

NF (No-Fill) Silencer

No. 764-11

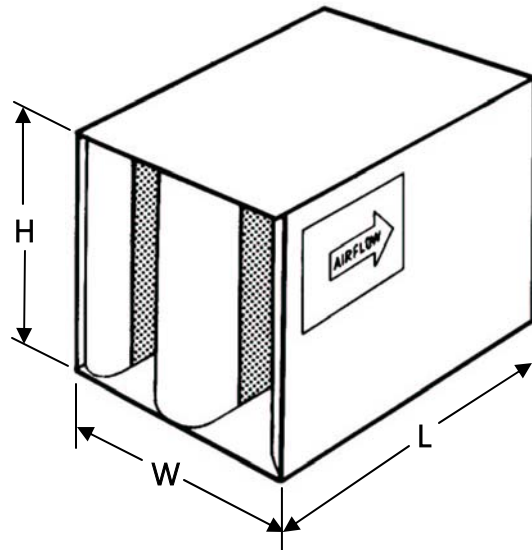


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A DIVISION OF METAL FORM MANUFACTURING

ENGINEERING DATA SHEET

Supersedes No. 764-89



MODEL NFL

RECTANGULAR

NOMENCLATURE EXAMPLE:

WIDTH	HEIGHT	LENGTH	MODEL
24	24	36	NFL

Commercial Acoustics' **NF** no-fill silencers are designed and engineered to meet the demanding acoustical and aseptic requirements of today's high-tech environments. **NF** no-fill silencers contain **NO ACOUSTICAL FILL** which eliminates possible fiber erosion and bacteria breeding grounds. The **NF** no-fill silencer is ideal for all HVAC systems especially clean room applications such as hospital operating rooms, research laboratories and electronic manufacturing, pharmaceutical, food and dairy plants. Standard construction is G90 galvanized steel. Also available in aluminum, 304 and 316 stainless steel.

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)							
3NFL	-1500	3	4	8	14	18	9	6	6
	-1000	3	3	6	13	17	9	7	6
	0	4	1	3	11	17	10	10	9
	+1000	5	3	5	12	17	10	10	9
	+2000	4	3	7	13	20	11	10	8
6NFL	-1500	5	8	15	23	29	14	9	6
	-1000	4	7	12	21	28	14	9	7
	0	4	3	7	19	29	15	11	10
	+1000	4	6	10	20	29	15	12	11
	+2000	4	7	14	23	31	17	12	11
9NFL	-1500	7	12	20	28	33	16	8	7
	-1000	6	10	15	25	32	16	9	8
	0	5	4	9	22	33	18	13	12
	+1000	7	8	13	24	33	17	14	14
	+2000	6	9	17	28	34	19	14	14

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 NFL

ENGINEERING DATA

AIR FLOW RATINGS FOR THE 12 x 12 SIZE, SHADED, REPRESENTS BOTH CFM AND FACE VELOCITY IN fpm. USE THIS TO GET THE RATING FOR SILENCER SIZES NOT SHOWN AND FOR MULTIPLE MODULE SILENCER BANKS.

MODEL	3NFL	0.04	0.08	0.12	0.16	0.22	0.25	0.29	0.33	0.39	0.43	0.48	0.52
	6NFL	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60
	9NFL	0.06	0.12	0.18	0.22	0.31	0.35	0.41	0.46	0.55	0.61	0.67	0.72
SIZE W x H	Face Area	AIR FLOW IN CFM											
6 x 12	0.5	300	424	519	600	702	750	810	866	942	993	1042	1088
6 x 24	1	600	848	1038	1200	1404	1500	1620	1732	1884	1986	2083	2175
6 x 36	1.5	900	1272	1557	1800	2106	2250	2430	2598	2826	2979	3125	3263
12 x 12	1	600	848	1038	1200	1404	1500	1620	1732	1884	1986	2083	2175
12 x 24	2	1200	1696	2076	2400	2808	3000	3240	3464	3768	3972	4166	4350
12 x 30	2.5	1500	2120	2595	3000	3510	3750	4050	4330	4710	4965	5208	5438
12 x 36	3	1800	2544	3114	3600	4212	4500	4860	5196	5652	5958	6249	6525
12 x 48	4	2400	3392	4152	4800	5616	6000	6480	6928	7536	7944	8332	8700
24 x 24	4	2400	3392	4152	4800	5616	6000	6480	6928	7536	7944	8332	8700
24 x 30	5	3000	4240	5190	6000	7020	7500	8100	8660	9420	9930	10415	10875
24 x 36	6	3600	5088	6228	7200	8424	9000	9720	10392	11304	11916	12498	13050
24 x 42	7	4200	5936	7266	8400	9828	10500	11340	12124	13188	13902	14581	15225
24 x 48	8	4800	6784	8304	9600	11232	12000	12960	13856	15072	15888	16664	17400
36 x 30	7.5	4500	6360	7785	9000	10530	11250	12150	12990	14130	14895	15623	16313
36 x 36	9	5400	7632	9342	10800	12636	13500	14580	15588	16956	17874	18747	19575
36 x 42	10.5	6300	8904	10899	12600	14742	15750	17010	18186	19782	20853	21872	22838
36 x 48	12	7200	10176	12456	14400	16848	18000	19440	20784	22608	23832	24996	26100
48 x 42	14	8400	11872	14532	16800	19656	21000	22680	24248	26376	27804	29162	30450
48 x 48	16	9600	13568	16608	19200	22464	24000	25920	27712	30144	31776	33328	34800

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

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

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

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

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.

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	67	60	54	53	57	66	71	64
	+1000	54	44	40	45	49	54	47	34
	-1000	54	46	46	52	59	59	54	46
	-2000	68	60	58	59	62	70	73	68

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