

3/4" SPACING

Duct Size		Nom Duct	Core Area	Core Velocity		300	400	500	600	700	800	1000	1200																
Nom Width W	Nom Height H	ft2	ft2	Ps	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°																
8	4	0.22	0.17	CFM	50	70	80	100	120	130	170	200																	
				NC	<20	<20	<20	<20	<20	21	28	33																	
				Throw	0°	5	7	14	7	10	17	8	12	18	10	14	20	12	15	22	13	16	23	15	18	26	16	20	28
					22.5°	4	5	10	5	7	12	6	9	13	7	10	14	9	11	16	9	12	17	11	13	19	12	14	20
					45°	3	4	8	4	6	9	4	7	10	6	8	11	7	8	12	7	9	13	8	10	14	9	11	15
6	6	0.25	0.20	CFM	60	80	100	120	140	160	200	240																	
				NC	<20	<20	<20	<20	<20	22	29	34																	
				Throw	0°	5	8	15	7	11	18	9	14	20	11	15	22	13	17	23	14	18	25	16	20	28	18	22	31
					22.5°	4	6	11	5	8	13	6	10	14	8	11	16	9	12	17	10	13	18	12	14	20	13	16	22
					45°	3	4	8	4	6	10	5	8	11	6	8	12	7	9	13	8	10	14	9	11	15	10	12	17
8	6	0.33	0.27	CFM	80	110	130	160	190	220	270	320																	
				NC	<20	<20	<20	<20	<20	20	23	30	35																
				Throw	0°	6	9	18	9	13	21	10	15	23	12	18	25	15	19	27	17	21	29	19	23	33	20	25	35
					22.5°	4	6	13	6	9	15	7	11	17	9	13	18	11	14	19	12	15	21	14	17	24	14	18	25
					45°	3	5	10	5	7	12	6	8	13	7	10	14	8	10	15	9	12	16	10	13	18	11	14	19
8	8	0.44	0.37	CFM	110	150	190	220	260	300	370	450																	
				NC	<20	<20	<20	<20	<20	21	25	31	37																
				Throw	0°	7	11	21	10	15	24	13	19	27	15	21	29	17	23	32	20	24	34	22	27	38	24	30	42
					22.5°	5	8	15	7	11	17	9	14	19	11	15	21	12	17	23	14	17	24	16	19	27	17	22	30
					45°	4	6	12	6	8	13	7	10	15	8	12	16	9	13	18	11	13	19	12	15	21	13	17	23
12	6	0.50	0.42	CFM	130	170	210	250	290	330	420	500																	
				NC	<20	<20	<20	<20	<20	22	25	32	37																
				Throw	0°	8	12	23	11	16	26	13	20	29	16	22	31	18	24	34	21	25	36	23	29	41	26	31	44
					22.5°	6	9	17	8	12	19	9	14	21	12	16	22	13	17	24	15	18	26	17	21	30	19	22	32
					45°	4	7	13	6	9	14	7	11	16	9	12	17	10	13	19	12	14	20	13	16	23	14	17	24
10	10	0.69	0.60	CFM	180	240	300	360	420	480	600	720																	
				NC	<20	<20	<20	<20	<20	23	27	33	39																
				Throw	0°	9	14	27	12	19	31	16	23	34	19	27	38	22	29	41	25	31	43	28	34	48	31	38	53
					22.5°	6	10	19	9	14	22	12	17	24	14	19	27	16	21	30	18	22	31	20	24	35	22	27	38
					45°	5	8	15	7	10	17	9	13	19	10	15	21	12	16	23	14	17	24	15	19	26	17	21	29
14	8	0.78	0.68	CFM	200	270	340	410	470	540	680	810																	
				NC	<20	<20	<20	<20	<20	24	27	34	39																
				Throw	0°	10	15	28	13	20	33	17	25	37	20	28	40	23	30	43	26	33	46	30	37	52	33	40	56
					22.5°	7	11	20	9	14	24	12	18	27	14	20	29	17	22	31	19	24	33	22	27	37	24	29	40
					45°	6	8	15	7	11	18	9	14	20	11	15	22	13	17	24	14	18	25	17	20	29	18	22	31
12	12	1.00	0.89	CFM	270	360	440	530	620	710	890	1070																	
				NC	<20	<20	<20	<20	<20	25	29	35	40																
				Throw	0°	12	17	33	15	23	38	19	28	42	23	32	46	27	35	49	30	37	53	34	42	59	37	46	65
					22.5°	9	12	24	11	17	27	14	20	30	17	23	33	19	25	35	22	27	38	24	30	42	27	33	47
					45°	7	9	18	8	13	21	10	15	23	13	18	25	15	19	27	17	20	29	19	23	32	20	25	36
16	10	1.11	0.99	CFM	300	400	500	590	690	790	990	1190																	
				NC	<20	<20	<20	<20	<20	21	25	29	36	41															
				Throw	0°	12	18	34	16	24	40	20	30	44	24	34	48	28	37	52	32	39	56	36	44	62	39	48	68
					22.5°	9	13	24	12	17	29	14	22	32	17	24	35	20	27	37	23	28	40	26	32	45	28	35	49
					45°	7	10	19	9	13	22	11	17	24	13	19	26	15	20	29	18	21	31	20	24	34	21	26	37
22	8	1.22	1.08	CFM	320	430	540	650	760	870	1080	1300																	
				NC	<20	<20	<20	<20	<20	21	26	30	36	41															
				Throw	0°	12	19	35	17	25	41	21	31	46	25	36	50	29	39	55	34	41	58	38	46	65	41	50	71
					22.5°	9	14	25	12	18	30	15	22	33	18	26	36	21	28	40	24	30	42	27	33	47	30	36	51
					45°	7	10	19	9	14	23	12	17	25	14	20	28	16	21	30	19	23	32	21	25	36	23	28	39
20	12	1.67	1.52	CFM	460	610	760	910	1060	1210	1520	1820																	
				NC	<20	<20	<20	<20	<20	23	27	31	37	43															
				Throw	0°	15	23	42	20	30	49	25	37	55	30	42	60	35	46	64	40	49	69	45	55	77	49	60	84
					22.5°	11	17	30	14	22	35	18	27	40	22	30	43	25	33	46	29	35	50	32	40	55	35	43	60
					45°	8	13	23	11	17	27	14	20	30	17	23	33	19	25	35	22	27	38	25	30	42	27	33	46
24	12	2.00	1.83	CFM	550	730	920	1100	1280	1470	1830	2200																	
				NC	<20	<20	<20	<20	<20	23	28	32	38	43															
				Throw	0°	16	25	46	22	33	53	27	41	60	33	46	66	38	50	71	44	54	76	49	60	85	54	66	93
					22.5°	12	18	33	16	24	38	19	30	43	24	33	48	27	36	51	32	39	55	35	43	61	39	48	67
					45°	9	14	25	12	18	29	15	23	33	18	25	36	21	28	39	24	30	42	27	33	47	30	36	51
22	16	2.44	2.27	CFM	680	910	1130	1360	1590	1810	2270	2720																	
				NC	<20	<20	<20	<20	<20	24	29	33	39	44															
				Throw	0°	18	27	52	24	37	60	30	45	67	36	52	73	43	56	79	48	60	84	54	67	94	60	73	103
					22.5°	13	19	37	17	27	43	22	32	48	26	37	53	31	40	57	35	43	60	39	48	68	43	53	74
					45°	10	15	29	13	20	33	17	25	37	20	29	40	24	31	43	26	33	46	30	37	52	33	40	57

Test Standard

- ANSI / ASHRAE standard 70
- Isothermal air used during testing. For large grilles with a cooling differential, the drop of the air stream should be evaluated.
- Data includes opposed blade volume control damper in full open position.

Throw

- The numbers shown are throw distances, in feet, measured along the jet trajectory axis relating to terminal velocities of 150, 100, & 50 fpm, with the jet attached to the ceiling surface. For exposed duct installation with free, unattached jet, multiple throw distance in table x .70
- 0°, 22.5°, 45° represent the blade deflection or spread angle settings
- Terminal velocity is the air speed, in feet per minute, measured in the supply air stream.

Opposed Blade Volume Control Dampers (OBD)

- Data shown includes OBD (wide open)
- Without damper, reduce NC -3
- Without damper, reduce P_s x .75

Sound Levels

- NC shown is for 0° blade angle setting and is noise criteria curve that will not be exceeded at the operating point. This is determined by assuming a 10dB (ref: 10⁻¹² watts) room attenuation that is subtracted from the

3/4" SPACING

Supply Grilles and Registers

A

Duct Size Nom Width W	Duct Nom Height H	Duct ft2	Core Area ft2	Core Velocity		300		400		500		600		700		800		1000		1200									
				Ps	°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°						
24	18	3.00	2.80	CFM		840	1120	1400	1680	1960	2240	2800	3360																
				NC		<20	<20	20	25	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86					
				Throw	0°	20	30	57	27	40	66	34	51	74	40	57	81	47	62	88	54	66	94	60	74	105	66	81	115
					22.5°	14	22	41	19	29	48	24	37	53	29	41	58	34	45	63	39	48	68	43	53	76	48	58	83
					45°	11	17	31	15	22	36	19	28	41	22	31	45	26	34	48	30	36	52	33	41	58	36	45	63
					CFM		950	1260	1580	1890	2210	2520	3150	3790															
22	22	3.36	3.15	CFM		950	1260	1580	1890	2210	2520	3150	3790																
				NC		<20	<20	21	26	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90	94	98		
				Throw	0°	22	32	61	29	43	70	36	54	79	43	61	86	50	66	93	57	70	99	64	79	111	70	86	122
					22.5°	16	23	44	21	31	50	26	39	57	31	44	62	36	48	67	41	50	71	46	57	80	50	62	88
					45°	12	18	34	16	24	39	20	30	43	24	34	47	28	36	51	31	39	54	35	43	61	39	47	67
					CFM		1130	1510	1890	2260	2640	3020	3770	4530															
24	24	4.00	3.77	CFM		1130	1510	1890	2260	2640	3020	3770	4530																
				NC		<20	<20	21	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	23	35	67	31	47	77	39	59	86	47	67	94	55	72	102	63	77	109	70	86	122	77	94	133
					22.5°	17	25	48	22	34	55	28	42	62	34	48	68	40	52	73	45	55	78	50	62	88	55	68	96
					45°	13	19	37	17	26	42	21	32	47	26	37	52	30	40	56	35	42	60	39	47	67	42	52	73
					CFM		1210	1620	2020	2430	2830	3230	4040	4850															
28	22	4.28	4.04	CFM		1210	1620	2020	2430	2830	3230	4040	4850																
				NC		<20	<20	22	27	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	24	36	69	32	49	80	40	61	89	49	69	98	57	74	105	65	80	113	73	89	126	80	97	138
					22.5°	17	26	50	23	35	58	29	44	64	35	50	71	41	53	76	47	58	81	53	64	91	58	70	99
					45°	13	20	38	18	27	44	22	34	49	27	38	54	31	41	58	36	44	62	40	49	69	44	53	76
					CFM		1270	1700	2120	2550	2970	3400	4250	5090															
36	18	4.50	4.25	CFM		1270	1700	2120	2550	2970	3400	4250	5090																
				NC		<20	<20	22	27	32	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	25	37	71	33	50	82	41	62	91	50	71	100	58	76	108	66	82	115	75	91	129	82	100	141
					22.5°	18	27	51	24	36	59	30	45	66	36	51	72	42	55	78	48	59	83	54	66	93	59	72	102
					45°	14	20	39	18	28	45	23	34	50	28	39	55	32	42	59	36	45	63	41	50	71	45	55	78
					CFM		1390	1850	2320	2780	3240	3710	4630	5560															
32	22	4.89	4.63	CFM		1390	1850	2320	2780	3240	3710	4630	5560																
				NC		<20	<20	22	28	32	36	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	26	39	74	35	52	85	43	65	95	52	74	104	61	80	113	69	85	121	78	95	135	85	104	148
					22.5°	19	28	53	25	37	61	31	47	68	37	53	75	44	58	81	50	61	87	56	68	97	61	75	107
					45°	14	21	41	19	29	47	24	36	52	29	41	57	34	44	62	38	47	67	43	52	74	47	57	81
					CFM		1420	1900	2370	2850	3320	3800	4750	5690															
30	24	5.00	4.75	CFM		1420	1900	2370	2850	3320	3800	4750	5690																
				NC		<20	<20	22	28	32	36	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	26	39	75	35	53	86	44	66	96	53	75	106	61	81	114	70	86	122	79	96	136	86	106	149
					22.5°	19	28	54	25	38	62	32	48	69	38	54	76	44	58	82	50	62	88	57	69	98	62	76	107
					45°	14	21	41	19	29	47	24	36	53	29	41	58	34	45	63	39	47	67	43	53	75	47	58	82
					CFM		1480	1970	2470	2960	3450	3940	4930	5920															
34	22	5.19	4.93	CFM		1480	1970	2470	2960	3450	3940	4930	5920																
				NC		<20	<20	23	28	32	36	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	27	40	76	36	54	88	45	67	98	54	76	108	63	82	116	71	88	124	80	98	139	88	108	152
					22.5°	19	29	55	26	39	63	32	48	71	39	55	78	45	59	84	51	63	89	58	71	100	63	78	109
					45°	15	22	42	20	30	48	25	37	54	30	42	59	35	45	64	39	48	68	44	54	76	48	59	84
					CFM		1580	2110	2640	3160	3690	4220	5270	6330															
40	20	5.56	5.27	CFM		1580	2110	2640	3160	3690	4220	5270	6330																
				NC		<20	<20	23	28	33	36	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	28	42	79	37	56	91	46	69	102	55	79	111	65	85	120	74	91	129	83	102	144	91	111	158
					22.5°	20	30	57	27	40	66	33	50	73	40	57	80	47	61	86	53	66	93	60	73	104	66	80	114
					45°	15	23	43	20	31	50	25	38	56	30	43	61	36	47	66	41	50	71	46	56	79	50	61	87
					CFM		1710	2290	2860	3430	4000	4570	5720	6860															
36	24	6.00	5.72	CFM		1710	2290	2860	3430	4000	4570	5720	6860																
				NC		<20	<20	23	28	33	36	39	43	47	51	55	59	63	67	71	75	79	83	87	91	95	99		
				Throw	0°	29	43	82	39	58	95	48	72	106	58	82													

3/4" SPACING

Duct Size	Nom Width W	Nom Duct Height H	Nom Duct ft2	Core Area ft2	Core Velocity		300		400		500		600		700		800		1000		1200								
					Ps	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°	0°	22.5°	45°			
36	30	7.50	7.19	CFM	2160	2880	3590	4310	5030	5750	7190	8630																	
				NC	<20	<20	24	29	34	38	44	49																	
				Throw	0°	32	49	92	43	65	106	54	81	119	65	92	130	76	99	140	86	106	150	97	119	168	106	130	184
					22.5°	23	35	66	31	47	76	39	58	86	47	66	94	55	71	101	62	76	108	70	86	121	76	94	132
					45°	18	27	51	24	36	58	30	45	65	36	51	72	42	54	77	47	58	83	53	65	92	58	72	101
				38	30	7.92	7.60	CFM	2280	3040	3800	4560	5320	6080	7600	9110													
NC	<20	<20	24					30	34	38	44	50																	
Throw	0°	33	50					95	44	67	109	56	83	122	67	95	134	78	102	144	89	109	154	100	122	173	109	134	189
	22.5°	24	36					68	32	48	78	40	60	88	48	68	96	56	73	104	64	78	111	72	88	125	78	96	136
	45°	18	28					52	24	37	60	31	46	67	37	52	74	43	56	79	49	60	85	55	67	95	60	74	104
48	24	8.00	7.66					CFM	2300	3060	3830	4600	5360	6130	7600	9190													
				NC	<20	<20	24	30	34	38	44	50																	
				Throw	0°	33	50	95	45	67	110	56	84	123	67	95	134	78	102	145	89	110	155	100	123	173	110	134	190
					22.5°	24	36	68	32	48	79	40	60	89	48	68	96	56	73	104	64	79	112	72	89	125	79	96	137
					45°	18	28	52	25	37	61	31	46	68	37	52	74	43	56	80	49	61	85	55	68	95	61	74	105
				42	28	8.17	7.84	CFM	2350	3130	3920	4700	5480	6270	7840	9400													
NC	<20	<20	25					30	34	38	45	50																	
Throw	0°	34	51					96	45	68	111	56	85	124	68	96	136	79	104	147	90	111	157	101	124	175	111	136	192
	22.5°	24	37					69	32	49	80	40	61	89	49	69	98	57	75	106	65	80	113	73	89	126	80	98	138
	45°	19	28					53	25	37	61	31	47	68	37	53	75	43	57	81	50	61	86	56	68	96	61	75	106
44	28	8.56	8.21					CFM	2460	3290	4110	4930	5750	6570	8210	9860													
				NC	<20	<20	25	30	34	38	45	50																	
				Throw	0°	35	52	98	46	69	114	58	87	127	69	98	139	81	106	150	92	113	160	104	127	179	114	139	197
					22.5°	25	37	71	33	50	82	42	63	91	50	71	100	58	76	108	66	81	115	75	91	129	82	100	142
					45°	19	29	54	25	38	63	32	48	70	38	54	76	45	58	83	51	62	88	57	70	98	63	76	108
				36	36	9.00	8.66	CFM	2600	3460	4330	5200	6060	6930	8660	10390													
NC	<20	<20	25					30	35	39	45	50																	
Throw	0°	36	53					101	47	71	116	59	89	130	71	101	143	83	109	154	95	117	165	106	130	184	117	143	202
	22.5°	26	38					73	34	51	84	42	64	94	51	73	103	60	78	111	68	84	119	76	94	132	84	103	145
	45°	20	29					56	26	39	64	32	49	72	39	56	79	46	60	85	52	64	91	58	72	101	64	79	111
40	34	9.44	9.09					CFM	2730	3640	4550	5460	6370	7280	9090	10910													
				NC	<20	<20	25	30	35	39	45	50																	
				Throw	0°	36	55	103	49	73	119	61	91	134	73	103	146	85	112	158	97	119	169	109	133	189	119	146	207
					22.5°	26	40	74	35	53	86	44	66	96	53	74	105	61	81	114	70	86	122	78	96	136	86	105	149
					45°	20	30	57	27	40	65	34	50	74	40	57	80	47	62	87	53	65	93	60	73	104	65	80	114
				48	30	10.00	9.63	CFM	2890	3850	4820	5780	6740	7700	9630	11560													
NC	<20	<20	25					31	35	39	45	51																	
Throw	0°	38	56					106	50	75	123	63	94	137	75	106	151	88	115	163	100	123	174	112	137	194	123	151	213
	22.5°	27	40					76	36	54	89	45	68	99	54	76	109	63	83	117	72	89	125	81	99	140	89	109	153
	45°	21	31					58	28	41	68	35	52	75	41	58	83	48	63	90	55	68	96	62	75	107	68	83	117
42	36	10.50	10.13					CFM	3040	4050	5070	6080	7090	8100	10130	12160													
				NC	<20	<20	26	31	35	39	46	51																	
				Throw	0°	38	58	109	51	77	126	64	96	141	77	109	154	90	118	167	103	126	178	115	141	199	126	154	218
					22.5°	27	42	78	37	55	91	46	69	102	55	78	111	65	85	120	74	91	128	83	102	143	91	111	157
					45°	21	32	60	28	42	69	35	53	78	42	60	85	50	65	92	57	69	98	63	78	109	69	85	120
				48	38	12.67	12.26	CFM	3680	4900	6130	7360	8580	9810	12260	14710													
NC	<20	20	26					32	36	40	46	52																	
Throw	0°	42	64					120	56	85	139	71	106	155	85	120	170	99	130	183	113	139	196	127	155	219	139	170	240
	22.5°	30	46					86	40	61	100	51	76	112	61	86	122	71	94	132	81	100	141	91	112	158	100	122	173
	45°	23	35					66	31	47	76	39	58	85	47	66	94	54	72	101	62	76	108	70	85	120	76	94	132
46	44	14.06	13.63					CFM	4090	5450	6810	8180	9540	10900	13630	16350													
				NC	<20	21	27	32	37	41	47	52																	
				Throw	0°	45	67	127	59	89	146	74	111	163	89	127	179	104	137	193	119	146	207	133	163	231	146	179	253
					22.5°	32	48	91	42	64	105	53	80	117	64	91	129	75	99	139	86	105	149	96	117	166	105	129	182
					45°	25	37	70	32	49	80	41	61	90	49	70	98	57	75	106	65	80	114	73	90	127	80	98	139
				48	46	15.33	14.89	CFM	4470	5960	7440	8930	10420	11910	14890	17870													
NC	<20	21	27					33	37	41	47	53																	
Throw	0°	47	70					132	62	93	153	78	117	171	93	132	187	109	143	202</									