CIRCULAR ABSORPTIVE ATTENUATORS

TYPE SAC_2

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Application

Circular Sound Attenuators are used in ventilation systems and are specifically designed to reduce duct born noise. Concerning noise sources such as axial fans, compressors, generators or any other type, these attenuators are highly recommended to reduce the generated noise. 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. The SAC_2 – 100 type is used as both primary and secondary attenuator, and can be made in large dimensions. Special consideration is given to the design of all units which are to be used in environments of high humidity, pollution or high temperatures. The design is optimized to attain a maximum insertion loss with a minimum pressure drop and may be used for pressures up to 20 bar.

Materials and dimensions

The attenuator is normally constructed in stainless steel, and the 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. Acoustical centerpods can be incorporated in the design for improved noise reduction performance where the pod's diameter can be adjusted for optimal reduction.

Noise data

The insulation material used 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. For the circular sound attenuators the noise data 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 circular sound attenuator, please contact Acoustics.

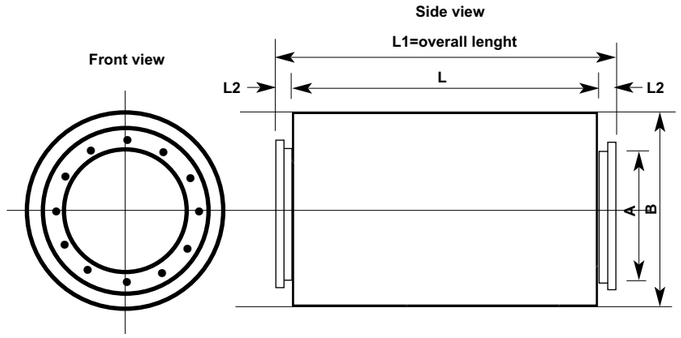
SPECIFICATIONS

Attenuator type	Area code	Pressure drop code	Self gen noise code	Nominal dia (A)	Acoustic lenght (L)	Connection	Material
SAC_2							
To be specified							
To be specified							
A or B							
100-1900							
300-4500							
Flange (F) / Spigot (S)							
To be specified							

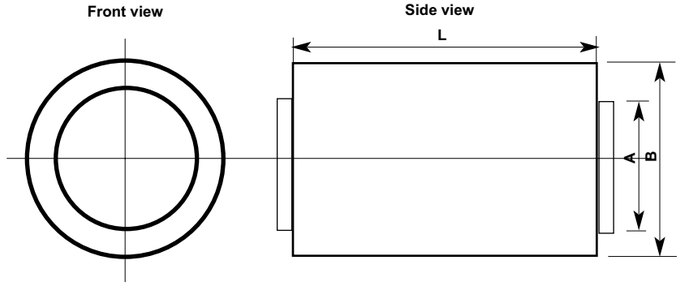
Example: SAC_2 - 1561B - Ø800 X 900L - F - AISI316L/3mm

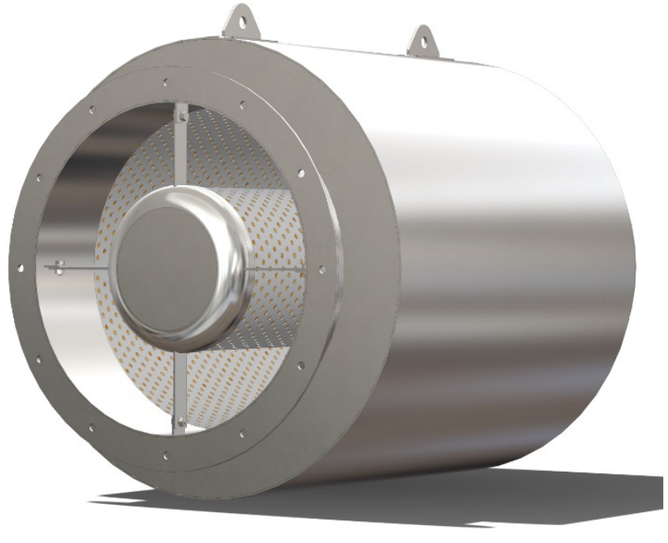
DIMENSIONS

Flange type



Spigot type





A	B	L	L1	L2
100	300	300 600 900 1200	L+100	50
125	325	300 600 900 1200	L+100	50
160	360	300 600 900 1200	L+100	50
200	400	300 600 900 1200	L+100	50
250	450	300 600 900 1200	L+100	50
315	515	300 600 900 1200	L+100	50
400	600	600 900 1200 1500	L+100	50
500	700	600 900 1200 1500	L+100	50
630	830	600 900 1200 1500	L+100	50
800	1000	900 1200 1500 2000	L+100	50
1000	1250	900 1500 2000 2500	L+200	100
1250	1500	1500 2000 2500 3000	L+200	100
1500	1800	1500 2000 2500 3500	L+300	150
1700	2000	2000 2500 3000 4000	L+300	150
		2000 2500 3500 4500	L+300	150

CURVES AND TABLES

Type	Nominal dimensions mm		Area code	Pressure drop code	Self. gen. noise code	Static insertion losses dB, ref. 2 x 10^{-5} Pa							
						Octave band centre frequency, Hz							
	Dia	**Length**											
	A	L				63	125	250	500	1K	2K	4K	8K
SAC_2	100	300	1	11	A	4	8	11	22	28	30	31	22
		600	1	29	A	6	11	18	34	36	43	43	28
		900	1	57	A	7	13	22	42	44	50	49	33
		1200	1	86	A	8	14	25	48	50	50	50	40
	125	300	2	8	A	3	6	9	18	23	24	25	20
		600	2	21	A	5	10	16	28	31	36	39	25
		900	2	43	A	6	12	20	36	38	45	45	30
		1200	2	65	A	6	13	23	45	47	50	50	35
	160	300	3	6	A	2	3	7	12	17	19	16	16
		600	3	16	A	4	7	13	23	27	31	28	22
		900	3	32	A	4	11	17	32	34	38	34	27
		1200	3	48	A	5	12	22	40	42	46	42	28
	200	300	4	4	A	2	3	7	9	15	18	15	12
		600	4	12	A	3	6	12	21	23	25	19	17
		900	4	24	A	3	9	16	30	31	31	25	19
		1200	4	36	A	3	11	21	36	38	37	34	24
	250	300	5	3	A	1	2	4	8	9	10	7	6
		600	5	9	A	2	4	9	16	19	18	15	14
		900	5	18	A	2	7	14	24	28	23	19	16
		1200	5	27	A	4	10	20	33	34	26	24	20
	250	300	4	75	B	1	3	8	13	18	16	13	9
		600	4	98	B	2	6	17	27	34	32	30	27
		900	4	150	B	2	9	21	33	41	39	36	33
		1200	4	201	B	5	12	25	42	50	48	45	37
	315	300	7	3	A	1	2	3	7	7	9	5	4
		600	7	7	A	2	4	8	14	15	14	11	8
		900	7	13	A	2	6	13	20	22	18	14	11
		1200	7	20	A	4	8	18	30	30	23	18	14
	315	300	6	62	B	1	3	5	11	16	13	11	8
		600	6	100	B	2	5	16	22	27	29	25	22
		900	6	151	B	2	7	21	31	35	37	33	31
		1200	6	204	B	5	12	24	39	48	50	39	38
	400	600	9	5	A	1	3	6	12	11	9	7	5
		900	9	10	A	2	5	11	18	17	14	12	9
		1200	9		A	2	6	14	23	21	19	16	12
		1500	9	21	A	3	8	16	28	25	25	22	16
	400	600	8	99	B	1	4	11	20	22	19	15	13
		900	8	145	B	2	5	15	24	29	28	22	20
		1200	8	180	B	3	7	20	29	34	37	30	26
		1500	8	216	B	3	8	24	33	39	45	39	35
	500	600	11	3	A	1	3	6	10	8	6	5	3
		900	11	7	A	2	4	10	14	12	9	8	6
		1200	11	11	A	2	6	13	17	16	12	11	8
		1500	11	15	A	3	7	14	19	18	16	14	11
	500	600	10	87	B	1	3	8	15	20	17	10	9
		900	10	113	B	2	4	10	18	25	26	17	14
		1200	10	139	B	3	6	16	21	30	37	25	18
		1500	10	166	B	3	7	21	24	34	46	32	22
	630	600	14	3	A	1	2	6	8	9	9	7	5
		900	14	5	A	2	3	9	11	13	11	9	7
		1200	14	8	A	2	5	12	14	16	15	14	9
		1500	14	11	A	3	6	15	16	20	19	16	13
	630	600	12	67	B	1	3	10	15	18	20	9	7
		900	12	85	B	2	4	12	20	24	25	14	11
		1200	12	101	B	2	4	13	23	29	28	16	13
		1500	12	116	B	2	5	16	24	31	30	19	15
	800	900	18	4	A	2	3	8	10	8	7	6	3
		1200	18	6	A	2	3	10	13	10	9	8	5
		1500	18	8	A	2	4	11	14	12	11	9	7
		2000	18	12	A	3	5	13	16	15	13	11	9
	800	900	**15**	61	B	2	3	9	16	20	16	11	9
		1200	15	68	B	2	4	13	19	25	21	14	11
		1500	15	76	B	2	5	16	22	30	26	18	16
		2000	15	88	B	3	7	18	26	37	33	23	21
	1000	900	23	3	A	1	2	7	9	8	7	4	2
		1500	23	6	A	3	4	10	12	12	11	7	5
		2000	23	9	A	4	5	12	15	14	13	10	7
		2500	23	12	A	5	6	15	19	17	15	13	9
	1000	900	18	63	B	2	3	11	18	21	18	13	11
		1500	18	74	B	2	5	16	24	30	23	18	16
		2000	18	82	B	3	7	19	28	36	26	23	20
		2500	18	91	B	4	9	21	31	41	30	29	24
	1250	1500	23	78	B	2	4	14	21	26	21	14	13
		2000	23	85	B	3	6	17	23	30	26	16	15
		2500	23	91	B	5	7	19	25	33	30	19	16
		3000	23	97	B	6	9	21	27	35	33	21	18
	1500	1500	30	74	B	3	6	15	21	27	14	9	8
		2000	30	80	B	3	7	17	27	34	17	11	10
		2500	30	86	B	4	7	18	30	37	18	11	10
		3500	30	98	B	5	12	21	39	46	23	15	12
	1700	2000	35	72	B	3	6	15	22	27	13	9	8
		2500	35	77	B	3	7	18	26	31	15	9	8
		3000	35	82	B	4	8	19	30	35	17	10	9
		4000	35	94	B	6	16	26	39	44	24	17	12
	1900	2000	38	66	B	3	6	14	18	21	11	7	6
		2500	38	72	B	3	7	18	22	26	13	7	7
		3500	38	82	B	5	12	25	31	35	19	11	9
		4500	38	93	B	7	16	31	37	41	23	15	11

EXAMPLE
Airflow: 21.000 m^3/h - 5,83m^3/s
Selected type: SAC_2-1561B - Ø800 X 900L mm

Diagram 2 - Pressure drop code: 61.
Read: 37 Pa

Diagram 3 - Self generated noise code: B
Read: SWL_{tot} = 72 dB

Frequency correction - table 1

63	125	250	500	1K	2K	4K	8K
70	64	62	60	56	52	47	42

SELF GENERATED NOISE
- FREQUENCY CORRECTION

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

CORRECTION FACTORS CF
ADD dB **TABLE 1**

FREQUENCY CORRECTION

Self gen. noise code	Centre band frequency, Hz ref 10^{-12} Watt							
	63	125	250	500	1K	2K	4K	8K
A	-1	-9	-19	-26	-29	-34	-41	-42
B	-2	-8	-10	-12	-16	-20	-25	-30

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