

BSK6-VAP

Rectangular fire damper and
pressure control damper



FIRE SAFETY



02/02/2022





Quick facts

- Fire resistance class EI60/EI60S
- Sizes from 200 x 200 mm to 800 x 800 mm
- Prefitted safety actuator 24V
- Pressure Control Variable Air Volume
- Low weight
- Easy installation
- Available in MagiCAD
- CE-marked building product according to 15650:2010

Two dampers in one!

Bevent Rasch has developed a fire damper in fire resistance class EI60 / EI60S which is also used for pressure control damper in all types of ventilation plants whilst providing full protection against the spread of smoke.

Use

Dampers in combination with walls or joists for fire-sectioning of heating, ventilation and air conditioning installations in buildings. In accordance with the harmonised European Standard EN 15650:2010. Smoke spread is prevented when the damper system design in accordance with the associated documentation, assembly and fitting instructions is used in combination with smoke detectors and the MRB (or equivalent) monitoring system. No further measures against the spread of smoke are required.

As the damper also functions as a constant pressure damper, both these functions are combined in the same damper. This saves both time, space and money for installations in, for example, hotels, office and shopping malls, where both these functions need to be solved.

Performance

EC certificate according to EN 15650:2010

0402-CPR-SC1299-13

Classification of fire resistance according to EN 13501-3

EI60 (ve ho i <-> o) S

For complete classification, see the Declaration of Performance.



Installation

BSK6-VAP is installed in fire cell separating walls or joist systems, according to the adjoining installation instructions. Should not be installed outdoors or in damp areas.

Design

BSK6-VAP is supplied complete with a factory mounted, maintenance-free, 24 V electric safety actuator with thermal sensor featuring built-in signal contacts to indicate the damper position. The actuator is Belimo's specific VAV motor for stable and safe regulation. BSK6-VAP is supplied prepared for possible overinsulation of 50 mm. BSK6-VAP is supplied calibrated from the factory. Nominal pressure is 100 Pa or 300 Pa depending on the pressure sensor's range of measurement. Desired reference values are set using the regulator's potentiometer between 30-100% of nominal pressure. The reference value can be remotely set with a 2-10V signal from the DUC, for example. The device can be force-controlled to different operational requirements. In case of a power failure, the damper closes with actuator spring return.



Activation

The obligatory thermal sensor closes the damper at 72°C in accordance with ISO 10294-4.

Control and monitoring

When the damper is used to prevent the spread of fire and smoke it must be closed via impulses from the smoke detector or thermal sensor. This must be fitted in the ventilation duct near the damper or in another suitable location. Smoke detectors are monitored by means of the Bevent Rasch MRB system or the like. The MRB monitoring system also performs automatic function tests on the damper every 48 hours and is designed so that faults are indicated immediately and the damper closes. For further information refer to the technical section on the website.

The following Bevent Rasch monitoring units can be used:

- MRB3 with RCTC/RCTU

Size

From 200 x 200 mm to 800 x 800 mm, in increments of 50 mm.

Material and surface finish

Casing and components are supplied as standard in galvanized sheet steel in accordance with environmental class C3. For higher environmental classes the casing and components can be supplied in stainless steel.

Miscellaneous

All data presented are for dampers in standard versions. This type of damper shall not be confused with a Pressure Relief Damper, which has the opposite function.

Specification

Example:

Fire damper **BSK6-VAP - 600 - 400 - 1 - 0 - 3**

Size

Width x Height (W x H), mm

Material

Galvanized sheet steel

= 1

Stainless AISI 316L – EN 1.4404

= 3

MRB-unit

Without MRB unit

= 0

With MRB unit fitted (RCTU)

= 5

Note Factory-fitted actuator device is always included.

Pressure sensor

30-100 Pa

= 1

90-300 Pa

= 3

Accessories

BRAS Circular sleeve coupling for BSK6-VAP

RCKB Connection box

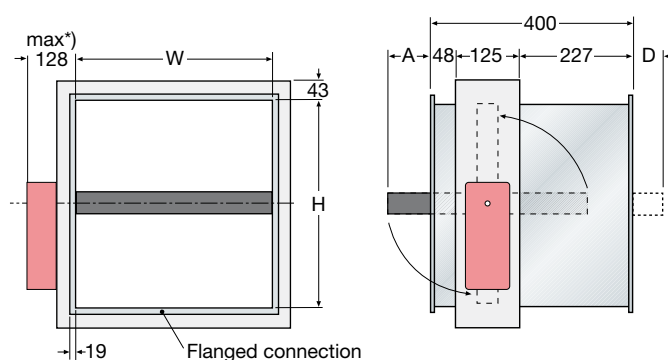
RCKD/-RD Smoke detectors

RCTU/RCTC MRB3 system, max 236 dampers

BRRM/BRMR Measuring unit



Dimensions and weight



*) applies to standard design

Dimensions, mm

H	A	D
200	0	0
250	25	0
300	50	0
350	75	0
400	100	0
450	125	0
500	150	0
550	175	0
600	200	20
650	225	45
700	250	70
750	275	95
800	300	120

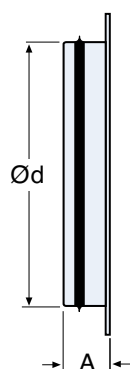
Weight incl. 24V actuator, kg

H	W												
	200	250	300	350	400	450	500	550	600	650	700	750	800
200	12	13	15	16	17	18	20	21	22	24	25	27	28
250	13	15	16	17	18	20	21	22	24	25	27	28	30
300	15	16	17	18	20	21	22	24	25	27	28	30	32
350	16	17	18	20	21	22	24	25	27	28	30	32	33
400	17	18	20	21	22	24	25	27	28	30	32	33	35
450	18	20	21	22	24	25	26	28	30	32	33	35	36
500	20	21	22	24	25	26	28	30	32	33	35	36	38
550	21	22	24	25	26	28	29	32	33	35	36	38	39
600	22	24	25	26	27	29	30	33	35	36	38	39	41
650	24	25	26	27	29	30	31	35	36	38	39	41	42
700	25	26	27	29	30	31	33	36	38	39	41	42	44
750	26	27	29	30	31	33	34	38	39	41	42	44	45
800	27	29	30	31	33	34	35	39	41	42	44	45	47

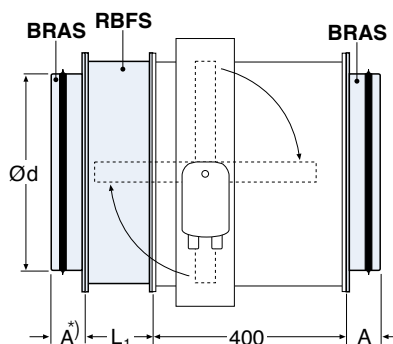
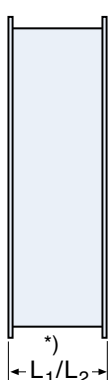


Installation

Connection spigot
BRAS

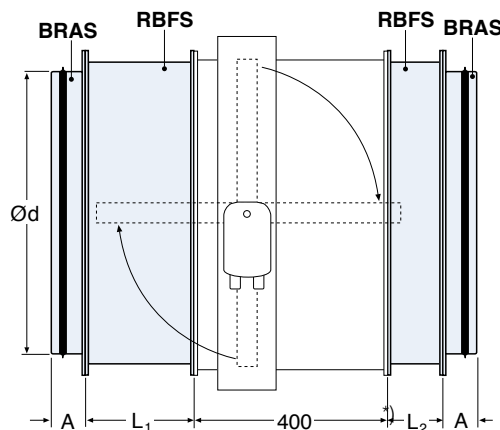


Extension spigot
RBFS



Ød = 250 - 500 mm
1 x RBFS required

BRAS Ød	Min. damper size	A	RBFS	
			L ₁	L ₂
100	200 x 200	50	—	—
125	200 x 200	50	—	—
160	200 x 200	50	—	—
200	200 x 200	50	—	—
250	250 x 250	50	155	—
315	350 x 350	65	155	—
400	400 x 400	80	155	—
500	500 x 500	80	330	—
630	650 x 650	80	330	155
800	800 x 800	80	330	155

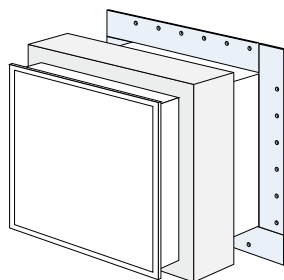
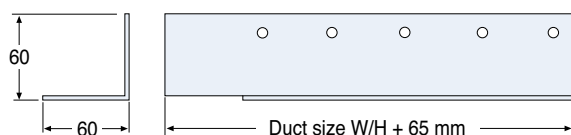


Ød = 630 - 800 mm
2 x RBFS required

*) Length as per the table above

Note. For circular dampers first use the BSKC6 damper.

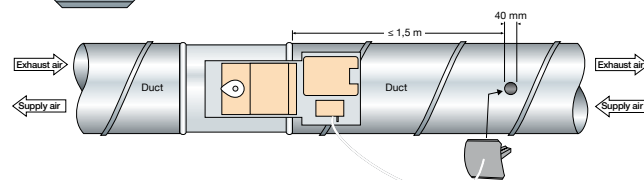
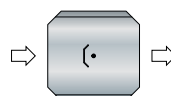
Assembly plate (incl. in delivery)



Supplied unassembled

Installation

The pressure sensor should be mounted in a representative position in the duct downstream of the damper with the arrow in the direction of the air flow. The measuring hose must be fixed in the duct and in the static pressure sensor on the damper. If the damper is placed in the exhaust air duct the measuring tube shall be moved to the minus spigot on the static pressure sensor. The pressure sensor is calibrated and mounted in a vertical position. When mounting in another position, post-adjustment on-site is possible.

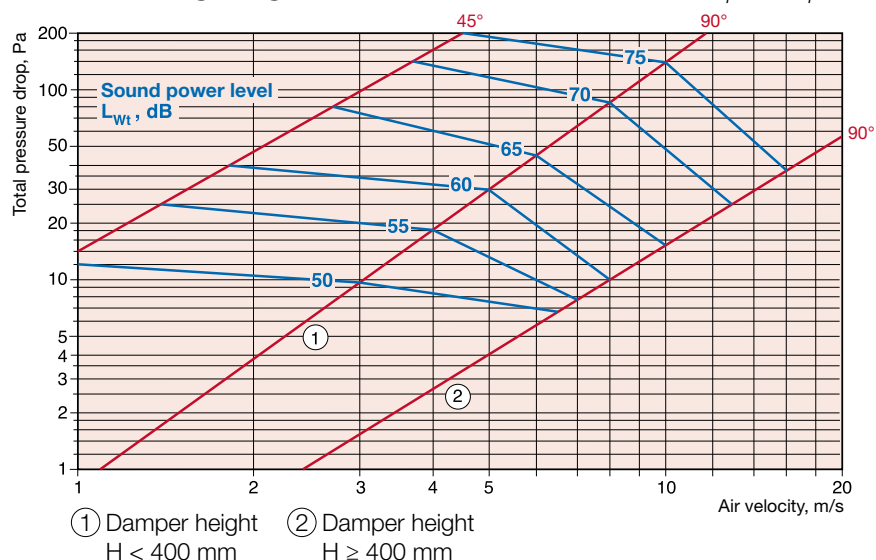




Electrical data

	BSK6-VAP	VRP-STP
Sizing, max	10 VA - BF24-V	2,6 VA
Running time;		
- motor opening	120-300 s	
- spring return, max	approx. 20 s	
Protection class	IP 54	
Power supply	24V~ ±20%, 50/60 Hz	
- Control signal Y	DC 2-10 V	DC 0-10 V (option)
- Measuring signal U	DC 2-10 V	DC 0-10 V (option)
0-100% U nom		
Ambient temperature	0° to +50°C	
End position contacts:		
- load ≤ 300 mW	min 1 mA/5V=,	
	max 100 mA/250V~	
Applicable after exceeding the above values:		
- load > 300 mW	min 100 mA, max 3 A/250~	
Sound level		
- when opening	approx. 45 dB(A)	
- with spring return	approx. 62 dB(A)	

Dimensioning diagram

Valid for open damper

The speed is calculated on the damper's gross area, i.e. a BSK6R - 400 x 400 has a gross area of 0.16 m².

The specified pressure drop applies to the damper without accessories.

Due to the thickness of the damper blades, noise and pressure drop data differs in the smaller sizes compared to the larger when the damper is fully open. When damper blade is angled, the same pressure drop line is used for all sizes and the sound power level is corrected by damper area.

Sound data

Correction of sound power level, L_{Wt} , for different sizes use curves ① - ② according to: $L_W = L_{Wt} + K_1$

Damper height mm	Damper area, m ²				
<400 as per ①	-	0,08	0,16	0,28	-
≥400 as per ②	0,08	0,16	0,32	0,64	1,28
K_1	-3	0	3	6	9

Correction of sound power level, L_{ok} , in octave band

$$L_{Wok} = L_W + K_{ok}$$

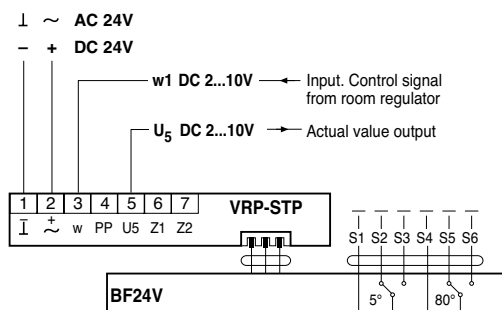
Correction, K_{ok}

Opening angle	Centre frequency Hz							
	63	125	250	500	1000	2000	4000	8000
45°	-1	-9	-14	-19	-21	-24	-28	-35
90°	-1	-11	-18	-23	-26	-28	-32	-38
Tol. ± dB	1	2	3	4	6	6	6	6

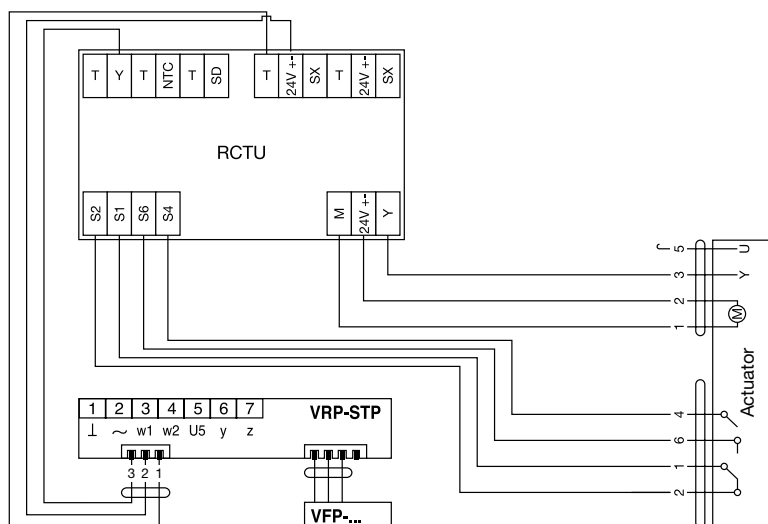


Wiring diagram

Option 1 – Connection to master system



Option 2 – Connection to RCTU



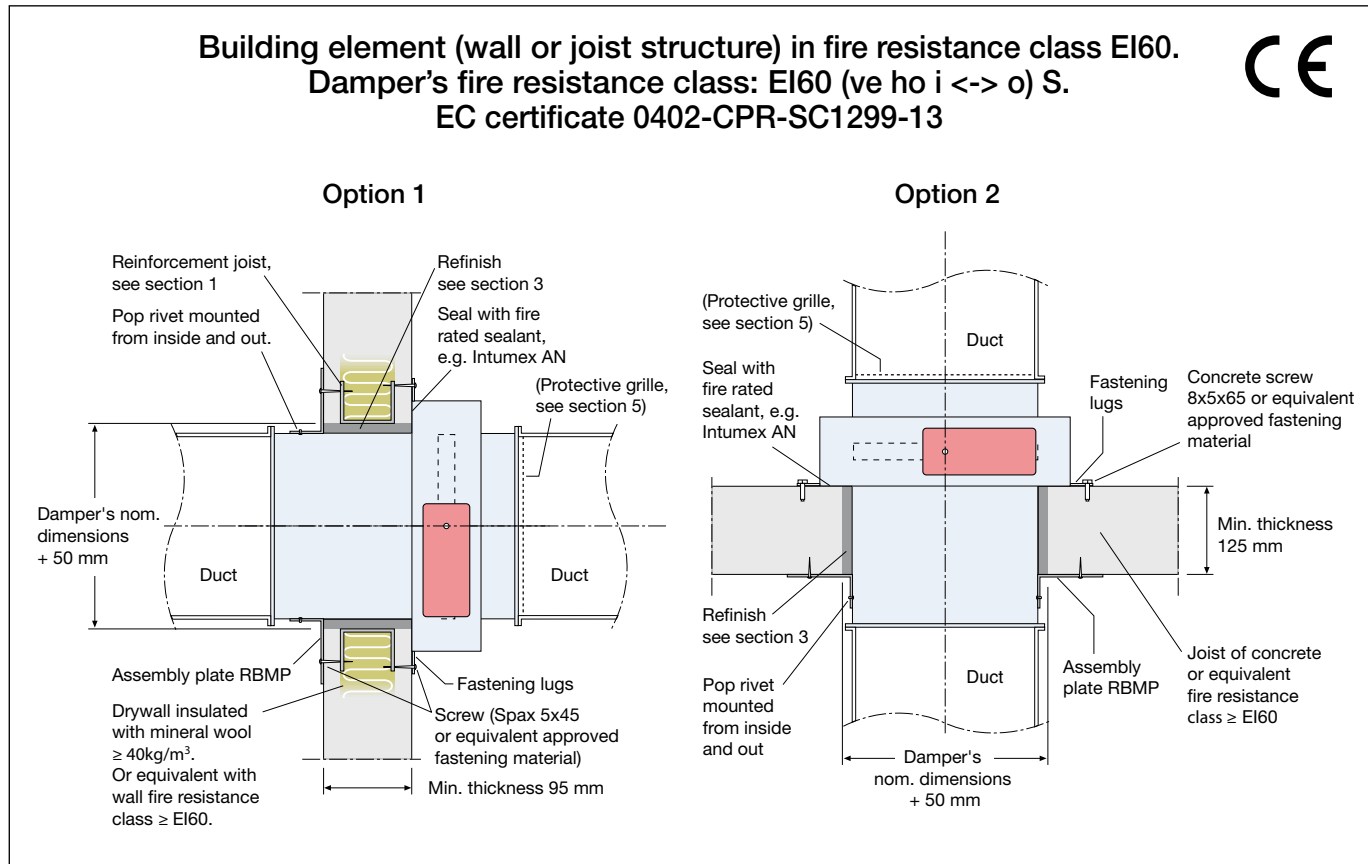
Caution!

When connecting several VAV-devices to the same transformer, it is important that all system phases are connected to (L) and all system neutrals are connected to (N).

In case of alarm and function tests, the 24V supply must be disconnected!



Installation instruction



Options 1 and 2

- Aperture equivalent to damper dimensions + 50 mm, is produced in the building element.
When mounted in a drywall, horizontal metal joists 45x45 mm shall be applied as a frame in the wall structure.
- The damper is secured flat and tight using fire stopping sealant (Intumex AN) against the wall/joist structure with the fastening lugs, which are opened out.
When mounted in drywall, Spax screws shall be screwed in to the joists.
- Make sure the gap between damper and wall is 25 mm all around. Sealing is carried out by caulking with mineral wool, min 40 kg/m³.
- Fit the assembly plates RBMP on to the building element, using appropriate fastening material.
When mounted in drywall, Spax screws shall be screwed in to the joists. Attach the assembly plates on to the damper, using stainless steel pop rivets through the prepunched holes in the assembly plates.
Mount the pop rivets from the inside and out. Make sure nothing is obstructing the movement of the damper blade.
- If fire damper is not connected to the duct system, fit non-combustible grilles designed for the damper on the unconnected sides. Connection piece RBFS may be needed from sizes 600 mm or larger.
The minimum distance between the damper blade in the open position and the grille is 50 mm.
- Install the thermal sensor with the sensor body in the air stream without obstructing the movement of the damper blade.
- Install the actuator according to applicable requirements.
- Install the duct system according to applicable requirements. Make sure that the connected duct system does not impact on the damper in the event of a fire load.
 - Minimum distance between dampers must be 200 mm.
 - Minimum distance to joist structure/wall must be 75 mm.
 - Horizontal installation of the damper spindle.