

RABRR

Rectangular regulating
fire damper



FIRE SAFETY



16/05/2024



Quick facts

- Fire resistance class E60S / E90S / E120S
- Sizes from 200 x 200 mm to 1500 x 1500 mm
- Prefitted safety actuator 24V
- Slip joint connection or Flange connection
- Installation in horizontal duct up to size 800 x 900 mm
- Installation against wall/joist structure up to size 1500 x 1500 mm in combination with wall penetration RBVG
- Easy flow regulation
- Available in MagiCAD
- CE-marked building product in accordance with 15650:2010

Two dampers and actuator in one!

Bevent Rasch has developed a fire damper, fire class E60S /E90S /E120S with regulating actuator. This means it is possible to regulate the air flow from 0-100% with a control signal 2-10V, use it as an adjustment damper or boosting damper while providing complete protection against the spread of combustion gases.

Use

Damper in combination with walls or joist structures for fire separation of HVAC systems in buildings. In accordance with the harmonised European standard EN 15650:2010. In designs in accordance with the associated documents and installation instructions and when the damper is used in combination with smoke detectors and monitoring system MRB or the like, the spread of combustion gases is prevented. No further action against the spread of smoke is required.

Performance

EEC certificate in accordance with EN 15650:2010

402-CPR-SC0899-13

Classification of fire resistance in accordance with EN 13501-3

E120 (ve ho i <-> o) S

E90 (ve ho i <-> o) S

E60 (ve ho i <-> o) S

For complete classification, see the Declaration of Performance.



Installation

RABRR is installed against horizontal or vertical building elements or horizontal ducts that pass through fire compartment separating building elements, in accordance with the adjoining installation instructions. Wall penetration RBVG is used for installation against building elements.

Actuator

RABRR is always supplied with an electric safety actuator with spring return complete with thermal sensor with pushbutton for local manual function test. The sensor disconnects the power to the actuator if the temperature exceeds 72 °C inside or outside the damper.

Note that RABRR is always supplied with a 24V actuator.

Activation

According to Boverket's Building Regulations smoke detectors must be verified in accordance with the Swedish standard SS-EN 54-7 for damper activation.

The mandatory thermal sensor closes the damper at 72°C according to ISO 10294-4.



Control and monitoring

When the damper is used to prevent the spread of combustion gases it should be closed via impulses from a smoke detector or thermal sensor, mounted in the ventilation duct in the vicinity of the damper or in another appropriate position or from a fire alarm centre and is monitored by the Bevent Rasch MRB system or equivalent. The MRB monitoring system performs automatic function tests every 48 hours and is designed so that faults are indicated immediately. The RCRS control unit is used for the function tests. Other MRB panels cannot be used for this type of damper. A damper and smoke detectors can be connected to RCRS. In addition, there are inputs for control signal 2-10V, external forced closure from e.g. a fire alarm centre, external forced opening and external function tests. There are outputs for alarms and actual value signals. Settings for max-min flow can be made on RCRS. Detailed information about RCRS, see Monitoring system MRB. The Bevent Rasch MRB3 system can also be used.

Size

Installation in horizontal duct:
200 x 200 mm up to 800 x 900 mm

Installation against wall/joist structure in combination with wall penetration RBVG:
200 x 200 mm up to 1500 x 1500 mm

Design

The regulating fire damper is supplied prepared for external insulation. The control signal can come from e.g. room controllers, air quality sensors, or other devices that give a 2-10V DC output signal. The actuator provides an actual value signal of 2-10V DC depending on the damper position. In the event of a power failure, the damper closes with the actuator's spring.

Material and surface finish

As standard, casing and components of hot-dip galvanized steel sheet in accordance with environmental class C3. For a higher environmental class, stainless steel casing and components can be supplied.

Miscellaneous

All data refers to dampers in standard design.

This type of damper must not be confused with a pressure relief damper, which has the opposite function.

Specification

Example:

Fire damper **RABRR - 600 - 400 - 1 - 1 - 0**

Size

Width x Height (W x H), mm

Connection, see dimensional drawing

Slip joint (max. 800 x 900) = 1

Flange = 2

Slip joint/Flange = 3

Material

Galvanized sheet steel = 1

Stainless AISI 316L – EN 1.4404 = 3

Actuator

Without MRB unit = 0

With MRB unit mounted (RCRS) = 1

With MRB3 unit mounted (RCTU) = 5

Note. Factory-fitted actuator always included.

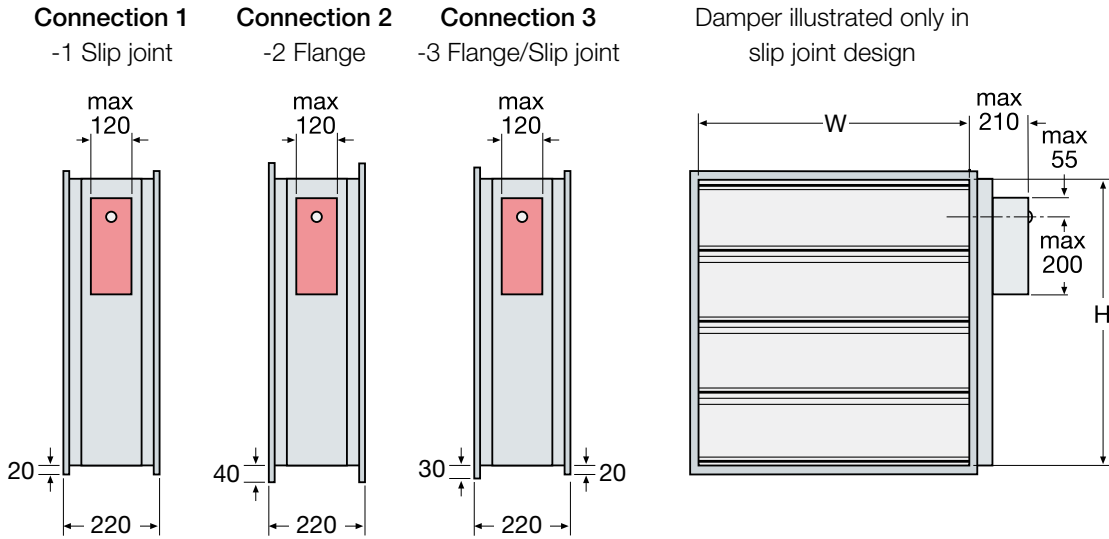
NOTE: Slip joint/Flange designed for installation with wall duct RBVG. For installation against wall or joist structure.

Accessories

RBVG	Wall Duct
BRAS	Circ. sleeve coupling for RABR
RCKB	Connection box
RCRS	MRB system for 1 damper
RCKD/-RD	Smoke detectors
RCTU/RCTC	MRB3 system, max 236 dampers
FENIX2	max 2 dampers
FENIX4 / FENIX+	max 16 dampers
BRRM/BRMR	Measurement unit



Dimensions and weight



RABRR for installation in combination with RBVG supplied with connection type 3 Slip joint/Flange. RABRR with height size 250, 450, 650 etc. is supplied with a raised slip joint or flange connection.

No. of damper blades

Size W or H	No. of blades
200	1
300	2
400	2
500	3
600	3
700	4
800	4
900	5
1000	5
1100	6
1200	6
1300	7
1400	7
1500	8

Weight incl. actuator, kg

H	W													
	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
200	8	9	11	13	15	17	19	23	26	30	32	37	40	43
300	9	11	13	15	17	19	22	26	28	33	35	41	44	46
400	11	13	15	17	19	22	24	29	32	36	39	45	48	50
500	13	15	17	19	22	24	26	34	37	41	46	51	54	57
600	15	17	19	22	24	26	28	35	38	43	46	52	55	58
700	17	19	22	24	26	28	30	38	40	46	49	56	59	62
800	19	22	24	26	28	30	32	41	44	49	52	60	63	66
900	22	24	26	28	30	32	35	44	47	52	56	63	66	70
1000	24	26	28	30	32	34	36	47	50	56	59	67	70	74
1100	26	28	30	32	34	36	38	50	53	59	62	70	74	77
1200	28	30	32	34	36	38	40	53	56	63	66	74	78	82
1300	30	32	34	36	38	40	42	56	59	66	69	78	82	85
1400	32	34	36	38	40	42	44	59	62	69	73	82	86	89
1500	34	36	38	40	42	44	46	62	65	72	76	85	89	93



Electrical data

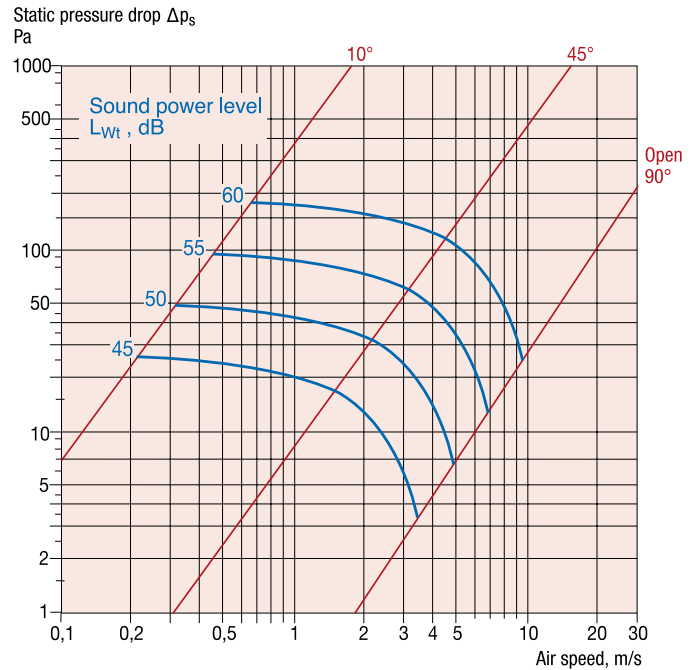
- Dimensioning, max 10 VA - BRS24-T
- Running time;
 - motor opening 150 s
 - spring return, max ca 20 s
- Protection class IP 54
- Power supply 24V~ ±20%, 50/60 Hz
- Control signal Y DC 0-10V @input resistance 100 kΩ(0,1 mA)
- Working range DC 2-10V (at control signal Y)
- Measurement signal U ... DC 2-10V @max. 0,5 mA (for 0-100% angle of rotation)
- Ambient temperature -30° to +50°C
- Safety temperature -30° to +75°C (24 hour guaranteed safety)
- End position contacts:
 - load ≤ 300 mW min 1 mA/5V=, max 100 mA/250V~

After exceeding the above values, the following apply:

- load > 300 mW min 100 mA, max 3 A/250~
- Sound level when opening approx. 45 dB(A)
- with spring approx. 62 dB(A)

Note: BRS24-T has contacts for Open and Closed.

Sizing chart



Only applies to standard sizes.

Sound data

Correction of sound power level, L_W , for different sizes,

$$L_W = L_{Wt} + K_1$$

Damper area, m ²	Correction, K ₁							
	0,08	0,16	0,32	0,5	1	2	3	4
K ₁	-3	0	3	4,5	7,5	10,5	12	12,8

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

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

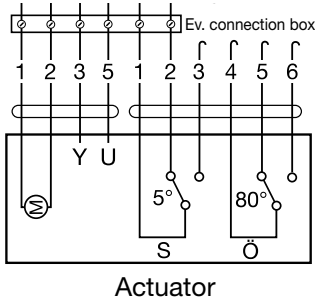
Correction, K_{ok}

Opening angle	Centre frequency Hz						
	125	250	500	1000	2000	4000	8000
90°	-1	-8	-16	-18	-22	-30	-37
45°	-10	-3	-6	-8	-12	-21	-31
10°	-11	-3	-5	-9	-14	-23	-30
Tol. ± dB	3	2	2	2	2	2	3

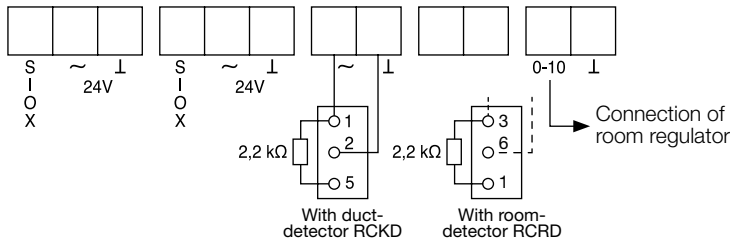


Wiring diagram

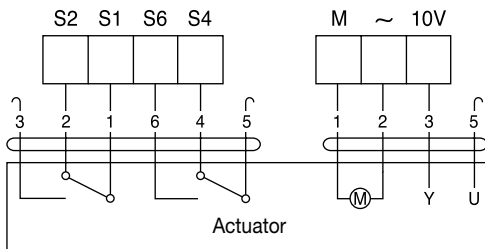
Option 1 - Connection to a master system



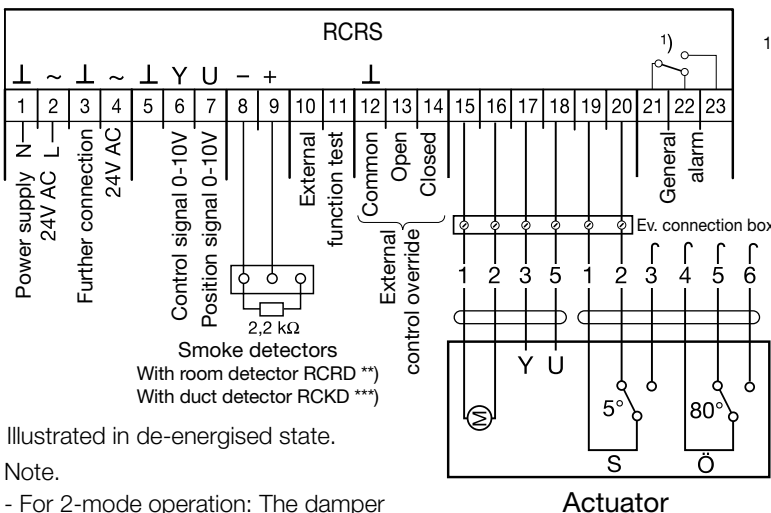
Option 2 - Connection to RCTU



BF24-SR, BRS24



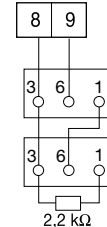
Option 3 - Connection to RCRS



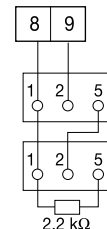
1) Potential-free contact max. 24V AC, 3A. Drawn in voltage-free/alarm mode.

*) Limit switch for Open position is only included on BRS24-actuators

***) With room detector RCRD connected in series



****) With duct detector RCKD connected in series



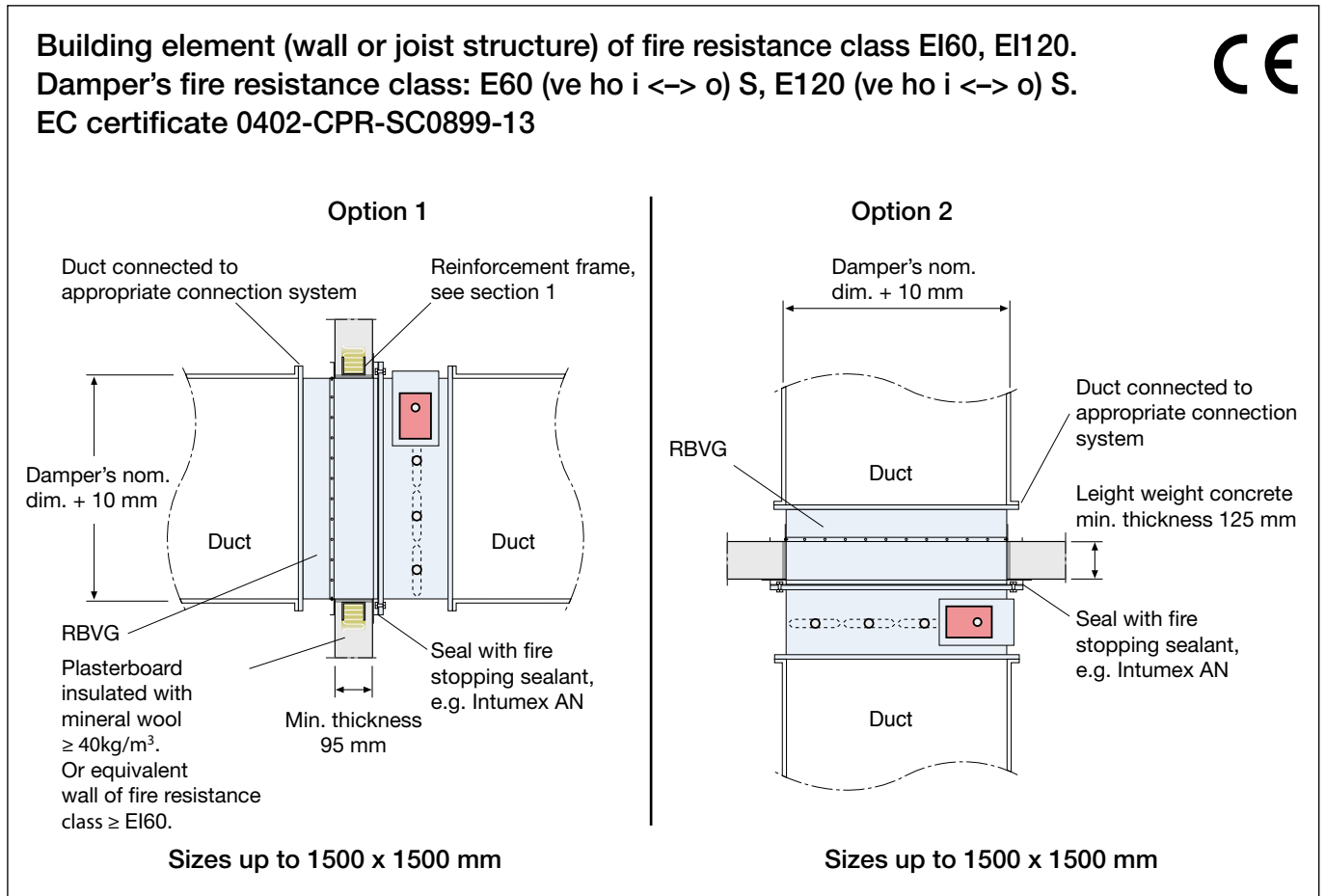
Illustrated in de-energised state.

Note.

- For 2-mode operation: The damper goes to min. position when the control signal is 0V or broken and max-position at 10V input signal or 24V AC directly on terminal 6.
- The supply and the control signals are connected to the common system neutral.



Installation instructions for RABRR together with wall duct RBVG



Options 1 and 2

1. Install wall duct RBVG in accordance with instructions (see separate installation instructions).
2. Apply fire rated sealant around the edge of the wall penetration flange.
3. Affix the damper in wall duct RBVG using M 8x12 screws.
4. Install the thermal sensor in the air stream without obstructing the movement of the damper blades.
5. If the fire damper is not connected to the duct system, fit non-combustible grilles designed for the damper on the unconnected sides.
6. Connect the actuator to the control unit and perform a function test.
7. Install the duct system in accordance with applicable requirements. Ensure that the connecting duct does not affect the damper when under a fire load.
 - Minimum distance between dampers must be 200 mm.
 - Minimum distance to joist structure/wall must be 75 mm.
 - Install damper spindle horizontally
 - Make sure the diagonal measurements of the duct are equal.

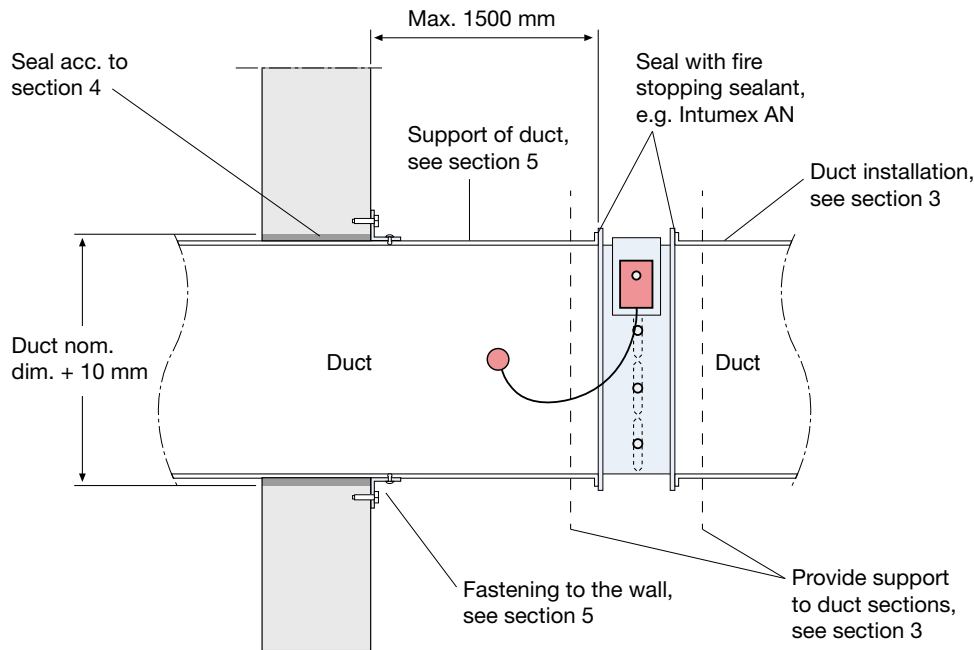


Installation instruction

Installation in fire resistant horizontal duct section.

Damper's fire resistance class: E60 (ve i <-> o) S, E120 (ve i <-> o) S.

EC certificate 0402-CPR-SC0899-13



Sizes up to 800 x 900 mm

1. Install the damper in the duct with connection for slide joint or flange. Seal with fire stopping sealant, e.g. Intumex AN.
2. Install the thermal sensor with the sensor body in the air stream without obstructing the movement of the damper blade.
3. Install the duct system according to applicable requirements. Make sure the connecting duct does not affect the damper at fire load. Ensure duct sections are supported immediately on both sides of damper.
4. Duct going through building element, is sealed according to applicable requirements, such as caulking with mineral wool, min 40 kg/m³ and fire stopping sealant.

5. Duct is fastened/supported according to applicable requirements.

6. Protect the duct according to applicable requirements using instructions from the fire rated duct supplier.

When installed inside a fire cell, protect duct according to applicable requirements to prevent thermal damage to the structure (duct system).

- Minimum distance between dampers must be 200 mm.
- Minimum distance to joist structure/wall must be 75 mm.
- Horizontal installation of the damper spindle.
- Make sure the diagonal measurements of the duct are equal.



Quick facts

- Sizes from 200 x 200 mm to 1500 x 1500 mm

Use

Wall duct in combination with walls or joist structures to achieve an optimal damper or duct system connection. The wall duct creates a tidy, sealed connection to the building element and requires neither refinishing nor painting. Also used in combination with smoke dampers for the fire separation of ventilation systems in buildings.

Design

The wall duct is supplied complete with fixings for a flange connection and extenders for connection to a duct system.

Material and surface finish

As standard, casing and components of hot-dip galvanized steel sheet in accordance with environmental class C3. For a higher environmental class, stainless steel casing and components can be supplied.

Specification

Example:

Wall Duct **RBVG - 500 - 300 - 300 - 0 - 1**

Size

Width x Height (W x H), mm

Length, mm

Insulation,

Without insulation = 0

Connection, see dimensional drawing

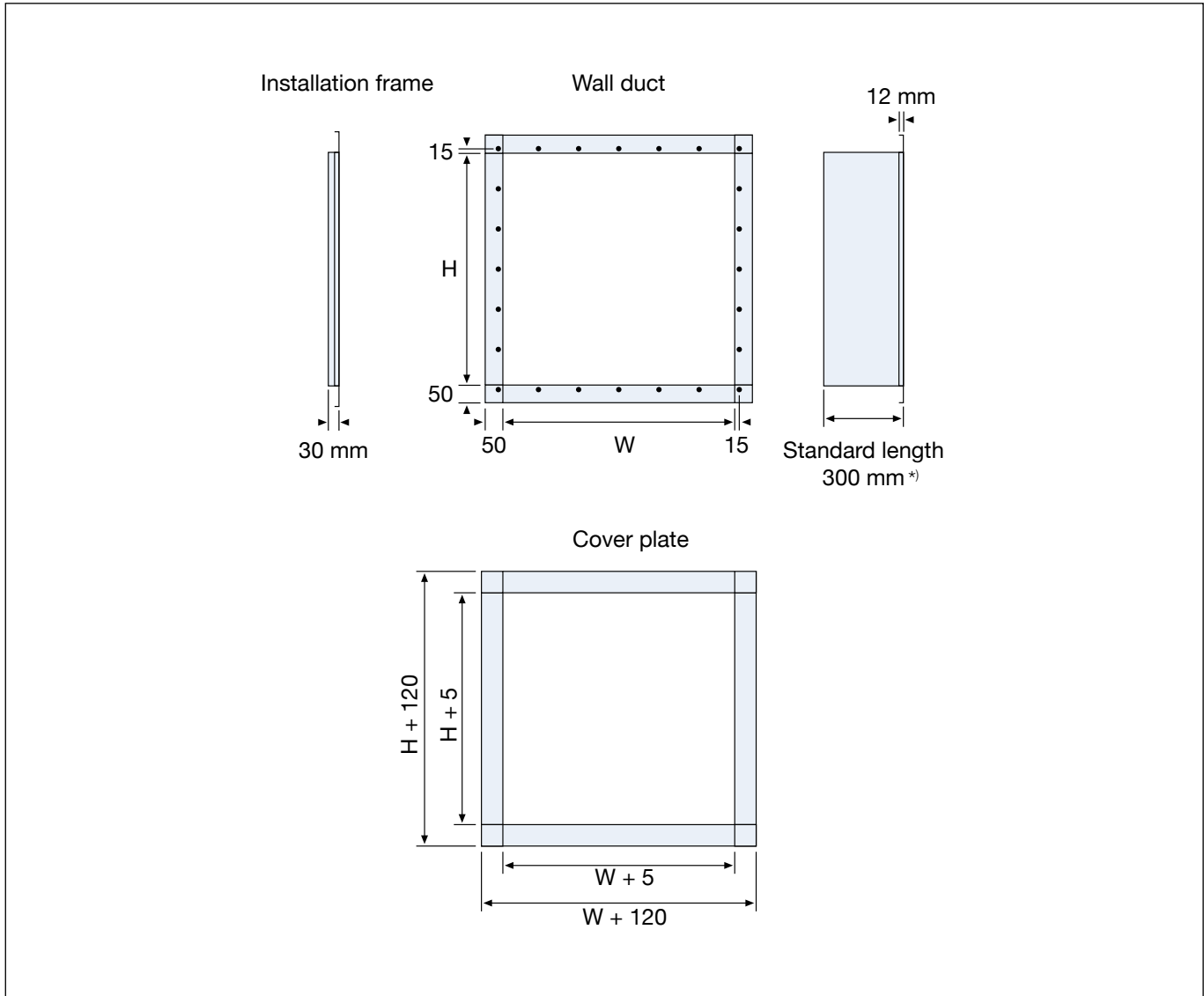
Flange, 30 mm

= 1

Note. Lengths other than 300 mm shall be clearly specified.



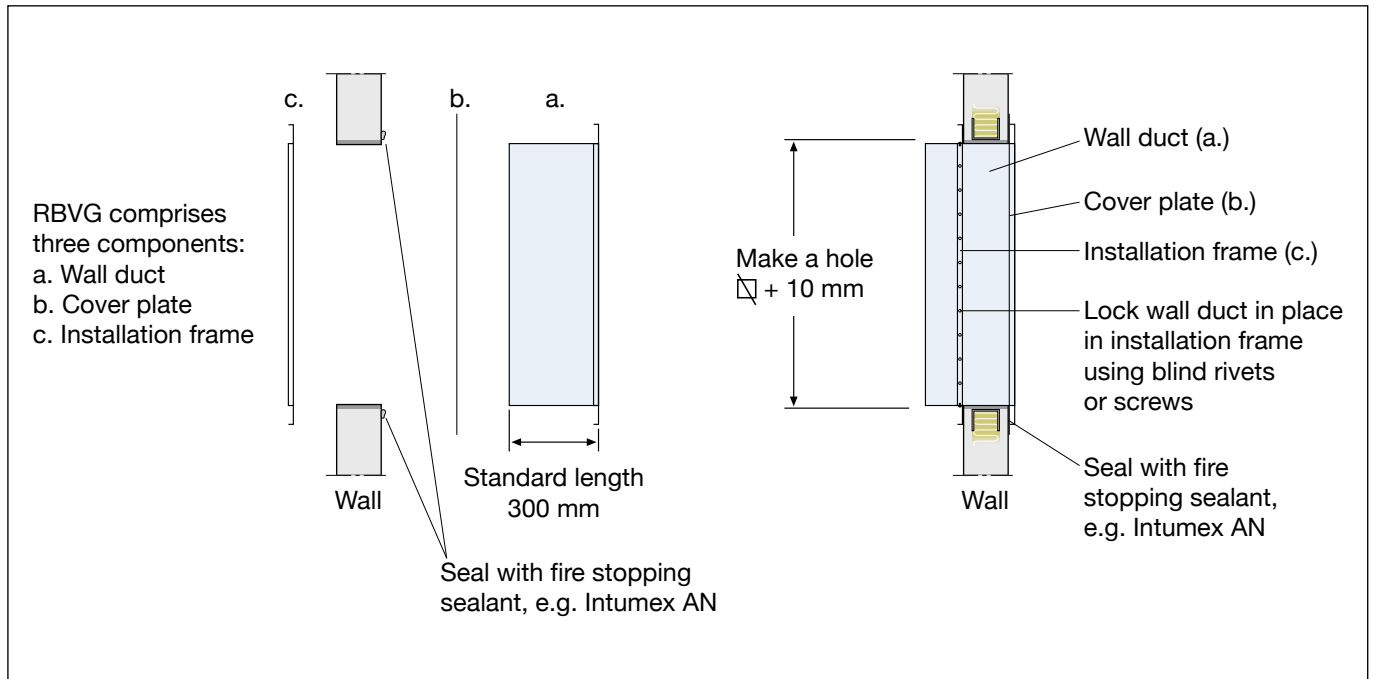
Dimensions and weight



*) Clearly specify lengths other than 300 mm when ordering.



Installation instructions for wall duct RBVG



1. Make a hole, corresponding to the duct's nominal dimensions + 10 mm, in the building element.
If installing in plasterboard, a steel reinforcement frame must be used.
2. Apply fire rated sealant (such as Intumex AN) to the building element around the hole, approx. 10 mm from the edge.
3. Fit the cover plate over the wall duct and affix the unit to the building element with the fire rated sealant.
4. Slide on the installation frame from the opposite side and affix with clamps or the like. Ensure that the cover plate and the fire rated sealant comprise a tight seal against the building element.
5. Lock the wall duct in place in the installation frame with screws or blind rivets spaced 100-150 mm apart.
6. Attach the appropriate joint for the duct and connect.
7. If the duct system is not connected, for example, when installed as a termination device or transfer air device, fit non-combustible grilles designed for the damper on the unconnected sides. The minimum distance between the damper blade in the open position and the grille is 50 mm.