

**3/4" SPACING**

**0° DEFLECTION**

Nominal Size		Nom Duct ft2	Core Area ft2	Core Vel, fpm	400	500	600	700	800	900	1000	1200	1300	1400
W Width	H Height				Ps	-0.02	-0.03	-0.04	-0.05	-0.07	-0.08	-0.10	-0.15	-0.18
6	6	0.25	0.20	CFM	80	100	120	140	160	180	200	240	250	270
				NC	<20	<20	<20	<20	<20	22	24	29	32	34
8	6	0.33	0.27	CFM	110	130	160	190	220	240	270	320	350	380
				NC	<20	<20	<20	<20	20	23	26	31	33	35
8	8	0.44	0.37	CFM	150	190	220	260	300	330	370	450	480	520
				NC	<20	<20	<20	<20	21	24	27	32	34	36
12	6	0.50	0.42	CFM	170	210	250	290	330	380	420	500	540	580
				NC	<20	<20	<20	<20	22	25	28	33	35	37
10	10	0.69	0.60	CFM	240	300	360	420	480	540	600	720	780	840
				NC	<20	<20	<20	20	23	26	29	34	37	39
14	8	0.78	0.68	CFM	270	340	410	470	540	610	680	810	880	950
				NC	<20	<20	<20	20	24	27	30	35	37	39
16	8	0.89	0.78	CFM	310	390	470	540	620	700	780	930	1010	1090
				NC	<20	<20	<20	21	24	28	30	35	38	40
12	12	1.00	0.89	CFM	360	440	530	620	710	800	890	1070	1160	1240
				NC	<20	<20	<20	21	25	28	31	36	38	40
20	8	1.11	0.98	CFM	390	490	590	690	780	880	980	1180	1270	1370
				NC	<20	<20	<20	22	25	29	31	36	39	41
18	10	1.25	1.12	CFM	450	560	670	780	900	1010	1120	1340	1460	1570
				NC	<20	<20	<20	22	26	29	32	37	39	41
14	14	1.36	1.23	CFM	490	620	740	860	980	1110	1230	1480	1600	1720
				NC	<20	<20	<20	23	26	30	32	37	40	42
24	10	1.67	1.51	CFM	600	750	900	1060	1210	1360	1510	1810	1960	2110
				NC	<20	<20	<20	24	27	30	33	38	41	43
16	16	1.78	1.63	CFM	650	810	980	1140	1300	1470	1630	1950	2120	2280
				NC	<20	<20	20	24	28	31	34	39	41	43
24	12	2.00	1.83	CFM	730	920	1100	1280	1470	1650	1830	2200	2380	2560
				NC	<20	<20	20	24	28	31	34	39	41	43
22	16	2.44	2.27	CFM	910	1130	1360	1590	1810	2040	2270	2720	2950	3170
				NC	<20	<20	21	25	29	32	35	40	42	44
20	20	2.78	2.59	CFM	1040	1290	1550	1810	2070	2330	2590	3110	3370	3630
				NC	<20	<20	22	26	30	33	36	41	43	45
22	22	3.36	3.15	CFM	1260	1580	1890	2210	2520	2840	3150	3790	4100	4420
				NC	<20	<20	23	27	30	34	37	42	44	46
24	24	4.00	3.77	CFM	1510	1890	2260	2640	3020	3400	3770	4530	4910	5280
				NC	<20	<20	23	28	31	34	37	42	45	47
36	18	4.50	4.25	CFM	1700	2120	2550	2970	3400	3820	4250	5090	5520	5940
				NC	<20	<20	24	28	32	35	38	43	45	47
30	24	5.00	4.75	CFM	1900	2370	2850	3320	3800	4270	4750	5690	6170	6640
				NC	<20	<20	24	29	32	35	38	43	46	48
36	24	6.00	5.72	CFM	2290	2860	3430	4000	4570	5140	5720	6860	7430	8000
				NC	<20	20	25	29	33	36	39	44	46	48
30	30	6.25	5.97	CFM	2390	2980	3580	4180	4770	5370	5970	7160	7760	8350
				NC	<20	20	25	30	33	36	39	44	47	49
42	24	7.00	6.69	CFM	2680	3340	4010	4680	5350	6020	6690	8030	8690	9360
				NC	<20	21	26	30	34	37	40	45	47	49
48	24	8.00	7.66	CFM	3060	3830	4600	5360	6130	6890	7660	9190	9960	10720
				NC	<20	21	26	31	34	38	40	45	48	50
36	36	9.00	8.66	CFM	3460	4330	5200	6060	6930	7790	8660	10390	11260	12120
				NC	<20	22	27	31	35	38	41	46	48	50
38	38	10.03	9.67	CFM	3870	4830	5800	6770	7730	8700	9670	11600	12570	13540
				NC	<20	22	27	32	35	39	41	46	49	51
42	38	11.08	10.70	CFM	4280	5350	6420	7490	8560	9630	10700	12850	13920	14990
				NC	<20	23	28	32	36	39	42	47	49	51
48	40	13.33	12.92	CFM	5170	6460	7750	9040	10330	11620	12920	15500	16790	18080
				NC	<20	24	29	33	37	40	43	48	50	52
48	44	14.67	14.23	CFM	5690	7120	8540	9960	11380	12810	14230	17080	18500	19920
				NC	<20	24	29	33	37	40	43	48	50	52
48	48	16.00	15.54	CFM	6220	7770	9330	10880	12440	13990	15540	18650	20210	21760
				NC	<20	24	29	34	37	41	43	48	51	53

**Notes:**

- Nominal size represents duct size. For lay-in applications, use neck size to determine data, not module size.

**Test Standard**

- ANSI / ASHRAE standard 70

**Sound Levels**

- NC is noise criteria curve that will not be exceeded at the operating point. This is determined by assuming a 10dB (ref: 10<sup>-12</sup> watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands

**Pressure**

- P<sub>S</sub> represents static pressure requirement. Total pressure can be calculated as P<sub>t</sub> = P<sub>S</sub> + P<sub>V</sub>
- P<sub>V</sub> is the air velocity pressure in the duct and is calculated as P<sub>V</sub> = (Velocity/4005)<sup>2</sup>
- All pressures are stated and calculated in inches of water

**3/4" SPACING**

**45° DEFLECTION**

Nominal Size		Nom Duct ft2	Core Area ft2	Core Vel, fpm	250	300	350	400	450	500	600	700	800
W Width	H Height				Ps	-0.02	-0.04	-0.05	-0.06	-0.08	-0.10	-0.14	-0.19
6	6	0.25	0.20	CFM	50	60	70	80	90	100	120	140	160
				NC	<20	<20	<20	21	25	28	33	37	40
8	6	0.33	0.27	CFM	70	80	90	110	120	130	160	190	220
				NC	<20	<20	<20	23	26	29	34	38	42
8	8	0.44	0.37	CFM	90	110	130	150	170	190	220	260	300
				NC	<20	<20	21	24	27	30	35	40	43
12	6	0.50	0.42	CFM	100	130	150	170	190	210	250	290	330
				NC	<20	<20	21	25	28	31	36	40	44
10	10	0.69	0.60	CFM	150	180	210	240	270	300	360	420	480
				NC	<20	<20	23	26	30	32	37	42	45
14	8	0.78	0.68	CFM	170	200	240	270	300	340	410	470	540
				NC	<20	<20	23	27	30	33	38	42	46
16	8	0.89	0.78	CFM	190	230	270	310	350	390	470	540	620
				NC	<20	20	24	27	31	34	39	43	46
12	12	1.00	0.89	CFM	220	270	310	360	400	440	530	620	710
				NC	<20	20	24	28	31	34	39	43	47
20	8	1.11	0.98	CFM	250	290	340	390	440	490	590	690	780
				NC	<20	21	25	28	32	35	40	44	47
18	10	1.25	1.12	CFM	280	340	390	450	500	560	670	780	900
				NC	<20	21	25	29	32	35	40	44	48
14	14	1.36	1.23	CFM	310	370	430	490	550	620	740	860	980
				NC	<20	22	26	29	33	36	41	45	48
24	10	1.67	1.51	CFM	380	450	530	600	680	750	900	1060	1210
				NC	<20	22	27	30	34	36	41	46	49
16	16	1.78	1.63	CFM	410	490	570	650	730	810	980	1140	1300
				NC	<20	23	27	31	34	37	42	46	50
24	12	2.00	1.83	CFM	460	550	640	730	820	920	1100	1280	1470
				NC	<20	23	27	31	34	37	42	46	50
22	16	2.44	2.27	CFM	570	680	790	910	1020	1130	1360	1590	1810
				NC	<20	24	28	32	35	38	43	47	51
20	20	2.78	2.59	CFM	650	780	910	1040	1170	1290	1550	1810	2070
				NC	20	25	29	33	36	39	44	48	52
22	22	3.36	3.15	CFM	790	950	1100	1260	1420	1580	1890	2210	2520
				NC	21	26	30	34	37	40	45	49	53
24	24	4.00	3.77	CFM	940	1130	1320	1510	1700	1890	2260	2640	3020
				NC	21	26	31	34	38	40	45	50	53
36	18	4.50	4.25	CFM	1060	1270	1490	1700	1910	2120	2550	2970	3400
				NC	22	27	31	35	38	41	46	50	54
30	24	5.00	4.75	CFM	1190	1420	1660	1900	2140	2370	2850	3320	3800
				NC	22	27	32	35	39	41	46	51	54
36	24	6.00	5.72	CFM	1430	1710	2000	2290	2570	2860	3430	4000	4570
				NC	23	28	32	36	39	42	47	51	55
30	30	6.25	5.97	CFM	1490	1790	2090	2390	2680	2980	3580	4180	4770
				NC	23	28	33	36	40	42	47	52	55
42	24	7.00	6.69	CFM	1670	2010	2340	2680	3010	3340	4010	4680	5350
				NC	24	29	33	37	40	43	48	52	56
48	24	8.00	7.66	CFM	1910	2300	2680	3060	3450	3830	4600	5360	6130
				NC	24	29	34	37	41	43	48	53	56
36	36	9.00	8.66	CFM	2160	2600	3030	3460	3900	4330	5200	6060	6930
				NC	25	30	34	38	41	44	49	53	57
38	38	10.03	9.67	CFM	2420	2900	3380	3870	4350	4830	5800	6770	7730
				NC	25	30	35	38	42	44	49	54	57
42	38	11.08	10.70	CFM	2680	3210	3750	4280	4820	5350	6420	7490	8560
				NC	26	31	35	39	42	45	50	54	58
48	40	13.33	12.92	CFM	3230	3870	4520	5170	5810	6460	7750	9040	10330
				NC	27	32	36	40	43	46	51	55	59
48	44	14.67	14.23	CFM	3560	4270	4980	5690	6400	7120	8540	9960	11380
				NC	27	32	36	40	43	46	51	55	59
48	48	16.00	15.54	CFM	3890	4660	5440	6220	7000	7770	9330	10880	12440
				NC	28	33	37	40	44	47	52	56	59

**Notes:**

- Nominal size represents duct size. For lay-in applications, use neck size to determine data, not module size.

**Test Standard**

- ANSI / ASHRAE standard 70

**Sound Levels**

- NC is noise criteria curve that will not be exceeded at the operating point. This is determined by assuming a 10dB (ref: 10<sup>-12</sup> watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands

**Pressure**

- P<sub>s</sub> represents static pressure requirement. Total pressure can be calculated as P<sub>t</sub> = P<sub>s</sub> + P<sub>v</sub>
- P<sub>v</sub> is the air velocity pressure in the duct and is calculated as P<sub>v</sub> = (Velocity/4005)<sup>2</sup>
- All pressures are stated and calculated in inches of water

Nominal Size		Core Area Ft <sup>2</sup>	Core Velocity	300	400	500	600	700	800	850	900	950	1000
W	H		Static Pressure	-.02	-.03	-.05	-.07	-.09	-.12	-.14	-.15	-.17	-.19
Width	Height		Velocity Pressure	.01	.01	.02	.02	.03	.04	.05	.06	.06	.06
6	6	.17	CFM	50	70	90	100	120	140	150	160	160	170
			NC	<20	<20	<20	<20	<20	21	24	26	28	31
8	6	.25	CFM	70	100	120	150	170	200	210	220	230	250
			NC	<20	<20	<20	<20	<20	23	25	28	30	32
12	6	.39	CFM	120	160	200	240	280	320	340	360	380	390
			NC	<20	<20	<20	<20	20	25	27	30	32	34
10	10	.56	CFM	170	230	280	340	390	450	480	510	530	560
			NC	<20	<20	<20	<20	21	27	29	31	34	36
12	12	.84	CFM	250	340	420	500	590	670	710	760	800	840
			NC	<20	<20	<20	<20	23	28	31	33	35	37
16	12	1.16	CFM	350	460	580	690	810	920	980	1040	1100	1160
			NC	<20	<20	<20	<20	24	30	32	34	37	39
16	16	1.56	CFM	470	630	780	940	1090	1250	1330	1410	1490	1560
			NC	<20	<20	<20	<20	26	31	33	36	38	40
24	12	1.78	CFM	540	710	890	1070	1250	1430	1520	1610	1690	1780
			NC	<20	<20	<20	20	26	32	34	36	39	41
18	18	2.01	CFM	600	800	1000	1200	1410	1610	1710	1810	1910	2010
			NC	<20	<20	<20	20	27	32	35	37	39	41
24	16	2.41	CFM	720	970	1210	1450	1690	1930	2050	2170	2290	2410
			NC	<20	<20	<20	21	27	33	35	38	40	42
26	18	2.97	CFM	890	1190	1480	1780	2080	2380	2520	2670	2820	2970
			NC	<20	<20	<20	22	28	34	36	39	41	43
24	24	3.68	CFM	1100	1470	1840	2210	2570	2940	3120	3310	3490	3680
			NC	<20	<20	<20	23	29	35	37	39	42	44
32	22	4.54	CFM	1360	1820	2270	2730	3180	3640	3860	4090	4320	4540
			NC	<20	<20	<20	24	30	36	38	40	43	45
30	26	5.05	CFM	1510	2020	2520	3030	3530	4040	4290	4540	4790	5050
			NC	<20	<20	<20	24	31	36	39	41	43	45
36	24	5.62	CFM	1690	2250	2810	3370	3930	4490	4780	5060	5340	5620
			NC	<20	<20	<20	25	31	37	39	41	44	46
30	30	5.84	CFM	1750	2340	2920	3510	4090	4670	4970	5260	5550	5840
			NC	<20	<20	<20	25	31	37	39	42	44	46
32	30	6.25	CFM	1870	2500	3120	3750	4370	5000	5310	5620	5940	6250
			NC	<20	<20	<20	25	32	37	39	42	44	46
34	34	7.57	CFM	2270	3030	3780	4540	5300	6050	6430	6810	7190	7570
			NC	<20	<20	<20	26	32	38	40	43	45	47
40	30	7.88	CFM	2360	3150	3940	4730	5510	6300	6700	7090	7480	7880
			NC	<20	<20	<20	26	33	38	40	43	45	47
44	28	8.10	CFM	2430	3240	4050	4860	5670	6480	6880	7290	7690	8100
			NC	<20	<20	<20	26	33	38	41	43	45	47
36	36	8.51	CFM	2550	3400	4260	5110	5960	6810	7230	7660	8080	8510
			NC	<20	<20	<20	27	33	38	41	43	45	47
40	34	8.95	CFM	2690	3580	4480	5370	6270	7160	7610	8060	8510	8950
			NC	<20	<20	<20	27	33	39	41	43	46	48
42	36	9.98	CFM	2990	3990	4990	5990	6990	7990	8480	8980	9480	9980
			NC	<20	<20	20	27	34	39	42	44	46	48
40	40	10.57	CFM	3170	4230	5280	6340	7400	8450	8980	9510	10040	10570
			NC	<20	<20	20	28	34	39	42	44	46	48
48	36	11.45	CFM	3440	4580	5730	6870	8020	9160	9730	10310	10880	11450
			NC	<20	<20	20	28	34	40	42	44	47	49
46	46	14.07	CFM	4220	5630	7030	8440	9850	11250	11960	12660	13360	14070
			NC	<20	<20	21	29	35	41	43	45	48	50
48	48	15.34	CFM	4600	6140	7670	9210	10740	12280	13040	13810	14580	15340
			NC	<20	<20	22	29	35	41	43	46	48	50

Return Grilles and Registers

B

Test Standard  
• ANSI / ASHRAE standard 70

Sound Levels

• NC is noise criteria curve that will not be exceeded at the operating point. This is determined by assuming a 10dB (ref: 10<sup>-12</sup> watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands

Calculating Data for Other Sizes

- For a given size, calculate the Core Area as (Width - 1.31) x (Height - .69) / 144
- In the Table above, find Core Area similar to calculated Core Area
- Interpolate in-between Core Areas and Air Flow, CFM as needed.