

# Sound Attenuator

No. 761-11

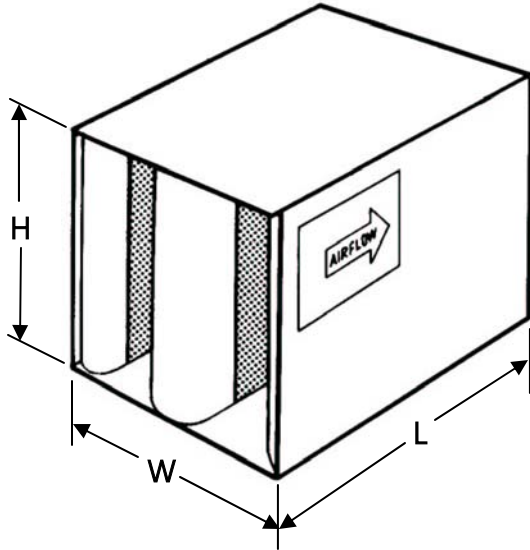


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A DIVISION OF METAL FORM MANUFACTURING

## ENGINEERING DATA SHEET

Supersedes No. 761-89



## MODEL SP18

RECTANGULAR

### NOMENCLATURE EXAMPLE:

WIDTH	HEIGHT	LENGTH	MODEL
<b>24</b>	<b>24</b>	<b>36</b>	<b>SP18</b>

Commercial Acoustics sound attenuators are engineered to achieve a maximum insertion loss and a minimum pressure drop. Commercial Acoustics sound attenuators feature airflow design for efficient aerodynamic performance. Galvanized steel construction and an absorbent, inorganic mineral glass fiber acoustical fill; guarantee excellent reliability and performance.

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)							
<b>3SP18</b>	-2000	3	7	12	18	25	20	10	8
	-1000	3	7	12	17	24	21	10	7
	0	2	6	11	17	24	20	12	7
	+1000	1	6	11	16	23	21	13	9
	+2000	1	6	10	15	23	21	13	10
<b>5SP18</b>	-2000	7	10	25	36	46	29	14	9
	-1000	8	8	23	34	46	32	16	10
	0	7	9	21	33	45	32	18	12
	+1000	8	9	20	31	44	33	19	14
	+2000	6	8	19	29	42	34	20	15
<b>7SP18</b>	-2000	4	18	27	39	49	41	19	13
	-1000	3	16	27	36	50	42	18	11
	0	3	14	24	35	51	43	21	13
	+1000	3	13	23	34	50	45	23	15
	+2000	2	12	23	33	48	45	24	16
<b>10SP18</b>	-2000	8	20	34	48	51	47	32	18
	-1000	9	18	33	46	51	49	33	18
	0	9	18	31	45	52	50	37	20
	+1000	8	16	30	45	51	49	39	23
	+2000	7	15	28	44	50	48	39	25

THIS TABLE CONTAINS BOTH FORWARD(+) AND REVERSE(-) FLOW ACOUSTIC AND AERODYNAMIC RATINGS BASED ON 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

### ENGINEERING DATA

USE THE BOTTOM ROW "FACE VELOCITY, fpm" TO GET THE RATING FOR SILENCER SIZES NOT SHOWN AND FOR MULTIPLE MODULE SILENCER BANKS.

MODEL			3SP18	0.05	0.11	0.17	0.22	0.28	0.34	0.45	0.56	0.68	0.83	1.11	1.39
			5SP18	0.05	0.11	0.17	0.22	0.28	0.35	0.46	0.58	0.69	0.86	1.16	1.45
			7SP18	0.07	0.14	0.21	0.28	0.35	0.42	0.56	0.70	0.84	1.05	1.41	1.76
			10SP18	0.09	0.18	0.27	0.36	0.45	0.54	0.72	0.90	1.08	1.35	1.80	2.26
SIZE		Face Area	AIR FLOW IN CFM												
W	x H		529	750	919	1058	1189	1305	1500	1680	1838	2055	2378	2663	
9	x 12	0.75	797	1130	1384	1593	1791	1966	2260	2531	2769	3096	3582	4012	
9	x 18	1.13	1058	1500	1838	2115	2378	2610	3000	3360	3675	4110	4755	5325	
9	x 24	1.5	1586	2250	2756	3173	3566	3915	4500	5040	5513	6165	7133	7988	
9	x 36	2.25	2115	3000	3675	4230	4755	5220	6000	6720	7350	8220	9510	10650	
18	x 24	3	2644	3750	4594	5288	5944	6525	7500	8400	9188	10275	11888	13313	
18	x 30	3.75	2912	4130	5059	5823	6546	7186	8260	9251	10119	11316	13092	14662	
18	x 33	4.13	3173	4500	5513	6345	7133	7830	9000	10080	11025	12330	14265	15975	
18	x 36	4.5	3701	5250	6431	7403	8321	9135	10500	11760	12863	14385	16643	18638	
18	x 42	5.25	3969	5630	6897	7938	8924	9796	11260	12611	13794	15426	17847	19987	
18	x 45	5.63	4230	6000	7350	8460	9510	10440	12000	13440	14700	16440	19020	21300	
36	x 18	4.5	4230	6000	7350	8460	9510	10440	12000	13440	14700	16440	19020	21300	
36	x 24	6	5288	7500	9188	10575	11888	13050	15000	16800	18375	20550	23775	26625	
36	x 30	7.5	6345	9000	11025	12690	14265	15660	18000	20160	22050	24660	28530	31950	
36	x 36	9	7403	10500	12863	14805	16643	18270	21000	23520	25725	28770	33285	37275	
36	x 42	10.5	8460	12000	14700	16920	19020	20880	24000	26880	29400	32880	38040	42600	
36	x 48	12	7931	11250	13781	15863	17831	19575	22500	25200	27563	30825	35663	39938	
45	x 36	11.25	9257	13130	16084	18513	20811	22846	26260	29411	32169	35976	41622	46612	
45	x 42	13.13	10575	15000	18375	21150	23775	26100	30000	33600	36750	41100	47550	53250	
FACE VELOCITY, fpm			705	1000	1225	1410	1585	1740	2000	2240	2450	2740	3170	3550	

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

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

Silencer S.P. Loss =  $\left(\frac{\text{Face Velocity}}{\text{Tabled Velocity}}\right)^2 \times \text{Tabled S.P. Loss}$

#### STANDARD CONSTRUCTION FEATURES

Outer Casing — Solid 22GA G90 galvanized steel  
 Inner Partitions — Perforated 22GA G90 galvanized steel  
 Acoustical Fill — Inorganic mineral glass fiber meeting NFPA 90A, UL 723, and ASTM E84 of sufficient density and packed under at least 5% compression to eliminate voids and to obtain cataloged ratings  
 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 <sup>-12</sup> 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 24" x 24" cross section production unit.

#### Self-Generated Sound Power, Face Area Adjustment Factors

Face Area	0.50	1	2	4	8	16	32	64	128
Adjustment Factor, dB	-9	-6	-3	0	+3	+6	+9	+12	+15