

## PERFORMANCE DATA:

### ALUMINUM HEAVY DUTY BAR RETURN GRILLES • GYMNASIUM • 5100-HD SERIES

#### MODELS: 51FH-HD, 51FV-HD

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity Velocity Pressure Neg. Static Pressure	100	200	300	400	500	600	700	800	900	1000
					.001 .003	.002 .010	.006 .023	.010 .041	.016 .065	.022 093	.031 .127	.040 .166	.050 .210	.062 .259
6 x 6	8 x 4 10 x 4	0.20	0.23	CFM Noise Criteria	20 -	40 -	60 -	80 15	100 19	120 23	140 25	160 28	180 32	200 37
8 x 6	10 x 5 12 x 4	0.28	0.30	CFM Noise Criteria	28 -	56 -	84 -	112 15	140 20	168 24	196 26	224 29	252 33	280 38
10 x 6	12 x 5 16 x 4	0.35	0.37	CFM Noise Criteria	35 -	70 -	105 -	140 16	175 21	210 25	245 27	280 30	315 34	350 39
8 x 8	14 x 5	0.38	0.40	CFM Noise Criteria	38 -	76 -	114 -	152 -	190 21	228 26	266 28	304 31	342 35	380 39
12 x 6	18 x 4	0.42	0.45	CFM Noise Criteria	42 -	84 -	126 -	168 -	210 22	252 26	294 29	336 32	378 36	420 40
12 x 8	16 x 6 24 x 4	0.58	0.59	CFM Noise Criteria	58 -	116 -	174 -	232 -	290 22	348 26	406 29	464 33	522 37	580 41
10 x 10	14 x 7 26 x 4	0.61	0.62	CFM Noise Criteria	61 -	122 -	183 -	244 -	305 22	366 26	427 29	488 34	549 37	610 42
18 x 6	14 x 8 28 x 4	0.65	0.67	CFM Noise Criteria	65 -	130 -	195 -	260 18	325 23	390 27	455 30	520 34	585 38	650 42
12 x 10	16 x 8 24 x 5	0.74	0.74	CFM Noise Criteria	74 -	148 -	222 -	296 18	370 23	444 28	518 31	592 35	666 39	740 42
12 x 12	14 x 10 18 x 8 24 x 6 38 x 4	0.90	0.89	CFM Noise Criteria	90 -	180 -	270 -	360 19	450 24	540 28	630 31	720 36	810 39	900 42
14 x 14	16 x 12 20 x 10 24 x 8 34 x 6	1.24	1.22	CFM Noise Criteria	124 -	248 -	372 -	496 19	620 24	744 29	868 32	992 36	1116 40	1240 43
18 x 12	16 x 14 22 x 10 28 x 8 38 x 6	1.37	1.34	CFM Noise Criteria	137 -	274 -	411 -	548 20	685 25	822 30	959 33	1096 38	1233 41	1370 44
24 x 10	20 x 12 30 x 8	1.52	1.49	CFM Noise Criteria	152 -	304 -	456 -	608 20	760 25	912 30	1064 34	1216 39	1368 42	1520 45
16 x 16	18 x 14 22 x 12 30 x 8	1.64	1.58	CFM Noise Criteria	164 -	328 -	492 15	656 21	820 26	984 31	1148 34	1312 39	1476 42	1640 45
24 x 12	18 x 16 20 x 14 30 x 10 36 x 8	1.85	1.78	CFM Noise Criteria	185 -	370 -	555 15	740 21	925 26	1110 31	1295 34	1480 39	1665 42	1850 46
18 x 18	20 x 16 24 x 14 28 x 12 32 x 10	2.10	2.01	CFM Noise Criteria	210 -	420 -	630 15	840 21	1050 26	1260 31	1470 35	1680 40	1890 43	2100 46
30 x 12	20 x 18 22 x 16 26 x 14 36 x 10	2.32	2.23	CFM Noise Criteria	232 -	464 -	696 15	928 21	1160 26	1392 31	1624 35	1856 40	2088 43	2320 47
20 x 20	24 x 18 26 x 16 30 x 14 36 x 12	2.61	2.48	CFM Noise Criteria	261 -	522 -	783 15	1044 21	1305 26	1566 31	1827 35	2088 40	2349 43	2610 47
22 x 22	24 x 20 26 x 18 30 x 16 36 x 14	3.17	3.00	CFM Noise Criteria	317 -	634 -	951 15	1268 22	1585 27	1902 32	2219 36	2536 40	2853 43	3170 47
30 x 18	24 x 22 34 x 16 40 x 14	3.54	3.34	CFM Noise Criteria	354 -	708 -	1062 16	1416 22	1770 27	2124 32	2478 36	2832 41	3186 44	3540 48
24 x 24	26 x 22 28 x 20 32 x 18 36 x 16	3.79	3.56	CFM Noise Criteria	379 -	758 -	1137 16	1516 22	1895 27	2274 32	2653 37	3032 41	3411 44	3790 48
36 x 18	32 x 20 40 x 16 46 x 14	4.27	4.01	CFM Noise Criteria	427 -	854 -	1281 17	1708 24	2135 29	2562 33	2989 37	3416 42	3843 45	4270 49
26 x 26	28 x 24 48 x 14	4.47	4.19	CFM Noise Criteria	447 -	894 -	1341 18	1788 24	2235 29	2682 33	3129 37	3576 42	4023 45	4470 49
30 x 24	28 x 26 32 x 22 36 x 20 40 x 18	4.77	4.46	CFM Noise Criteria	477 -	954 -	1431 18	1908 25	2385 30	2862 34	3339 38	3816 42	4293 46	4770 50
28 x 28	30 x 26 36 x 22 40 x 20	5.20	4.85	CFM Noise Criteria	520 -	1040 -	1560 18	2080 25	2600 30	3120 34	3640 38	4160 43	4680 46	5200 50
36 x 24	30 x 28 40 x 22 44 x 20	5.74	5.35	CFM Noise Criteria	574 -	1148 -	1722 18	2296 25	2870 30	3444 34	4018 38	4592 43	5166 47	5740 51
30 x 30	34 x 26 38 x 24 48 x 20	5.99	5.57	CFM Noise Criteria	599 -	1198 -	1797 19	2396 25	2995 30	3594 35	4193 39	4792 43	5391 47	5990 51

GRILLES AND REGISTERS

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For performance data notes, see F148.

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					.001 .003	.002 .010	.006 .023	.010 .041	.016 .065	.022 093	.031 .127	.040 .166	.050 .210	.062 .259
32 x 32	36 x 30 46 x 22 38 x 28	6.84	6.34	CFM	684	1368	2052	2736	3420	4104	4788	5472	6156	6840
				Noise Criteria	-	-	19	25	31	35	39	44	48	52
48 x 24	34 x 34 38 x 30 36 x 32 48 x 28	7.69	7.13	CFM	769	1538	2307	3076	3845	4614	5383	6152	6921	7690
				Noise Criteria	-	-	19	25	31	36	40	44	48	52
36 x 36	38 x 34 46 x 28 42 x 30 48 x 26	8.69	8.02	CFM	869	1738	2607	3476	4345	5214	6083	6952	7821	8690
				Noise Criteria	-	-	20	26	31	36	41	45	49	53
38 x 38	42 x 34 48 x 30 44 x 34	9.70	8.94	CFM	970	1940	2910	3880	4850	5820	6790	7760	8730	9700
				Noise Criteria	-	15	21	26	32	37	41	45	49	53
40 x 40	42 x 36 48 x 32 46 x 34	10.77	9.90	CFM	1077	2154	3231	4308	5385	6462	7539	8616	9693	10770
				Noise Criteria	-	15	21	27	33	37	42	45	50	54
42 x 42	46 x 42 48 x 36 46 x 38	11.89	10.92	CFM	1189	2378	3567	4756	5945	7134	8323	9512	10701	11890
				Noise Criteria	-	15	21	27	33	38	42	46	50	54
44 x 44	46 x 42	13.07	11.98	CFM	1307	2614	3921	5228	6535	7842	9149	10456	11763	13070
				Noise Criteria	-	16	22	27	33	38	42	46	50	54
46 x 46		14.30	13.10	CFM	1430	2860	4290	5720	7150	8580	10010	11440	12870	14300
				Noise Criteria	-	17	22	28	34	39	43	47	51	55
48 x 48		15.59	14.26	CFM	1559	3118	4677	6236	7795	9354	10913	12472	14031	15590
				Noise Criteria	-	17	23	28	34	39	43	47	51	55

#### Performance Notes:

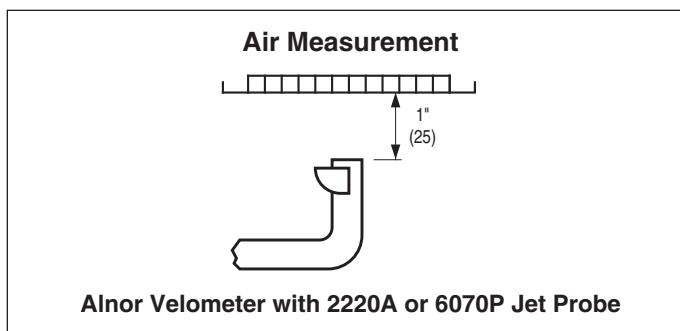
- All pressures are in inches w.g..
- Core Velocity is in feet per minute.
- Performance data is for grille with opposed blade damper. Apply the following correction factors for grille without damper.

**Neg. Static Pressure** Listed Value x 0.91.

**Noise Criteria** Listed value - 4.

- Noise Criteria (NC) values are based on a room absorption of 10 dB, re 10<sup>-12</sup> watts. Dash (-) in space denotes a Noise Criteria level of less than 15.

5. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 - 2006.



#### Airflow Measurements:

- Balancing factors are applicable with or without dampers, providing uniform airflow exists into grille or register.
- Take velocity readings at a number of locations on the inlet face (a minimum of 4), while positioning probe as shown above, one inch out from the face.
- Total the various velocity readings and divide by the number of readings taken to arrive at an average inlet velocity (V<sub>k</sub> in FPM).
- Calculate the airflow (CFM) by multiplying the average velocity by the appropriate Ak factor.  
Airflow (CFM) = Average velocity (V<sub>k</sub>) x Ak.