

Heavy Duty Single & Double Deflection Supply Registers

1/2" SPACING

Duct Size Nom Width W	Duct Nom Height H	Core Area ft <sup>2</sup>	Core Velocity Ps	Core Velocity																													
				300	400	500	600	700	800	900	1000																						
8	4	0.22	0.12	CFM	40																												
				NC	<20																												
				Throw	0°	5	8	13	6	9	14	8	11	15	9	12	17	10	13	18	11	14	20	12	15	21	13	15	22				
					22.5°	4	6	9	4	6	10	6	8	11	6	9	12	7	9	13	8	10	14	9	11	15	9	11	16				
					45°	3	4	7	3	5	8	4	6	8	5	7	9	6	7	10	6	8	11	7	8	12	7	8	12				
				6	6	0.25	0.15	CFM	60																								
								NC	<20																								
								Throw	0°	7	11	13	7	10	15	8	12	17	10	13	19	11	14	20	13	15	22	13	16	23	14	17	24
									22.5°	4	5	9	5	7	11	6	9	12	7	9	14	8	10	14	9	11	16	9	12	17	10	12	17
									45°	3	4	7	4	6	8	4	7	9	6	7	10	6	8	11	7	8	12	7	9	13	8	9	13
								8	6	0.33	0.21	CFM	90																				
												NC	<20																				
Throw	0°	8	12									15	8	13	19	10	15	21	12	16	23	14	17	24	15	18	26	16	19	27	17	20	29
	22.5°	4	6									11	6	9	14	7	11	15	9	12	17	10	12	17	11	13	19	12	14	19	12	14	21
	45°	3	4									8	4	7	10	6	8	12	7	9	13	8	9	13	8	10	14	9	10	15	9	11	16
8	8	0.44	0.30									CFM	120																				
												NC	<20																				
				Throw	0°	11	16					20	10	14	22	12	17	24	14	19	27	17	20	29	18	22	31	19	23	33	20	24	34
					22.5°	5	8					14	6	10	16	9	12	17	10	14	19	12	14	21	13	16	22	14	17	24	14	17	24
					45°	4	6					10	5	8	12	7	9	13	8	10	15	9	11	16	10	12	17	10	13	18	11	13	19
				12	6	0.50	0.34					CFM	180																				
												NC	<20																				
								Throw	0°	13	19	24	12	17	24	13	18	26	15	20	28	18	22	31	19	23	33	20	25	35	21	26	37
									22.5°	5	8	14	7	12	17	9	13	19	11	14	20	13	16	22	14	17	24	14	18	25	15	19	27
									45°	4	6	11	6	9	13	7	10	14	8	11	15	10	12	17	10	13	18	11	14	19	12	14	20
								10	10	0.69	0.52	CFM	240																				
												NC	<20																				
Throw	0°	15	21									27	14	19	29	16	23	32	19	25	35	22	27	38	23	28	40	25	30	42	26	32	45
	22.5°	6	10									17	9	14	21	12	17	23	14	18	25	16	19	27	17	20	29	18	22	30	19	23	32
	45°	5	8									13	7	10	16	9	13	18	10	14	19	12	15	21	13	15	22	14	17	23	14	18	25
14	8	0.78	0.58									CFM	300																				
												NC	<20																				
				Throw	0°	17	24					30	15	20	30	17	24	34	20	26	37	23	28	40	25	30	42	26	32	45	28	34	48
					22.5°	7	11					19	9	14	22	12	17	24	14	19	27	17	20	29	18	22	30	19	23	32	20	24	35
					45°	6	8					14	7	11	17	9	13	19	11	14	20	13	15	22	14	17	23	14	18	25	15	19	26
				12	12	1.00	0.78					CFM	360																				
												NC	<20																				
								Throw	0°	19	27	34	17	23	35	19	26	39	23	30	43	27	33	46	29	35	50	30	37	53	32	39	55
									22.5°	9	13	22	11	17	25	14	20	28	17	22	31	19	24	33	21	25	36	22	27	38	23	28	40
									45°	7	10	17	8	13	19	10	15	21	13	17	24	15	18	25	16	19	28	17	20	29	18	21	30
								16	10	1.11	0.88	CFM	420																				
												NC	<20																				
Throw	0°	21	29									37	19	26	40	21	28	42	25	32	46	28	35	49	30	37	52	32	39	56	34	42	59
	22.5°	9	13									23	12	17	27	14	21	30	18	23	33	20	25	35	22	27	37	23	28	40	24	30	42
	45°	7	10									18	9	13	20	11	16	23	14	18	25	15	19	27	17	20	29	18	21	31	19	23	32
22	8	1.22	0.95									CFM	480																				
												NC	<20																				
				Throw	0°	23	31					39	21	28	43	23	30	45	27	34	49	31	38	53	33	40	55	33	41	58	35	43	61
					22.5°	9	14					24	12	18	28	15	22	31	18	24	34	21	26	37	23	28	40	24	30	42	25	31	44
					45°	7	10					18	9	14	21	12	17	24	14	18	26	16	20	28	18	21	30	18	23	32	19	24	34
				20	12	1.67	1.37					CFM	540																				
												NC	<20																				
								Throw	0°	25	33	41	23	30	45	25	32	47	29	36	51	32	39	55	33	41	58	35	43	61	37	45	63
									22.5°	11	17	29	14	22	33	19	27	37	22	29	41	25	31	44	27	33	48	29	35	50	30	37	53
									45°	8	13	22	11	17	25	14	20	29	17	22	31	19	24	34	21	25	36	22	27	39	23	29	40
								24	12	2.00	1.67	CFM	600																				
												NC	<20																				
Throw	0°	27	35									43	25	32	47	29	36	51	32	39	55	33	41	58	35	43	61	37	45	63	39	47	65
	22.5°	12	18									32	17	24	37	20	29	41	24	32	45	28	35	49	30	37	52	32	39	55	34	41	58
	45°	9	14									24	13	19	28	15	22	31	19	24	35	21	26	37	23	28	40	24	30	42	26	31	45
22	16	2.44	2.09									CFM	720																				
												NC	<20																				
				Throw	0°	31	39					47	27	34	49	31	38	53	33	41	58	35	43	61	37	45	63	39	47	65	39	47	65
					22.5°	14	20					36	18	27	41	23	32	46	27	36	50	32	39	55	34	41	58	36	44	62	37	46	66
					45°	10	15					28	14	21	31	18	25	35	21	28	39	24	30	42	26	31	45	28	34	47	29	35	50

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<sub>s</sub> 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<sup>-12</sup> watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands. For 22.5° blade angle setting, add 2 NC to the tabulated value shown. For for 45° blade angle setting, add 6 NC to the tabulated value shown.

Neck Velocity, Core Velocity

- Feet per minute
- Pressure
- P<sub>s</sub> represents static pressure, inches of water

Heavy Duty Single & Double Deflection Supply Registers

1/2" SPACING

Duct Size Nom Width W	Nom Duct Height H	Core Area ft <sup>2</sup>	Core Velocity Ps	Core Velocity																									
				300	400	500	600	700	800	900	1000	0°		22.5°		45°		0°		22.5°		45°							
24	18	3.00	2.61	CFM	780																								
				NC	<20																								
				Throw	0°	21	31	55	28	42	64	35	51	72	42	55	78	49	60	85	52	64	91	55	68	96	58	72	101
				Throw	22.5°	15	22	40	20	30	46	25	37	52	30	40	56	35	43	61	37	46	66	40	49	69	42	52	73
Throw	45°	12	17	30	15	23	35	19	28	40	23	30	43	27	33	47	29	35	50	30	37	53	32	40	56				
22	22	3.36	2.95	CFM	890																								
				NC	<20																								
				Throw	0°	23	34	59	30	45	68	37	54	76	45	59	83	52	64	90	56	68	96	59	72	102	62	76	108
				Throw	22.5°	17	24	42	22	32	49	27	39	55	32	42	60	37	46	65	40	49	69	42	52	73	45	55	78
Throw	45°	13	19	32	17	25	37	20	30	42	25	32	46	29	35	50	31	37	53	32	40	56	34	42	59				
24	24	4.00	3.55	CFM	1070																								
				NC	<20																								
				Throw	0°	25	37	65	33	49	75	41	59	84	49	65	91	57	70	99	61	75	106	65	79	112	68	83	118
				Throw	22.5°	18	27	47	24	35	54	30	42	60	35	47	66	41	50	71	44	54	76	47	57	81	49	60	85
Throw	45°	14	20	36	18	27	41	23	32	46	27	36	50	31	39	54	34	41	58	36	43	62	37	46	65				
28	22	4.28	3.81	CFM	1140																								
				NC	<20																								
				Throw	0°	25	38	67	34	51	77	43	61	87	51	67	95	59	72	102	63	77	109	67	82	116	71	86	122
				Throw	22.5°	18	27	48	24	37	55	31	44	63	37	48	68	42	52	73	45	55	78	48	59	84	51	62	88
Throw	45°	14	21	37	19	28	42	24	34	48	28	37	52	32	40	56	35	42	60	37	45	64	39	47	67				
36	18	4.50	4.00	CFM	1200																								
				NC	<20																								
				Throw	0°	26	39	69	35	52	79	44	63	89	52	69	97	60	74	105	65	79	112	69	84	119	72	89	125
				Throw	22.5°	19	28	50	25	37	57	32	45	64	37	50	70	43	53	76	47	57	81	50	60	86	52	64	90
Throw	45°	14	21	38	19	29	43	24	35	49	29	38	53	33	41	58	36	43	62	38	46	65	40	49	69				
32	22	4.89	4.39	CFM	1320																								
				NC	<20																								
				Throw	0°	27	41	72	36	55	83	45	66	93	55	72	102	63	78	110	68	83	117	72	88	124	76	93	131
				Throw	22.5°	19	30	52	26	40	60	32	48	67	40	52	73	45	56	79	49	60	84	52	63	89	55	67	94
Throw	45°	15	23	40	20	30	46	25	36	51	30	40	56	35	43	61	37	46	64	40	48	68	42	51	72				
30	24	5.00	4.50	CFM	1350																								
				NC	<20																								
				Throw	0°	28	42	73	37	55	84	46	66	94	55	73	103	64	79	111	69	84	119	73	89	126	77	94	133
				Throw	22.5°	20	30	53	27	40	60	33	48	68	40	53	74	46	57	80	50	60	86	53	64	91	55	68	96
Throw	45°	15	23	40	20	30	46	25	36	52	30	40	57	35	43	61	38	46	65	40	49	69	42	52	73				
34	22	5.19	4.67	CFM	1400																								
				NC	<20																								
				Throw	0°	28	42	74	38	56	86	47	68	96	56	74	105	65	80	113	70	86	121	74	91	128	78	96	135
				Throw	22.5°	20	30	53	27	40	62	34	49	69	40	53	76	47	58	81	50	62	87	53	66	92	56	69	97
Throw	45°	15	23	41	21	31	47	26	37	53	31	41	58	36	44	62	39	47	67	41	50	70	43	53	74				
40	20	5.56	5.00	CFM	1500																								
				NC	<20																								
				Throw	0°	29	44	77	39	58	89	49	70	99	58	77	108	68	83	117	72	89	125	77	94	133	81	99	140
				Throw	22.5°	21	32	55	28	42	64	35	50	71	42	55	78	49	60	84	52	64	90	55	68	96	58	71	101
Throw	45°	16	24	42	21	32	49	27	39	54	32	42	59	37	46	64	40	49	69	42	52	73	45	54	77				
36	24	6.00	5.44	CFM	1630																								
				NC	<20																								
				Throw	0°	30	46	80	41	61	92	51	73	103	61	80	113	71	86	122	75	92	131	80	98	139	84	103	146
				Throw	22.5°	22	33	58	30	44	66	37	53	74	44	58	81	51	62	88	54	66	94	58	71	100	60	74	105
Throw	45°	17	25	44	23	34	51	28	40	57	34	44	62	39	47	67	41	51	72	44	54	76	46	57	80				
30	30	6.25	5.69	CFM	1710																								
				NC	<20																								
				Throw	0°	31	47	82	42	62	95	52	75	106	62	82	116	72	88	125	77	94	134	82	100	142	86	106	149
				Throw	22.5°	22	34	59	30	45	68	37	54	76	45	59	84	52	63	90	55	68	96	59	72	102	62	76	107
Throw	45°	17	26	45	23	34	52	29	41	58	34	45	64	40	48	69	42	52	74	45	55	78	47	58	82				
36	26	6.50	5.92	CFM	1780																								
				NC	<20																								
				Throw	0°	32	48	84	42	64	96	53	76	108	63	83	118	74	90	127	79	96	136	83	102	145	88	108	152
				Throw	22.5°	23	35	60	30	46	69	38	55	78	45	60	85	53	65	91	57	69	98	60	73	104	63	78	109
Throw	45°	18	26	46	23	35	53	29	42	59	35	46	65	41	50	70	43	53	75	46	56	80	48	59	84				
32	32	7.11	6.51	CFM	1950																								
				NC	<20																								
				Throw	0°	33	50	87	44	67	101	56	80	113	67	88	124	77	95	134	83	101	143	88	107	152	92	113	160
				Throw	22.5°	24	36	63	32	48	73	40	58	81	48	63	89	55	68	96	60	73	103	63	77	109	66	81	115
Throw	45°	18	28	48	24	37	56	31	44	62	37	48	68	42	52	74	46	56	79	48	59	84	51	62	88				

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<sub>s</sub> 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<sup>-12</sup> watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands. For 22.5° blade angle setting, add 2 NC to the tabulated value shown. For 45° blade angle setting, add 6 NC to the tabulated value shown.

Neck Velocity, Core Velocity

- Feet per minute
- Pressure
- P<sub>s</sub> represents static pressure, inches of water



Heavy Duty Single & Double Deflection Supply Registers

1/2" SPACING

Duct Size	Nom Duct	Core Area	Core Velocity	300	400	500	600	700	800	900	1000														
Nom Width W	Nom Height H	ft2	ft2	Ps	0°	0.01	0.02	0.03	0.05	0.07	0.11														
					22.5°	0.02	0.03	0.05	0.07	0.09	0.12	0.15	0.19												
					45°	0.02	0.04	0.06	0.09	0.13	0.16	0.21	0.26												
36	30	7.50	6.88	CFM	2060	2750	3440	4130	4820	5510	6190														
				NC	<20	22	29	34	38	41	45	48													
				Throw	0°	34	51	90	46	68	104	57	82	116	68	90	127	79	97	137	85	104	147	90	110
38	30	7.92	7.28	CFM	2180	2910	3640	4370	5100	5820	6550														
				NC	<20	23	29	34	38	42	45	48													
				Throw	0°	35	53	92	47	70	107	59	84	119	70	93	131	82	100	141	87	107	151	93	113
48	24	8.00	7.33	CFM	2200	2930	3660	4400	5130	5860	6590														
				NC	<20	23	29	34	38	42	45	48													
				Throw	0°	35	53	93	47	71	107	59	85	120	71	93	131	82	100	142	88	107	152	93	114
42	28	8.17	7.51	CFM	2250	3000	3760	4510	5260	6010	6760														
				NC	<20	23	29	34	38	42	45	48													
				Throw	0°	36	54	94	48	71	108	60	86	121	72	94	133	83	102	144	89	109	153	94	115
44	28	8.56	7.88	CFM	2360	3150	3940	4730	5520	6300	7090														
				NC	<20	23	29	34	38	42	45	48													
				Throw	0°	37	55	96	49	73	111	61	88	124	73	96	136	85	104	147	91	111	157	96	118
36	36	9.00	8.33	CFM	2500	3330	4160	5000	5830	6660	7490														
				NC	<20	23	29	34	38	42	45	48													
				Throw	0°	38	57	99	50	75	114	63	90	128	75	99	140	87	107	151	93	114	162	99	121
40	34	9.44	8.75	CFM	2630	3500	4380	5250	6130	7000	7880														
				NC	<20	23	30	35	39	42	46	49													
				Throw	0°	39	58	102	51	77	117	64	93	131	77	101	143	89	110	155	96	117	166	101	124
48	30	10.00	9.27	CFM	2780	3710	4630	5560	6490	7410	8340														
				NC	<20	24	30	35	39	43	46	49													
				Throw	0°	40	60	104	53	80	121	66	95	135	79	104	148	92	113	160	98	121	170	104	128
42	36	10.50	9.77	CFM	2930	3910	4880	5860	6840	7810	8790														
				NC	<20	24	30	35	39	43	46	49													
				Throw	0°	41	61	107	54	82	124	68	98	138	82	107	152	95	116	164	101	124	175	107	131
48	38	12.67	11.86	CFM	3560	4740	5930	7120	8300	9490	10670														
				NC	<20	25	31	36	40	44	47	50													
				Throw	0°	45	67	118	60	90	136	75	108	152	90	118	167	104	128	180	111	136	193	118	145
46	44	14.06	13.21	CFM	3960	5280	6600	7930	9250	10570	11890														
				NC	<20	25	31	36	40	44	47	50													
				Throw	0°	47	71	125	63	95	144	79	114	161	95	126	176	110	135	190	118	144	204	125	153
48	46	15.33	14.45	CFM	4330	5780	7220	8670	10110	11560	13000														
				NC	<20	26	32	37	41	45	48	51													
				Throw	0°	50	74	130	66	99	151	83	119	168	99	130	184	115	141	199	123	151	213	130	160
48	48	16.00	15.10	CFM	4530	6040	7550	9060	10570	12080	13590														
				NC	<20	26	32	37	41	45	48	51													
				Throw	0°	51	76	133	68	101	154	85	122	172	101	133	188	118	144	204	126	154	218	133	163

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<sub>s</sub> 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<sup>-12</sup> watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands. For 22.5° blade angle setting, add 2 NC to the tabulated value shown. For for 45° blade angle setting, add 6 NC to the tabulated value shown.

Neck Velocity, Core Velocity

- Feet per minute
- Pressure
- P<sub>s</sub> represents static pressure, inches of water