Sound Attenuator

No. 774-07

Commercial Acoustics
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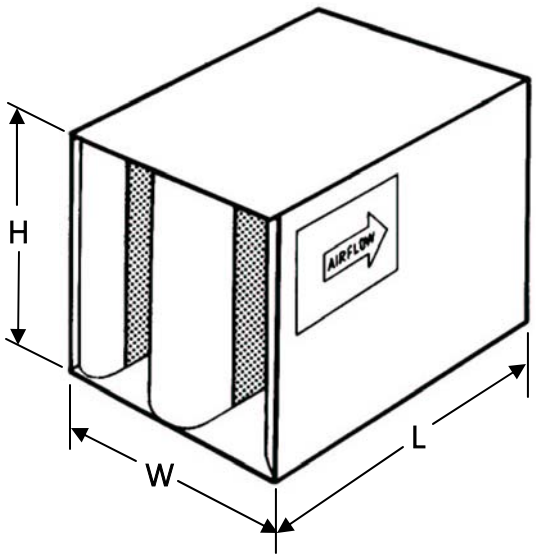
A DIVISION OF METAL FORM MANUFACTURING

ENGINEERING DATA SHEET



MODEL SP18-MD

RECTANGULAR

NOMENCLATURE EXAMPLE:

WIDTH	HEIGHT	LENGTH	MODEL
36	**24**	**36**	**SP18-MD**

Commercial Acoustics Model SP18-MD sound attenuators are engineered to achieve a maximum insertion loss with a minimum pressure drop while eliminating acoustical fill entrainment by the airstream and the absorption of gases and particulates. Galvanized steel construction and an acoustical fill that is encapsulated and separated from the internal perforated steel baffle by an acoustically transparent stand-off guarantee excellent reliability and performance. This non-erosive, non-pregnable silencer is excellent for Hospitals, Clean Rooms, Surgery Centers, Laboratories, Food Processing Facilities and other aseptic applications. Also available in Aluminum, 304-2B or 316L-2B Stainless Steel construction upon request.

MODEL NO.	OCTAVE BANDS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CENTER FREQUENCY (Hz)	63	125	250	500	1000	2000	4000	8000
	FACE VELOCITY, fpm	DYNAMIC INSERTION LOSS IN DECIBELS (dB)							
3SP18-MD	-2000	4	7	13	21	23	22	15	9
	-1000	5	8	14	20	22	21	16	8
	0	5	6	11	19	22	19	17	7
	+1000	4	6	11	18	21	20	17	9
	+2000	3	6	10	17	21	20	16	9
5SP18-MD	-2000	7	10	20	30	32	29	19	10
	-1000	7	8	18	28	32	32	19	9
	0	7	9	15	27	31	32	18	10
	+1000	5	9	14	25	30	33	22	10
	+2000	6	8	13	23	28	34	22	11
7SP18-MD	-2000	10	14	23	38	38	40	28	11
	-1000	9	11	23	35	39	41	29	10
	0	9	10	21	34	40	42	30	11
	+1000	8	9	20	33	39	43	31	13
	+2000	8	9	19	32	37	43	31	14
10SP18-MD	-2000	11	15	25	40	41	41	33	15
	-1000	12	14	25	39	43	42	33	15
	0	12	14	24	38	43	41	30	15
	+1000	11	13	23	37	42	40	29	16
	+2000	10	12	22	36	42	38	28	17

THESE TABLES CONTAIN BOTH FORWARD(+) AND REVERSE(-) FLOW ACOUSTIC AND AERODYNAMIC RATINGS BASED ON COMPARATIVE TEST RESULTS MEASURED IN ACCORDANCE WITH APPLICABLE PORTIONS OF ASTM E477. COPIES OF CERTAIN TEST REPORTS CAN BE FURNISHED UPON REQUEST.

Sound Attenuator

RECTANGULAR MODEL SP18-MD

ENGINEERING DATA

USE THE FACE VELOCITY, SHADED, AND THE HELPFUL EQUATIONS TO CALCULATE THE RATING FOR SILENCER SIZES NOT SHOWN AND FOR MULTIPULE MODULE SILENCER BANKS.

MODEL												
	3SP18-MD	0.05	0.09	0.15	0.21	0.32	0.43	0.53	0.63	0.78	0.94	1.05	1.13
	5SP18-MD	0.06	0.10	0.16	0.23	0.35	0.46	0.58	0.68	0.85	1.02	1.14	1.23
	7SP18-MD	0.07	0.13	0.20	0.28	0.43	0.57	0.71	0.85	1.05	1.26	1.41	1.52
	10SP18-MD	0.09	0.16	0.25	0.35	0.53	0.71	0.89	1.05	1.31	1.56	1.75	1.89
SIZE W x H	**Face Area**	**AIR FLOW IN CFM**											
9 x 12	0.75	530	715	900	1069	1313	1517	1695	1844	2057	2249	2381	2475
9 x 18	1.13	799	1077	1356	1610	1978	2286	2554	2779	3098	3389	3588	3729
9 x 24	1.5	1061	1430	1800	2138	2625	3035	3390	3689	4113	4499	4763	4950
9 x 30	1.88	1329	1792	2256	2679	3290	3803	4249	4623	5155	5638	5969	6204
9 x 36	2.25	1591	2144	2700	3206	3938	4552	5085	5533	6170	6748	7144	7425
9 x 42	2.63	1859	2506	3156	3748	4603	5320	5944	6467	7211	7887	8350	8679
18 x 12	1.5	1061	1430	1800	2138	2625	3035	3390	3689	4113	4499	4763	4950
18 x 18	2.25	1591	2144	2700	3206	3938	4552	5085	5533	6170	6748	7144	7425
18 x 24	3	2121	2859	3600	4275	5250	6069	6780	7377	8226	8997	9525	9900
18 x 30	3.75	2651	3574	4500	5344	6563	7586	8475	9221	10283	11246	11906	12375
18 x 36	4.5	3182	4289	5400	6413	7875	9104	10170	11066	12339	13496	14288	14850
18 x 42	5.25	3712	5003	6300	7481	9188	10621	11865	12910	14396	15745	16669	17325
18 x 48	6	4242	5718	7200	8550	10500	12138	13560	14754	16452	17994	19050	19800
36 x 12	3	2121	2859	3600	4275	5250	6069	6780	7377	8226	8997	9525	9900
36 x 18	4.5	3182	4289	5400	6413	7875	9104	10170	11066	12339	13496	14288	14850
36 x 24	6	4242	5718	7200	8550	10500	12138	13560	14754	16452	17994	19050	19800
36 x 30	7.5	5303	7148	9000	10688	13125	15173	16950	18443	20565	22493	23813	24750
36 x 36	9	6363	8577	10800	12825	15750	18207	20340	22131	24678	26991	28575	29700
36 x 42	10.5	7424	10007	12600	14963	18375	21242	23730	25820	28791	31490	33338	34650
36 x 48	12	8484	11436	14400	17100	21000	24276	27120	29508	32904	35988	38100	39600
FACE VELOCITY, fpm		707	953	1200	1425	1750	2023	2260	2459	2742	2999	3175	3300

Helpful Equations: Face Area = (Width in inches × Height in inches) ÷ 144

Face Velocity = CFM ÷ Face Area in Sq.Ft.

Silencer S.P. Loss = $\left(\frac{FaceVelocity}{TabledVelocity}\right)^2$ **X** Tabled S.P. Loss

STANDARD CON-

Outer Casing — Solid 22GA G90 galvanized steel
Inner Partitions — Perforated 22GA G90 galvanized steel
Acoustical Fill — Hospital Grade Lining
Maximum Differential Pressure — 8 in. wc. as tested in accordance with UL 181, Section 17

Octave Band		1	2	3	4	5	6	7	8
Frequency, Hz		63	125	250	500	1k	2k	4k	8k
Length	Face Velocity	**Self-Generated Sound Power Ratings (PWL) dB re 10^{-12} WATTS**							
ALL LENGTHS	+2000	56	54	48	46	44	52	51	47
	+1000	55	42	34	31	33	31	25	27
	-1000	58	48	43	43	44	43	35	28
	-2000	59	56	53	55	54	59	60	53

When adding any two decibel levels together to an accuracy of 1 dB

Difference between two dB levels	Add to the higher dB level
0 or 1 dB	3 dB
2 or 3 dB	2 dB
4 to 9 dB	1 dB
10 dB or more	0 dB

Air flow ratings shown include static regain. Therefore, if silencers are installed immediately before or after elbows, transitions, at the intake or discharge of the system, or without duct, allowance to compensate for such conditions must be included when calculating the operating static pressure loss across the silencer. Failure to make allowances for these conditions can add several velocity heads to the static pressure loss of the system. All acoustic and aerodynamic performance obtained on a 18" x 24" cross sec-

Self-Generated Sound Power, Face Area Adjustment Factors

Face Area	0..38	0.75	1.5	3	6	12	24	48	96
Adjustment Factor, dB	-9	-6	-3	0	+3	+6	+9	+12	+16