RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

DESCRIPTION:

Sound attenuators are a proven and effective method for reducing the noise generated by fans and other equipment. Also referred to as duct silencers, sound traps or mufflers, they are designed to reduce the noise transmitted from a source to the receiver.

Rectangular silencers are designed to reduce noise in rectangular ductwork while minimizing system pressure drop. The simple design, relatively low cost, and high level of performance flexibility make rectangular silencers a reliable and cost-effective choice.

CONSTRUCTION:

Standard Material Galvanized Sheet Steel. Optional:.304-316 Stainless Steel, Aluminum

APPLICATION:

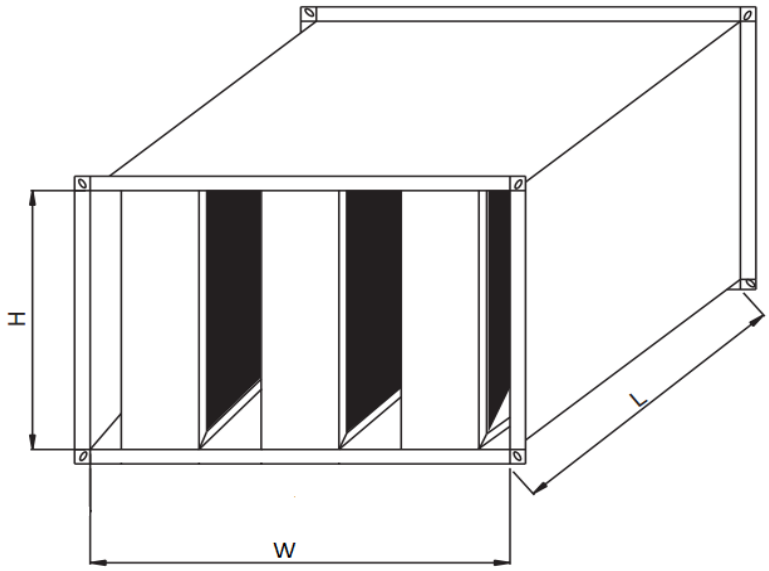
For HVAC applications, they are commonly installed on intake and discharge sides of a fan or air handling unit. They can also be used on the receiver side of noise generating equipment (terminal boxes, air valves and dampers) and in areas outside the primary air system where they can reduce transfer noise between spaces

ACCESSORIES:

- Extended casing
- Fiberglass cloth
- Flanges
- Transitions

RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

STANDARD DIMENSIONS:



Metric System

AVAILABLE SIZES (mm) - Always width x height											
	WIDHT										
HEIGHT	200	400	600	800	1000	1200	1400	1600	1800	2000	2200
300	X	X	X	X	X	X	X	X	X	X	X
600	X	X	X	X	X	X	X	X	X	X	X
900	X	X	X	X	X	X	X	X	X	X	X
1200	X	X	X	X	X	X	X	X	X	X	X
1500	X	X	X	X	X	X	X	X	X	X	X
1800	X	X	X	X	X	X	X	X	X	X	X
2000	X	X	X	X	X	X	X	X	X	X	X

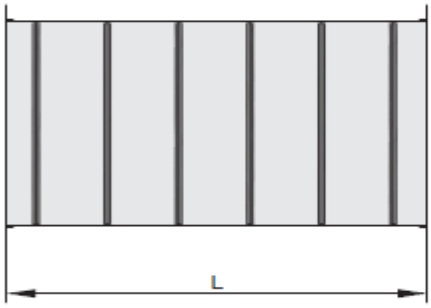
Imperial System

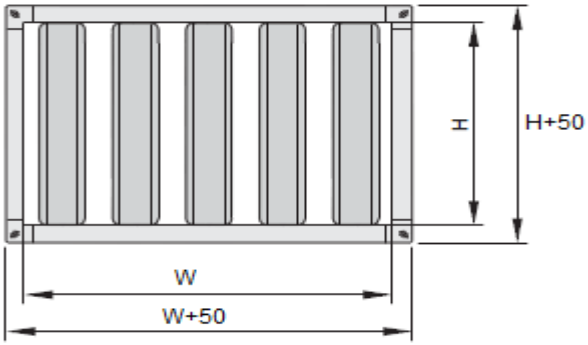
AVAILABLE SIZES (in.) - Always width x height											
	WIDHT										
HEIGHT	8"	16"	24"	31"	39"	47"	55"	63"	70"	78"	24"
12"	X	X	X	X	X	X	X	X	X	X	X
24"	X	X	X	X	X	X	X	X	X	X	X
35"	X	X	X	X	X	X	X	X	X	X	X
47"	X	X	X	X	X	X	X	X	X	X	X
60"	X	X	X	X	X	X	X	X	X	X	X
70"	X	X	X	X	X	X	X	X	X	X	X
78"	X	X	X	X	X	X	X	X	X	X	X

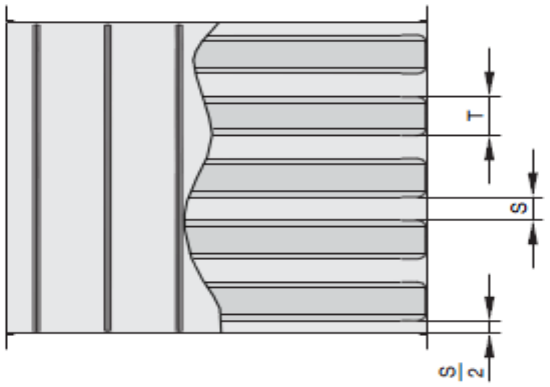
L: 500 - 750 - 1000 - 1250 - 1500mm
20” - 30” - 39” - 49” - 59” in

RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

1- Construction with 25mm flange
2- Construction with 35mm flange







nominal length

L	mm	500	750	1000	1250	1500

nominal height

H	mm	300	600	900	1200	1500	1800

Sound attenuator casing, nominal width

W	RSA-100			RSA-200		
	T	n	S	T	n	S
	mm	–	mm	mm	–	mm
200	100	1	100	–	–	–
400	100	2	100	200	1	200
600	100	2 – 4	50 – 200	200	2	100
800	100	3 – 5	60 – 167	200	2 – 3	67 – 200
1000	100	4 – 7	43 – 150	200	3 – 4	50 – 133
1200	100	4 – 8	50 – 200	200	3 – 5	40 – 200
1400	100	5 – 10	40 – 180	200	4 – 5	80 – 150
1600	100	6 – 11	46 – 200	200	4 – 7	57 – 200
1800	100	6 – 12	50 – 200	200	5 – 8	50 – 160
2000	100	7 – 14	43 – 186	200	5 – 8	50 – 200
2200	100	7 – 15	47 – 200	200	6 – 9	44 – 167
2400	100	8 – 16	50 – 200	200	6 – 10	40 – 200

RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

QUICK SELECTION - Metric System

Air-regenerated noise

v_s	m/s	4	6	8	10	12	14	16	18	20
L_{WA}	dB(A)	21	31	38	43	48	51	55	58	60

RSA-100 insertion loss and differential pressure

L	S	Centre frequency f_m [Hz]								v_s [m/s]		
		63	125	250	500	1000	2000	4000	8000	4	10	20
		D_e								Δp_{st}		
mm	mm	Hz								Pa		
500	40	4	10	11	13	21	27	24	18	5	32	>80
1000	40	5	13	20	23	31	38	32	26	7	44	>80
	60	5	11	17	19	28	32	27	21	5	33	>80
1500	40	6	16	30	32	42	48	40	34	9	55	>80
	60	6	14	25	28	38	41	33	27	6	38	>80
	100	4	10	14	19	29	28	19	14	5	29	>80
2000	40	8	19	39	42	50	50	49	42	11	66	>80
	60	7	16	32	36	47	50	40	34	7	44	>80
	100	5	12	19	25	37	35	23	16	5	32	>80
	200	3	9	10	17	25	15	9	8	4	25	>80
2500	40	9	22	48	50	50	50	50	50	12	77	>80
	60	8	19	40	45	50	50	47	40	8	50	>80
	100	6	14	24	30	45	41	27	19	6	34	>80
	200	3	12	12	21	33	19	12	11	4	26	>80
3000	40	10	25	50	50	50	50	50	50	14	>80	>80
	60	9	22	48	50	50	50	50	46	9	56	>80
	100	7	16	28	36	50	47	31	22	6	37	>80
	200	2	14	15	26	41	24	16	14	4	27	>80

RSA-200 insertion loss and differential pressure

L	S	Centre frequency f_m [Hz]								v_s [m/s]		
		63	125	250	500	1000	2000	4000	8000	4	10	20
		D_e								Δp_{st}		
mm	mm	Hz								Pa		
500	50	5	7	19	21	26	22	17	14	9	58	>80
	100	2	4	12	12	15	11	9	8	5	31	>80
1000	50	6	16	33	39	41	39	26	20	11	67	>80
	100	4	10	22	23	26	19	13	11	6	35	>80
	200	2	7	13	12	12	10	8	6	3	21	>80
1500	50	9	22	44	50	50	50	34	25	12	75	>80
	100	5	15	32	33	37	25	16	14	6	40	>80
	200	3	9	19	18	15	12	10	7	4	23	>80
	400	1	6	10	8	8	6	4	4	2	15	61
2000	50	12	29	50	50	50	50	43	29	13	>80	>80
	100	6	19	42	44	47	31	19	17	7	44	>80
	200	4	12	25	23	18	15	12	9	4	25	>80
	400	1	8	13	10	10	8	5	5	3	17	67
2500	50	14	38	50	50	50	50	49	35	15	>80	>80
	100	8	25	50	50	50	38	23	18	8	48	>80
	200	5	16	30	29	23	16	13	10	4	28	>80
	400	2	10	16	13	12	9	6	5	3	18	72
3000	50	17	48	50	50	50	50	50	40	16	>80	>80
	100	10	30	50	50	50	44	26	19	8	53	>80
	200	6	19	35	35	27	17	15	11	5	30	>80
	400	3	13	19	15	14	10	7	6	3	19	77

RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

QUICK SELECTION - imperial System

Silencer Model No.	Octave Bands	2	3	4	5	6	7	8
	Center Frequency	125	250	500	1000	2000	4000	8000
	Face Velocity FPM	Net Insertion Loss in Decibels (dB)						
RSA-3	-1500	8	22	28	38	39	26	14
	-1000	10	22	32	42	39	30	17
	0	8	18	30	42	40	31	19
	+1000	6	15	28	42	42	32	19
	+1500	6	14	25	32	34	30	17
RSA-5	-1500	15	33	46	47	41	35	26
	-1000	13	30	45	53	50	47	26
	0	12	26	42	53	58	49	27
	+1000	11	23	40	52	55	49	29
	+1500	9	21	40	50	50	44	29
RSA-7	-1500	16	36	45	48	42	34	31
	-1000	15	36	48	57	54	52	34
	0	15	35	46	54	53	52	34
	+1000	15	34	45	55	55	52	35
	+1500	10	33	44	47	48	41	35

Self-Noise Sound Power Ratings (P.W.L.) — (dB re 10^{-12} watts)

Silencer Model No.	Octave Bands	2	3	4	5	6	7	8
	Center Frequency	125	250	500	1000	2000	4000	8000
	Face Velocity FPM	Self Noise Sound Power Levels in Decibels (dB)						
RSA-3 RSA-5 RSA-7	-1500	56	51	53	56	65	66	55
	-1000	46	42	44	50	55	49	40
	+1000	51	44	43	46	48	45	39
	+1500	64	55	54	53	57	58	54

Face Area Adjustments	Area (sq.ft.)	2	4	8	16	32
	Adjustment	-3	0	+3	+6	+9

Air Flow Performance Data

Model	Static Pressure Loss (inches WG)					
RSA-3	0.07	0.12	0.18	0.24	0.38	0.49
RSA-5	0.07	0.13	0.20	0.27	0.42	0.55
RSA-7	0.10	0.18	0.27	0.36	0.56	0.73
Face Velocity FPM	365	490	610	705	875	1000

Sizing example :

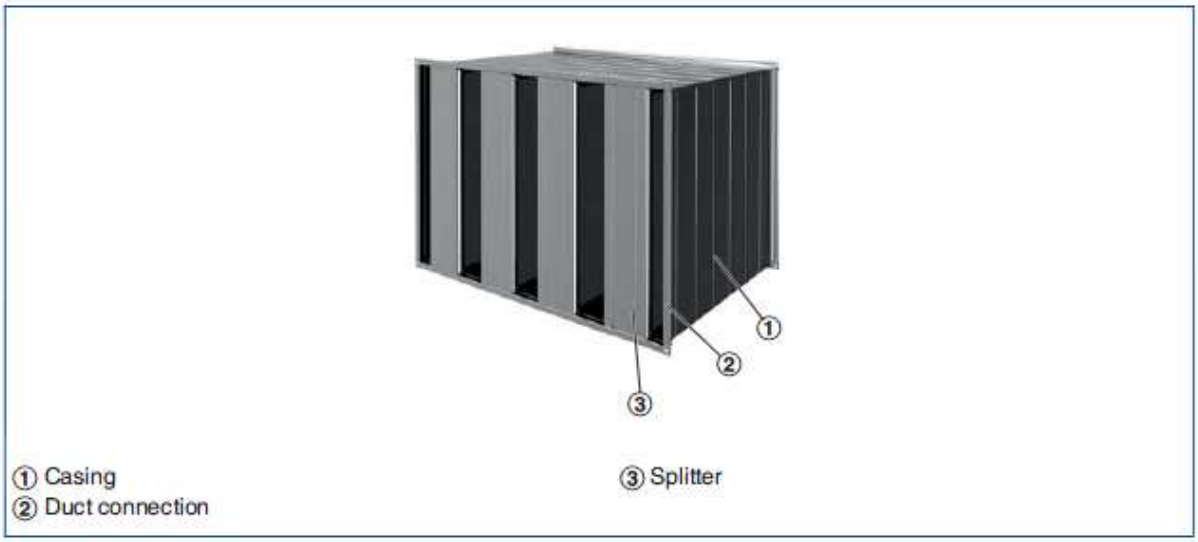
Given data
Duct W = 800 mm, H = 900 mm
V = 2900 l/sn (10440 m3/h)
De = 30 dB at 250 Hz

Quick sizing
RSA200 L = 1000 mm, S = 50 mm

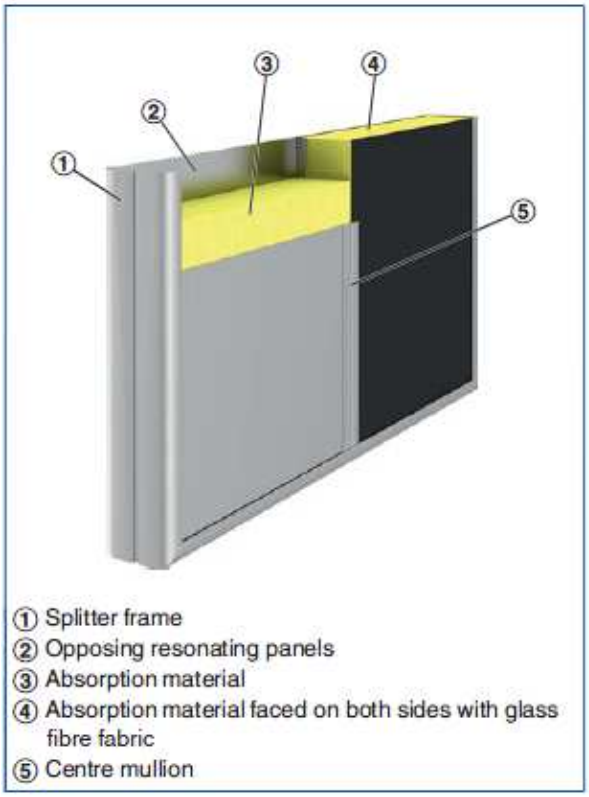
Calculation procedure
A = 0.8 × 0.9 = 0.72 m²
v = V / A = 2900 / 0.72 (/1000) = 4 m/sn
ΔPst = 12 Pa
LWA = 21 dB(A)

RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

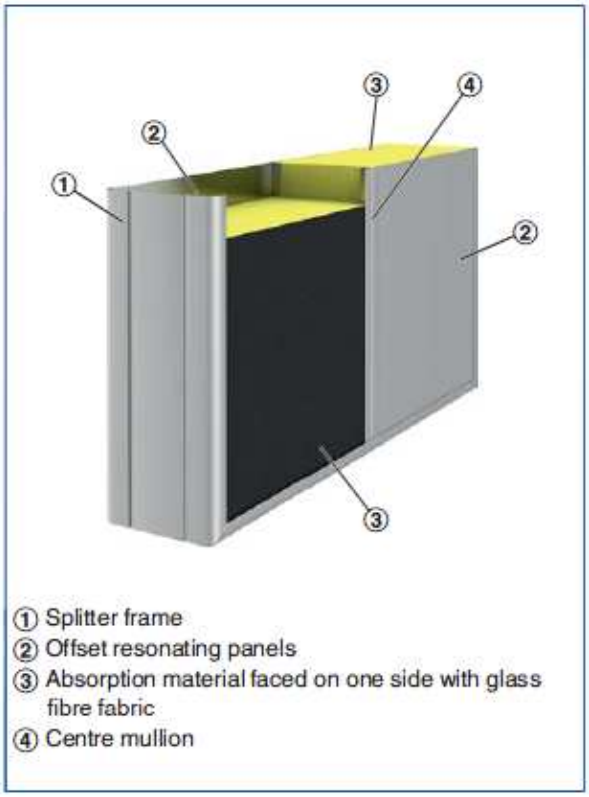
FUNCTIONAL DESCRIPTION



Schematic illustration of RSA100



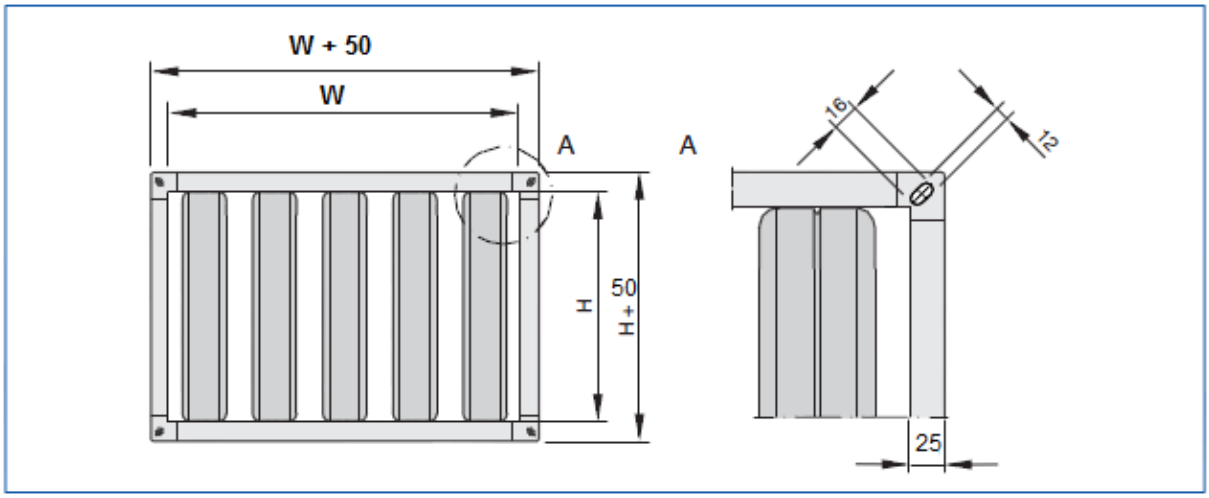
Schematic illustration of RSA200



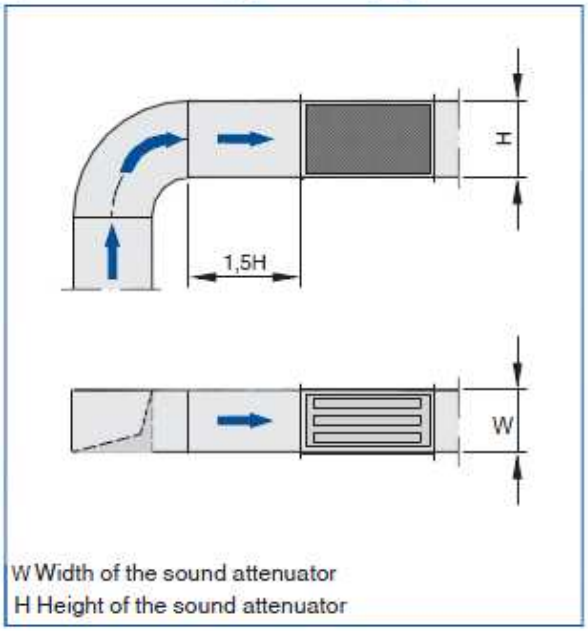
RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

INSTALLATION AND COMMISSIONING

Splitter sound attenuator with standard flange

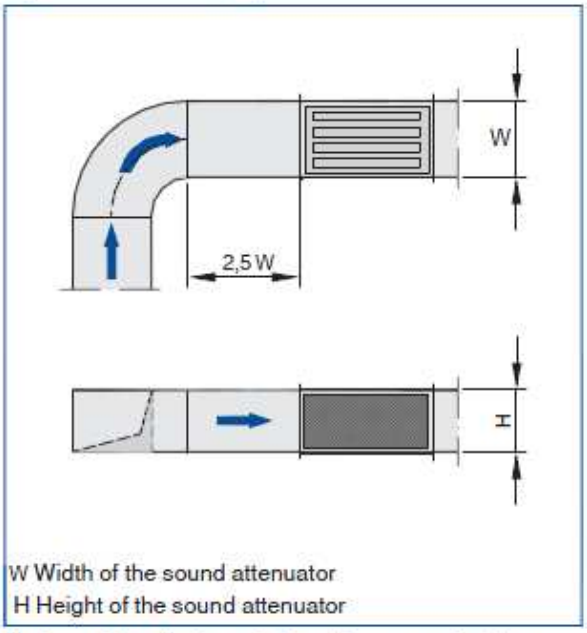


Upstream conditions after bends, junctions or a narrowing or widening of the duct, vertical upstream section, splitters upright



W Width of the sound attenuator
H Height of the sound attenuator

Upstream conditions after bends, junctions or a narrowing or widening of the duct, vertical upstream section, splitters horizontal

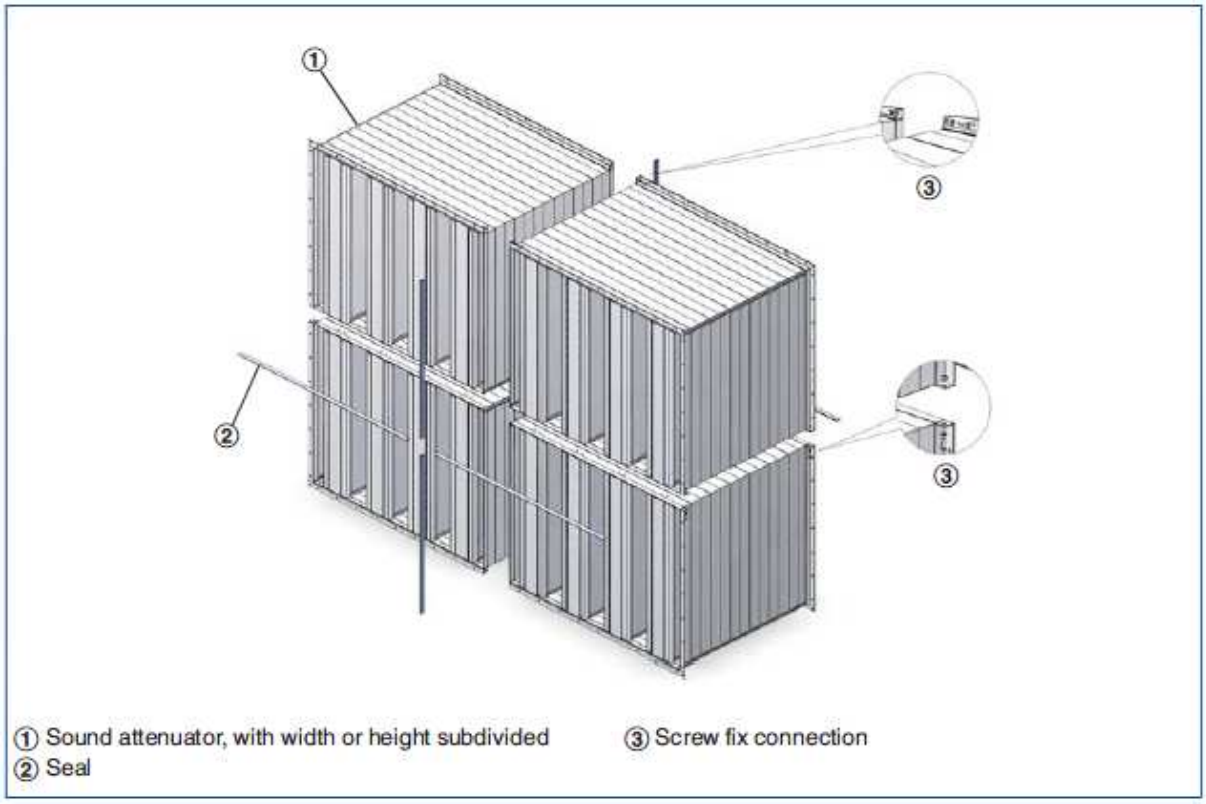


W Width of the sound attenuator
H Height of the sound attenuator

Horizontal installation only for splitters up to height 1200 mm

RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

Schematic illustration of subdivided sound attenuators



① Sound attenuator, with width or height subdivided
② Seal
③ Screw fix connection

RSA-RECTANGULAR SOUND ATTENUATORS
RECTANGULAR SILENCER

ORDER CODE

RSA	100	01	3	P	800x900x1000
		Case Type			Duct Size
					W x H x L **Duct Size (mm)**
Splitter thicknees **100mm** **200mm**					**Splitter Surface** **F: Glass Fibre Fabric** **P : Glass Fibre Fabric and perforated sheet metal**
01: Galvanized Sheet Steel **02: Stainless Steel** **03: Aluminum**					**No of splitters**