

ACOUSTIC SPLITTER

SONIE BD - 400°C/2H

SONIE BD acoustic splitters are designed to be installed in HVAC ductworks and enable to attenuate the noise generated by the ventilation system.
SONIE BD+ splitter is particularly suited for smoke exhaust applications.
400°C/2h fire resistance tested by an independent laboratory.



Protection in spread metal sheet

CODIFICATION

X ———> **B** – Splitter
Y ———> **D** – Smoke exhaust

CONSTRUCTION

Frame design include a rounded edges which reduce pressure losses by up to 30% compared to a straight edge on small thicknesses.

The fire resistance of the SONIE BD splitter has been tested for 100, 200 and 300 mm thickness.

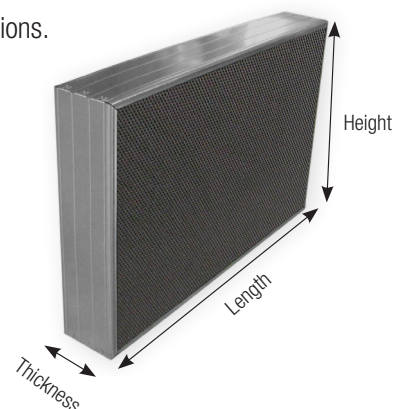
The test n° EFR-17-003511, carried out by the Efectis laboratory, showed the good resistance of splitters at a temperature of 400°C during 2h.

		Characteristics	Options
Frame	Material	Galvanized steel sheet with groovings	Stainless steel 304L or 316L, painted steel (RAL standard) or aluminium
	Thickness	0.8 mm	1.0, 1.2, 1.5 mm
	Assembly	By plated steel rivets or clips	Stainless steel rivets
	Width	50, 100, 150, 200 or 300 mm	Holes for water draining on frame's low part Support rails, V-shape inlet and outlet profiles Stiffener supply
	Stiffener	Depending on the format	
Soundproofing	Material	Mineral wool panel Fire classification A1 (M0)	
	Density	40 kg/m ³ , +/- 10%	Other on request (depending with quantity)
	Protection	Anti-erosion glass silk layer on both sides (both sides on request for 50 mm width)	
Protection	Material	Spread metal sheet (MDR) in galvanized steel	Stainless steel 304L or 316L
	Thickness	0,6 mm	

DIMENSIONS

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

Lengh max. (mm)	2500
Height max. mm	2500
Thicknesses	50,100, 150, 200 or 300 mm
Surface max.	3 m ²
Weight max.	50 kg



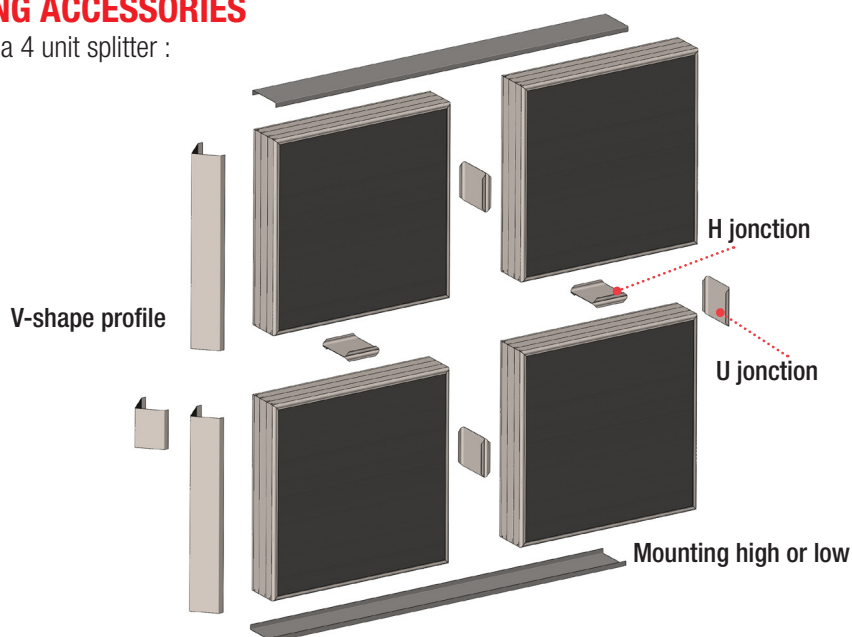
For larger dimensions, acoustic splitters are provided in several units with mounting accessories.

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MOUNTING ACCESSORIES

Example for a 4 unit splitter :



WEIGHT (KG)

Height (mm)	Thickness (mm)	Length (mm)							
		300	600	900	1200	1500	1800	2100	2400
300	50	1	2	3	4	4	5	6	7
	100	2	3	4	5	7	8	9	10
	200	3	5	7	9	11	13	14	16
	300	4	7	9	12	15	17	20	23
600	50	2	3	5	6	7	9	10	12
	100	3	5	7	9	10	13	15	16
	200	5	8	11	14	17	20	23	26
	300	7	11	15	19	23	27	31	35
900	50	3	5	7	9	11	13	14	16
	100	4	7	9	12	15	18	20	23
	200	7	11	15	19	23	27	31	35
	300	9	15	20	26	32	37	43	48
1200	50	4	6	9	11	14	16	18	21
	100	5	9	13	16	19	22	26	29
	200	9	14	20	25	30	35	40	45
	300	12	19	26	33	40	47	60	67
1500	50	4	7	11	14	17	20	24	27
	100	7	10	15	19	23	27	34	38
	200	11	17	24	30	36	42	54	60
	300	15	23	32	40	49	64	73	81
1800	50	5	10	13	17	20	25	29	32
	100	8	13	18	23	27	35	40	44
	200	13	21	28	35	42	56	63	70
	300	17	28	38	47	66	76	85	95

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PERFORMANCES

Acoustic performances of the splitter depend on the following parameters : air velocity, splitters width, length and airways between the splitters.

SONIE BD 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.

INSERTION LOSSES (dB)

Thickness 100 mm

Length of splitter (mm)	Airway spacing (mm)	Frequency (Hz)							
		63	125	250	500	1000	2000	4000	8000
600	50	1	3	8	15	29	30	19	12
	100	1	3	7	12	27	29	18	10
900	50	2	5	14	23	35	37	30	21
	100	2	3	10	18	34	38	25	13
1200	50	3	7	19	29	48	50	35	29
	100	2	4	12	24	47	49	30	19
1500	50	3	8	22	32	50	50	39	31
	100	2	6	15	30	50	50	36	24
1800	50	4	9	26	36	50	50	44	33
	100	3	8	20	33	50	50	39	27
2100	50	5	11	28	37	50	50	49	35
	100	3	9	22	36	50	50	43	29
2400	50	6	12	30	39	50	50	50	36
	100	4	10	23	41	50	50	44	32

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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	100	2	4	10	20	26	26	16	11
	150	2	4	9	15	23	22	13	7
	200	1	3	6	14	18	17	10	5
	250	2	2	6	8	11	11	8	7
900	100	3	6	14	19	31	30	19	13
	150	2	5	13	22	30	29	16	11
	200	1	4	10	19	24	22	14	7
	250	2	3	9	11	16	14	10	9
1200	100	4	9	18	32	46	47	28	18
	150	3	7	17	29	39	38	19	12
	200	2	5	13	26	31	27	16	8
	250	3	4	11	15	21	18	11	11
1500	100	5	10	20	39	51	50	32	20
	150	4	9	20	36	47	45	22	14
	200	2	6	16	31	37	31	18	9
	250	3	4	13	18	26	21	12	12
1800	100	7	13	24	44	52	50	34	22
	150	5	11	24	43	52	52	25	15
	200	3	8	20	37	44	36	20	12
	250	4	5	15	21	30	25	14	13
2100	100	8	15	29	47	54	52	37	26
	150	6	13	27	47	53	53	27	17
	200	4	10	25	42	49	40	22	14
	250	4	6	17	24	35	27	15	14
2400	100	8	17	33	50	56	53	38	26
	150	6	14	27	49	55	54	29	18
	200	4	10	27	47	50	45	24	14
	250	4	8	19	28	39	30	17	15

FT BD_01/2025_EN. Information and data can not be considered as contractual. Design and data changes may occur without notice during F2A's continuous product development.

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DYNAMIC REGENERATIONS OF BD 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 in dB	-9	-6	-3	0	+1	+4	+7	+10	+11

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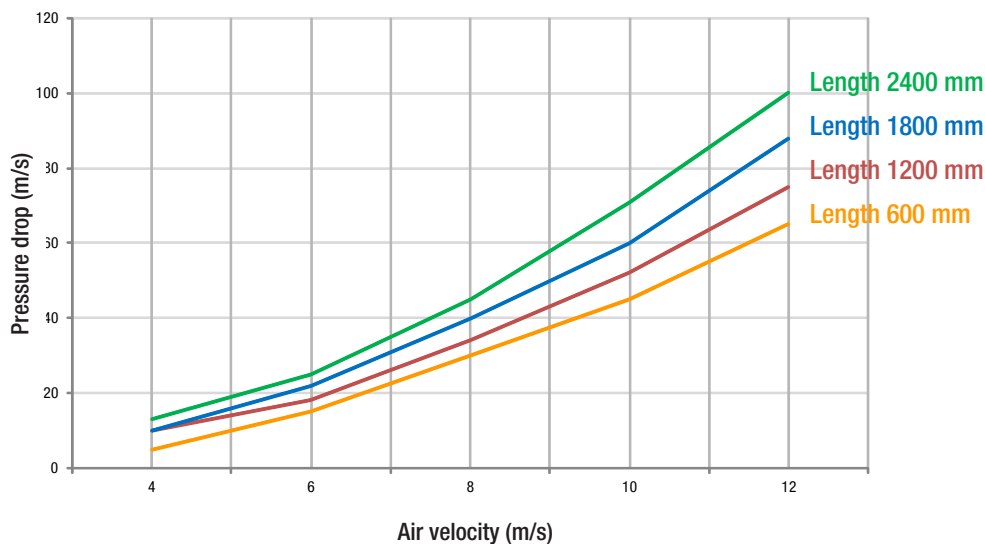
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PRESSURE LOSSES

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

Thickness of each splitter : 200 mm

Airways spacing : 100 mm.



TEXTE DE PRESCRIPTION

- Acoustic splitter standard BD
- A rounded aerodynamic frame in galvanized steel, grooving reinforced.
- Soundproofing in one block rockwool panel with a medium-density of 40 kg/m³, inorganic, rot-proof and water-repellent
- 2 faces protection with a glass silk's layer to reach 20 m/s in the airways.