

ACOUSTIC SPLITTER

SONIE BBC+ / LOW-CARBON ACOUSTIC SPLITTER

The **SONIE BBC+** acoustic splitters are installed in ductwork systems and reduce noise generated by ventilation systems.

They are manufactured using **100% recycled glass wool and steel**, thereby reducing their environmental impact.

Their performance has been tested in an independent laboratory in accordance with ISO 7235.



CODIFICATION

X —————> **B** – Splitter
Y —————> **BC** – Low carbon
Z —————> **+** – High performance insulation and light

DID YOU KNOW? BBC+ FEATURES:

-  **RECYCLED MATERIALS:** **100% recycled** glass wool insulation and **100% recycled** steel frame.
-  **DURABLE CONSTRUCTION:** steel frame designed to provide stability, mechanical strength and long service life.
PV-AS 24-1819, 6NAPSE
-  **HIGH PERFORMANCE:** acoustic attenuation performance independently tested in accordance with **NF EN ISO 7235**.

CONSTRUCTION

Frame design include a rounded edges twchich reduce pressure losses by up to 30% compared to a straight edge on small thicknesses, as well as grooves that reinforce the frame's mechanical strength

Standard version can be supplied in 200 mm thickness with a protection with anti-erosion glass silk layer which ensures the protection of the insulating panel.

Characteristics		
Frame	Material	Rounded aerodynamic frame in DX51+Z275 Galvanized steel sheet with groove stiffening deformation.
	Thickness	0.5 mm
	Assembly	By plated steel rivets
	Width	200 mm
	Stiffener	Depending on the format
Soundproofing	Material	Glass wool panel and water-repellant Fire classification A2-S1-D0 (M0)
	Density	45 kg/m ³ , +/- 10%
	Protection	Anti-erosion fiberglass silk layer on both faces (2 faces on request for 50 mm thick splitter)

NB : we recommend using a BD+ splitter with spread metal wool protection :

- for splitters exposed to the elements, and UV
- over 14 m/s in the airways

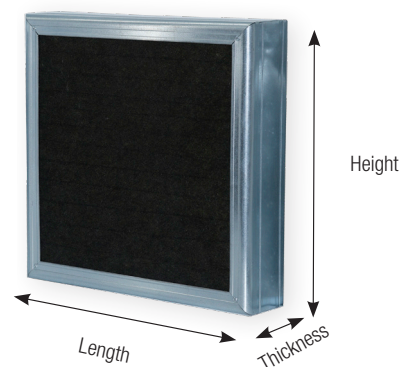
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DIMENSIONS

The splitters are made in one or several units depending on the dimensions.
A one unit construction shall respect the following criteria :

Length max. (mm)	2500
Height max. mm	2500
Thicknesses	200 mm
Surface max.	4 m ²
Weight max.	50 kg

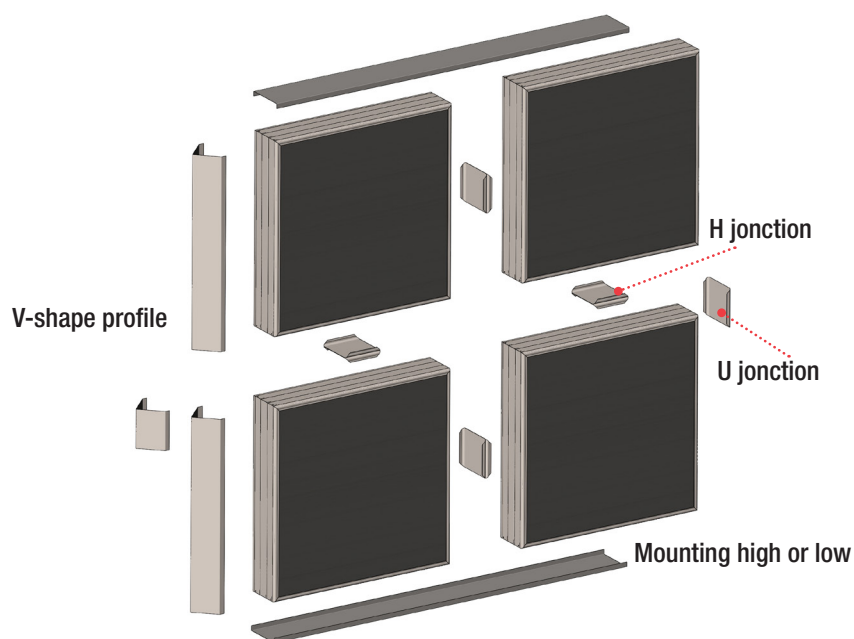


Splitter L 1000 mm x H 1000 mm, thickness 200 mm, weight: 13 kg

For larger dimensions, acoustic splitters are provided in several units with mounting accessories.

MOUNTING ACCESSORIES

Example for a 4 unit splitter :



Find an mounting tutorial by [clicking HERE](#)

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WEIGHT (KG)

Height (mm)	Thickness (mm)	Length (mm)						
		600	900	1200	1500	1800	2100	2400
600	200	6	8	10	12	15	17	19
900	200	8	11	14	17	20	23	26
1200	200	10	14	18	22	25	29	33
1500	200	12	17	22	26	31	36	40
1800	200	15	20	25	31	36	42	47

RECOMMENDATIONS

The acoustic performances of a splitter silencer depend on the following parameters:

- **Air velocity**

The dynamic sound regeneration of a splitter is proportional to the air velocity in the airways. Dynamic regeneration sound level must not be higher than 10 dB of the residual global sound level

- **Width**

For a same air velocity in an airway, a wider splitter is more efficient at low frequencies.

- **Length**

To improve acoustic performances, we recommend to mount two splitters sections in series (with a discharge plenum) rather than using very long splitters section. Attenuation of the two splitters can be added while the insertion losses of a long section reach their limits over 2500mm length.

- **Spacing between the splitters**

Air velocity depends on space between splitters. If the reduction of the spacing between the splitters improves the attenuation of the silencer, make sure that the dynamic sound regeneration will not reduce the global sound attenuation. In some cases, it is possible to mount two silencers in series with different splitters spacing to improve insertion loss at different frequency bands afin d'atténuer sur des bandes de fréquences différentes.

PERFORMANCES

SONIE BBC+ acoustic performances have been tested by an independent laboratory following the EN ISO 7235 standard, in date of July 1995 and July 2004.

Many configurations have been considered and tested (length, airways, width, ...) and permit to optimize our acoustic solutions.

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INSERTION LOSSES (dB)

Thickness 200 mm

Length of splitter (mm)	Airway spacing (mm)	Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
600	50	4	11	19	30	44	43	29	24
	100	2	5	12	21	28	27	17	12
	150	2	4	11	18	22	20	12	8
	200	1	4	9	13	17	14	7	6
1200	50	6	17	27	40	51	52	36	34
	100	4	10	29	33	49	45	26	18
	150	2	9	22	31	42	34	18	12
	200	2	7	17	25	32	24	12	8
1800	50	10	26	42	49	53	54	38	42
	100	6	14	39	46	52	50	34	22
	150	4	12	30	44	54	47	25	15
	200	4	10	24	36	45	31	16	9
2400	50	13	31	47	52	54	55	39	45
	100	6	17	44	50	55	53	37	29
	150	5	15	40	50	56	54	29	19
	200	4	12	32	45	56	37	19	11

Find all our entire acoustic data for all your configurations in
our free online software :

e.sonie
DIMENSIONNEMENT ACOUSTIQUE EN LIGNE

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DYNAMIC REGENERATIONS OF BBC+ SPLITTERS

Dynamic regeneration data are the result of tests carried out by an independent laboratory.

The dynamic regeneration must be 10 dB under the residual sound power level. If this is not the case, you have to increase the spacing between the splitters or the section of the duct.

Sound power level of air-regenerated noise L_w in dB

Internal air velocity (m/s)	Frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
2	10	5	1	0	0	0	0	0
3	19	14	11	10	9	9	7	6
4	29	23	21	19	18	17	14	11
5	34	28	26	24	23	22	19	15
6	40	33	32	31	29	27	24	19
7	44	38	37	35	34	32	29	24
8	48	43	41	39	38	37	33	28
9	50	45	42	41	40	39	35	30
10	52	46	45	43	42	41	37	31
11	55	49	48	47	45	45	39	33
12	57	52	50	49	47	47	41	35
13	61	56	54	53	51	51	45	38
14	64	59	58	57	54	55	48	41
15	73	68	67	68	64	66	56	46

The data applies to an front section $L \times H = 0,8 \text{ m}^2$.

A correcting coefficient must be applied for different sections (see table below) :

$L \times H \text{ (m}^2\text{)}$	0.1	0.2	0.4	0.8	1	2	4	8	10
Correction dB	-9	-6	-3	0	+1	+4	+7	+10	+11

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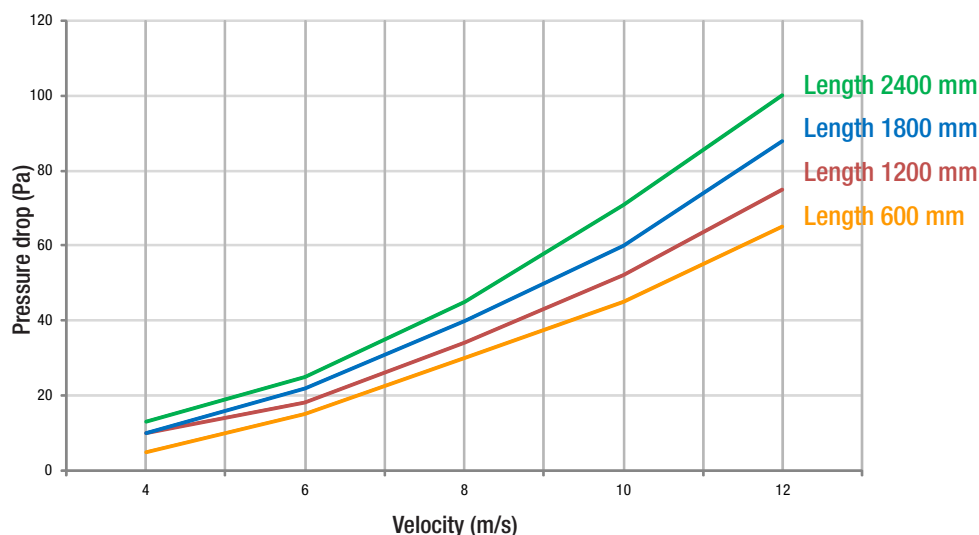


PRESSURE LOSSES

The hereunder graph shows the pressure losses of a silencer equipped with SONIE BBC+ splitters.

Thickness of each splitter : 200 mm

Airways spacing : 100 mm.



PRESCRIPTION

- Standard acoustic splitter BBC+
- A rounded aerodynamic frame in galvanized steel, grooving reinforced.
- Soundproofing in one block rockwool panel with a medium-density of 45 kg/m³, inorganic, rot-proof and water-repellent.
- 2 faces protection with a glass silk's layer to reach 14 m/s in the airways