RABC-VAP

Circular fire damper with constant pressure retention function

FIRE SAFETY

18/06/2019

BEVENT RASCH

AIR SOLUTIONS – FOR A BETTER TOMORROW

www.bevent-rasch.com

Fire damper with constant pressure retention function RABC-VAP E60/E120

Image shown with a fitted RCTC / MRB3 unit.

Quick facts

- Fire resistance class E60 / E120S
- Complete protection against spread of smoke
- Sizes from 100 mm to 630 mm
- Fitted regulating safety actuator 24V
- Duct mounted
- Easy constant pressure retention
- Available in MagiCAD
- CE-marked building product in accordance with 15650:2010

Two dampers in one!

Bevent Rasch has developed a fire damper for fire resistance class E60 / E120S which is used for constant pressure retention in all types of ventilation plants whilst providing full protection against the spread of smoke.

Use

Damper 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 functions as a constant pressure retention damper, both these functions are combined in the same damper. This saves time, space and money for installations in, for example, hotels, office and shopping complexes, where the need for several functions is relevant.

Performance

EC certificate according to EN 15650:2010
0402-CPR-SC0058-13

Classification of fire resistance in accordance with EN 13501-3
E120 (ve i <–> o) S
E120 (ve ho i <–> o)
E60 (ve ho i <–> o)

Installation

RABC-VAP is mounted on the bushing of building parts in accordance with the associated mounting instructions. If mounted as a final device, the damper must be fitted with steel meshing.

Design

RABC-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. RABC-VAP is supplied prepared for possible overinsulation of 50 mm. RABC-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 of a power failure, the damper closes with actuator spring return.

Activation

Smoke detectors must be verified in accordance with SS-EN 54-7 for activation of dampers. The obligatory thermal sensor closes the damper at 72°C.

Control and monitoring

When the damper is used as protection against fire and the spread of fire it shall close on activation of an impulse from smoke detector or thermal sensor. The thermal sensor shall be mounted in a ventilation duct close to the damper or another suitable location.
Smoke detectors are monitored with Bevent Rasch MRB or an equivalent system. The MRB monitoring system carries out automatic function tests of dampers every 48 hours and is configured so that faults are immediately indicated and the damper is closed. 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

Ø100 – 630 mm.

Material and surface finish

The casing and components are supplied as standard in hot-dip galvanized sheet steel in accordance with environmental class C3. Fabric seals. EPDM Spiro duct connections. 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 **RABC-VAP - 250 - 1 - 0 - 3**

Size
Nom. diameter Ød, mm

Material
Galvanized sheet steel = 1
Stainless AISI 3041 – EN 1.4301 = 2
Stainless AISI 316L – EN 1.4404 = 3

Actuator
Without MRB unit = 0
With MRB3 unit fitted (RCTU) = 5

Pressure sensor
30-100 Pa = 1
90-300 Pa = 3

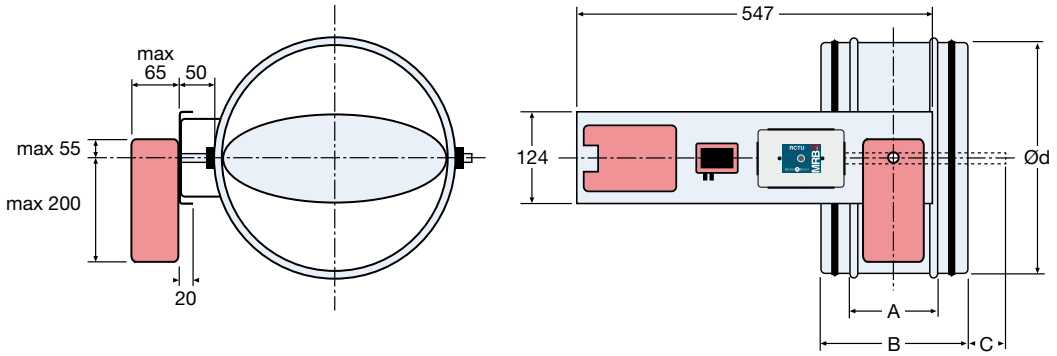
Note Factory-fitted actuator device is always included.

Accessories

RCKD/-RD Smoke detectors
BRRM/BRMR Measuring unit
RCTU Damper module for the MRB3 system

Dimensions and weight

Illustration shown with a fitted RCTU / MRB3 unit.



Size Ø mm	Spiro A	Spiro B	C	Weight, kg*)
100	120	200	–	2,8
125	120	200	–	3
160	120	200	–	3,2
200	120	200	–	3,5
250	120	200	30	4
315	120	200	60	4,9
400	210	290	60	8,4
500	210	290	110	10,3
630	210	290	180	13,4

*) For affixed RCTU there is an additional 150g.

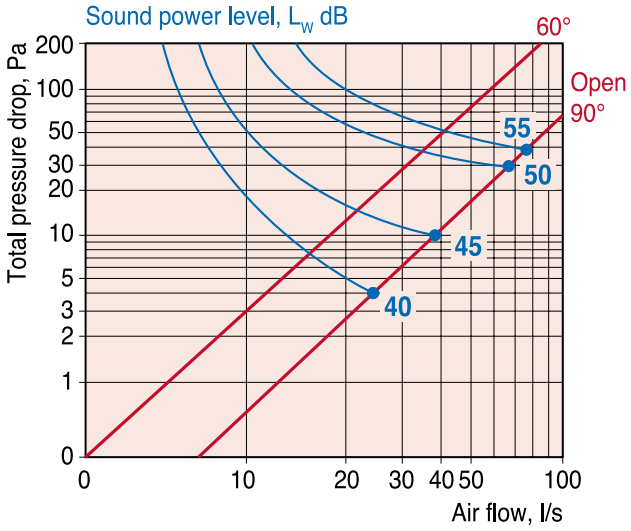
d = Swedish Standard SS 2609 (spiro connection.)

Electrical data

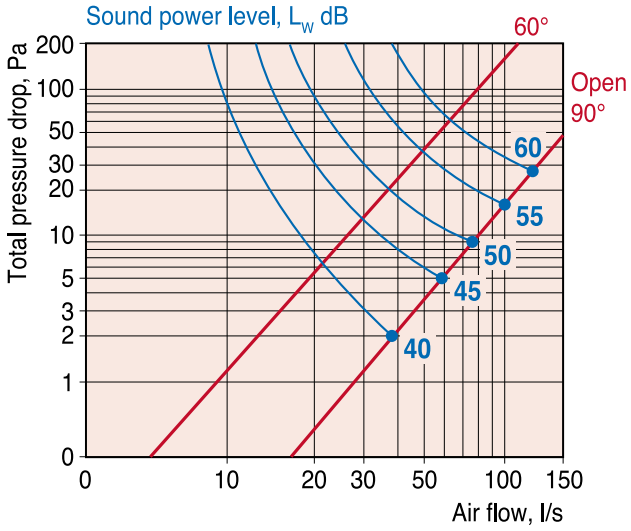
	RABC-VAP	VRP-STP
Sizing, max	10 VA - BF24-V	2,6 VA
Running time;		
– motor opening	120-300 s	
– spring return, max	approx. 20 s	
Protection class	IP 54	
Power supply	24V~ ±20%, 50/60 Hz	
- Control signal Y		DC 2-10 V DC 0-10 V (option)
- Measuring signal U		DC 2-10 V DC 0-10 V (option) 0-100% U nom
Ambient 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

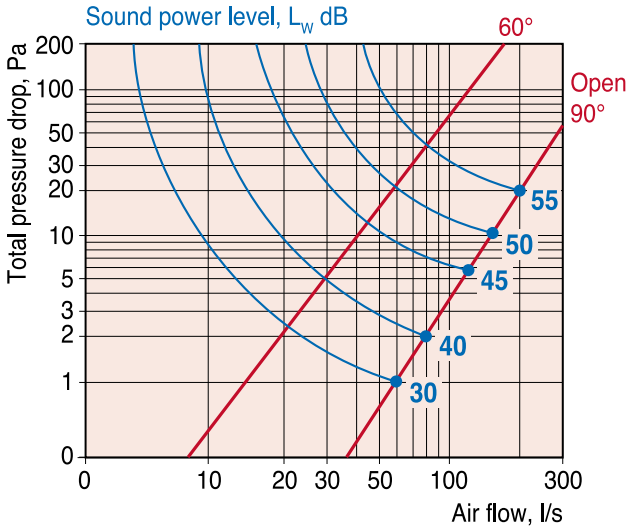
Size - 100



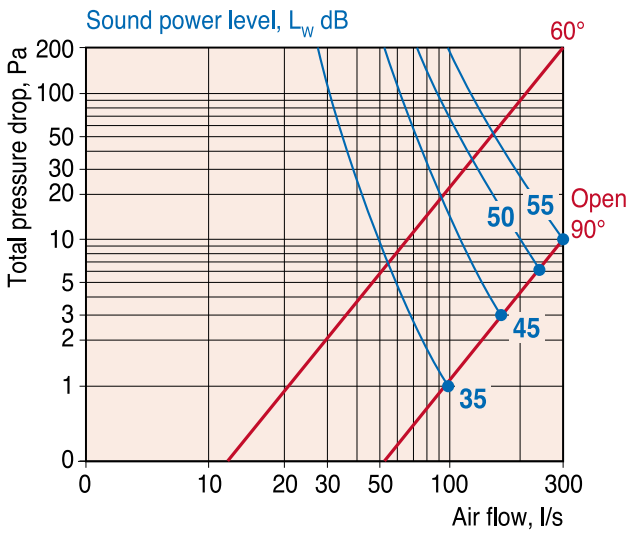
Size - 125



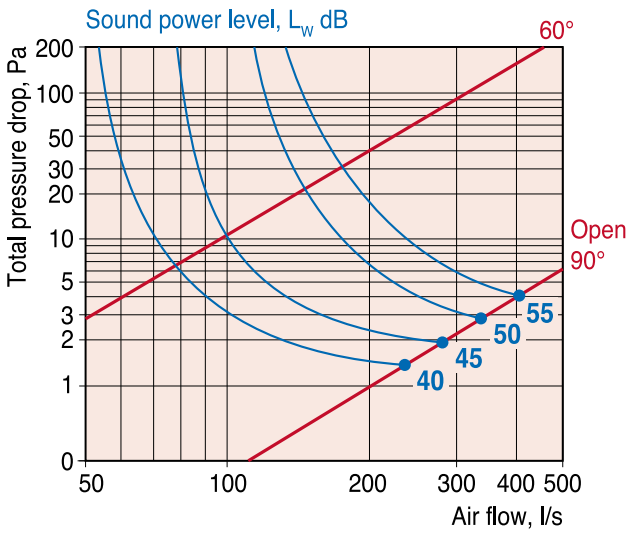
Size - 160



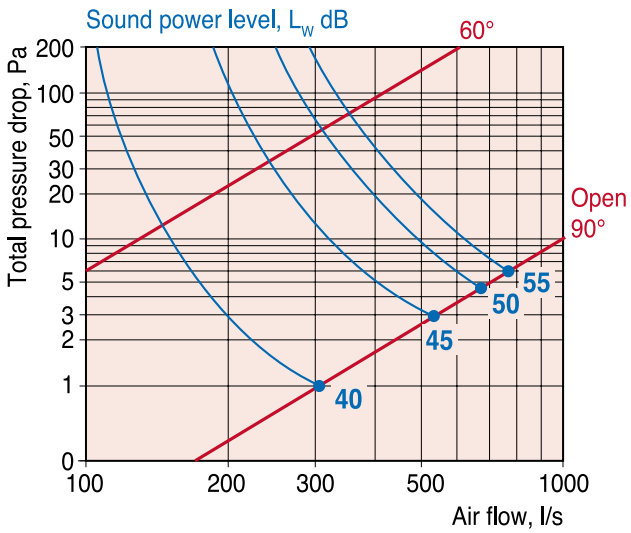
Size - 200



Size - 250

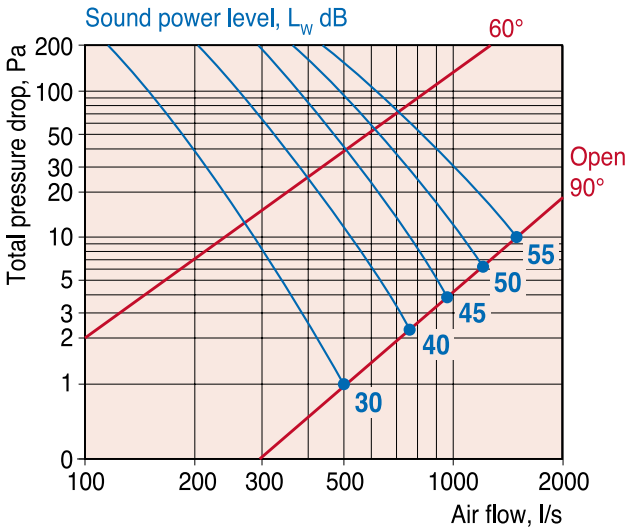


Size - 315

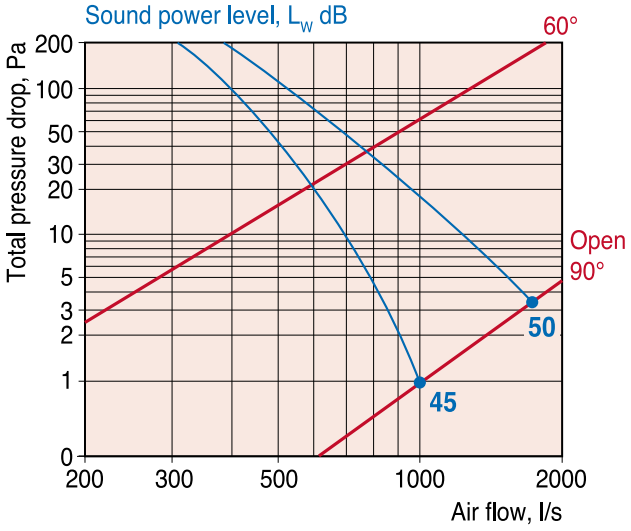


Dimensioning diagram contd.

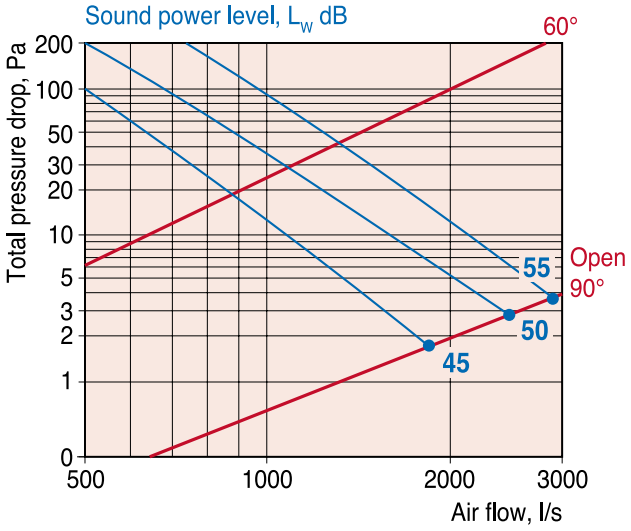
Size - 400



Size - 500



Size - 630



Sound data

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

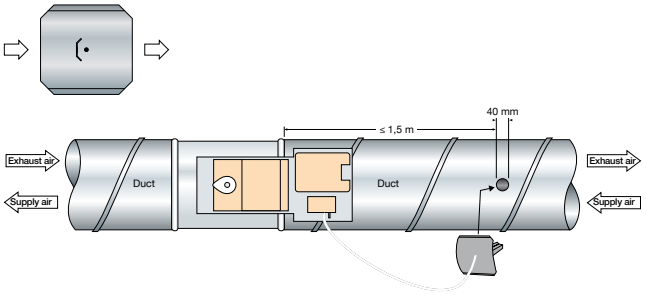
$L_{wok} = L_w + K_{ok}$

Correction, K_{ok}

Dimension Ø mm	Mid frequency Hz							
	63	125	250	500	1000	2000	4000	8000
100	-3	-7	-12	-19	-29	-27	-33	-32
125	-4	-5	-8	-13	-21	-25	-31	-35
160	-3	-4	-7	-13	-18	-22	-29	-37
200	-2	-8	-14	-20	-24	-28	-35	-41
250	-2	-9	-14	-19	-19	-28	-35	-42
315	-3	-8	-12	-12	-18	-24	-31	-35
400	-5	-7	-11	-6	-15	-22	-27	-28
500	-2	-10	-15	-13	-18	-24	-22	-31
630	0	-17	-3	-5	-10	-15	-22	-30
Tol. ± dB	2	4	5	7	10	10	9	7

Mounting

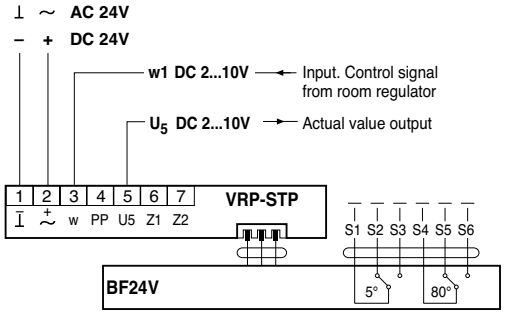
The pressure sensor should be mounted in a representative position in the duct downstream of the damper with the arrow in the direction of the air flow. The measuring hose must be fixed in the duct and in the static pressure sensor on the damper. If the damper is placed in the supply air duct the measuring 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.



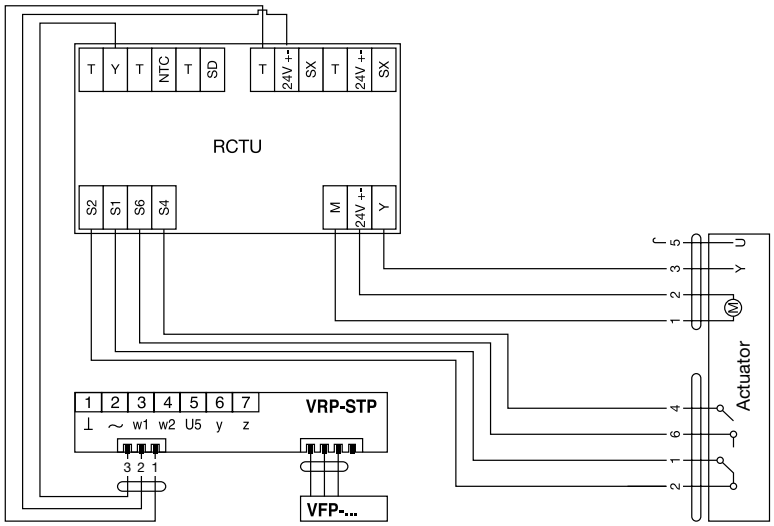
BORÅS Tel +46 (0)33 - 23 67 80 **STOCKHOLM** Tel +46 (0)8 - 54 55 12 70

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 (~) and all system neutrals are connected to (⊥.

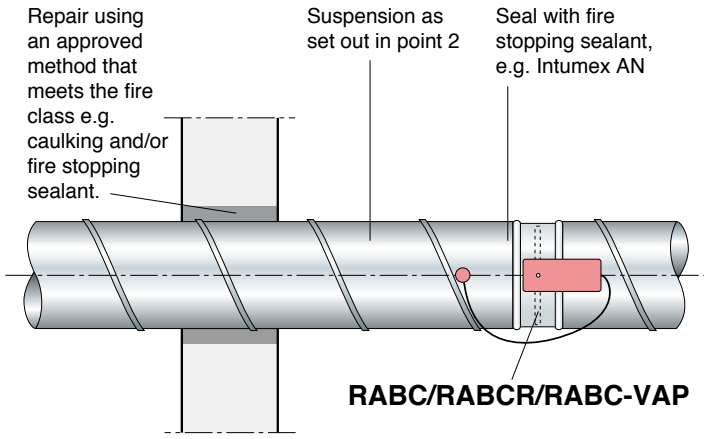
In case of alarm and function tests, the 24V supply must be disconnected!

Installation instruction

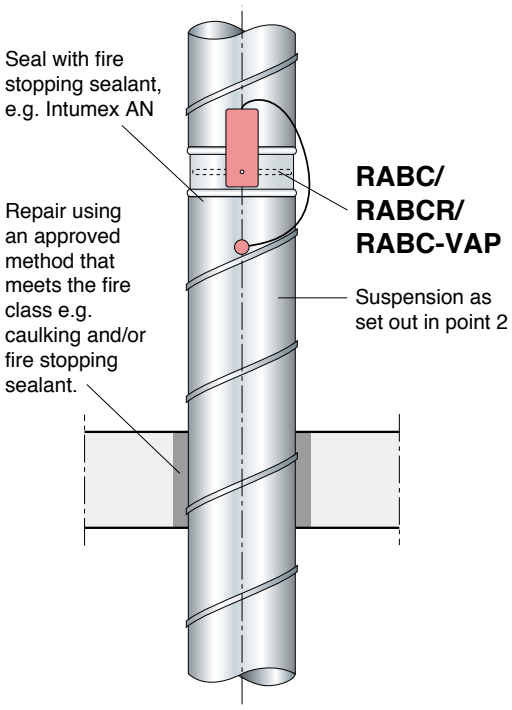
EC certificate 0402-CPR-SC0058-13

CE

Option 1
Damper's fire resistance class:
E60 (ve ho i <–> o)
E120 (ve ho i <–> o)
E120 (ve i <–> o) S



Option 2
Damper's fire resistance class:
E60 (ve ho i <–> o)
E120 (ve ho i <–> o)



Options 1 and 2

1. Secure the damper in the duct and seal with fire stopping sealant, e.g. Intumex AN.
2. Install the duct system according to applicable requirements. Between the damper and the penetrated building element the maximum spacing between hangers is 1500 mm. Use M10 drop rods and cradles or equivalent.
3. Install the thermal sensor with the sensor body in the air stream without obstructing the movement of the damper blade.

- *Minimum distance between dampers must be 100 mm.*
- *Minimum distance to joist structure/wall must be 75 mm.*
- *No openings between dampers and fire cell separating building elements.*
- *Optional installation of the damper spindle.*
- *The damper can be installed in diagonal duct systems.*

12-0526_ENG / June 2019 teamfront.se

BORÅS Tel +46 (0)33 - 23 67 80 **STOCKHOLM** Tel +46 (0)8 - 54 55 12 70