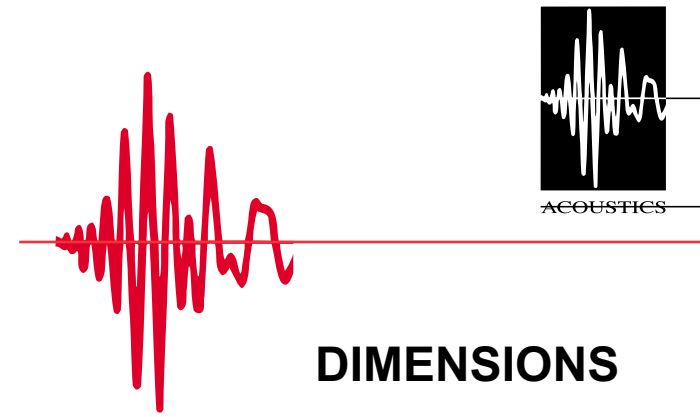


RECTANGULAR ABSORPTIVE ATTENUATORS TYPE SAR₁



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Application

Rectangular Sound Attenuators are used in ventilation systems and are specifically designed to reduce duct born noise. The rectangular shape is especially advantageous concerning the attenuation of low frequency noise, and is effective in reducing noise generated by fans, compressors and gas turbines. By using a series of parallel acoustic baffles which splits the airstream into several passages, the unit allows a larger absorption area. In order to attenuate specific frequencies, different combinations of baffle thicknesses, lengths and passage areas may be changed to obtain desired performance.

Materials and dimensions

The attenuators can be made in different materials and as a flange or spigot type, making it accessible for installation in a variety of situations and are recommended for use in corrosive conditions as industrial and offshore atmospheres. Special consideration is given to the design of all units which are to be used in environments of high humidity, pollution or high temperatures. Standard sizes are shown in the brochure, but all attenuators are individually designed according to the customers' requirements and non-standard sizes can be delivered upon request. The insulation material consists of non-toxic and non-combustible mineral wool, and is firmly covered by polyester or glass fibre cloth and a perforated plate to prevent fibre migration from the wool.

Noise data

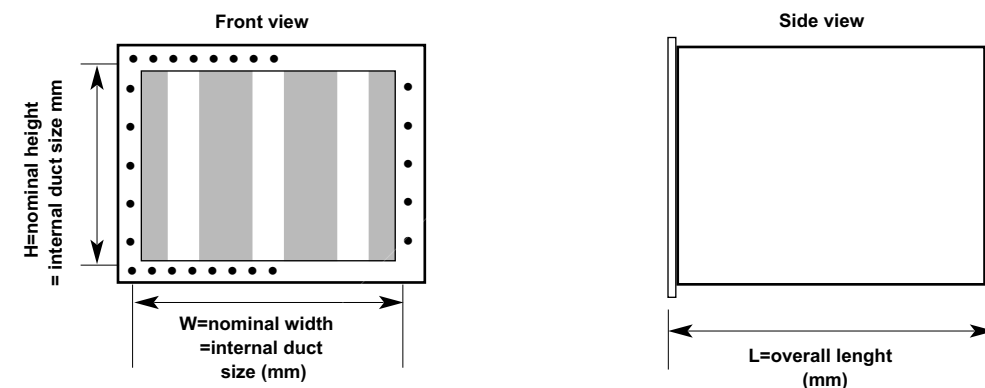
Available noise data for the rectangular sound attenuators is based on:

- ISO 7235- "Acoustic measurement procedure for ducted silencers – insertion loss, flow noise and total pressure loss."

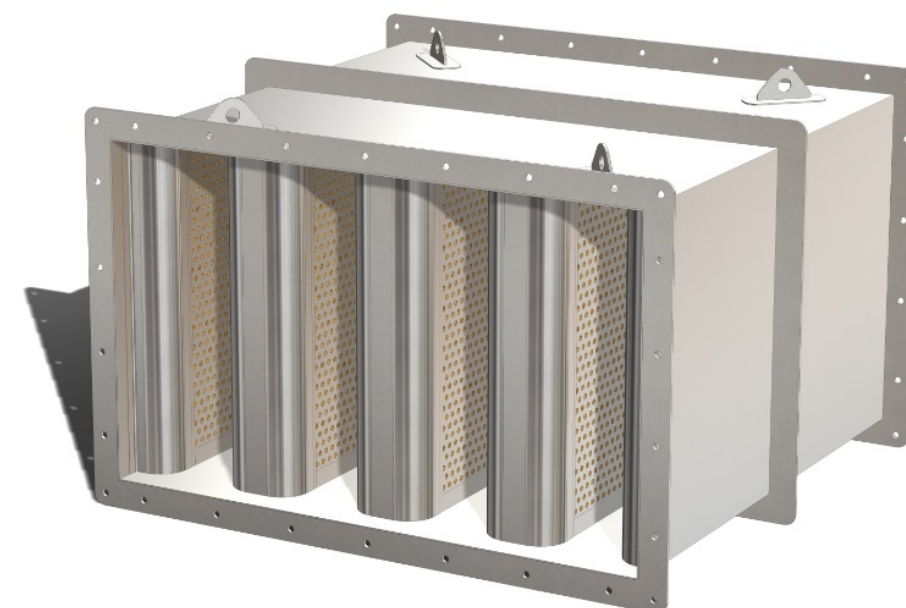
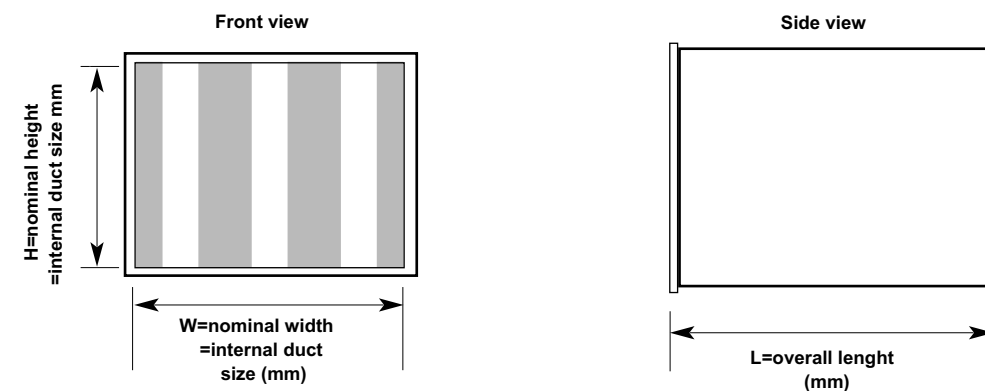
The sound reduction achieved by a sound attenuator is heavily dependent on the sound field inside a duct, and is limited by the duct arrangement. This is why measurements on site will often vary from laboratory measurements, because the attenuator on site will be affected by factors as flanking noise, background noise, vibration etc. In order to get the best possible result, please contact Acoustics for accurate noise calculations for your particular need. For more information on self-generated noise for the rectangular sound attenuator, please contact Acoustics.

DIMENSIONS

Flange type



Spigot type



SPECIFICATIONS

Attenuator type	Area code	Pressure drop code	Self gen. noise code	Nom duct width (mm) W	Nom duct height (mm) H	Overall Length (mm) L	Connection	Material
SAR ₁								
To be specified								
To be specified								
A-G								
300-4000								
To be specified								
600-4000								
Flange (F) } Spigot (S) }								
To be specified								

Example: SAR₁ - 25400 AH - 2000W x 1800H x 1700L - F - AISI 316L/3mm

CURVES AND TABLES

Type	Nominal dimensions mm		Area code	Pressure drop code	Self gen. noise code	Static insertion losses dB, ref. 2 x f0Pa								
	Width W	Length L				Octave band centre frequency, Hz								
						63	125	250	500	1K	2K	4K	8K	
SAR	300	600	1	182	FA	2	3	4	5	12	14	12	8	
		700	23	361	CB	5	7	11	16	24	29	20	14	
		900	1	201	FC	3	4	7	11	19	24	16	10	
		1100	23	397	CE	7	9	17	26	36	48	29	18	
		400	600	1	182	CA	2	3	4	6	10	8	9	7
			700	30	406	DB	8	11	13	14	20	33	23	16
900	19		299	EC	5	8	12	15	22	27	16	12		
		1100	1	213	CE	4	6	10	15	25	19	13	9	
		500	700	25	350	AB	6	9	10	11	16	23	16	12
			900	16	254	DC	6	8	11	12	20	19	13	10
1100	1		208	EE	4	6	9	11	21	17	11	9		
		1300	25	384	AF	9	17	22	23	34	35	23	16	
		600	700	23	304	BB	6	8	8	9	14	17	13	11
			900	23	379	CC	6	8	14	21	31	39	25	16
	1100		13	265	AF	7	12	14	14	25	19	12	9	
		1300	23	416	CE	8	12	21	32	44	50	34	20	
		700	700	27	404	EB	6	8	12	14	21	31	22	16
			900	12	262	CC	4	6	11	15	23	26	16	11
	1100		1	192	AE	5	6	7	9	14	9	8	8	
		1300	27	465	EF	9	15	23	31	43	50	33	21	
		800	700	30	406	DB	8	11	13	14	20	33	23	16
			1100	19	323	EE	6	11	15	19	29	32	18	13
	1300		1	219	CF	5	7	13	18	29	23	13	9	
		1500	19	348	EG	7	14	22	28	41	43	23	16	
		900	700	10	232	EB	4	5	7	8	15	14	11	9
			900	23	379	CC	6	8	14	21	31	39	25	16
	1300		10	262	EF	6	9	15	18	30	24	14	10	
		1500	23	361	DG	9	17	25	22	35	40	22	16	
		1000	900	25	361	AC	7	12	14	14	22	27	18	14
			1300	16	276	DF	7	13	17	18	31	26	15	12
	1500		1	226	EG	6	9	13	17	29	21	12	9	
		1700	25	400	AH	11	23	29	32	46	43	25	18	
		1100	1100	28	394	BE	9	17	18	19	30	35	22	17
			1500	8	242	DG	7	12	16	18	19	23	13	10
	1700		21	327	AH	10	18	23	25	41	34	17	14	
		1900	28	440	BI	14	29	33	37	50	50	27	19	
		1200	1100	19	323	EE	6	11	15	19	29	32	18	13
			1500	1	232	CG	5	8	15	22	34	26	14	10
	1700		30	496	DH	12	24	36	40	50	50	41	26	
		1900	19	379	EI	9	17	28	36	50	50	27	18	
		1400	1500	12	299	CG	6	11	19	28	41	43	23	15
			1700	27	501	EH	10	19	31	41	50	50	40	25
	1900		12	336	CJ	7	14	25	39	50	50	27	17	
		2500	12	310	BM	11	23	23	24	36	23	12	10	
		1500	1000	1	201	ED	3	5	8	9	18	14	10	9
			1500	25	394	AG	10	20	25	27	41	40	24	18
	1700		1	237	EH	7	11	16	19	33	24	13	10	
		1900	34	565	BI	16	37	41	45	50	50	47	27	
		2000	2000	16	310	DJ	9	19	27	30	50	39	18	14
			2500	25	457	AM	15	35	43	49	50	50	35	24
			1800	1500	23	434	CG	8	14	24	36	50	50	37
		1700	13	282	AH	8	16	19	19	33	24	13	10	
		2500	23	394	BM	14	34	35	39	50	49	23	18	
		3000	23	581	CP	12	27	49	50	50	50	36	24	
		2000	1500	1	226	EG	6	9	13	17	29	21	12	9
			1700	25	400	AH	11	23	29	32	46	43	25	18
	2500		16	333	DM	11	24	35	39	50	48	22	16	
		3000	25	486	AP	17	42	50	50	50	50	41	27	
		2400	1300	1	219	CF	5	7	13	18	29	23	13	9
			1500	19	348	EG	7	14	22	28	41	43	23	16
	1700		23	355	BH	11	23	23	25	42	35	18	15	
		2500	30	565	DM	15	36	50	50	50	50	33	21	
		3000	3000	19	447	EP	13	28	46	50	50	50	40	26
			2000	25	423	AJ	13	27	34	38	50	50	28	21
			2300	13	310	AL	10	22	26	28	44	32	15	12
		3000	2700	34	644	BN	21	50	50	50	50	50	38	24
			3000	25	486	AP	17	42	50	50	50	50	41	27
			3500	6	385	CR	10	23	40	50	50	50	33	21
		3600	2000	10	299	EJ	8	15	23	30	46	35	17	12
			2300	23	384	BL	13	31	32	36	50	46	22	17
			3000	13	344	AP	13	28	35	38	50	40	18	15
		4000	4000	23	480	BS	20	50	50	50	50	50	30	22
			2700	25	469	AN	16	38	46	50	50	50	37	26
			3000	1	312	EP	9	18	33	39	50	43	17	13
		3500	16	384	DR	13	35	49	50	50	50	28	19	
			3500	34	724	BR	24	50	50	50	50	50	50	44
			4000	25	549	AS	20	50	50	50	50	50	36	24
		4000	4000	19	509	ES	17	37	50	50	50	50	36	24

EXAMPLE

Airflow: 54.000 m³/h - 15 m³/s

Selected type:

SAR -25400 AH - 2000 W X 1800H X 1700L mm

Diagram 3 - Self generated noise code: AH

Read: SWL_{tot} = 80 dB

Frequency correction - table 1

63	125	250	500	1K	2K	4K	8K
78	75	68	63	62	60	56	44

Diagram 4 - Pressure drop code: 400.

Read: 98Pa

SELF GENERATED NOISE

- FREQUENCY CORRECTION

$$SWL_{\text{frequency}} = SWL_{\text{tot}} + CF$$

CORRECTION FACTORS (CF)

ADD dB

TABLE 1

FREQUENCY CORRECTION

Self gen. noise code	Centre band frequency, Hz ref 10 ² Watt							
	63	125	250	500	1K	2K	4K	8K
A (AA-AS)	-2	-5	-12	-17	-18	-20	-24	-36
B (BA-BS)	-2	-5	-10	-15	-17	-19	-22	-33
C (CA-CS)	-2	-4	-19	-25	-30	-35	-41	-48
D (DA-DS)	-2	-5	-14	-20	-22	-25	-29	-39
E (EA-ES)	-2	-4	-17	-24	-29	-33	-38	-46
F (FA-FS)	-2	-4	-19	-25	-30	-35	-41	-48
G (GA-GS)	-2	-4	-19	-25	-30	-35	-41	-48

Note! Pressure drop values are based on air density 1,2 kg/m³ and temperature 20C°. Duct - duct connection

