 = Fire damper BSK-RB
- 3 = Lightweight partition wall according to Table 48 DIN 4102 Part 4
- 4 = Doubling (GKF board 12.5 mm to DIN 18180)
- 5 = Drywall screws TN 3.5 x 55 to DIN 18182
Bore distances 150 mm max.
- 6 = Mineral wool (DIN 4102)
Melting point \geq 1000°C, apparent density approx. 50 - 100 kg/m³
- 7 = Filled with plaster

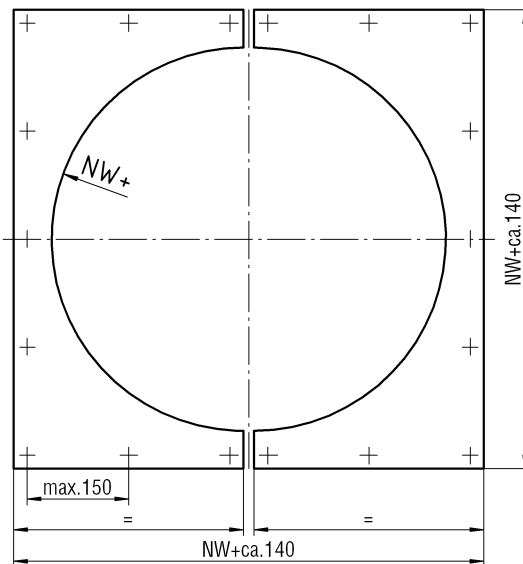


GKF doubling (plaster board t=12.5)

Fastening by means of drywall screws TN 3.5 x 55 to DIN 18182,
 $e \leq 150$ mm.

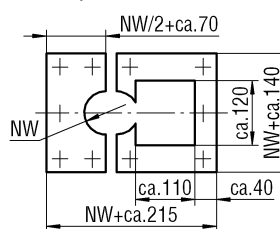
BSK-RB 200-710

1 each per drive side
 1 each per non-drive side



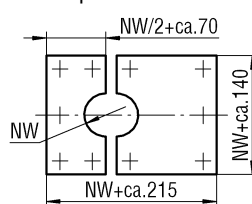
BSK-RB 80

1 each per drive side



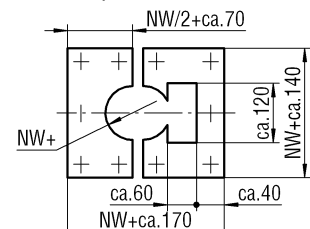
BSK-RB 80

1 each per non-drive side



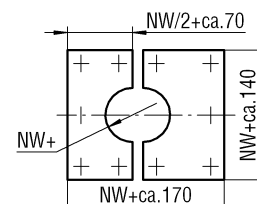
BSK-RB 100-160

1 each per drive side



BSK-RB 100-160

1 each per non-drive side



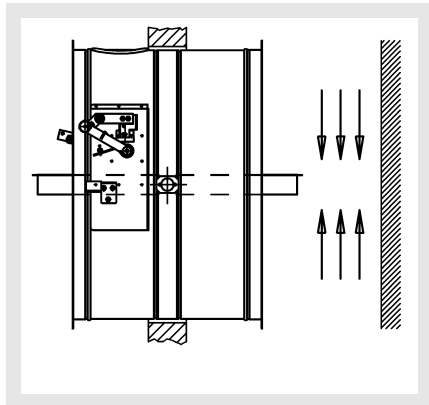
Fire damper BSK-RB

Installation information

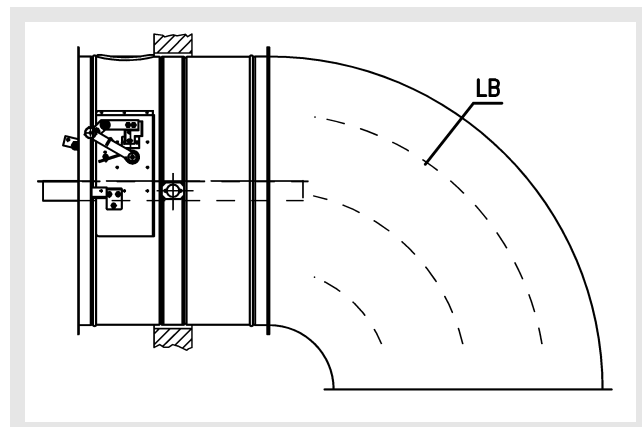
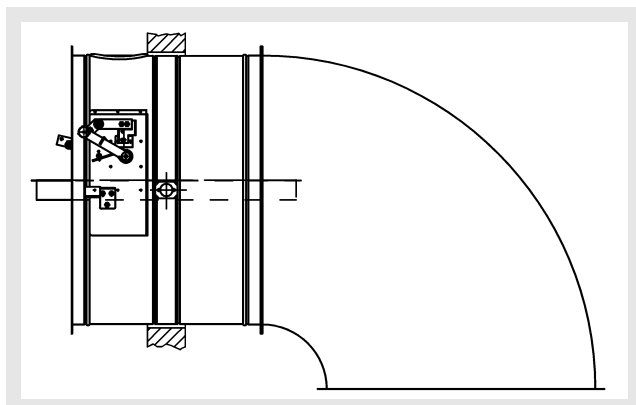
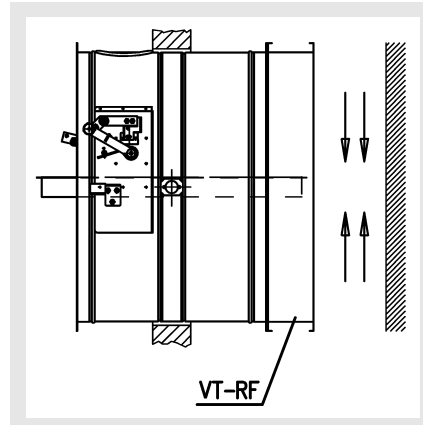
During installation make sure that the air inflow reaches the fire damper (damper blade) uniformly. During installation, make sure that the air flow does not counteract the closing process of the shut-off damper.

LB = Guiding plate
VT-RF = Extension piece

Unfavourable installation



Favourable installation



The above figures show an unfavourable air inflow at the fire damper. This should be avoided when air velocities in the duct are high.

The flow can be influenced favourably by means of small constructional changes, such as fitting guiding plates.

Ensure free run of the damper leaf!

The suitability of the shut-off devices in ventilation ducts, which are particularly prone to internal contamination by fats (e.g. return air ducts connected to commercial kitchens and for flammable ducts) is not proven.

Connection to flammable ducts

Fit a non-flammable duct of at least $1.5 \times D$ (fire damper diameter) between the fire damper type BSK-RB and the flammable duct.

The fire resistance class with this type of mounting is K90.

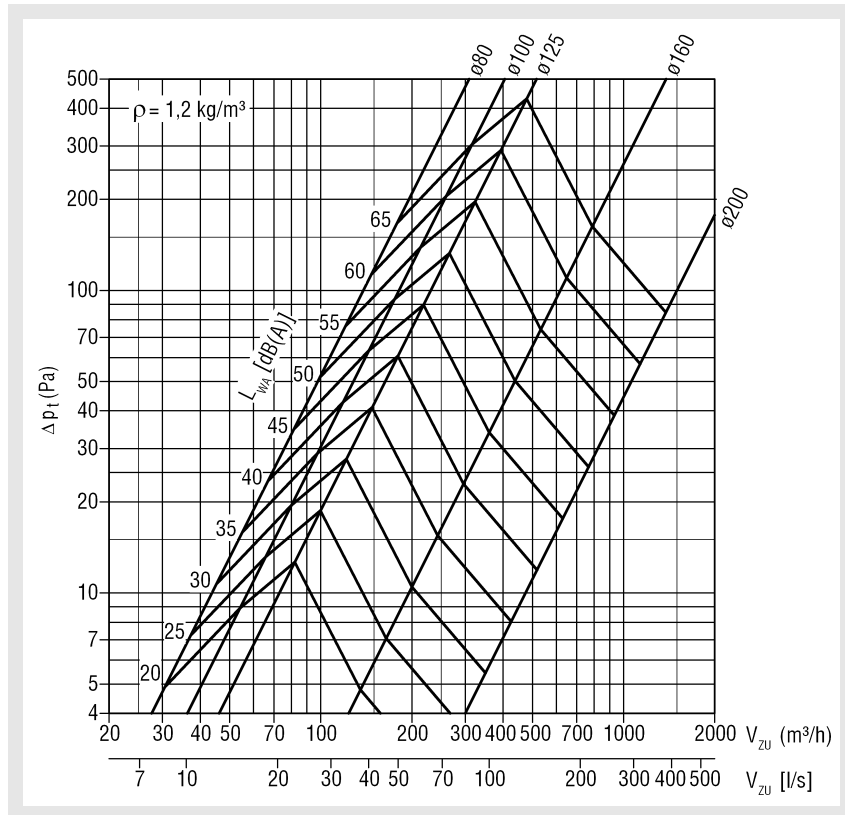
Mounting a finishing protective grating type ASG-RF or ASG-RS between the fire damper and the combustible duct is not allowed.

Fire damper BSK-RB

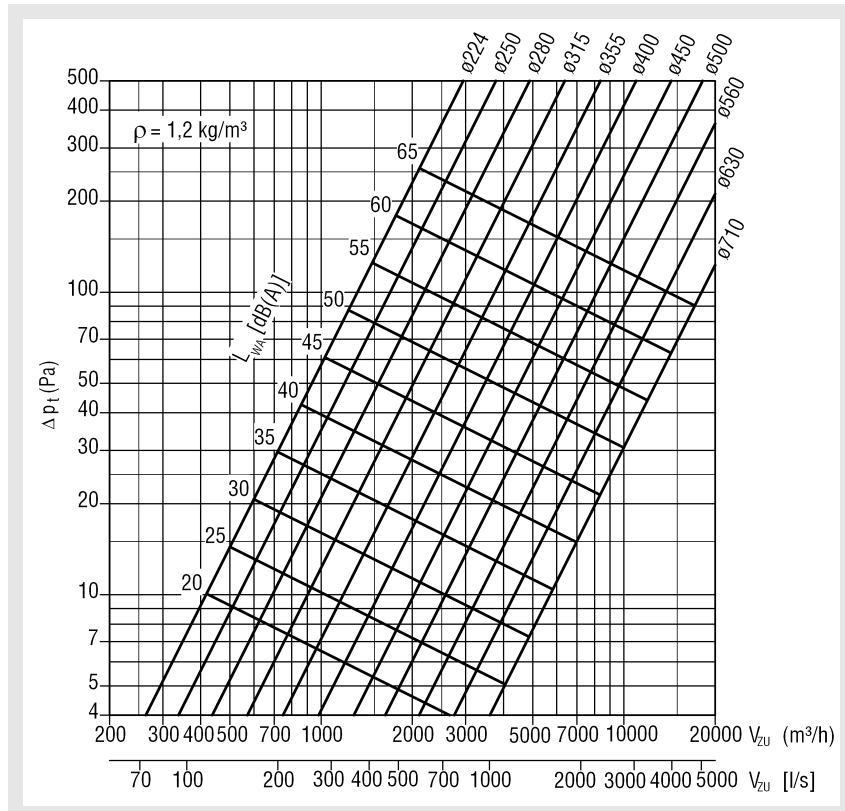
Technical data

Pressure loss and noise level

Sizes 80 to 200



Sizes 224 to 710



Free cross-sections

Size	øD (mm)	FQ (m²)
80	78	0,00345
100	98	0,00529
125	123	0,00622
160	158	0,01234
200	198	0,02168
224	222	0,02650
250	248	0,03467
280	278	0,04541
315	313	0,05973
355	353	0,07845
400	398	0,10252
450	448	0,13299
500	498	0,16739
560	558	0,21385
630	628	0,27521
710	708	0,35475

Fire damper BSK-RB

Quick selection chart

Size		L _{WA} [dB(A)]		
		35	40	45
80	V _{ZU} (m ³ /h)	55	67	82
	V _{ZU} [l/s]	15,3	18,6	22,7
	v _{stirn} (m/s)	3,2	3,9	4,7
	Δp _t (Pa)	16	24	35
100	V _{ZU} (m ³ /h)	97	118	144
	V _{ZU} [l/s]	27,0	32,9	40,0
	v _{stirn} (m/s)	3,6	4,4	5,3
	Δp _t (Pa)	29	43	63
125	V _{ZU} (m ³ /h)	148	180	219
	V _{ZU} [l/s]	41,0	49,9	60,7
	v _{stirn} (m/s)	3,5	4,2	5,1
	Δp _t (Pa)	41	61	90
160	V _{ZU} (m ³ /h)	243	296	360
	V _{ZU} [l/s]	67,6	82,2	100,0
	v _{stirn} (m/s)	3,4	4,2	5,1
	Δp _t (Pa)	15	23	34
200	V _{ZU} (m ³ /h)	426	518	630
	V _{ZU} [l/s]	118,3	143,9	175,1
	v _{stirn} (m/s)	3,8	4,7	5,7
	Δp _t (Pa)	8	12	18
224	V _{ZU} (m ³ /h)	718	859	1029
	V _{ZU} [l/s]	199,4	238,6	285,7
	v _{stirn} (m/s)	5,2	6,2	7,4
	Δp _t (Pa)	30	43	61
250	V _{ZU} (m ³ /h)	876	1048	1255
	V _{ZU} [l/s]	243,3	291,2	348,7
	v _{stirn} (m/s)	5,0	6,0	7,2
	Δp _t (Pa)	27	38	55
280	V _{ZU} (m ³ /h)	1089	1288	1542
	V _{ZU} [l/s]	302,5	357,7	428,3
	v _{stirn} (m/s)	5,0	5,9	7,1
	Δp _t (Pa)	24	35	50

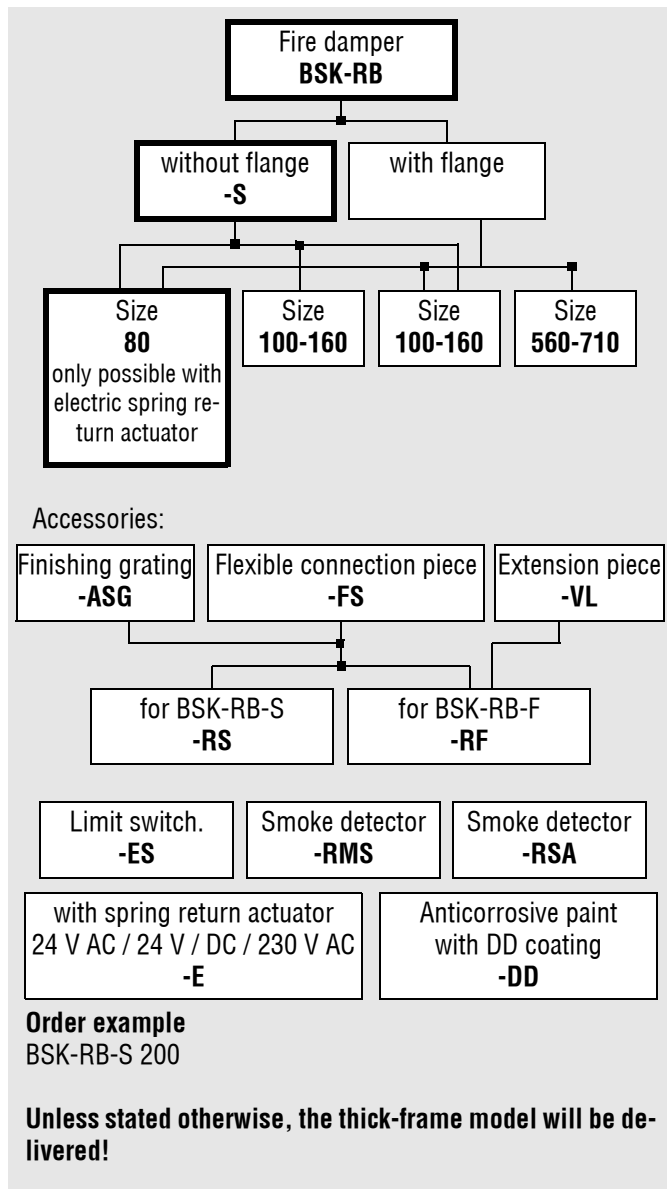
Size		L _{WA} [dB(A)]		
		35	40	45
315	V _{ZU} (m ³ /h)	1332	1595	1909
	V _{ZU} [l/s]	370,0	443,0	530,3
	v _{stirn} (m/s)	4,8	5,8	6,9
	Δp _t (Pa)	22	31	45
355	V _{ZU} (m ³ /h)	1655	1981	2372
	V _{ZU} [l/s]	459,7	550,3	658,8
	v _{stirn} (m/s)	4,7	5,6	6,7
	Δp _t (Pa)	24	35	50
400	V _{ZU} (m ³ /h)	2055	2460	2945
	V _{ZU} [l/s]	570,9	683,3	818,1
	v _{stirn} (m/s)	4,6	5,5	6,6
	Δp _t (Pa)	18	25	35
450	V _{ZU} (m ³ /h)	2545	3046	3647
	V _{ZU} [l/s]	706,9	846,1	1013,0
	v _{stirn} (m/s)	4,5	5,4	6,4
	Δp _t (Pa)	16	23	32
500	V _{ZU} (m ³ /h)	3081	3688	4416
	V _{ZU} [l/s]	855,9	1024,5	1226,7
	v _{stirn} (m/s)	4,4	5,3	6,3
	Δp _t (Pa)	14	21	29
560	V _{ZU} (m ³ /h)	3785	4530	5420
	V _{ZU} [l/s]	1051,3	1258,4	1505,7
	v _{stirn} (m/s)	4,3	5,1	6,2
	Δp _t (Pa)	13	19	27
630	V _{ZU} (m ³ /h)	4686	5610	6716
	V _{ZU} [l/s]	1301,8	1558,2	1865,6
	v _{stirn} (m/s)	4,2	5,0	6,0
	Δp _t (Pa)	12	17	24
710	V _{ZU} (m ³ /h)	5821	6968	8343
	V _{ZU} [l/s]	1617,1	1935,7	2317,5
	v _{stirn} (m/s)	4,1	4,9	5,9
	Δp _t (Pa)	10	15	21

Fire damper BSK-RB

Legend

V_{ZU} (m ³ /h) [l/s]	= Supply air volume
Δp_t (Pa)	= Pressure loss
v_{face} (m/s)	= Inflow velocity
L_{WA} [dB(A)]	= A-weighted sound power level
ρ (kg/m ³)	= Density
Size	= Nominal width

Order details



Specification text

Round fire damper to install into walls and ceilings or in light-weight partition walls, with resistance class K 90 to DIN 4102, Part 6. The housing and add-on parts consist of galvanised sheet steel with abrasion-proof metal damper blades mounted on a stable, continuous damper axis in maintenance-free bearings. With integrated thermal trigger device 72°C. Installation position vertical, suspended or horizontal, any air jet direction. Operating side on the right.

Approval certificate number: Z-41.3-628

- without flange
Product: SCHAKO type **BSK-RB-S**
Length - 475 mm
- 600 mm
- with flange
Product: SCHAKO type **BSK-RB-F**
Length - 375 mm
- 500 mm

Accessories:

- Corrosion resistant paint (-DD), with DD coating, inside and/or outside, two-component paint based on polyurethane, colour light grey.
- Extension piece (VT-RF, with flange) made of galvanised sheet steel (only available for BSK-RB-F).
- Electric spring return actuator (-E), 24 V DC / 230 V AC to open and close the shut-off damper (BSK-RB-F-S 80 only available with electrical spring return actuator).
- Limit switch (-ES),
 - Protection class IP 66 (humidity-proof)
 - Equipped with 1 NO and 1 NC contact each:
 - Type ES 1 Z for "CLOSED"
 - Type ES 1 A for "OPEN"
 - Type ES 2 Z, for "CLOSED" and "OPEN"
 - Type ES 1, explosion-proof model
- With limit switch module KESS to connect to the communicative signalling system KOMES via looped bus line (-KESS)
- Finishing protective grating made of galvanised sheet steel
 - With flange (-ASG-RF)
 - Without flange (-ASG-RS)
- Flexible connection piece made of PVC-coated polyester fabric with stable galvanised sheet steel connection profile. Temperature-resistant from -20 to +70°C. Building material class at least B2 to DIN 4102.
 - With flange (-FS-RF)
 - Without flange (-FS-RS)
- Smoke detector (RMS / RSA) for smoke detection.