STANDARD CONSTRUCTION

To maintain their structural integrity standard construction attenuators are limited to a maximum internal pressure of 2.5 KPa

Casings

Shall be constructed from prime quality pre-galvanised sheet steel and joined with lock form/ interlocking joints, mastic filled for higher pressure applications. The case thickness shall be 1mm up to 1500mm diameter and 1.2mm for all sizes greater than 1500mm diameter.

End Flanges

Shall be made from 1.2mm pre-galvanised sheet steel and attached to the case with a grooved and knock-over joint. The End Flanges are fitted with metric threaded inserts as shown on the dimension sheet or to suit specific fan or duct sizes.

Acoustic Infill

Shall be either fibreglass or rockwool suitably faced to prevent fibre erosion at passage velocities to a maximum of 40 m/s. When tested in accordance with Australian Standards the infill shall have a 4 Zero fire rating. The infill shall be retained behind 0.6mm pre-galvanised perforated sheet steel.

Attenuation Pod

Shall be made of concentric rings with acoustic wrapping no thinner than the external wall thickness. The inner ring is constructed of 1mm pre-galvanised sheet steel, the outer ring 0.6mm pre-galvanised perforated sheet steel. The ends shall be formed from either a semi-dome or truncated cone and fixed to the concentric rings.

Melinex Lining

Melinex lining allows for steam cleaning where bacterial growth may be a problem. Melinex also protects against grease and oil absorption, essential where fire hazards are to be avoided. Melinex effects the acoustic performance, the specific performance details are listed in the Melinex table.

To prevent damage to the melinex internal turbulence should be kept to a minimum. Consequently we have limited the pressure loss of our silencers as detailed in the technical performance graphs.

SPECIAL CONSTRUCTION

High Internal Pressures

For applications in excess of 2.5 KPa internal pressures the construction should be discussed with our engineers. The materials of construction will not in general affect the acoustic performance, but may affect the aerodynamic characteristics.

Exposed to the Weather Applications

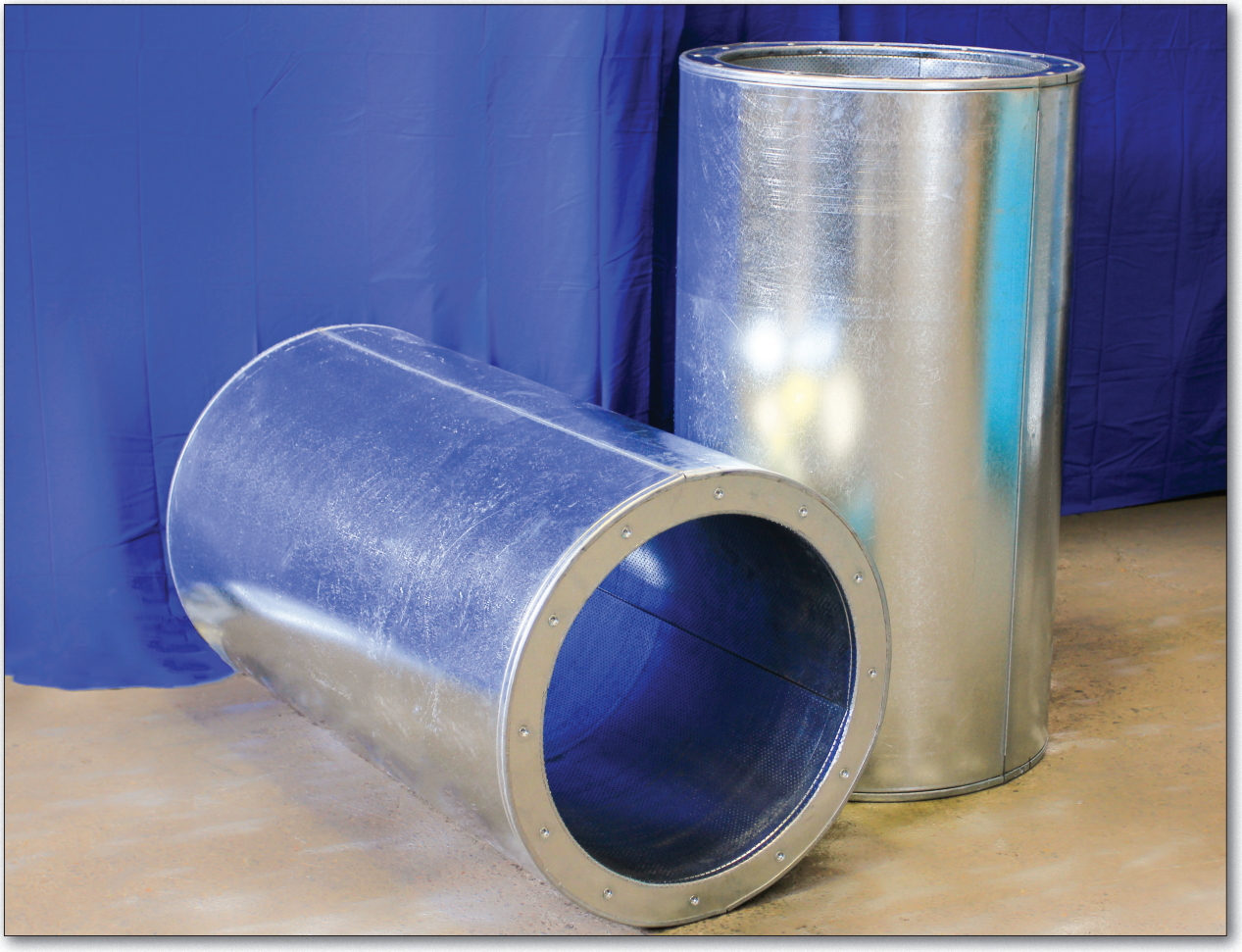
For exposed to atmosphere applications a spun polyester facing to protect against rain absorption is available. This specific facing does not affect the acoustic performance hence our standard performance tables can be used.

Installation Effects

The location of the attenuators within the system can have significant affects upon the aerodynamic performance. We have listed in the Technical Data section general guidance for the increase in pressure loss to be expected for various configurations.

Alternative Materials of Construction

For applications where corrosion could be a problem the use of different materials such as aluminum or stainless steel should be discussed with our engineers. Simple material changes should not in general affect the performance of the attenuator.



Without Pod - Model ACA

Length L1 *Insertion Loss*

Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	300	2	3	6	10	14	11	8	7
400, 450, 500, 560, 630	600	3	5	9	12	15	12	9	8
710, 800, 900	900	3	5	9	16	15	10	9	8
1000, 1250, 1400	1200	4	5	10	15	13	9	8	7
1600	1500	4	6	12	15	12	8	7	6
1800, 2000	1800	5	6	11	14	10	7	6	6

Length L2

Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	600	4	7	12	18	22	16	13	12
400, 450, 500	900	4	7	11	18	24	18	15	13
560, 630	1200	5	8	12	21	23	17	15	12
710, 800	1500	6	9	14	22	23	16	15	12
900, 1000	1800	7	9	15	22	19	15	12	10
1250, 1400	2400	7	9	16	22	19	14	12	10
1600	3000	8	9	15	21	19	12	11	9
1800, 2000	3600	8	9	16	21	18	12	10	9

With Pod - Model ACPA

Length L1 *Insertion Loss*

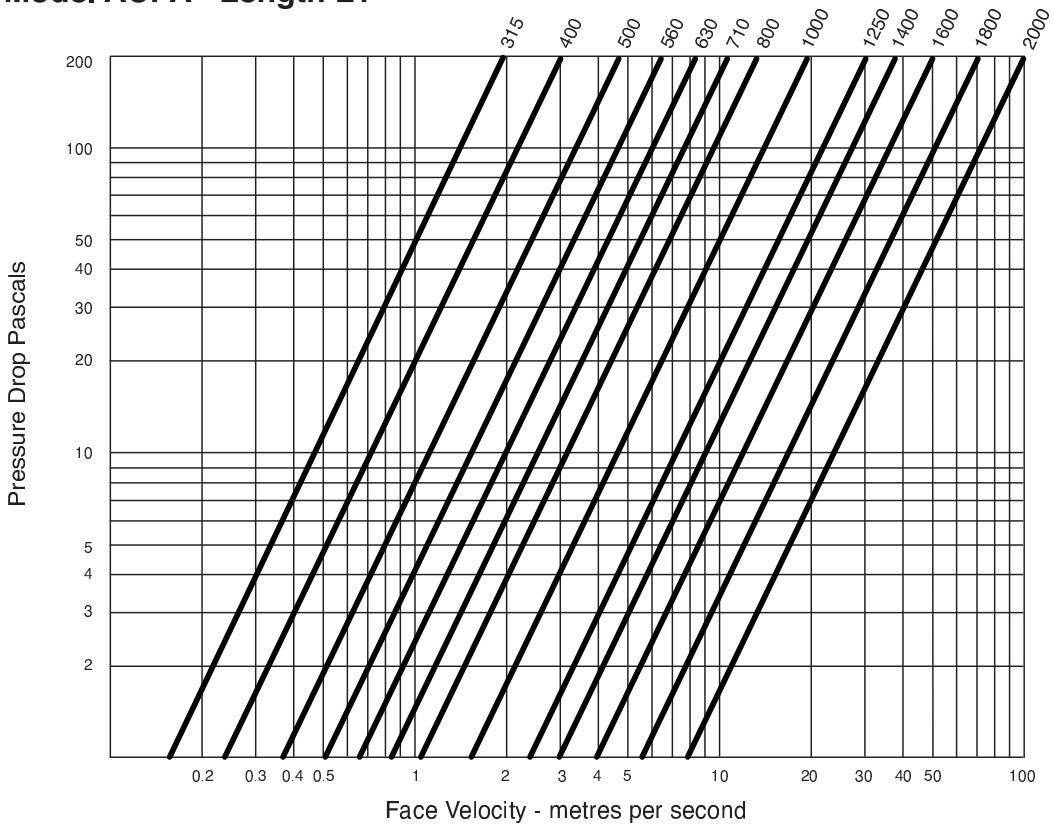
Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	300	4	5	8	13	20	20	18	16
400, 450, 500, 560, 630	600	5	6	9	16	22	20	17	12
710, 800, 900	900	5	6	10	18	24	20	16	12
1000, 1250, 1400	1200	6	7	12	20	20	16	15	11
1600	1500	6	8	12	18	22	15	12	9
1800, 2000	1800	6	7	12	19	17	12	10	9

Length L2

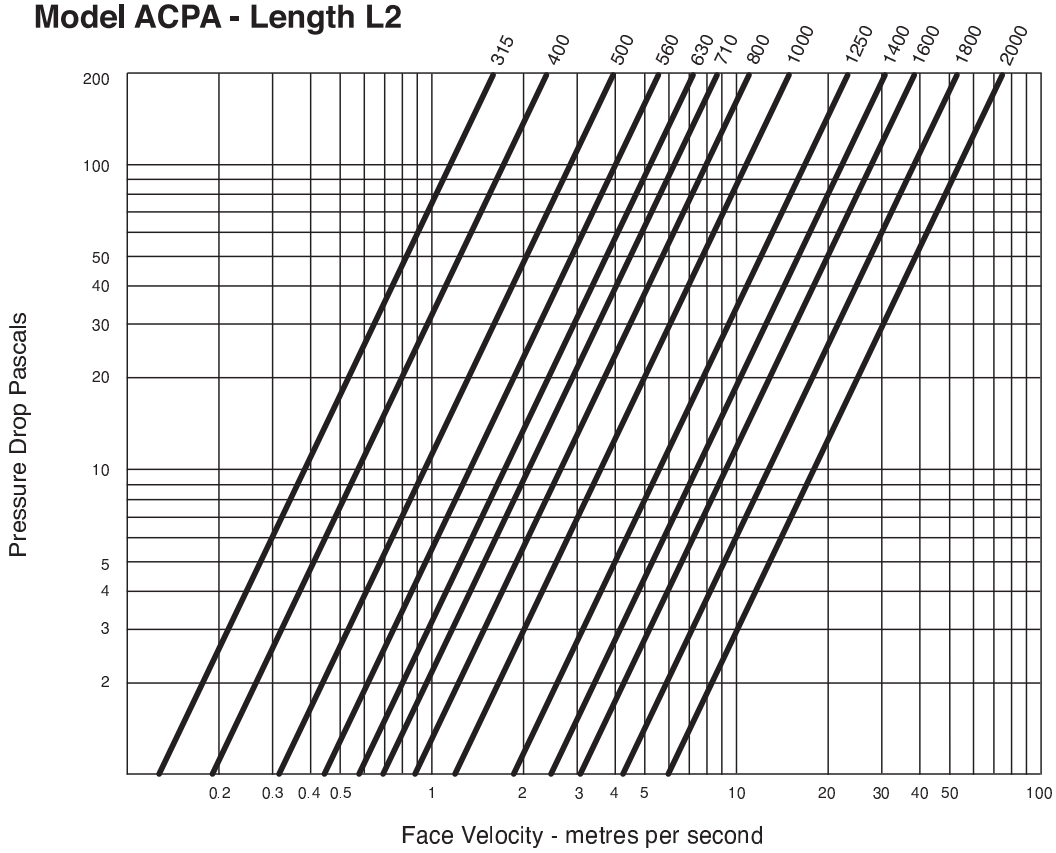
Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	600	7	9	15	23	30	33	28	24
400, 450, 500	900	7	9	16	23	30	35	30	28
560, 630	1200	8	11	16	30	35	35	31	22
710, 800	1500	8	11	18	31	36	38	35	23
900, 1000	1800	9	11	19	30	34	33	30	21
1250, 1400	2400	9	11	19	30	32	30	24	18
1600	3000	10	14	21	28	30	28	20	16
1800, 2000	3600	10	15	21	28	30	28	20	15

Aerodynamic Loss

Model ACPA - Length L1



Model ACPA - Length L2



MELINEX LINED

Without Pod - Model ACAM

Length L1 *Insertion Loss*

Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	300	3	3	5	7	9	7	5	4
400, 450, 500, 560, 630	600	4	5	8	11	10	7	5	4
710, 800, 900	900	4	5	8	11	10	5	5	4
1000, 1250, 1400	1200	5	5	9	10	8	5	4	3
1600	1500	5	6	11	10	7	5	4	3
1800, 2000	1800	6	6	10	9	6	5	4	3

Length L2

Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	600	5	7	11	12	17	13	10	9
400, 450, 500	900	5	7	10	13	18	13	11	9
560, 630	1200	6	8	12	18	18	12	11	7
710, 800	1500	7	9	12	18	18	12	11	7
900, 1000	1800	8	9	14	18	17	11	10	7
1250, 1400	2400	8	9	15	17	15	9	8	7
1600	3000	9	9	14	17	14	9	7	6
1800, 2000	3600	9	9	15	17	13	8	6	5

With Pod - Model ACPAM

Length L1 *Insertion Loss*

Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	300	5	5	7	11	17	14	11	9
400, 450, 500, 560, 630	600	6	6	8	12	18	16	10	9
710, 800, 900	900	6	6	9	14	20	13	10	8
1000, 1250, 1400	1200	7	7	11	16	16	12	9	7
1600	1500	7	8	11	15	14	10	8	6
1800, 2000	1800	7	7	11	15	14	9	7	6

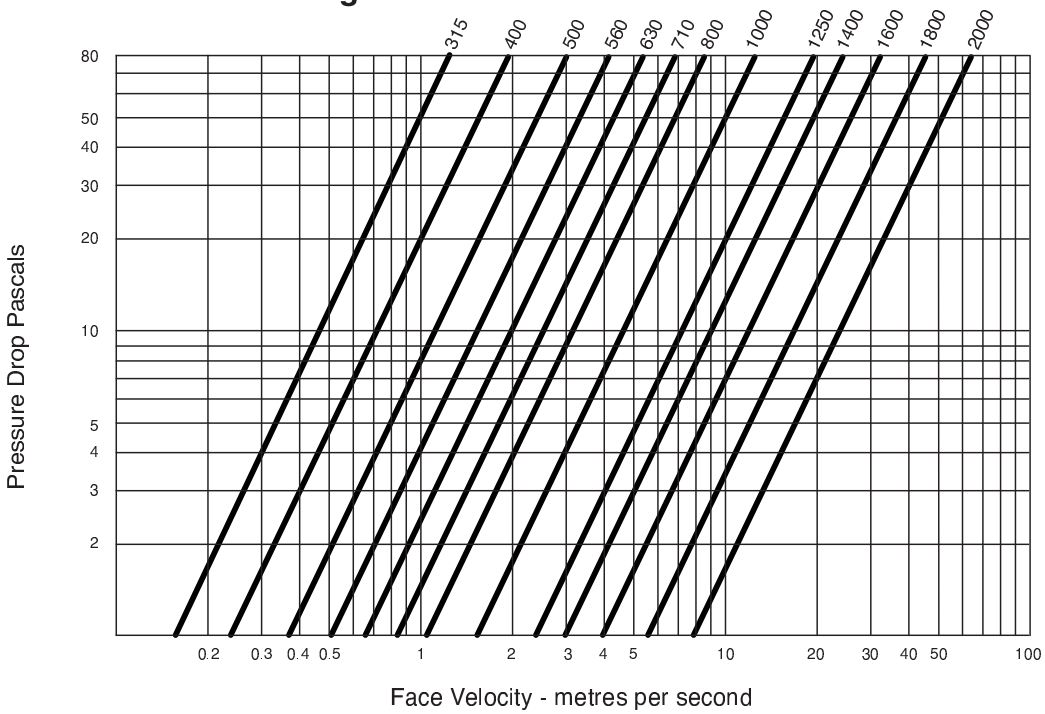
Length L2

Inside Diameter mm	Length mm	Octave Band Centre Frequency							
		63	125	250	500	1K	2K	4K	8K
315, 350	600	8	9	14	18	25	22	16	15
400, 450, 500	900	8	9	15	19	25	23	17	16
560, 630	1200	9	11	15	24	28	25	19	15
710, 800	1500	9	11	17	25	29	26	19	14
900, 1000	1800	10	11	18	24	26	23	17	12
1250, 1400	2400	10	11	18	24	26	22	16	12
1600	3000	11	14	20	23	25	21	14	11
1800, 2000	3600	11	15	20	22	25	21	13	10

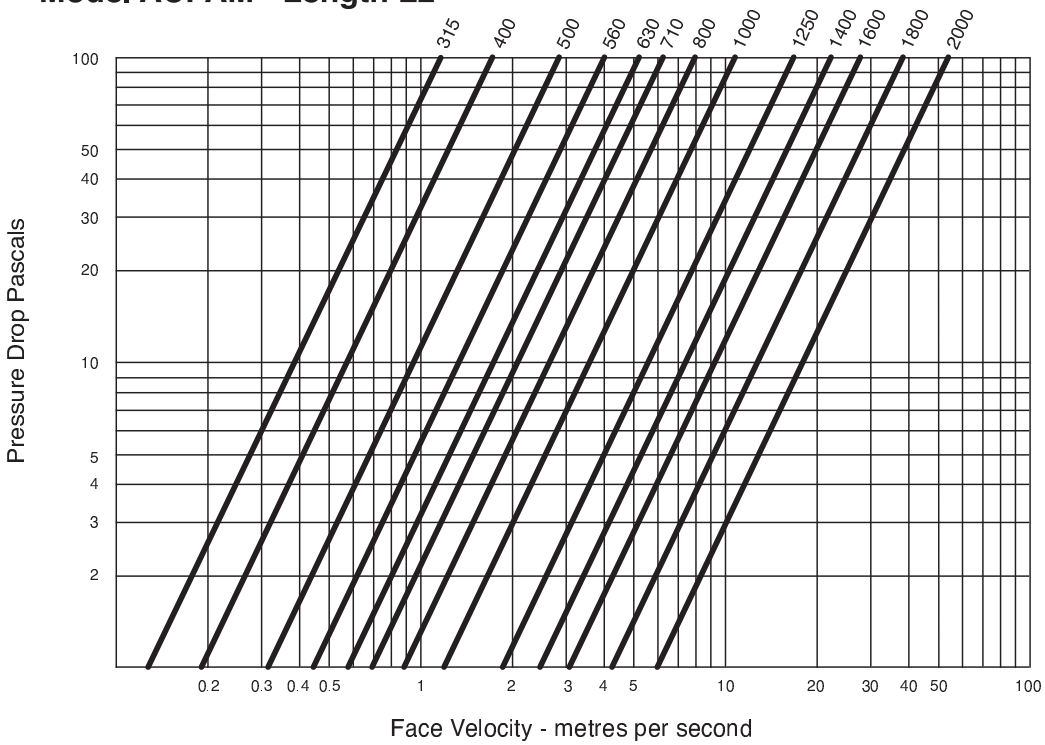
Melinex Lined - Aerodynamic Loss

To prevent mechanical damage to the melinex due to air turbulence, we have limited the Pressure Drop to 80 Pa for the Length L1, and 100 Pa for Length L2.

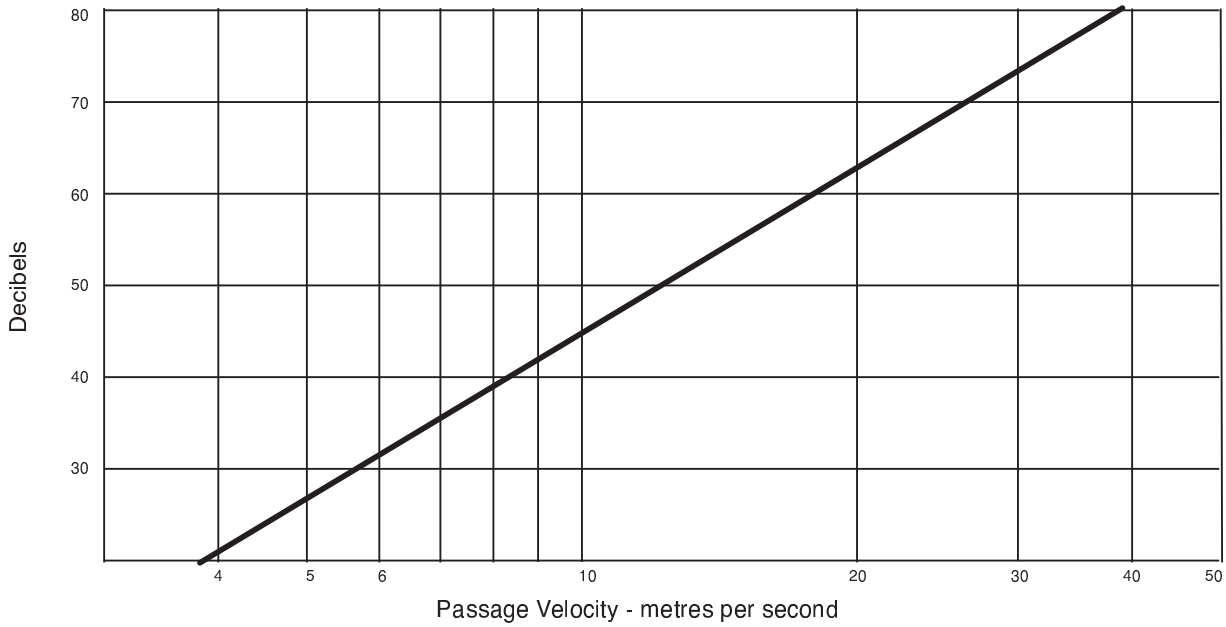
Model ACPAM - Length L1



Model ACPAM - Length L2



Regenerated Noise



Free Area Type ACPA

	Diameter mm									
	310	400	630	800	1000	1250	1400	1600	1800	2000
Free Area sq m	0.05	0.1	0.19	0.31	0.47	0.77	0.94	1.23	1.56	2.01

Typical Calculation

The regenerated noise graph is based on the air velocity within the silencer. This is obtained by dividing the flow rate in m^3/s by the silencer free area m^2. If we require the regenerated noised of an ACPA 1000mm diameter silencer when handling 8000 L/s then:-

$$\frac{\text{Flow Rate}}{\text{Free Area}} = \frac{8000/1000}{0.47} = 17.02 \text{ m/s Passage Velocity}$$

From the graph above this gives 60 dB overall.

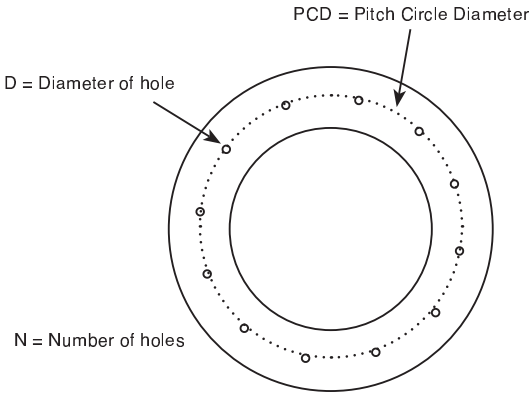
Spectrum Correction

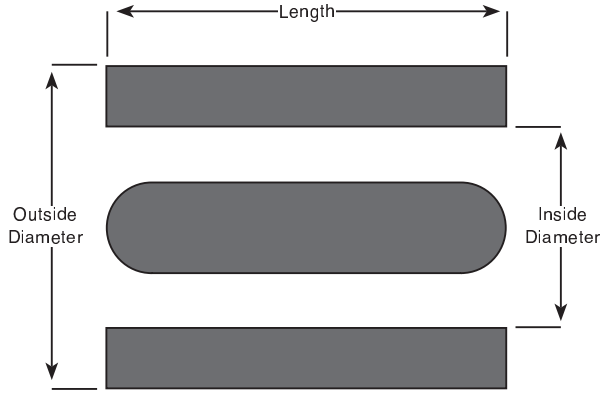
	Octave Band Centre Frequency Hz							
	63	125	250	500	1K	2K	4K	8K
dB Correction	-5	-5	-5	-12	-18	-21	-21	-22

Applying the spectrum correction to the overall level 60dBA from above, gives a final regenerated sound power level:

	Octave Band Centre Frequency Hz							
	63	125	250	500	1K	2K	4K	8K
dB	55	55	55	48	42	39	39	38

Standard Dimensions





How to Order:

(For non-standard diameters, contact our engineers)

Model	Length	X	Diameter
ACA	*900*	*X*	*800*
	overall flange face to face		*inside diameter*

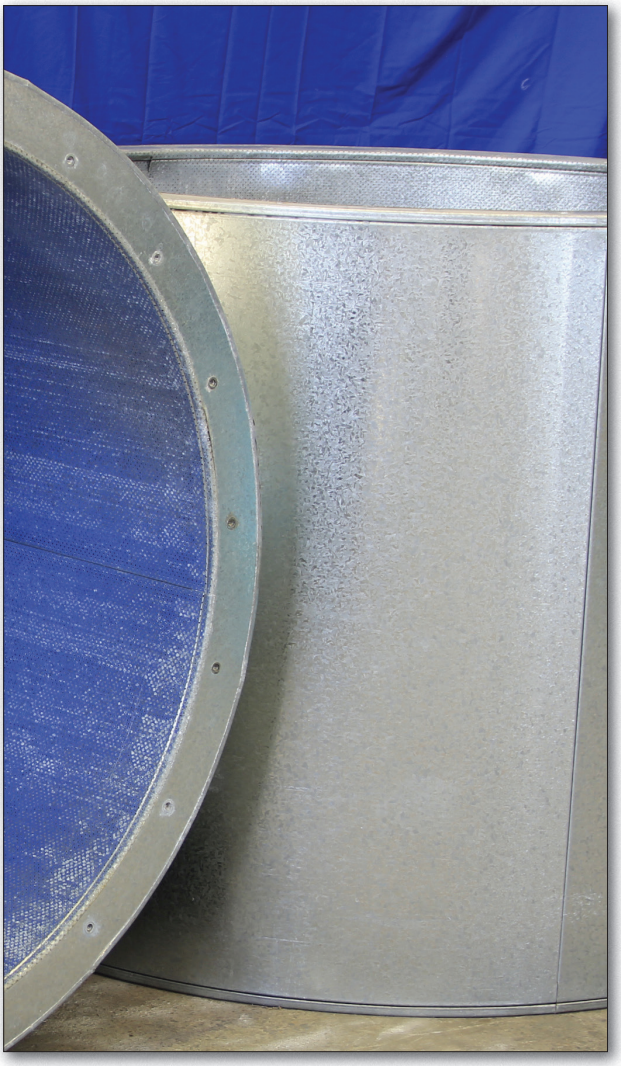
Type ACA and Type ACPA

Dimensions						Weight ACPA Length		Weight ACA Length	
DIA	O/D	I/D	N	F	PCD	L1	L2	L1	L2
315	442	317	8	M8	355	14	21	11	16
350	483	358	8	M8	395	18	26	164	20
400	528	403	8	M8	450	21	32	16	24
450	577	452	8	M8	487	26	42	20	32
500	630	505	12	M8	560	31	48	24	36
560	687	562	12	M8	620	35	51	26	38
630	785	635	12	M8	690	42	74	32	56
700	859	709	16	M8	755	60	92	45	69
710	861	716	16	M8	770	62	96	46	72
800	959	809	16	M8	860	82	140	62	105
900	1060	910	16	M8	970	122	199	93	150
1000	1185	1010	16	M10	1070	151	240	116	180
1250	1430	1260	20	M10	1320	204	324	153	243
1400	1585	1415	20	M10	1470	299	578	224	427
1600	1810	1615	24	M12	1580	358	660	259	495
1800	2010	1812	24	M12	1880	438	810	329	608
2000	220	2020	24	M12	2080	638	1110	489	833

MAINTENANCE INSTRUCTIONS

Duct Silencers Installed Indoors

Duct silencers installed inside buildings are designed to be essentially maintenance-free for the life of the product. The same method and routine used for periodic cleaning of the ductwork will also apply to the duct silencers. The acoustic media used in duct silencers is protected by the perforated metal liner so it will not erode during normal duct cleaning with vacuum equipment.



Duct Silencers Installed Outdoors

Duct silencers installed outdoors should be inspected at 6-month intervals. Inspect the condition of the joints and replace loose or damaged sealant. Inspect the welds and casings for signs of rusting. Remove visible rust using a wire brush and re-coat with zinc-rich spray paint.

Silencers exposed to High Humidity

Silencers exposed to high humidity levels, such as those installed on cooling tower discharge fans, should be inspected frequently for signs of rusting. Remove visible rust using a wire brush and re-coat with zinc-rich spray paint. As a general rule, the lifetime of a silencer exposed to high humidity will be less than one installed in a dry indoor location.

Silencers Exposed to Corrosive Elements

Silencers specified for installation in locations where the outer casings will be exposed to high temperature or corrosive elements are typically constructed with corrosive-resistant materials or finished with corrosion-resistive coatings. Similarly, silencers that must convey high-temperature or corrosive gases will be constructed internally with non-corrosive materials. Maintenance for these applications should be discussed with our engineers prior to manufacture, as this will be a function of the materials used and the corrosive elements which is specific to each individual application.