

PERFORMANCE DATA

specialized grilles

MODELS: 50F, 50F-NT, 50R, 50R-SS AND 50FF
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

								NC 20	NC 30	NC 40		
Nominal Duct Size (in.)	Nominal Duct Area sq. ft	Core Area sq. ft	Core Velocity Velocity Pressure 1x1x1 Neg. Ps ½x½x½ Neg. Ps	300 0.006 0.013 0.013	400 0.01 0.024 0.024	500 0.016 0.037 0.037	600 0.022 0.054 0.053	700 0.031 0.073 0.073	800 0.04 0.096 0.095	1000 0.062 0.15 0.148	1200 0.09 0.216 0.213	1400 0.122 0.294 0.29
6x6	0.25	0.19	Airflow, cfm NC	57 -	76 -	95 -	114 10	133 17	152 22	190 31	228 39	266 45
8x6	0.33	0.26	Airflow, cfm NC	78 -	104 -	130 -	156 10	182 17	208 22	260 31	312 39	364 45
10x6	0.42	0.34	Airflow, cfm NC	102 -	136 -	170 -	204 11	238 17	272 23	340 32	408 39	476 46
8x8	0.44	0.37	Airflow, cfm NC	111 -	148 -	185 -	222 11	259 17	296 23	370 32	444 39	518 46
12x6	0.50	0.41	Airflow, cfm NC	123 -	164 -	205 -	246 11	287 18	328 23	410 32	492 40	574 46
14x6	0.58	0.48	Airflow, cfm NC	144 -	192 -	240 -	288 11	336 18	384 23	480 32	576 40	672 46
16x6	0.67	0.57	Airflow, cfm	171	228	285	342	399	456	570	684	798
12x8			NC	-	-	-	12	18	23	32	40	46
10x10	0.69	0.59	Airflow, cfm NC	177 -	236 -	295 -	354 12	413 18	472 23	590 33	708 40	826 46
18x6	0.75	0.63	Airflow, cfm NC	189 -	252 -	315 -	378 12	441 18	504 24	630 33	756 40	882 46
20x6	0.83	0.72	Airflow, cfm	216	288	360	432	504	576	720	864	1008
12x10			NC	-	-	-	12	18	24	33	40	46
22x6	0.92	0.77	Airflow, cfm NC	231 -	308 -	385 -	462 12	539 18	616 24	770 33	924 40	1078 47
24x6	1.00	0.88	Airflow, cfm	264	352	440	528	616	704	880	1056	1232
12x12			NC	-	-	-	12	18	24	33	40	47
30x6	1.25	1.11	Airflow, cfm	333	444	555	666	777	888	1110	1332	1554
18x10			NC	-	-	-	13	19	24	34	41	47
14x14	1.36	1.22	Airflow, cfm NC	366 -	488 -	610 -	732 13	854 19	976 24	1220 34	1464 41	1708 47
36x6	1.50	1.35	Airflow, cfm	405	540	675	810	945	1080	1350	1620	1890
18x12			NC	-	-	-	13	19	24	34	41	47
22x10	1.53	1.37	Airflow, cfm NC	411 -	548 -	685 -	822 13	959 19	1096 25	1370 34	1644 41	1918 47
30x8	1.67	1.49	Airflow, cfm	447	596	745	894	1043	1192	1490	1788	2086
24x10			NC	-	-	-	13	19	25	34	41	47
42x6	1.75	1.59	Airflow, cfm	477	636	795	954	1113	1272	1590	1908	2226
18x14			NC	-	-	-	13	19	25	34	41	47
16x16	1.78	1.62	Airflow, cfm NC	486 -	648 -	810 -	972 13	1134 19	1296 25	1620 34	1944 41	2268 48
24x12	2.00	1.82	Airflow, cfm	546	728	910	1092	1274	1456	1820	2184	2548
18x16			NC	-	-	-	13	19	25	34	41	48
18x18	2.25	2.07	Airflow, cfm NC	621 -	828 -	1035 -	1242 13	1449 19	1656 25	2070 34	2484 41	2898 48
24x14	2.33	2.14	Airflow, cfm NC	642 -	856 -	1070 -	1284 13	1498 20	1712 25	2140 34	2568 42	2996 48
30x12	2.50	2.29	Airflow, cfm NC	687 -	916 -	1145 -	1374 13	1603 20	1832 25	2290 34	2748 42	3206 48
24x16	2.67	2.46	Airflow, cfm NC	738 -	984 -	1230 -	1476 13	1722 20	1968 25	2460 34	2952 42	3444 48
20x20	2.78	2.57	Airflow, cfm NC	771 -	1028 -	1285 -	1542 13	1799 20	2056 25	2570 34	3084 42	3598 48
36x12	3.00	2.75	Airflow, cfm NC	825 -	1100 -	1375 -	1650 14	1925 20	2200 25	2750 34	3300 42	3850 48
30x16	3.33	3.11	Airflow, cfm	933	1244	1555	1866	2177	2488	3110	3732	4354
24x20			NC	-	-	-	14	20	25	35	42	48
22x22	3.36	3.14	Airflow, cfm NC	942 -	1256 -	1570 -	1884 14	2198 20	2512 25	3140 35	3768 42	4396 48
42x12	3.50	3.22	Airflow, cfm	966	1288	1610	1932	2254	2576	3220	3864	4508
36x14			NC	-	-	-	14	20	26	35	42	48
24x22	3.67	3.43	Airflow, cfm NC	1029 -	1372 -	1715 -	2058 14	2401 20	2744 26	3430 35	4116 42	4802 48
30x18	3.75	3.50	Airflow, cfm NC	1050 -	1400 -	1750 -	2100 14	2450 20	2800 26	3500 35	4200 42	4900 48

- Static pressures are negative, in inches of water, measured per ANSI/ASHRAE Standard 70-2006

- NC based on room absorption of 10dB, re 10⁻¹² watts, measured per ANSI/ASHRAE Standard 70-2006

MODELS: 50F, 50F-NT, 50R, 50R-SS AND 50FF
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

								NC 20	NC 30	NC 40			
Nominal Duct Size (in.)	Nominal Duct Area sq. ft	Core Area sq. ft	Core Velocity Pressure 1x1x1 Neg. Ps ½x½x½ Neg. Ps	300 0.006 0.013 0.013	400 0.01 0.024 0.024	500 0.016 0.037 0.037	600 0.022 0.054 0.053	700 0.031 0.073 0.073	800 0.04 0.096 0.095	1000 0.062 0.15 0.148	1200 0.09 0.216 0.213	1400 0.122 0.294 0.29	
48x12 24x24	4.00	3.75	Airflow, cfm NC	1125 -	1500 -	1875 -	2250 14	2625 20	3000 26	3750 35	4500 42	5250 49	
36x18	4.50	4.22	Airflow, cfm NC	1266 -	1688 -	2110 -	2532 14	2954 20	3376 26	4220 35	5064 42	5908 49	
36x20 30x24	5.00	4.71	Airflow, cfm NC	1413 -	1884 -	2355 -	2826 14	3297 21	3768 26	4710 35	5652 43	6594 49	
42x18	5.25	4.94	Airflow, cfm NC	1482 -	1976 -	2470 -	2964 14	3458 21	3952 26	4940 35	5928 43	6916 49	
28x28	5.44	5.16	Airflow, cfm NC	1548 -	2064 -	2580 -	3096 14	3612 21	4128 26	5160 35	6192 43	7224 49	
42x20 30x28	5.83	5.51	Airflow, cfm NC	1653 -	2204 -	2755 -	3306 14	3857 21	4408 26	5510 35	6612 43	7714 49	
48x18 36x24	6.00	5.66	Airflow, cfm NC	1698 -	2264 -	2830 -	3396 14	3962 21	4528 26	5660 35	6792 43	7924 49	
30x30	6.25	5.94	Airflow, cfm NC	1782 -	2376 -	2970 -	3564 15	4158 21	4752 26	5940 35	7128 43	8316 49	
42x24 36x28	7.00	6.66	Airflow, cfm NC	1998 -	2664 -	3330 -	3996 15	4662 21	5328 26	6660 36	7992 43	9324 49	
46x22	7.03	6.68	Airflow, cfm NC	2004 -	2672 -	3340 -	4008 15	4676 21	5344 26	6680 36	8016 43	9352 49	
32x32	7.11	6.78	Airflow, cfm NC	2034 -	2712 -	3390 -	4068 15	4746 21	5424 27	6780 36	8136 43	9492 49	
36x30	7.50	7.16	Airflow, cfm NC	2148 -	2864 -	3580 -	4296 15	5012 21	5728 27	7160 36	8592 43	10024 49	
48x24 36x32	8.00	7.63	Airflow, cfm NC	2289 -	3052 -	3815 -	4578 15	5341 21	6104 27	7630 36	9156 43	10682 49	
34x34	8.03	7.68	Airflow, cfm NC	2304 -	3072 -	3840 -	4608 15	5376 21	6144 27	7680 36	9216 43	10752 49	
36x34	8.50	8.14	Airflow, cfm NC	2442 -	3256 -	4070 -	4884 15	5698 21	6512 27	8140 36	9768 43	11396 50	
42x30	8.75	8.38	Airflow, cfm NC	2514 -	3352 -	4190 -	5028 15	5866 21	6704 27	8380 36	10056 43	11732 50	
36x36	9.00	8.63	Airflow, cfm NC	2589 -	3452 -	4315 -	5178 15	6041 21	6904 27	8630 36	10356 43	12082 50	
42x34 48x30	10.00	9.60	Airflow, cfm NC	2880 -	3840 -	4800 -	5760 15	6720 21	7680 27	9600 36	11520 43	13440 50	
38x38	10.03	9.64	Airflow, cfm NC	2892 -	3856 -	4820 -	5784 15	6748 21	7712 27	9640 36	11568 43	13496 50	
42x36	10.50	10.10	Airflow, cfm NC	3030 -	4040 -	5050 -	6060 15	7070 22	8080 27	10100 36	12120 44	14140 50	
46x34	10.86	10.45	Airflow, cfm NC	3135 -	4180 -	5225 -	6270 15	7315 22	8360 27	10450 36	12540 44	14630 50	
42x38	11.08	10.67	Airflow, cfm NC	3201 -	4268 -	5335 -	6402 15	7469 22	8536 27	10670 36	12804 44	14938 50	
40x40	11.11	10.70	Airflow, cfm NC	3210 -	4280 -	5350 -	6420 15	7490 22	8560 27	10700 36	12840 44	14980 50	
48x36	12.00	11.57	Airflow, cfm NC	3471 -	4628 -	5785 -	6942 15	8099 22	9256 27	11570 36	13884 44	16198 50	
42x42	12.25	11.82	Airflow, cfm NC	3546 -	4728 -	5910 -	7092 15	8274 22	9456 27	11820 36	14184 44	16548 50	
44x44	13.44	12.99	Airflow, cfm NC	3897 -	5196 -	6495 -	7794 16	9093 22	10392 27	12990 36	15588 44	18186 50	
48x42	14.00	13.54	Airflow, cfm NC	4062 -	5416 -	6770 -	8124 16	9478 22	10832 27	13540 37	16248 44	18956 50	
46x46	14.69	14.22	Airflow, cfm NC	4266 -	5688 -	7110 -	8532 16	9954 22	11376 27	14220 37	17064 44	19908 50	
48x46	15.33	14.85	Airflow, cfm NC	4455 -	5940 -	7425 -	8910 16	10395 22	11880 27	14850 37	17820 44	20790 50	
48x48	16.00	15.50	Airflow, cfm NC	4650 -	6200 -	7750 -	9300 16	10850 22	12400 28	15500 37	18600 44	21700 50	

• Static pressures are negative, in inches of water, measured per ANSI/ASHRAE Standard 70-2006

• NC based on room absorption of 10dB, re 10⁻¹² watts, measured per ANSI/ASHRAE Standard 70-2006

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

				NC-20				NC-30		NC-40		
Nom. Duct Size (in.)	Nom. Duct Area (ft²)	Core Area (ft²)	Core Vel.	300	400	500	600	700	800	1000	1200	1400
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358
			Total Press.	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401
			45°	0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606
6x6	0.25	0.19	cfm	57	76	95	114	133	152	190	228	266
			NC	-	-	-	15	20	24	31	36	41
			0°	5-7-14	7-10-16	8-12-18	10-14-20	12-15-21	13-16-23	15-18-25	16-20-28	17-21-30
			Throw 22.5°	4-6-11	5-8-12	6-10-14	8-11-15	9-12-16	10-12-18	11-14-20	12-15-22	13-16-23
			45°	2-3-6	3-4-7	4-6-8	4-6-9	5-7-10	6-7-10	7-8-11	7-9-12	8-10-13
8x6	0.33	0.26	cfm	78	104	130	156	182	208	260	312	364
			NC	-	-	11	17	21	25	32	38	42
			0°	5-9-16	8-12-19	10-15-21	12-16-23	14-18-25	15-19-27	17-21-30	19-23-32	20-25-35
			Throw 22.5°	4-7-13	6-9-15	8-11-16	9-13-18	11-14-19	12-15-21	13-16-23	15-18-25	16-19-27
			45°	2-4-7	3-5-8	4-7-9	5-7-10	6-8-11	7-8-12	8-9-13	8-10-15	9-11-16
10x6	0.42	0.34	cfm	102	136	170	204	238	272	340	408	476
			NC	-	-	12	18	23	27	33	39	43
			0°	6-10-19	9-13-21	11-17-24	13-19-26	16-20-28	18-21-30	20-24-34	21-26-37	23-28-40
			Throw 22.5°	5-8-14	7-10-17	9-13-19	10-14-20	12-16-22	14-17-23	15-19-26	17-20-29	18-22-31
			45°	3-4-8	4-6-10	5-7-11	6-8-12	7-9-13	8-10-14	9-11-15	10-12-17	10-13-18
8x8	0.44	0.37	cfm	111	148	185	222	259	296	370	444	518
			NC	-	-	13	18	23	27	34	39	44
			0°	6-10-19	9-14-22	12-17-25	14-19-27	16-21-30	18-22-32	20-25-35	22-27-39	24-30-42
			Throw 22.5°	5-8-15	7-11-17	9-13-19	11-15-21	13-16-23	14-17-25	16-19-27	17-21-30	19-23-32
			45°	3-5-9	4-6-10	5-8-11	6-9-12	7-9-13	8-10-14	9-11-16	10-12-17	11-13-19
12x6	0.50	0.41	cfm	123	164	205	246	287	328	410	492	574
			NC	-	-	13	19	23	27	34	39	44
			0°	7-11-20	10-15-24	12-18-26	15-20-29	17-22-31	19-24-33	21-26-37	24-29-41	25-31-44
			Throw 22.5°	5-8-16	8-11-18	9-14-20	11-16-22	13-17-24	15-18-26	17-20-29	18-22-32	20-24-34
			45°	3-5-9	4-7-11	5-8-12	7-9-13	8-10-14	9-11-15	10-12-17	11-13-18	11-14-20
14x6	0.58	0.48	cfm	144	192	240	288	336	384	480	576	672
			NC	-	-	14	19	24	28	35	40	45
			0°	7-12-22	11-16-25	13-20-28	16-22-31	18-24-34	21-25-36	23-28-40	25-31-44	28-34-48
			Throw 22.5°	6-9-17	8-12-20	10-15-22	12-17-24	14-18-26	16-20-28	18-22-31	20-24-34	21-26-37
			45°	3-5-10	5-7-11	6-9-13	7-10-14	8-11-15	9-11-16	10-13-18	11-14-20	12-15-21
16x6 12x8	0.67	0.57	cfm	171	228	285	342	399	456	570	684	798
			NC	-	-	15	20	25	29	35	41	45
			0°	8-13-24	11-17-28	14-22-31	17-24-34	20-26-37	23-28-39	25-31-44	28-34-48	30-37-52
			Throw 22.5°	6-10-19	9-13-22	11-17-24	13-19-26	16-20-28	18-22-30	20-24-34	22-26-37	23-28-40
			45°	4-6-11	5-8-12	6-10-14	8-11-15	9-12-17	10-12-18	11-14-20	12-15-22	13-17-23
10x10	0.69	0.59	cfm	177	236	295	354	413	472	590	708	826
			NC	-	-	15	20	25	29	35	41	46
			0°	8-13-24	12-18-28	15-22-32	18-24-35	20-26-37	23-28-40	26-32-45	28-35-49	31-37-53
			Throw 22.5°	6-10-19	9-14-22	11-17-24	14-19-27	16-20-29	18-22-31	20-24-35	22-27-38	24-29-41
			45°	4-6-11	5-8-13	7-10-14	8-11-16	9-12-17	10-13-18	12-14-20	13-16-22	14-17-24
18x6	0.75	0.63	cfm	189	252	315	378	441	504	630	756	882
			NC	-	-	15	20	25	29	36	41	46
			0°	8-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	32-39-55
			Throw 22.5°	7-11-20	9-14-23	12-18-25	14-20-28	16-21-30	18-23-32	21-25-36	23-28-39	24-30-42
			45°	4-6-11	5-8-13	7-10-15	8-11-16	9-12-17	11-13-19	12-15-21	13-16-23	14-17-25
20x6 12x10	0.83	0.72	cfm	216	288	360	432	504	576	720	864	1008
			NC	-	-	16	21	26	30	36	42	46
			0°	9-15-27	13-19-31	16-24-35	19-27-38	23-29-41	25-31-44	28-35-49	31-38-54	34-41-58
			Throw 22.5°	7-11-21	10-15-24	12-19-27	15-21-30	17-23-32	20-24-34	22-27-38	24-30-42	26-32-45
			45°	4-7-12	6-9-14	7-11-16	9-12-17	10-13-19	11-14-20	13-16-22	14-17-24	15-19-26
22x6	0.92	0.77	cfm	231	308	385	462	539	616	770	924	1078
			NC	-	-	16	21	26	30	37	42	47
			0°	9-15-28	13-20-32	17-25-36	20-28-40	23-30-43	26-32-46	29-36-51	32-40-56	35-43-60
			Throw 22.5°	7-12-22	10-16-25	13-19-28	16-22-31	18-23-33	20-25-35	23-28-40	25-31-43	27-33-47
			45°	4-7-13	6-9-15	8-11-16	9-13-18	11-14-19	12-15-21	13-16-23	15-18-25	16-19-27
24x6 18x8 12x12	1.00	0.88	cfm	264	352	440	528	616	704	880	1056	1232
			NC	-	-	16	22	26	30	37	43	47
			0°	10-16-30	14-21-34	18-27-39	21-30-42	25-32-46	28-34-49	31-39-55	34-42-60	37-46-65
			Throw 22.5°	8-12-23	11-17-27	14-21-30	17-23-33	19-25-35	22-27-38	24-30-42	27-33-46	29-35-50
			45°	4-7-13	6-10-16	8-12-17	10-13-19	11-15-21	13-16-22	14-17-25	16-19-27	17-21-29
30x6 18x10	1.25	1.11	cfm	333	444	555	666	777	888	1110	1332	1554
			NC	-	11	17	23	27	31	38	44	48
			0°	11-18-34	16-24-39	20-30-43	24-34-47	28-36-51	32-39-55	35-43-61	39-47-67	42-51-72
			Throw 22.5°	9-14-26	12-19-30	16-23-34	19-26-37	22-28-40	25-30-42	27-34-47	30-37-52	32-40-56
			45°	5-8-15	7-11-17	9-14-19	11-15-21	13-16-23	14-17-25	16-19-28	17-21-30	19-23-33

Performance notes appear at end of table

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

Nom. Duct Size (in.)	Nom. Duct Area (ft²)	Core Area (ft²)	NC-20				NC-30		NC-40		NC-50	
			Core Vel.	300	400	500	600	700	800	1000	1200	1400
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358
Throw (ft)	22.5°	45°	Total Press.	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401
			45°	0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606
14x14	1.36	1.22	cfm	366	488	610	732	854	976	1220	1464	1708
			NC	-	11	18	23	28	32	39	44	49
			0°	12-19-35	17-25-41	21-31-45	25-35-50	29-38-54	33-41-57	37-45-64	41-50-70	44-54-76
			22.5°	9-15-27	13-20-31	16-24-35	20-27-39	23-29-42	26-31-45	29-35-50	31-39-55	34-42-59
18x12	1.50	1.35	45°	5-8-16	8-11-18	9-14-20	11-16-22	13-17-24	15-18-26	17-20-29	18-22-32	20-24-34
			cfm	405	540	675	810	945	1080	1350	1620	1890
			NC	-	12	18	24	28	32	39	44	49
			0°	12-20-37	18-26-43	22-33-48	26-37-52	31-40-57	35-43-60	39-48-68	43-52-74	46-57-80
22x10	1.53	1.37	22.5°	10-15-29	14-21-33	17-26-37	21-29-41	24-31-44	27-33-47	30-37-52	33-41-57	36-44-62
			45°	6-9-17	8-12-19	10-15-21	12-17-24	14-18-25	16-19-27	18-21-30	19-24-33	21-25-36
			cfm	411	548	685	822	959	1096	1370	1644	1918
			NC	-	12	18	24	28	32	39	44	49
24x10	1.67	1.49	0°	12-20-37	18-27-43	22-33-48	27-37-53	31-40-57	35-43-61	39-48-68	43-53-75	46-57-81
			22.5°	10-16-29	14-21-33	17-26-37	21-29-41	24-31-44	27-33-47	30-37-53	33-41-58	36-44-62
			45°	6-9-17	8-12-19	10-15-22	12-17-24	14-18-26	16-19-27	18-22-31	19-24-34	21-26-36
			cfm	447	596	745	894	1043	1192	1490	1788	2086
30x8	1.67	1.49	NC	-	12	19	24	29	33	39	45	49
			0°	13-21-39	19-28-45	23-35-50	28-39-55	32-42-59	37-45-63	41-50-71	45-55-78	48-59-84
			22.5°	10-16-30	14-22-35	18-27-39	22-30-43	25-33-46	28-35-49	32-39-55	35-43-60	38-46-65
			45°	6-9-17	8-13-20	10-16-23	13-17-25	15-19-27	16-20-29	18-23-32	20-25-35	22-27-38
42x6	1.75	1.59	cfm	477	636	795	954	1113	1272	1590	1908	2226
			NC	-	12	19	24	29	33	40	45	50
			0°	13-22-40	19-29-46	24-36-52	29-40-57	34-43-61	38-46-66	42-52-73	46-57-80	50-61-87
			22.5°	10-17-31	15-22-36	19-28-40	22-31-44	26-34-48	29-36-51	33-40-57	36-44-62	39-48-67
16x16	1.78	1.62	45°	6-10-18	9-13-21	11-16-23	13-18-26	15-20-28	17-21-30	19-23-33	21-26-36	23-28-39
			cfm	486	648	810	972	1134	1296	1620	1944	2268
			NC	-	12	19	24	29	33	40	45	50
			0°	14-22-41	19-29-47	24-36-52	29-41-57	34-44-62	38-47-66	43-52-74	47-57-81	51-62-88
24x12	2.00	1.82	22.5°	11-17-31	15-22-36	19-28-41	22-31-44	26-34-48	30-36-51	33-41-57	36-44-63	39-48-68
			45°	6-10-18	9-13-21	11-16-24	13-18-26	15-20-28	17-21-30	19-24-33	21-26-36	23-28-39
			cfm	546	728	910	1092	1274	1456	1820	2184	2548
			NC	-	13	19	25	30	34	40	46	50
18x18	2.25	2.07	0°	14-23-43	20-31-50	26-38-55	31-43-61	36-46-66	41-50-70	45-55-78	50-61-86	54-66-93
			22.5°	11-18-33	16-24-38	20-30-43	24-33-47	28-36-51	31-38-54	35-43-61	38-47-67	42-51-72
			45°	6-10-19	9-14-22	12-17-25	14-19-27	16-21-30	18-22-32	20-25-35	22-27-39	24-30-42
			cfm	621	828	1035	1242	1449	1656	2070	2484	2898
24x14	2.33	2.14	NC	-	13	20	25	30	34	41	46	51
			0°	15-25-46	22-33-53	27-41-59	33-46-65	38-49-70	43-53-75	48-59-84	53-65-92	57-70-99
			22.5°	12-19-36	17-25-41	21-32-46	25-36-50	30-38-54	33-41-58	37-46-65	41-50-71	44-54-77
			45°	7-11-21	10-15-24	12-18-27	15-21-29	17-22-31	19-24-34	22-27-38	24-29-41	26-31-45
30x10	2.50	2.29	cfm	642	856	1070	1284	1498	1712	2140	2568	2996
			NC	-	13	20	26	30	34	41	46	51
			0°	16-25-47	22-33-54	28-42-60	33-47-66	39-50-71	44-54-76	49-60-85	54-66-93	58-71-101
			22.5°	12-19-36	17-26-42	22-32-47	26-36-51	30-39-55	34-42-59	38-47-66	42-51-72	45-55-78
48x8	2.67	2.46	45°	7-11-21	10-15-24	13-19-27	15-21-30	18-23-32	20-24-34	22-27-38	24-30-42	26-32-45
			cfm	687	916	1145	1374	1603	1832	2290	2748	3206
			NC	-	14	20	26	30	34	41	47	51
			0°	16-26-48	23-34-56	29-43-62	34-48-68	40-52-74	45-56-79	51-62-88	56-68-96	60-74-104
20x20	2.78	2.57	22.5°	12-20-37	18-27-43	22-33-48	27-37-53	31-40-57	35-43-61	39-48-68	43-53-75	47-57-81
			45°	7-12-22	10-16-25	13-19-28	16-22-31	18-23-33	20-25-35	23-28-40	25-31-43	27-33-47
			cfm	738	984	1230	1476	1722	1968	2460	2952	3444
			NC	-	14	21	26	31	35	41	47	51
36x12	3.00	2.75	0°	17-27-50	24-36-58	30-45-64	36-50-71	42-54-76	47-58-82	53-64-91	58-71-100	62-76-108
			22.5°	13-21-39	18-28-45	23-35-50	28-39-55	32-42-59	36-45-63	41-50-71	45-55-77	48-59-84
			45°	8-12-22	11-16-26	13-20-29	16-22-32	19-24-34	21-26-37	24-29-41	26-32-45	28-34-49
			cfm	771	1028	1285	1542	1799	2056	2570	3084	3598
24x18	3.00	2.75	NC	-	14	21	26	31	35	42	47	52
			0°	17-27-51	24-37-59	30-46-66	37-51-72	43-55-78	48-59-83	54-66-93	59-72-102	64-78-110
			22.5°	13-21-40	19-28-46	24-35-51	28-40-56	33-43-60	37-46-65	42-51-72	46-56-79	49-60-85
			45°	8-12-23	11-16-27	14-21-30	16-23-32	19-25-35	22-27-38	24-30-42	27-32-46	29-35-50
36x12	3.00	2.75	cfm	825	1100	1375	1650	1925	2200	2750	3300	3850
			NC	-	15	21	27	31	35	42	47	52
			0°	18-28-53	25-38-61	31-47-68	38-53-75	44-57-81	50-61-86	56-68-96	61-75-106	66-81-114
			22.5°	14-22-41	20-29-47	24-37-53	29-41-58	34-44-63	39-47-67	43-53-75	47-58-82	51-63-88
24x18	3.00	2.75	45°	8-13-24	11-17-27	14-21-31	17-24-34	20-26-36	22-27-39	25-31-43	27-34-48	30-36-51
			cfm	825	1100	1375	1650	1925	2200	2750	3300	3850

Performance notes appear at end of table

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

				NC-20		NC-30		NC-40		NC-50		
Nom. Duct Size (in.)	Nom. Duct Area (ft²)	Core Area (ft²)	Core Vel.	300	400	500	600	700	800	1000	1200	1400
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358
			Total Press. 22.5° 45°	0.018 0.028	0.033 0.049	0.051 0.077	0.074 0.111	0.100 0.152	0.131 0.198	0.204 0.309	0.294 0.445	0.401 0.606
48x10 30x16 24x20	3.33	3.11	cfm	933	1244	1555	1866	2177	2488	3110	3732	4354
			NC	-	15	22	27	32	36	42	48	52
			0°	19-30-56	27-40-65	33-50-72	40-56-79	47-61-86	53-65-92	59-72-103	65-79-112	70-86-121
			Throw (ft) 22.5° 45°	15-23-44 8-14-25	21-31-50 12-18-29	26-39-56 15-23-33	31-44-62 18-25-36	36-47-66 21-27-39	41-50-71 24-29-41	46-56-79 27-33-46	50-62-87 29-36-51	54-66-94 32-39-55
22x22	3.36	3.14	cfm	942	1256	1570	1884	2198	2512	3140	3768	4396
			NC	-	15	22	27	32	36	42	48	53
			0°	19-30-56	27-40-65	34-50-73	40-56-80	47-61-86	53-65-92	59-73-103	65-80-113	70-86-122
			Throw (ft) 22.5° 45°	15-23-44 8-14-25	21-31-50 12-18-29	26-39-56 15-23-33	31-44-62 18-25-36	37-47-67 21-27-39	41-50-71 24-29-41	46-56-80 27-33-46	50-62-87 29-36-51	55-67-94 32-39-55
42x12 36x14	3.50	3.22	cfm	966	1288	1610	1932	2254	2576	3220	3864	4508
			NC	-	15	22	27	32	36	43	48	53
			0°	19-31-57	27-41-66	34-51-74	41-57-81	48-62-87	54-66-93	60-74-104	66-81-114	71-87-123
			Throw (ft) 22.5° 45°	15-24-44 9-14-26	21-32-51 12-18-30	26-40-57 15-23-33	32-44-63 18-26-36	37-48-68 21-28-39	42-51-72 24-30-42	47-57-81 27-33-47	51-63-89 30-36-51	55-68-96 32-39-56
24x22	3.67	3.43	cfm	1029	1372	1715	2058	2401	2744	3430	4116	4802
			NC	-	15	22	28	32	36	43	48	53
			0°	20-32-59	28-42-68	35-53-76	42-59-83	49-64-90	56-68-96	62-76-108	68-83-118	74-90-127
			Throw (ft) 22.5° 45°	15-25-46 9-14-27	22-33-53 13-19-31	27-41-59 16-24-34	33-46-65 19-27-38	38-49-70 22-29-41	43-53-75 25-31-43	48-59-83 28-34-48	53-65-91 31-38-53	57-70-99 33-41-57
30x18	3.75	3.5	cfm	1050	1400	1750	2100	2450	2800	3500	4200	4900
			NC	-	16	22	28	32	36	43	48	53
			0°	20-32-60	28-43-69	36-53-77	43-60-84	50-64-91	56-69-97	63-77-109	69-84-119	74-91-129
			Throw (ft) 22.5° 45°	15-25-46 9-14-27	22-33-53 13-19-31	28-41-60 16-24-35	33-46-65 19-27-38	39-50-71 22-29-41	44-53-75 25-31-44	49-60-84 28-35-49	53-65-92 31-38-54	58-71-100 33-41-58
48x12 36x16 24x24	4.00	3.75	cfm	1125	1500	1875	2250	2625	3000	3750	4500	5250
			NC	-	16	22	28	33	37	43	49	53
			0°	21-33-62	29-44-71	37-55-80	44-62-87	51-67-94	58-71-101	65-80-113	71-87-123	77-94-133
			Throw (ft) 22.5° 45°	16-26-48 9-15-28	23-34-55 13-20-32	29-43-62 17-25-36	34-48-68 20-28-39	40-52-73 23-30-42	45-55-78 26-32-45	50-62-87 29-36-51	55-68-96 32-39-55	60-73-103 35-42-60
36x18	4.50	4.22	cfm	1266	1688	2110	2532	2954	3376	4220	5064	5908
			NC	-	16	23	28	33	37	44	49	54
			0°	22-35-65	31-47-76	39-59-84	47-65-93	55-71-100	62-76-107	69-84-119	76-93-131	82-100-141
			Throw (ft) 22.5° 45°	17-27-51 10-16-29	24-36-59 14-21-34	30-45-65 18-26-38	36-51-72 21-29-42	42-55-77 25-32-45	48-59-83 28-34-48	53-65-93 31-38-54	59-72-101 34-42-59	63-77-110 37-45-64
36x20 30x24	5.00	4.71	cfm	1413	1884	2355	2826	3297	3768	4710	5652	6594
			NC	-	17	23	29	33	37	44	50	54
			0°	23-37-69	33-49-80	41-62-89	49-69-98	58-75-106	65-80-113	73-89-126	80-98-138	86-106-149
			Throw (ft) 22.5° 45°	18-29-54 10-17-31	26-38-62 15-22-36	32-48-69 19-28-40	38-54-76 22-31-44	45-58-82 26-34-48	50-62-87 29-36-51	56-69-98 33-40-57	62-76-107 36-44-62	67-82-116 39-48-67
42x18	5.25	4.94	cfm	1482	1976	2470	2964	3458	3952	4940	5928	6916
			NC	-	17	24	29	34	38	44	50	54
			0°	24-38-71	34-51-82	42-63-91	51-71-100	59-76-108	67-82-116	75-91-129	82-100-142	88-108-153
			Throw (ft) 22.5° 45°	18-29-55 11-17-32	26-39-63 15-23-37	33-49-71 19-28-41	39-55-78 23-32-45	46-59-84 27-34-49	52-63-90 30-37-52	58-71-100 34-41-58	63-78-110 37-45-64	68-84-118 40-49-69
28x28	5.44	5.16	cfm	1548	2064	2580	3096	3612	4128	5160	6192	7224
			NC	-	17	24	29	34	38	45	50	55
			0°	24-39-72	35-52-84	43-65-93	52-72-102	60-78-110	68-84-118	76-93-132	84-102-145	90-110-156
			Throw (ft) 22.5° 45°	19-30-56 11-17-33	27-40-65 16-23-38	33-50-72 19-29-42	40-56-79 23-33-46	47-61-86 27-35-50	53-65-92 31-38-53	59-72-102 34-42-59	65-79-112 38-46-65	70-86-121 41-50-70
42x20 30x28	5.83	5.51	cfm	1653	2204	2755	3306	3857	4408	5510	6612	7714
			NC	-	17	24	30	34	38	45	50	55
			0°	25-40-75	36-54-86	45-67-96	54-75-106	62-81-114	70-86-122	79-96-136	86-106-149	93-114-161
			Throw (ft) 22.5° 45°	19-31-58 11-18-34	28-41-67 16-24-39	35-52-75 20-30-43	41-58-82 24-34-48	48-63-88 28-36-51	55-67-95 32-39-55	61-75-106 35-43-61	67-82-116 39-48-67	72-88-125 42-51-73
48x18 36x24	6.00	5.66	cfm	1698	2264	2830	3396	3962	4528	5660	6792	7924
			NC	-	18	24	30	34	38	45	50	55
			0°	25-41-76	36-54-87	45-68-98	54-76-107	63-82-116	71-87-124	80-98-138	87-107-152	94-116-164
			Throw (ft) 22.5° 45°	20-32-59 11-18-34	28-42-68 16-24-39	35-53-76 20-31-44	42-59-83 24-34-48	49-63-90 28-37-52	55-68-96 32-39-56	62-76-107 36-44-62	68-83-117 39-48-68	73-90-127 43-52-74
30x30	6.25	5.94	cfm	1782	2376	2970	3564	4158	4752	5940	7128	8316
			NC	-	18	24	30	34	38	45	51	55
			0°	26-42-78	37-56-90	46-69-100	56-78-110	65-84-119	73-90-127	82-100-142	90-110-155	97-119-168
			Throw (ft) 22.5° 45°	20-32-60 12-19-35	29-43-69 17-25-40	36-54-78 21-31-45	43-60-85 25-35-49	50-65-92 29-38-53	57-69-98 33-40-57	63-78-110 37-45-64	69-85-120 40-49-70	75-92-130 44-53-75

Performance notes appear at end of table

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

			NC-20			NC-30			NC-40			NC-50		
Nom. Duct Size (in.)	Nom. Duct Area (ft²)	Core Area (ft²)	Core Vel.	300	400	500	600	700	800	1000	1200	1400		
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122		
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358		
			Total 22.5° Press. 45°	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401		
42x24 36x28	7.00	6.66	cfm	1998	2664	3330	3996	4662	5328	6660	7992	9324		
			NC	-	18	25	30	35	39	46	51	56		
			Throw 0°	28-44-82	39-59-95	49-74-106	59-82-116	69-89-126	77-95-134	87-106-150	95-116-164	102-126-178		
			Throw 22.5° (ft) 45°	21-34-64 12-20-37	30-46-74 18-26-43	38-57-82 22-33-48	46-64-90 26-37-52	53-69-97 31-40-56	60-74-104 35-43-60	67-82-116 39-48-68	74-90-127 43-52-74	79-97-138 46-56-80		
46x22	7.03	6.68	cfm	2004	2672	3340	4008	4676	5344	6680	8016	9352		
			NC	-	18	25	30	35	39	46	51	56		
			Throw 0°	28-44-82	39-59-95	49-74-106	59-82-116	69-89-126	78-95-134	87-106-150	95-116-165	103-126-178		
			Throw 22.5° (ft) 45°	21-34-64 12-20-37	30-46-74 18-27-43	38-57-82 22-33-48	46-64-90 27-37-52	53-69-97 31-40-57	60-74-104 35-43-60	67-82-116 39-48-68	74-90-128 43-52-74	80-97-138 46-57-80		
32x32	7.11	6.78	cfm	2034	2712	3390	4068	4746	5424	6780	8136	9492		
			NC	-	18	25	30	35	39	46	51	56		
			Throw 0°	28-45-83	40-59-96	49-74-107	59-83-117	69-90-127	78-96-135	87-107-151	96-117-166	103-127-179		
			Throw 22.5° (ft) 45°	22-34-64 12-20-37	31-46-74 18-27-43	38-57-83 22-33-48	46-64-91 27-37-53	54-69-98 31-40-57	61-74-105 35-43-61	68-83-117 39-48-68	74-91-129 43-53-75	80-98-139 47-57-81		
36x30	7.50	7.16	cfm	2148	2864	3580	4296	5012	5728	7160	8592	10024		
			NC	-	19	25	31	35	39	46	51	56		
			Throw 0°	29-46-85	41-61-98	51-76-110	61-85-121	71-92-130	80-98-139	90-110-156	98-121-170	106-130-184		
			Throw 22.5° (ft) 45°	22-35-66 13-21-38	32-47-76 18-27-44	39-59-85 23-34-50	47-66-93 27-38-54	55-71-101 32-41-59	62-76-108 36-44-63	70-85-121 40-50-70	76-93-132 44-54-77	82-101-143 48-59-83		
48x24 36x32	8.00	7.63	cfm	2289	3052	3815	4578	5341	6104	7630	9156	10682		
			NC	-	19	25	31	35	39	46	52	56		
			Throw 0°	29-47-88	42-63-102	52-79-114	63-88-124	73-95-134	83-102-144	93-114-161	102-124-176	110-134-190		
			Throw 22.5° (ft) 45°	23-37-68 13-21-40	33-49-79 19-28-46	41-61-88 24-35-51	49-68-96 28-40-56	57-74-104 33-43-60	64-79-111 37-46-65	72-88-124 42-51-72	79-96-136 46-56-79	85-104-147 49-60-86		
34x34	8.03	7.68	cfm	2304	3072	3840	4608	5376	6144	7680	9216	10752		
			NC	-	19	25	31	36	40	46	52	56		
			Throw 0°	30-47-88	42-63-102	53-79-114	63-88-125	74-95-135	83-102-144	93-114-161	102-125-176	110-135-191		
			Throw 22.5° (ft) 45°	23-37-68 13-21-40	33-49-79 19-28-46	41-61-88 24-36-51	49-68-97 28-40-56	57-74-104 33-43-61	64-79-112 37-46-65	72-88-125 42-51-73	79-97-137 46-56-79	85-104-148 50-61-86		
36x34	8.50	8.14	cfm	2442	3256	4070	4884	5698	6512	8140	9768	11396		
			NC	-	19	26	31	36	40	46	52	56		
			Throw 0°	30-49-91	43-65-105	54-81-117	65-91-128	76-98-139	86-105-148	96-117-166	105-128-182	113-139-196		
			Throw 22.5° (ft) 45°	24-38-70 14-22-41	34-50-81 20-29-47	42-63-91 24-37-53	50-70-100 29-41-58	59-76-108 34-44-62	66-81-115 39-47-67	74-91-129 43-53-75	81-100-141 47-58-82	88-108-152 51-62-88		
42x30	8.75	8.38	cfm	2514	3352	4190	5028	5866	6704	8380	10056	11732		
			NC	11	19	26	31	36	40	47	52	57		
			Throw 0°	31-49-92	44-66-106	55-82-119	66-92-130	77-100-141	87-106-151	97-119-168	106-130-184	115-141-199		
			Throw 22.5° (ft) 45°	24-38-71 14-22-41	34-51-82 20-30-48	43-64-92 25-37-54	51-71-101 30-41-59	60-77-109 35-45-63	67-82-117 39-48-68	75-92-130 44-54-76	82-101-143 48-59-83	89-109-154 52-63-90		
36x36	9.00	8.63	cfm	2589	3452	4315	5178	6041	6904	8630	10356	12082		
			NC	11	19	26	31	36	40	47	52	57		
			Throw 0°	31-50-94	45-67-108	56-84-121	67-94-132	78-101-143	88-108-153	99-121-171	108-132-187	117-143-202		
			Throw 22.5° (ft) 45°	24-39-72 14-23-42	35-52-84 20-30-49	43-65-94 25-38-54	52-72-103 30-42-60	61-78-111 35-45-64	68-84-118 40-49-69	76-94-132 44-54-77	84-103-145 49-60-84	90-111-157 53-64-91		
42x34 48x30	10.00	9.6	cfm	2880	3840	4800	5760	6720	7680	9600	11520	13440		
			NC	11	20	26	32	36	40	47	53	57		
			Throw 0°	33-53-99	47-71-114	59-88-127	71-99-140	82-107-151	93-114-161	104-127-180	114-140-197	123-151-213		
			Throw 22.5° (ft) 45°	26-41-76 15-24-44	36-55-88 21-32-51	46-68-99 26-40-57	55-76-108 32-44-63	64-83-117 37-48-68	72-88-125 42-51-73	81-99-140 47-57-81	88-108-153 51-63-89	95-117-165 55-68-96		
38x38	10.03	9.64	cfm	2892	3856	4820	5784	6748	7712	9640	11568	13496		
			NC	11	20	26	32	36	40	47	53	57		
			Throw 0°	33-53-99	47-71-114	59-88-128	71-99-140	83-107-151	93-114-161	104-128-181	114-140-198	123-151-214		
			Throw 22.5° (ft) 45°	26-41-77 15-24-44	37-55-88 21-32-51	46-69-99 27-40-57	55-77-108 32-44-63	64-83-117 37-48-68	72-88-125 42-51-73	81-99-140 47-57-81	88-108-153 51-63-89	96-117-166 55-68-96		
42x36	10.50	10.1	cfm	3030	4040	5050	6060	7070	8080	10100	12120	14140		
			NC	11	20	27	32	37	41	47	53	57		
			Throw 0°	34-54-101	48-72-117	60-91-131	72-101-143	85-109-155	95-117-165	107-131-185	117-143-202	126-155-219		
			Throw 22.5° (ft) 45°	26-42-78 15-24-46	37-56-91 22-33-53	47-70-101 27-41-59	56-78-111 33-46-64	65-85-120 38-49-70	74-91-128 43-53-74	83-101-143 48-59-83	91-111-157 53-64-91	98-120-169 57-70-98		
46x34	10.86	10.45	cfm	3135	4180	5225	6270	7315	8360	10450	12540	14630		
			NC	11	20	27	32	37	41	47	53	58		
			Throw 0°	34-55-103	49-74-119	61-92-133	74-103-146	86-111-157	97-119-168	109-133-188	119-146-206	128-157-222		
			Throw 22.5° (ft) 45°	27-43-80 16-25-46	38-57-92 22-33-53	48-71-103 28-41-60	57-80-113 33-46-66	67-86-122 39-50-71	75-92-130 43-53-76	84-103-146 49-60-85	92-113-160 53-66-93	99-122-172 58-71-100		

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

			NC-20			NC-30			NC-40			NC-50		
Nom. Duct Size (in.)	Nom. Duct Area (ft²)	Core Area (ft²)	Core Vel.	300	400	500	600	700	800	1000	1200	1400		
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122		
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358		
			Total 22.5° Press. 45°	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401		
				0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606		
42x38	11.08	10.67	cfm	3201	4268	5335	6402	7469	8536	10670	12804	14938		
			NC	12	20	27	32	37	41	48	53	58		
			0°	35-56-104	50-74-120	62-93-134	74-104-147	87-112-159	98-120-170	110-134-190	120-147-208	130-159-225		
			Throw 22.5°	27-43-81	38-58-93	48-72-104	58-81-114	67-87-123	76-93-132	85-104-147	93-114-161	101-123-174		
			(ft) 45°	16-25-47	22-34-54	28-42-60	34-47-66	39-51-71	44-54-76	49-60-85	54-66-94	58-71-101		
40x40	11.11	10.7	cfm	3210	4280	5350	6420	7490	8560	10700	12840	14980		
			NC	12	20	27	32	37	41	48	53	58		
			0°	35-56-104	50-75-120	62-93-134	75-104-147	87-113-159	98-120-170	110-134-190	120-147-208	130-159-225		
			Throw 22.5°	27-43-81	39-58-93	48-72-104	58-81-114	67-87-123	76-93-132	85-104-147	93-114-161	101-123-174		
			(ft) 45°	16-25-47	22-34-54	28-42-61	34-47-66	39-51-72	44-54-77	49-61-86	54-66-94	58-72-101		
48x36	12.00	11.57	cfm	3471	4628	5785	6942	8099	9256	11570	13884	16198		
			NC	12	21	27	33	37	41	48	53	58		
			0°	36-58-108	52-78-125	65-97-140	78-108-153	90-117-165	102-125-177	114-140-198	125-153-217	135-165-234		
			Throw 22.5°	28-45-84	40-60-97	50-75-108	60-84-119	70-91-128	79-97-137	88-108-153	97-119-168	105-128-181		
			(ft) 45°	16-26-49	23-35-56	29-44-63	35-49-69	41-53-74	46-56-80	51-63-89	56-69-97	61-74-105		
42x42	12.25	11.82	cfm	3546	4728	5910	7092	8274	9456	11820	14184	16548		
			NC	12	21	27	33	37	41	48	53	58		
			0°	37-59-109	52-78-126	65-98-141	78-109-155	91-118-167	103-126-179	115-141-200	126-155-219	137-167-236		
			Throw 22.5°	28-46-85	40-61-98	51-76-110	61-85-120	71-92-130	80-98-139	89-110-155	98-120-170	106-130-183		
			(ft) 45°	16-26-49	24-35-57	29-44-64	35-49-70	41-53-75	46-57-80	52-64-90	57-70-99	61-75-106		
44x44	13.44	12.99	cfm	3897	5196	6495	7794	9093	10392	12990	15588	18186		
			NC	12	21	28	33	38	42	48	54	58		
			0°	38-62-115	55-82-133	68-103-148	82-115-162	96-124-175	108-133-187	121-148-210	133-162-230	143-175-248		
			Throw 22.5°	30-48-89	42-64-103	53-80-115	64-89-126	74-96-136	84-103-145	94-115-162	103-126-178	111-136-192		
			(ft) 45°	17-28-52	25-37-60	31-46-67	37-52-73	43-56-79	49-60-84	54-67-94	60-73-103	64-79-112		
48x42	14.00	13.54	cfm	4062	5416	6770	8124	9478	10832	13540	16248	18956		
			NC	13	21	28	33	38	42	49	54	59		
			0°	39-63-117	56-84-135	70-105-151	84-117-166	98-127-179	110-135-191	124-151-214	135-166-234	146-179-253		
			Throw 22.5°	30-49-91	43-65-105	54-81-117	65-91-128	76-98-139	86-105-148	96-117-166	105-128-182	113-139-196		
			(ft) 45°	18-28-53	25-38-61	31-47-68	38-53-75	44-57-81	50-61-86	56-68-96	61-75-105	66-81-114		
46x46	14.69	14.22	cfm	4266	5688	7110	8532	9954	11376	14220	17064	19908		
			NC	13	21	28	33	38	42	49	54	59		
			0°	40-64-120	57-86-139	72-107-155	86-120-170	100-130-183	113-139-196	127-155-219	139-170-240	150-183-259		
			Throw 22.5°	31-50-93	44-67-107	56-83-120	67-93-132	78-101-142	88-107-152	98-120-170	107-132-186	116-142-201		
			(ft) 45°	18-29-54	26-39-62	32-48-70	39-54-76	45-58-83	51-62-88	57-70-99	62-76-108	67-83-117		
48x46	15.33	14.85	cfm	4455	5940	7425	8910	10395	11880	14850	17820	20790		
			NC	13	22	28	34	38	42	49	54	59		
			0°	41-66-123	59-88-142	73-110-158	88-123-174	102-133-187	116-142-200	129-158-224	142-174-245	153-187-265		
			Throw 22.5°	32-51-95	45-68-110	57-85-123	68-95-134	79-103-145	90-110-155	100-123-174	110-134-190	119-145-205		
			(ft) 45°	18-30-55	26-40-64	33-49-71	40-55-78	46-60-84	52-64-90	58-71-101	64-78-110	69-84-119		
48x48	16.00	15.50	cfm	4650	6200	7750	9300	10850	12400	15500	18600	21700		
			NC	13	22	28	34	38	42	49	55	59		
			0°	42-67-125	60-90-145	75-112-162	90-125-177	105-135-192	118-145-205	132-162-229	145-177-251	156-192-271		
			Throw 22.5°	33-52-97	46-70-112	58-87-125	70-97-137	81-105-148	92-112-159	102-125-177	112-137-194	121-148-210		
			(ft) 45°	19-30-56	27-40-65	34-50-73	40-56-80	47-61-86	53-65-92	59-73-103	65-80-113	70-86-122		

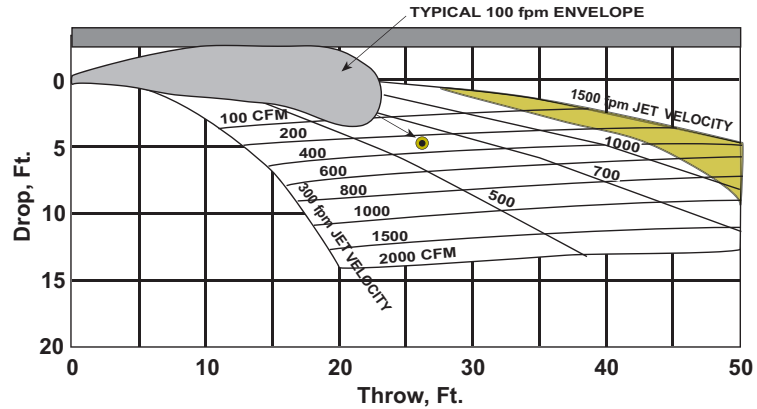
- 0°, 22.5° & 45° represent blade deflection angles
- Performance data is based on duct sizes in bold, the performance varies slightly for duct sizes not shown in bold
- See the section, Engineering Guidelines, for drop information when selecting larger supply grilles for cooling purposes
- See the "Performance Notes" portion in this section for notes and correction factors

- See the section, Engineering Guidelines, for catalog throw information
- Each NC value represents the noise criteria curve that will not be exceeded by the sound pressure in any of the octave bands, 2 through 7, with a room absorption of 10 dB, re 10⁻¹² watts

PERFORMANCE NOTES

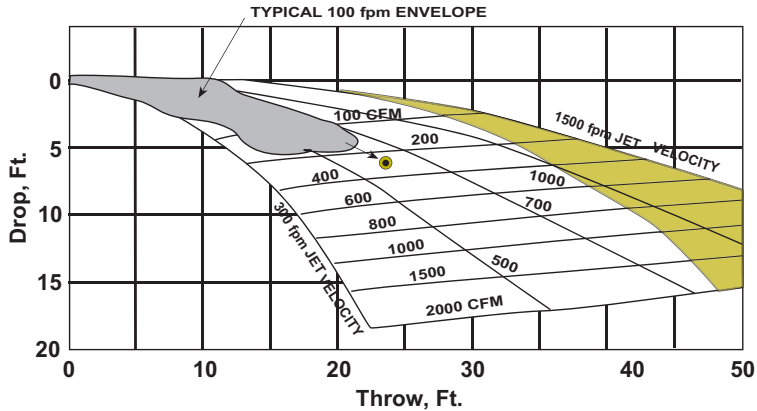
- Performance data includes damper
- Data obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70-2006
- All pressures are in inches of water
- Core velocities are in feet per minute
- Throw values given are for isothermal terminal velocities of 150, 100 and 50 fpm
- Each NC value represents the noise criterion value that will not be exceeded by the sound pressure in any of the octave bands, 2 through 7. Each NC value is based on a room absorption of 10 dB, re 10⁻¹² watts. Each NC value is further based on grille operating at a 0° deflection. Settings of 22½° or 45°, increase the stated sound levels by 1 or 7 NC, respectively.
- Bold dividing lines on H17-H21 denote ranges of NC values
- The stated deflection settings refer to the horizontal setting of the blade's deflection angle. For a 20° upward deflection, use the throw rating for the 0° setting and the total pressure for the 22½° horizontal setting.
- Dash (—) in space indicates NC value less than 10
- For additional information concerning drop and throw, see the Engineering Guidelines section of this catalog

Drop Versus Throw Showing Ceiling Effect - 20°F ΔT Cooling



(Side view of air jet leaving wall mounted grille)

Drop Versus Throw without Ceiling Effect



(Side view of air jet leaving wall mounted grille)

VARIABLE AIR VOLUME APPLICATIONS

All Titus supply grilles can be applied to variable air volume systems with excellent results. For detailed selection methods, consult your Titus representative or the Engineering Guidelines section of this catalog.

Correction Factors for 300/301 Supply Grilles

Model	Damper	A_k / A_c	Throw	Total Pressure	NC
300R, 300F	With	0.77	1.00	1.00	0
301R, 301F	Without	0.82	0.98	0.88	-2

Note: Throw and total pressure corrections are multipliers. The NC correction is an addition. A_k is the flow factor. A_c is the core area from the main table.

HORIZONTAL DEFLECTION (SPREAD)

SUPPLY GRILLES

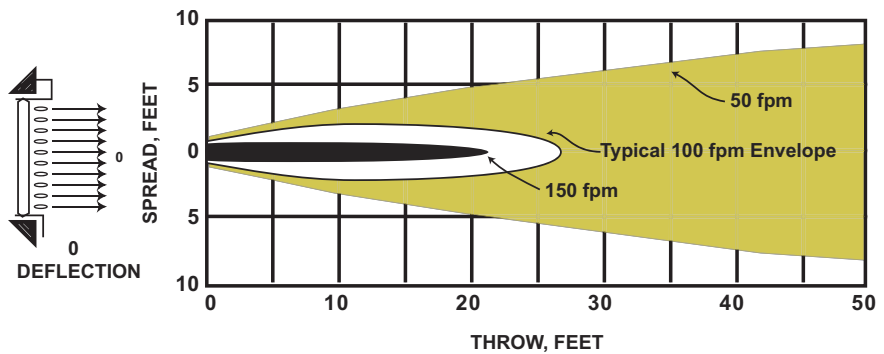
The figures depicting deflection, throw and drop are based on actual tests conducted by Titus. They show the relationship of spread to throw for a typical high side-wall supply outlet selection.

Notice the outer shaded area represents the 50 fpm isovel, the white area, the 100 fpm isovel, and the inner area, the 150 fpm isovel.

The spread angle also affects the airstream drop amount. Always consider for any given temperature, volume and core velocity; the wider spread results in a smaller drop. See section, Engineering Guidelines, for more drop, throw and spread relationship information.

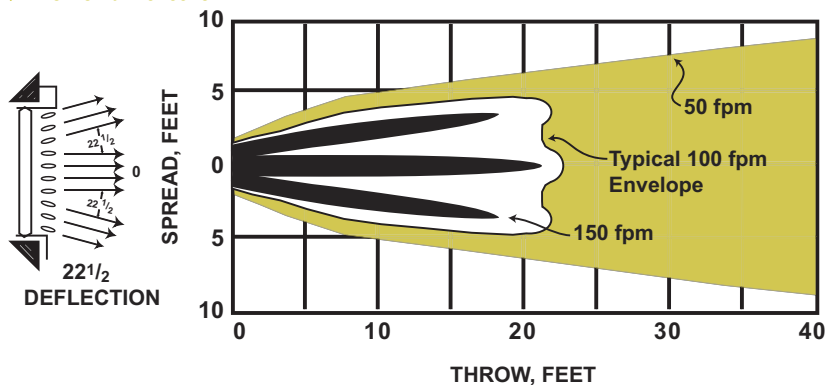
Titus grilles can be selected with a single set of blades for adjusting either horizontal or vertical deflection, or with two sets of blades for adjusting both horizontal and vertical deflections.

0° Horizontal Deflection



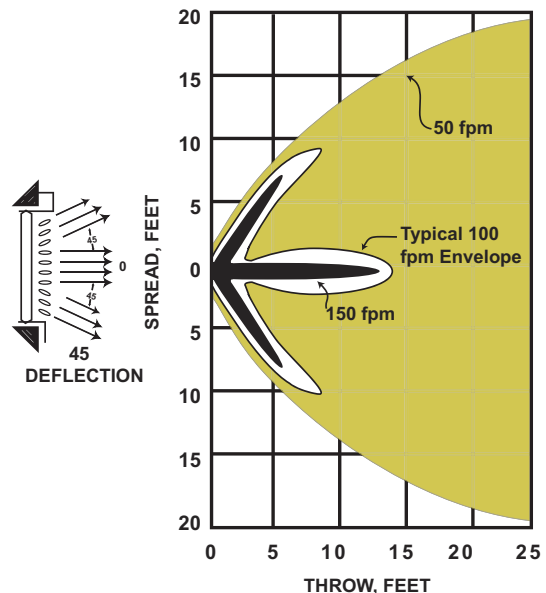
Spread versus throw at 0° horizontal deflection angle (Plan view of air jet leaving wall mounted grille).

22½° Horizontal Deflection



Spread versus throw at 22½° horizontal deflection angle (Plan view of air jet leaving wall mounted grille).

45° Horizontal Deflection



Spread versus throw at 45° horizontal deflection angle (Plan view of air jet leaving wall mounted grille).

Model: SQ-160-VG

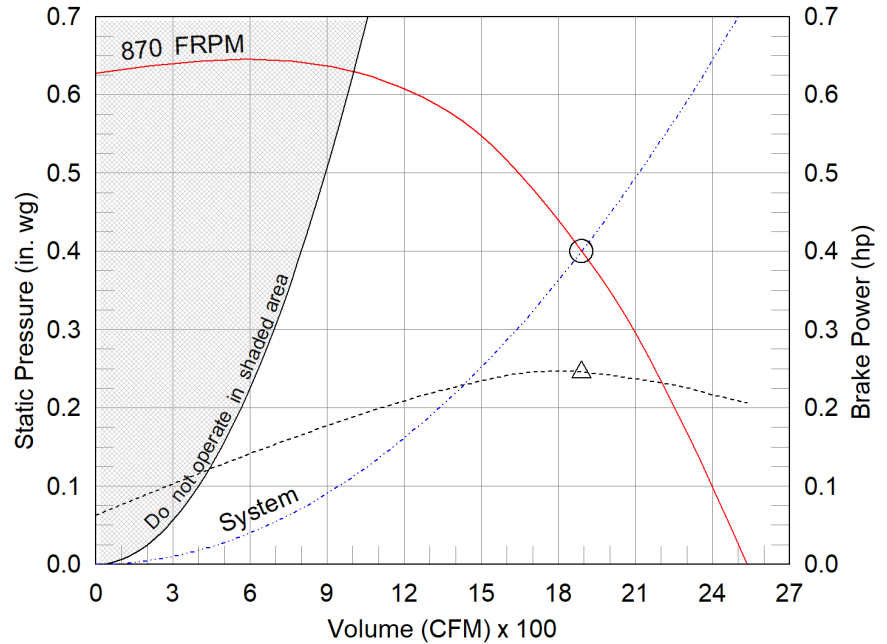
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	134
Weight w/ Acc's (lb)	136

Performance	
Requested Volume (CFM)	1,890
Actual Volume (CFM)	1,890
Total External SP (in. wg)	0.4
Fan RPM	870
Operating Power (hp)	0.25
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	3,815
Static Eff. (%)	48

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	526

Motor	
Motor Mounted	Yes
Size (hp)	3/4
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP
Motor RPM	1140
Windings	1
FLA (Amps)	8.8
Min. Circuit Ampacity (MCA)	11
Max. Overcurrent Protection (MOP)	20
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: SQ-160-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	66	72	67	65	57	55	51	46	66	54	7.0
Radiated	70	73	63	59	49	41	33	30	62	50	5.3

Notes:

All dimensions shown are in units of in.
*Please consult factory for actual motor amp draw
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB
attenuation per Octave band at 5 ft - dBA levels are not
licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-160-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

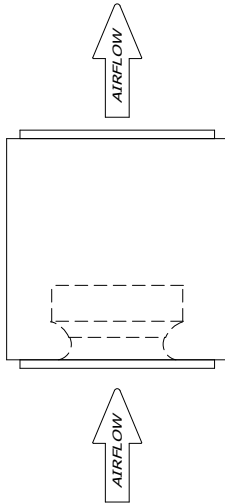
Switch, NEMA-1, Toggle, Shipped Separate,

Aluminum Wheel Material

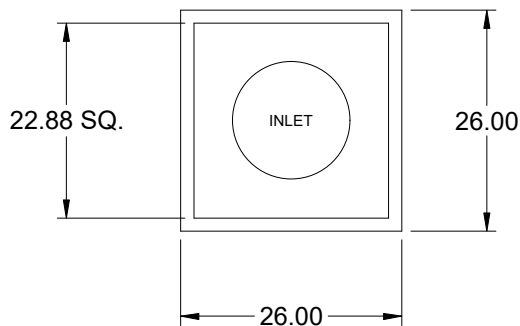
Unit Warranty: 1 Yr (Standard)

SQ-160-VG

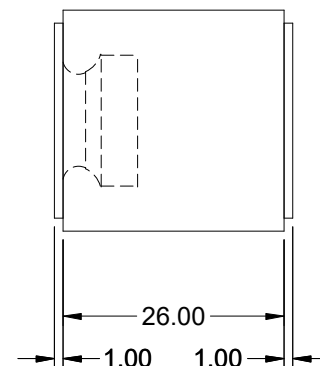
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The inlet sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type B: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to inlet sone ratings only. Radiated (casing) sound data is the sound generated through the fan housing when the fan is ducted on both the inlet and outlet.

Model: SQ-100-VG

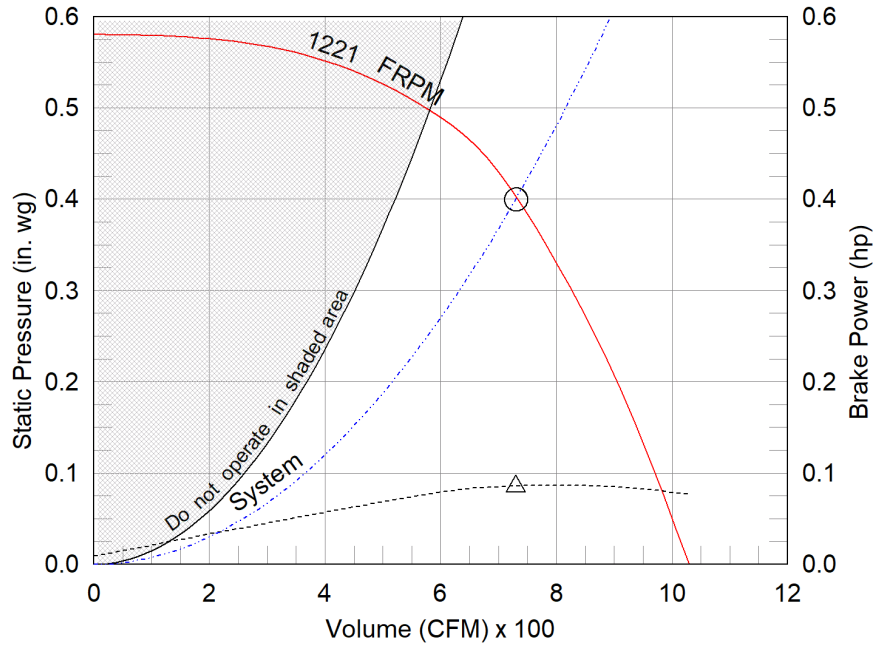
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	48
Weight w/ Acc's (lb)	50

Performance	
Requested Volume (CFM)	730
Actual Volume (CFM)	730
Total External SP (in. wg)	0.4
Fan RPM	1221
Operating Power (hp)	0.09
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	3,577
Static Eff. (%)	54

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	557

Motor	
Motor Mounted	Yes
Size (hp)	1/4
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Windings	1
FLA (Amps)	2.85
Min. Circuit Ampacity (MCA)	4
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: SQ-100-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	63	66	63	63	61	55	46	46	65	53	6.2
Radiated	64	68	57	57	56	49	40	41	60	49	4.7

Notes:

All dimensions shown are in units of in.
*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-100-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

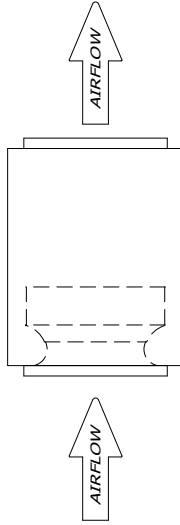
Switch, NEMA-1, Toggle, Shipped Separate,

Aluminum Wheel Material

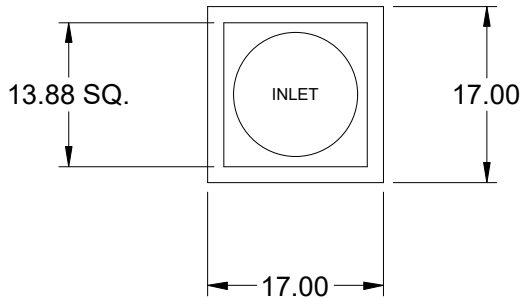
Unit Warranty: 1 Yr (Standard)

SQ-100-VG

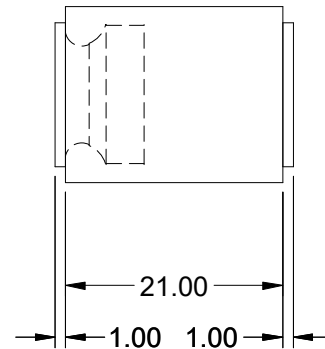
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The inlet sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type B: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to inlet sone ratings only. Radiated (casing) sound data is the sound generated through the fan housing when the fan is ducted on both the inlet and outlet.

Model: SQ-140-VG

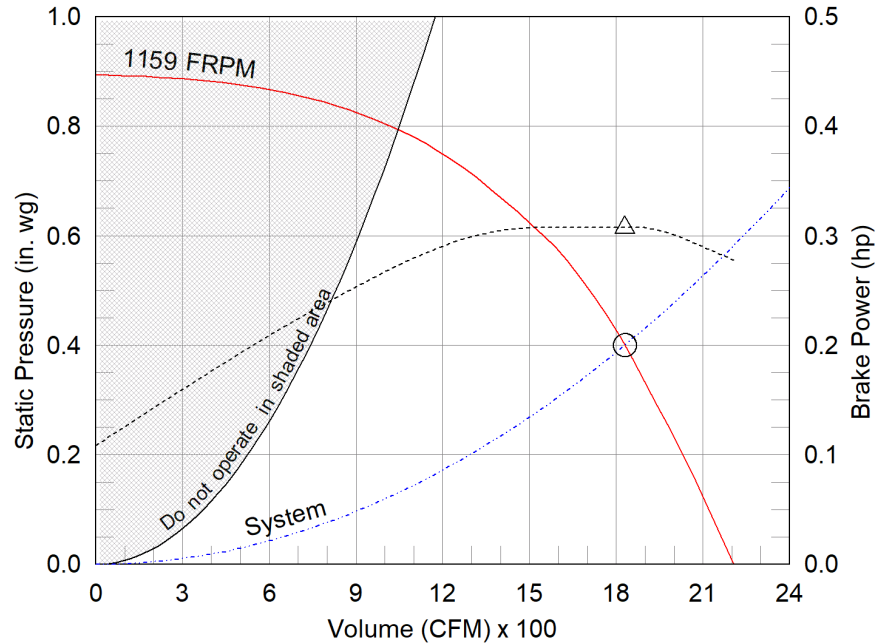
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	88
Weight w/ Acc's (lb)	97

Performance	
Requested Volume (CFM)	1,830
Actual Volume (CFM)	1,830
Total External SP (in. wg)	0.4
Fan RPM	1159
Operating Power (hp)	0.31
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	4,420
Static Eff. (%)	37

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	675

Motor	
Motor Mounted	Yes
Size (hp)	3/4
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP
Motor RPM	1500
Windings	1
FLA (Amps)	8.8
Min. Circuit Ampacity (MCA)	11
Max. Overcurrent Protection (MOP)	20
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: SQ-140-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	69	71	76	69	63	61	57	54	72	60	10.3
Radiated	72	72	72	63	55	46	39	38	67	55	7.1

Notes:

All dimensions shown are in units of in.
*Please consult factory for actual motor amp draw
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB
attenuation per Octave band at 5 ft - dBA levels are not
licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-140-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped Separate,

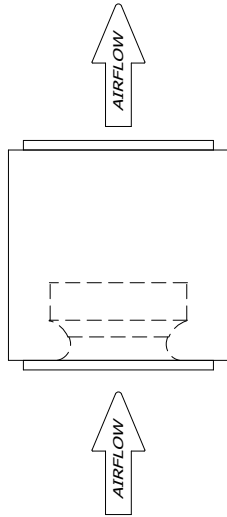
Aluminum Wheel Material

Motor Cover

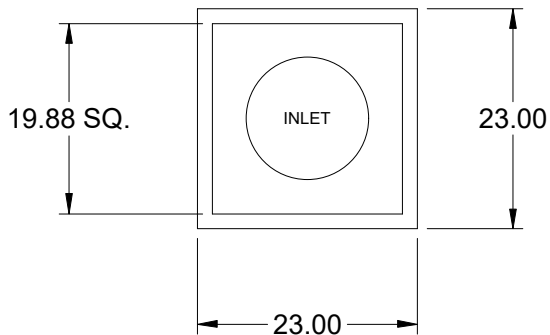
Unit Warranty: 1 Yr (Standard)

SQ-140-VG

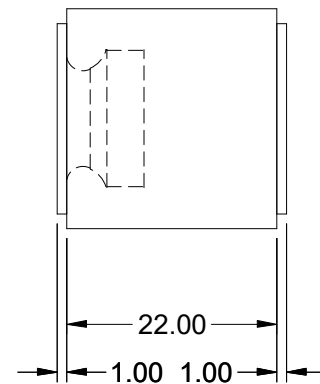
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The inlet sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type B: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to inlet sone ratings only. Radiated (casing) sound data is the sound generated through the fan housing when the fan is ducted on both the inlet and outlet.

Model: SQ-140-VG

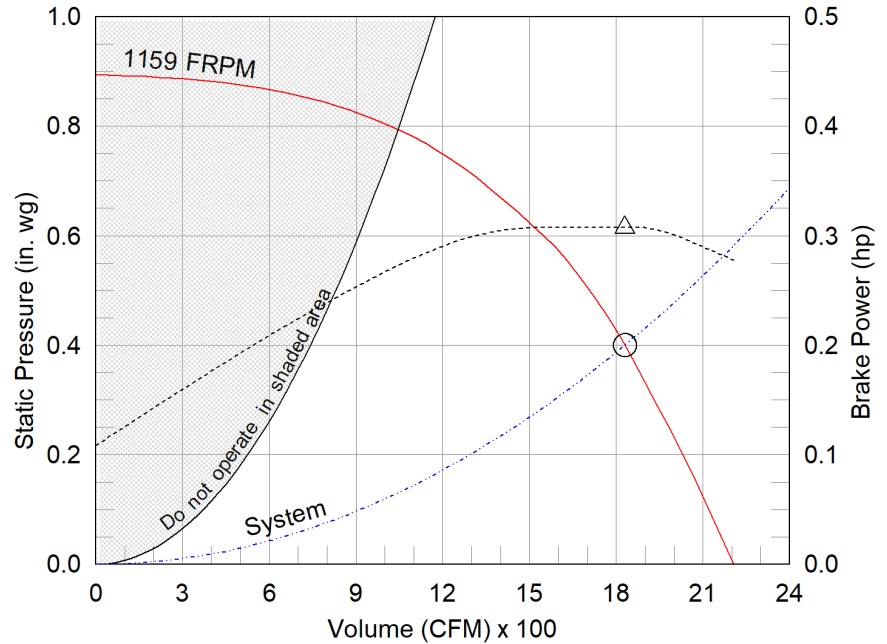
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	88
Weight w/ Acc's (lb)	97

Performance	
Requested Volume (CFM)	1,830
Actual Volume (CFM)	1,830
Total External SP (in. wg)	0.4
Fan RPM	1159
Operating Power (hp)	0.31
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	4,420
Static Eff. (%)	37

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	675

Motor	
Motor Mounted	Yes
Size (hp)	3/4
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP
Motor RPM	1500
Windings	1
FLA (Amps)	8.8
Min. Circuit Ampacity (MCA)	11
Max. Overcurrent Protection (MOP)	20
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: SQ-140-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	69	71	76	69	63	61	57	54	72	60	10.3
Radiated	72	72	72	63	55	46	39	38	67	55	7.1

Notes:

All dimensions shown are in units of in.
*Please consult factory for actual motor amp draw
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB
attenuation per Octave band at 5 ft - dBA levels are not
licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-140-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped Separate,

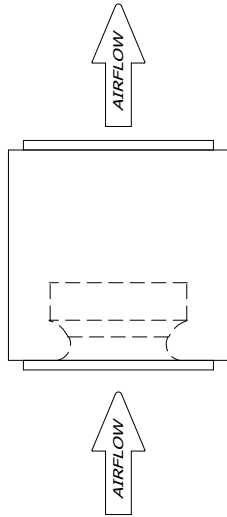
Aluminum Wheel Material

Motor Cover

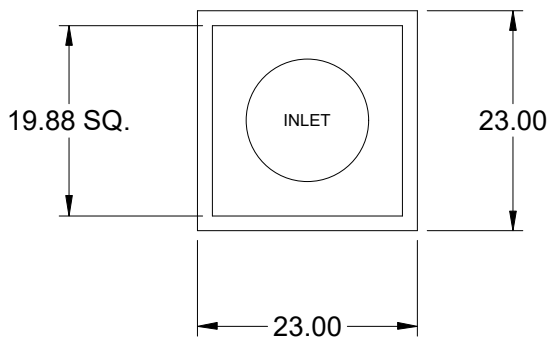
Unit Warranty: 1 Yr (Standard)

SQ-140-VG

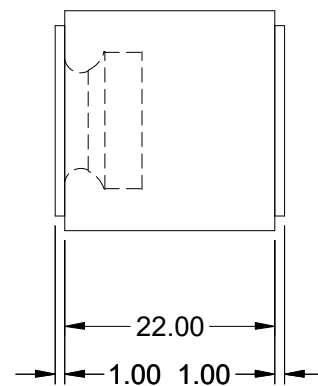
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The inlet sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type B: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to inlet sone ratings only. Radiated (casing) sound data is the sound generated through the fan housing when the fan is ducted on both the inlet and outlet.

Model: SQ-90-VG

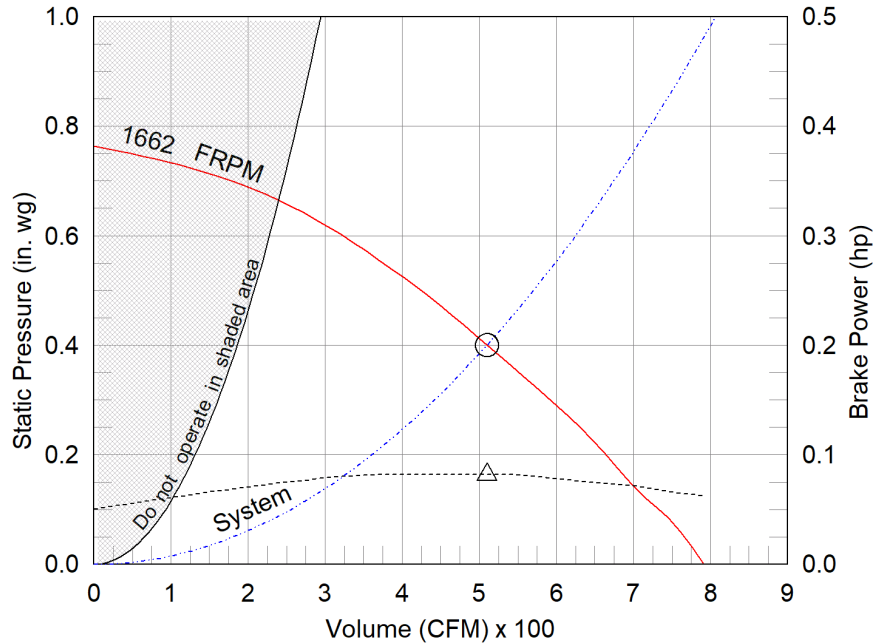
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	48
Weight w/ Acc's (lb)	56

Performance	
Requested Volume (CFM)	510
Actual Volume (CFM)	510
Total External SP (in. wg)	0.4
Fan RPM	1662
Operating Power (hp)	0.08
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	4,732
Static Eff. (%)	39

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	510

Motor	
Motor Mounted	Yes
Size (hp)	1/10
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Windings	1
FLA (Amps)	1.38
Min. Circuit Ampacity (MCA)	2
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: SQ-90-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	73	73	71	63	59	57	55	47	67	56	8.3
Radiated	74	75	65	57	54	51	49	43	64	52	7.0

Notes:

All dimensions shown are in units of in.
*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-90-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped Separate,

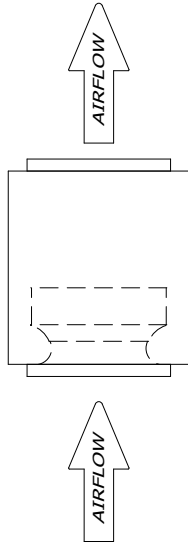
Composite Wheel Material

Motor Cover

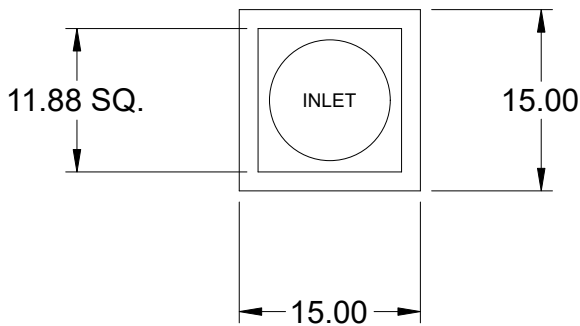
Unit Warranty: 1 Yr (Standard)

SQ-90-VG

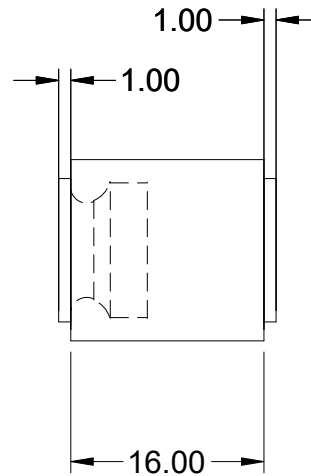
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

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Model: SQ-160-VG

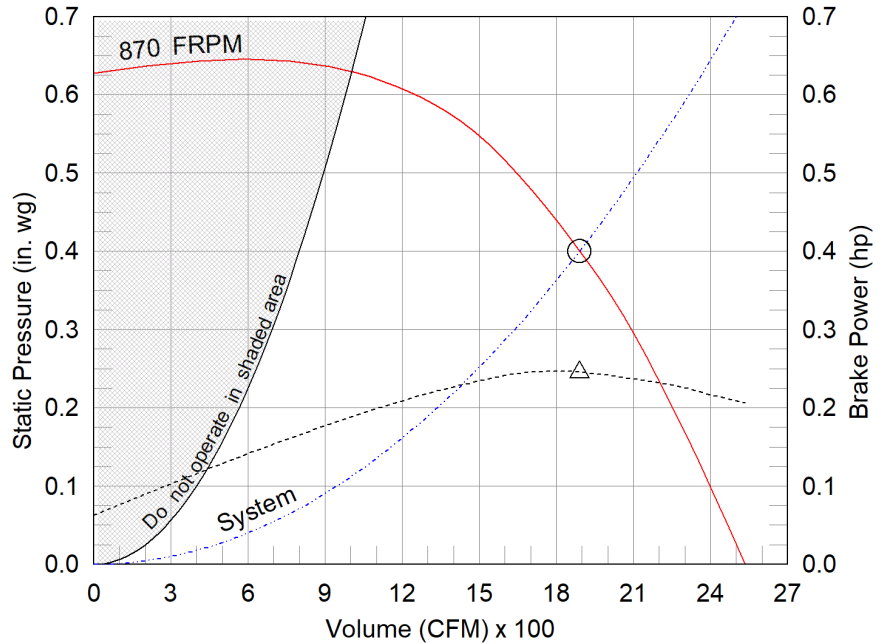
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	134
Weight w/ Acc's (lb)	136

Performance	
Requested Volume (CFM)	1,890
Actual Volume (CFM)	1,890
Total External SP (in. wg)	0.4
Fan RPM	870
Operating Power (hp)	0.25
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	3,815
Static Eff. (%)	48

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	526

Motor	
Motor Mounted	Yes
Size (hp)	3/4
Voltage/Cycle/Phase	115/60/1
Enclosure	ODP
Motor RPM	1140
Windings	1
FLA (Amps)	8.8
Min. Circuit Ampacity (MCA)	11
Max. Overcurrent Protection (MOP)	20
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: SQ-160-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	66	72	67	65	57	55	51	46	66	54	7.0
Radiated	70	73	63	59	49	41	33	30	62	50	5.3

Notes:

All dimensions shown are in units of in.
*Please consult factory for actual motor amp draw
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB
attenuation per Octave band at 5 ft - dBA levels are not
licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-160-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

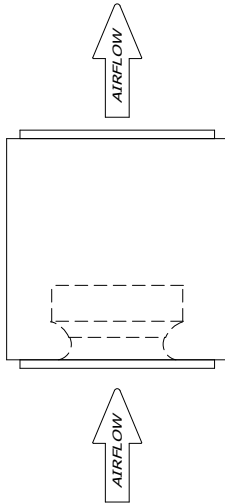
Switch, NEMA-1, Toggle, Shipped Separate,

Aluminum Wheel Material

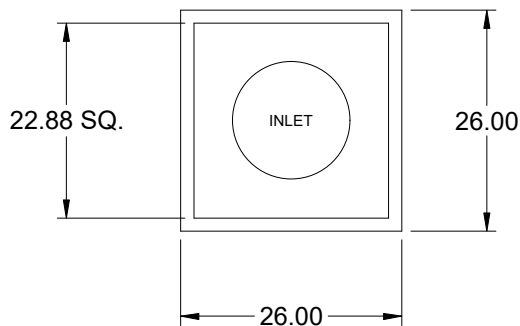
Unit Warranty: 1 Yr (Standard)

SQ-160-VG

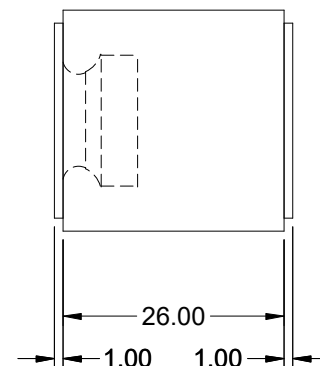
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

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Model: SQ-90-VG

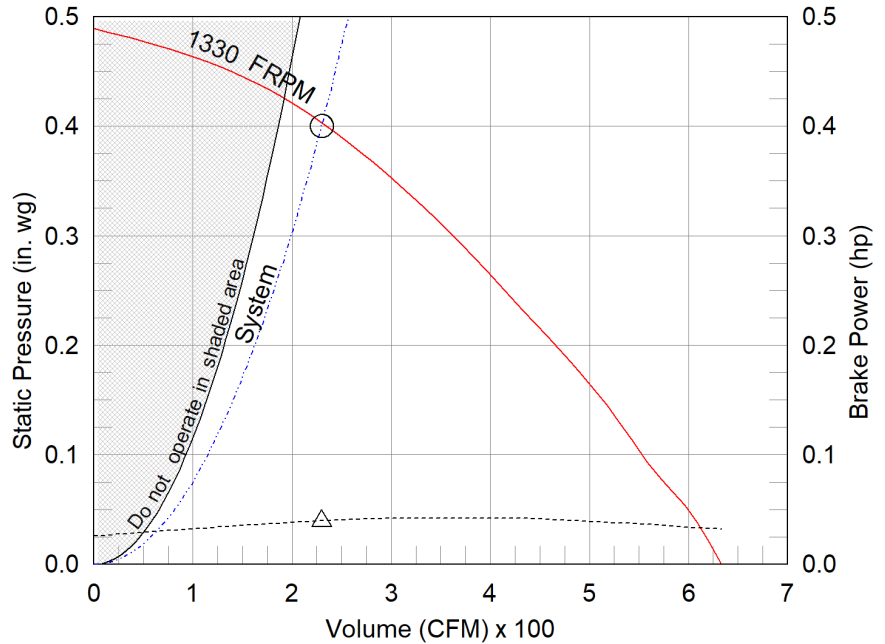
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	48
Weight w/ Acc's (lb)	56

Performance	
Requested Volume (CFM)	230
Actual Volume (CFM)	230
Total External SP (in. wg)	0.4
Fan RPM	1330
Operating Power (hp)	0.04
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	3,786
Static Eff. (%)	37

Misc Fan Data	
Fan Eff. Index (FEI)	-
Outlet Velocity (ft/min)	230

Motor	
Motor Mounted	Yes
Size (hp)	1/10
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1725
Windings	1
FLA (Amps)	1.38
Min. Circuit Ampacity (MCA)	2
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- System curve
- Brake horsepower curve

Nameplate Model: SQ-90-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	68	68	64	57	54	53	49	42	61	50	5.7
Radiated	69	70	58	51	49	47	43	38	58	47	4.8

Notes:

All dimensions shown are in units of in.
*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-90-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped Separate,

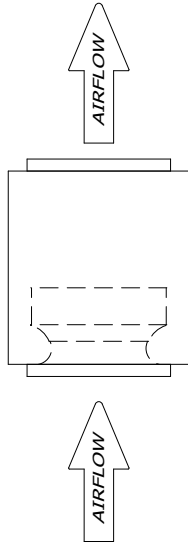
Composite Wheel Material

Motor Cover

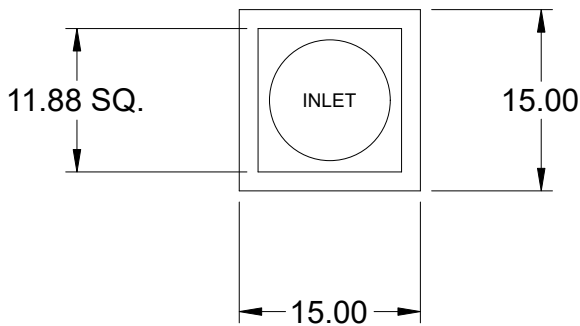
Unit Warranty: 1 Yr (Standard)

SQ-90-VG

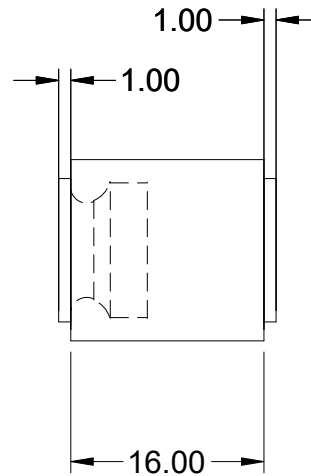
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

AMCA

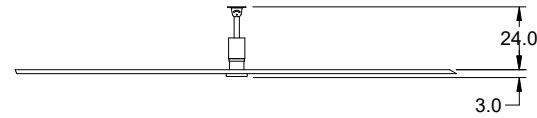


AMCA Licensed for Sound and Air Performance. Power rating (BHP/kW) does not include transmission losses.

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Model: DC-5-14-13LV

High Volume, Low Speed Ceiling Fan



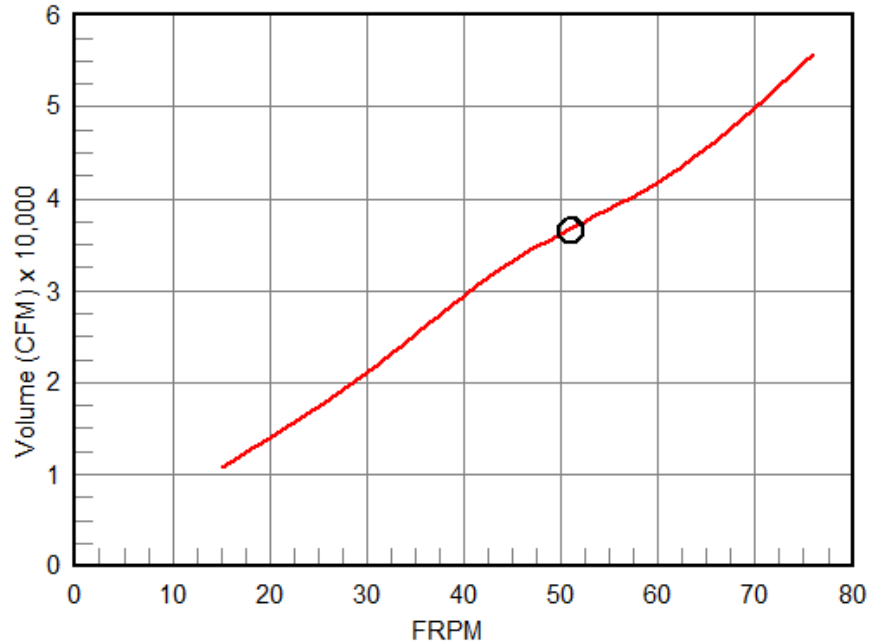
Dimensional	
Impeller Diameter (ft)	14
Impeller Diameter (in.)	168
Quantity	1
Weight w/o Acc's (lb)	44
Weight w/ Acc's (lb)	108

Installation Clearances	
Minimum Fan Spacing (ft)	42
Clearance to Wall (ft)	21
Blade Tip Clearance (ft)	3
Vertical Blade Clearance (ft)	3
Standby Blade Deflection (in.)	2.4

Performance Per Fan	
*Tested Direction of Operation	Forward
Actual Volume (CFM)	36,688
Coverage Area (ft2)	4,950
Max Coverage Area (ft2)	12,500
Avg. Air Speed (ft/min)	148
Max Avg. Air Speed (ft/min)	218
Fan RPM	51
Max Fan RPM	76
**CFEI at 40% Speed	5.35
**CFEI at 100% Speed	1.49
**Integrated Efficiency (CFM/W)	-
Total Sound Pressure (dBA)	35

Fan Operation	
Direction of Operation Capability	Forward or Reverse
Communication Protocol	Modbus RTU

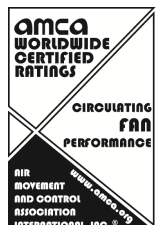
Motor	
Size (W)	175
Voltage/Cycle/Phase	115/60/1
Enclosure	IP54
Max Motor RPM	76
***System FLA (Amps)	5.0
**Standby Power (W)	5
**Input Power (W)	80



Operating point
Fan curve

Notes:

All dimensions shown are in units of in. (unless specified otherwise)
Dimensions shown may vary with fan speed. Consult installation manual for clearance requirements.
dBA – A weighted sound pressure level measured 5 ft off the ground at 20 ft from the center of the fan – dBA levels are not licensed by AMCA International
*Cataloged performance data tested using forward direction of operation per 10 CFR Part 430.
**Based on 115/60/1 testing per 10 CFR 430
***FLA is based on worst case system voltage and phase combination



Model: DC-5-14-13LV

High Volume, Low Speed Ceiling Fan

Standard Construction Features:

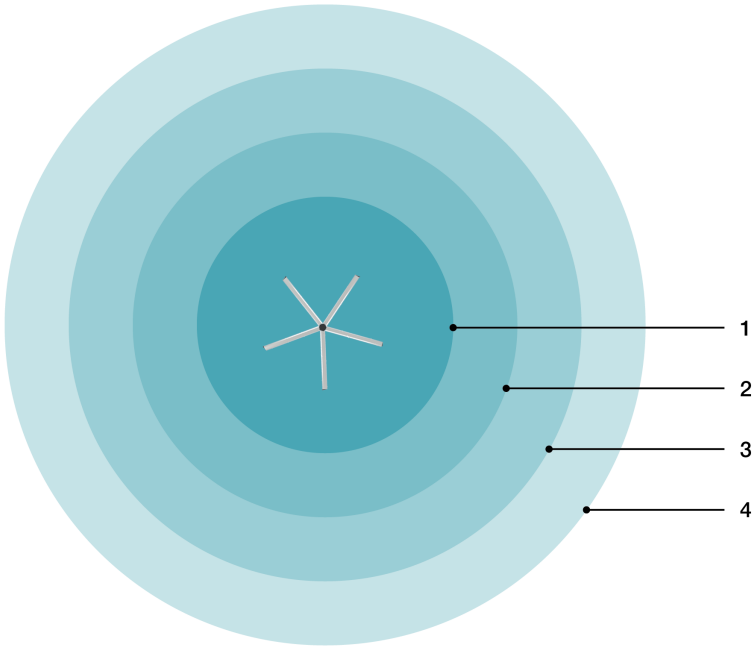
Heavy duty frame with protective finish - Extruded aluminum airfoils - High efficiency direct drive motor designed for either forward or reverse operation - Factory mounted and wired variable frequency drive - Factory installed plug and play wiring - Universal ceiling mount - Heavy duty safety restraint cable - Airfoil and fan hub retaining systems - AMCA certified for Circulating Fan Performance

Selected Options & Accessories:

5 Blade, Extruded Aluminum Airfoil Kit
Mill Finish, No Color
Aluminum Winglet; Hi-Pro Polyester Finish, Flat Black (044) Color
Unistrut Mounting Kit (Unistrut Channel and Hardware By Others); Hi-Pro Polyester Finish, Flat Black (044) Color
2 ft Drop Length; Hi-Pro Polyester Finish, Flat Black (044) Color
Hub Plate and Impeller Hub; Hi-Pro Polyester Finish, Flat Black (044) Color
Power Wiring Pigtail, Internal, General, 3 ft of Flexible Power Cord from Unit, Unstripped Wire
Plug-and-Play Network Communication Wiring Pigtail, Internal, Terminated with Shielded CAT-5e Splitter (RJ45 Ports)
100 ft of Shielded, Twisted Pair (STP) CAT-5e Control Cable
Fire Alarm Wiring Pigtail, Internal, 4 ft from Unit, Terminated with Crimp Connector
Low-Voltage (24VDC/VAC or 115VAC), Normally Closed Electromechanical Fire Alarm Relay
Braided Galvanized Steel Safety Cable, 18 ft from Unit
Easy-Install Gripple Hardware for Safety Cable
Electrical Warranty: 1 Yr (Standard)
Mechanical Warranty: 10 Yrs (Standard)

Model: DC-5-14-13LV
High Volume, Low Speed Ceiling Fan

Fan Coverage Data

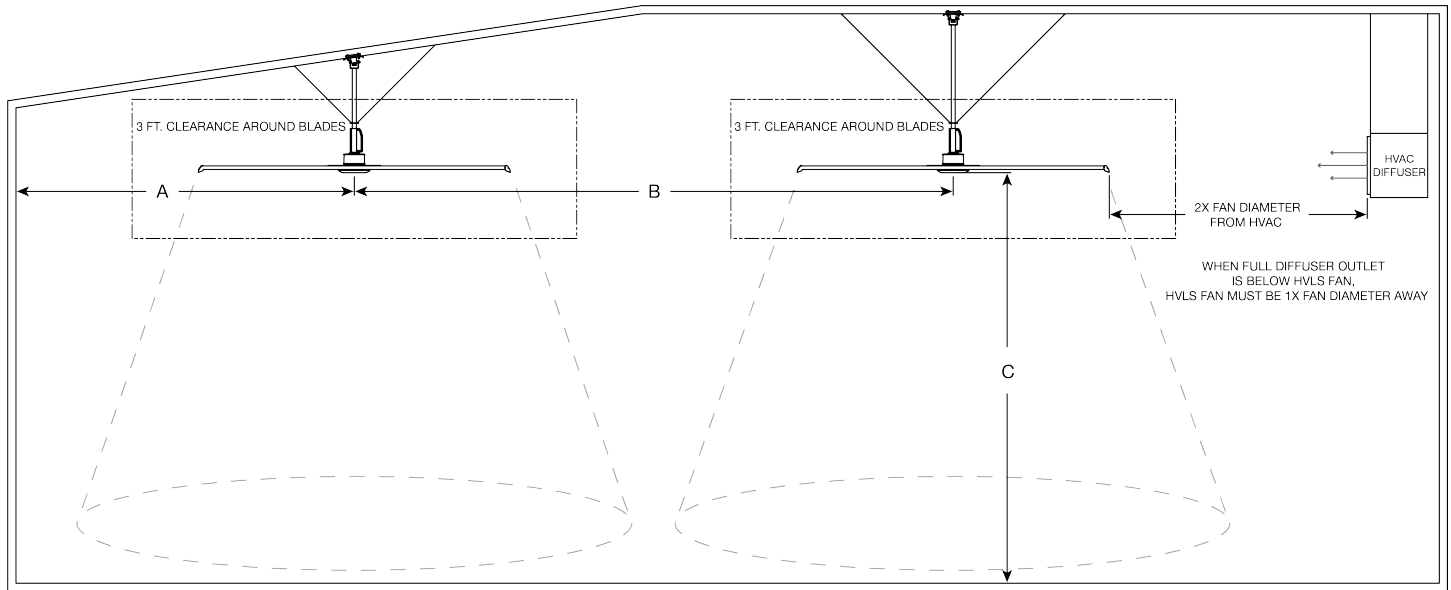


	Fan Speed (RPM)	Zone 1 375+ FPM Air Speed Radius (ft)	Zone 2 230+ FPM Air Speed Radius (ft)	Zone 3 105+ FPM Air Speed Radius (ft)	Zone 4 <105 FPM Air Speed Radius (ft)	Recommended Coverage Radius Per Fan (ft)
Selected	51	0	4	41	71	4,950
Maximum	76	0	26	52	75	64

Model: DC-5-14-13LV

High Volume, Low Speed Ceiling Fan

Fan Spacing & Clearances

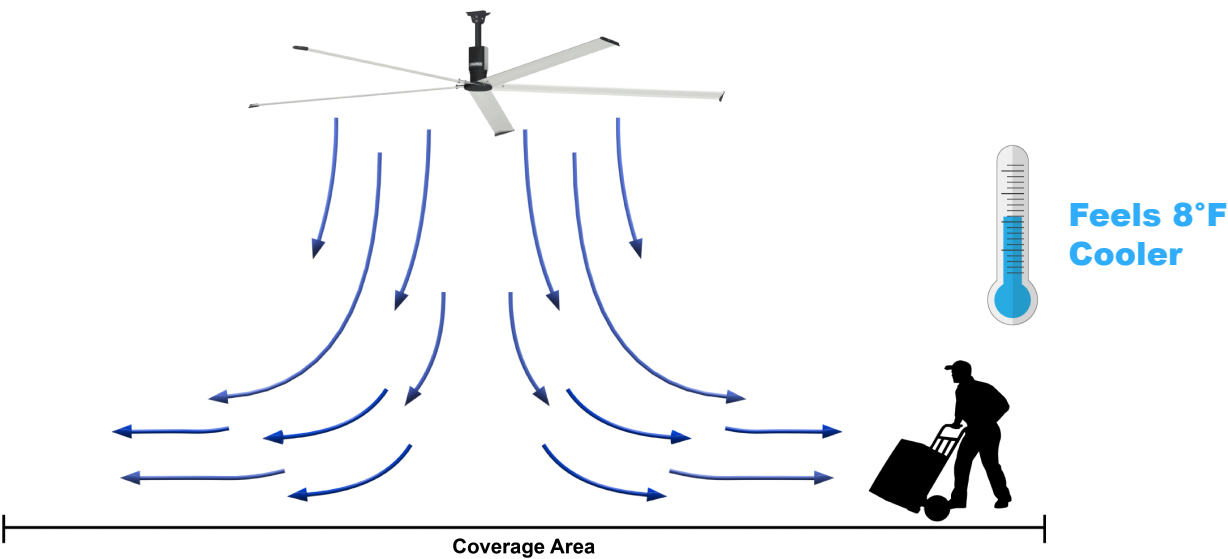


	A - Clearance to Wall (ft)	B - Fan Spacing (ft)	C - Clearance to Floor (ft)
Minimum	21	42	10

Additional Requirements

- For NFPA 13 compliance in buildings equipped with sprinklers:
 - Fan must be centered approximately between four adjacent sprinklers
 - Vertical clearance from fan to sprinkler deflector must be a minimum of 3 ft (36 in.)
 - Fan must be interlocked to shut down immediately upon a waterflow alarm from the building's fire alarm system
 - Interlock with building's fire alarm system shall be in accordance with the requirements of NFPA 72
- Avoid installing fan directly below a light source to prevent a strobing effect that can be caused by fan rotation

Perceived Cooling Effect



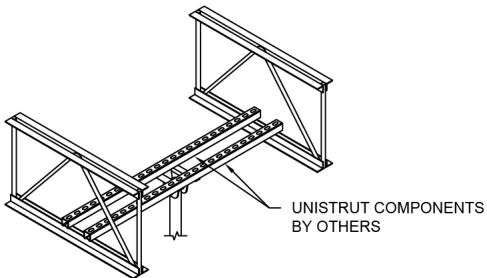
Perceived Cooling Effect Based on ASHRAE 55-2017						
Coverage Area Per Fan (ft2)	Operative Temp. (F)	Relative Humidity (%)	Metabolic Rate	Clothing Level	Avg. Air Speed (ft/min)	Perceived Cooling Effect (F)
4,950	77	60	1.7 Walking	0.57 Pants, Short Sleeves	148	8

Model: DC-5-14-13LV

High Volume, Low Speed Ceiling Fan

Mechanical Installation Requirements

Selected Mounting Kit: Unistrut



⚠ IMPORTANT: HVLS fans must be mounted to building structure as shown in one of the mounting details on this page. Other mounting methods are not acceptable unless approved by Structural Engineer of Record (SEOR). For complete installation instructions, refer to the installation, operation and maintenance manual (IOM).

⚠ IMPORTANT: Failure to install the fan's safety retention cable and guy wires (if provided) will result in voiding of the fan warranty.

Available Mounting Kits (Additional Charges May Apply):

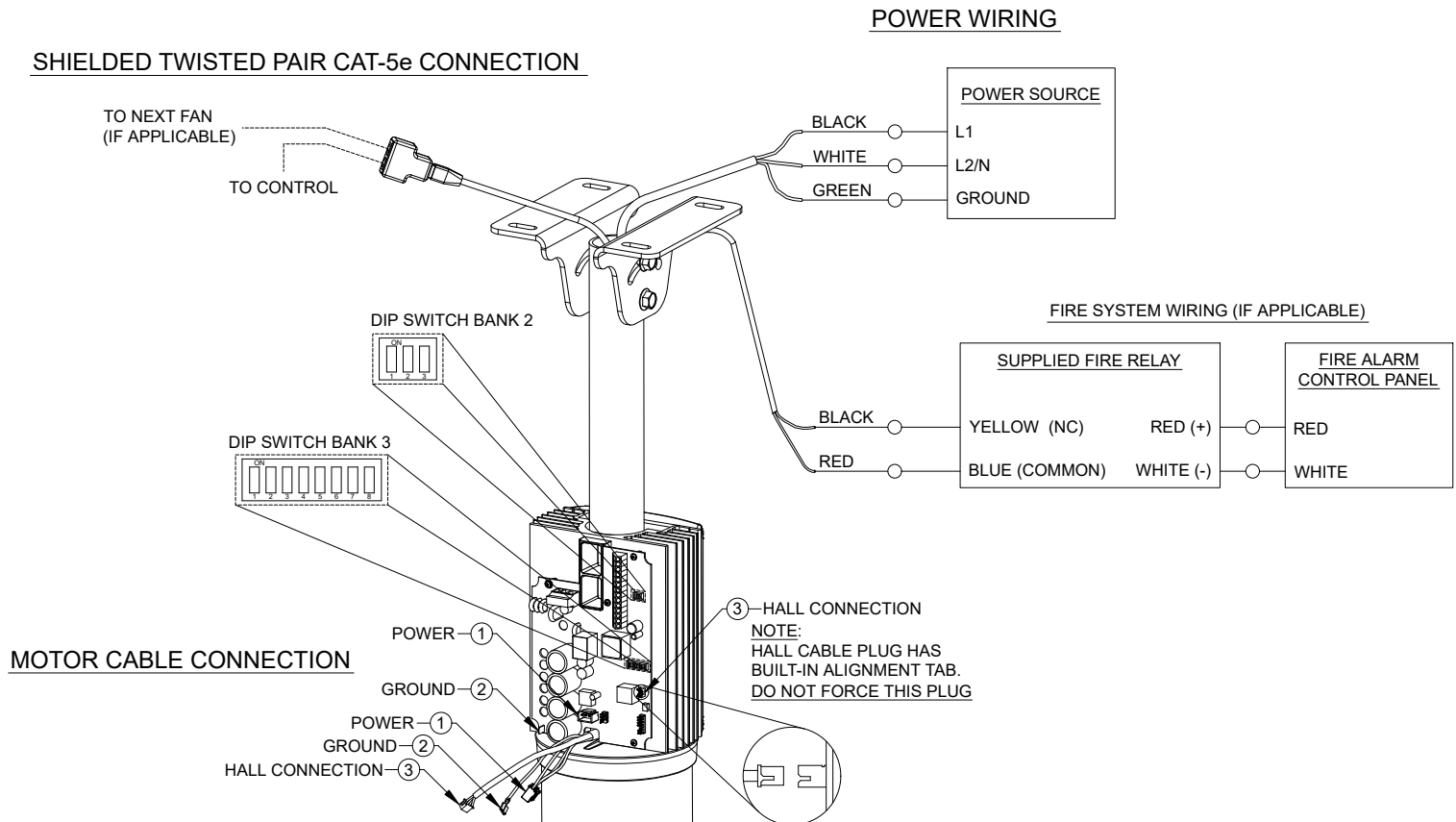
STEEL TRUSS FASTENERS BY OTHERS STEEL ANGLES BY OTHERS	WOOD BEAM FASTENERS BY OTHERS
Z-PURLIN STEEL ANGLE BY OTHERS	I-BEAM FASTENERS BY OTHERS

Model: DC-5-14-13LV

High Volume, Low Speed Ceiling Fan

Electrical Installation Requirements

IMPORTANT: HVLS fans must be installed with the supplied CAT-5e communication cable or shielded, twisted pair (STP) CAT-5e (by others) that complies with the following specifications. Cable must be twisted pair, shielded 26 ga. CAT-5e cable with a drain wire and must be compliant with ISO 11801. Cable must use shielded RJ45 connectors with a soldered drain and wiring configuration must follow EIA/TIA T568B wiring pinout. Individual CAT-5e cable lengths must not exceed 200 ft. in order to prevent network communication issues.



NOTE: If networking multiple HVLS fans to run using a single control source, additional wiring and network modification may be required. Please refer to the fans's installation, operation and maintenance manual (IOM)

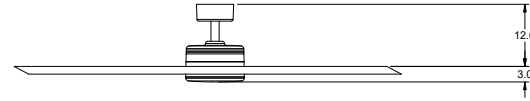
AMCA



Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only. The AMCA Certified Ratings Seal applies at free delivery only. Performance ratings do not include the effects of appurtenances (accessories).

Model: DC-5-6-3MV

High Volume, Low Speed Ceiling Fan



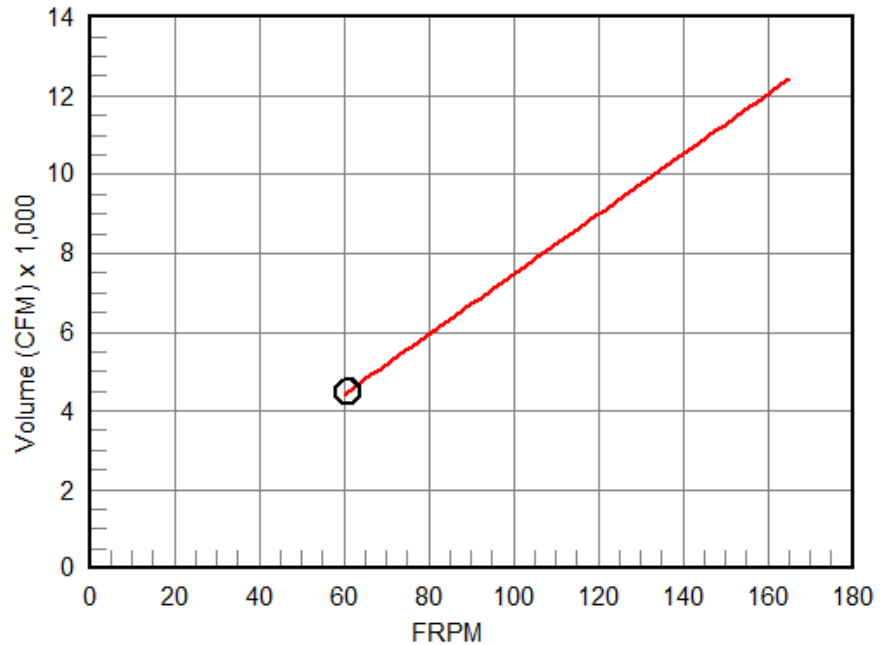
Dimensional	
Impeller Diameter (ft)	6
Impeller Diameter (in.)	72
Quantity	1
Weight w/o Acc's (lb)	26
Weight w/ Acc's (lb)	31

Installation Clearances	
Minimum Fan Spacing (ft)	18
Clearance to Wall (ft)	9
Blade Tip Clearance (ft)	3
Vertical Blade Clearance (ft)	3
Standby Blade Deflection (in.)	0.2

Performance Per Fan	
*Tested Direction of Operation	Forward
Actual Volume (CFM)	4,487
Coverage Area (ft2)	665
Max Coverage Area (ft2)	2,600
Avg. Air Speed (ft/min)	34
Max Avg. Air Speed (ft/min)	105
Fan RPM	61
Max Fan RPM	165
**CFEI at 40% Speed	-
**CFEI at 100% Speed	-
***Integrated Efficiency (CFM/W)	195.00
Total Sound Pressure (dBA)	20

Fan Operation	
Direction of Operation Capability	Forward or Reverse
Communication Protocol	Modbus RTU

Motor	
Size (W)	50
Voltage/Cycle/Phase	115/60/1
Enclosure	IP40
Max Motor RPM	165
***System FLA (Amps)	1.6
**Standby Power (W)	3
**Input Power (W)	7



○ Operating point
— Fan curve

Notes:

All dimensions shown are in units of in. (unless specified otherwise)
Dimensions shown may vary with fan speed. Consult installation manual for clearance requirements.
dBA – A weighted sound pressure level measured 5 ft off the ground at 20 ft from the center of the fan – dBA levels are not licensed by Energy Star
*Cataloged performance data tested using forward direction of operation per 10 CFR Part 430.
**Based on 115/60/1 testing per 10 CFR 430
***FLA is based on worst case system voltage and phase combination



Model: DC-5-6-3MV

High Volume, Low Speed Ceiling Fan

Standard Construction Features:

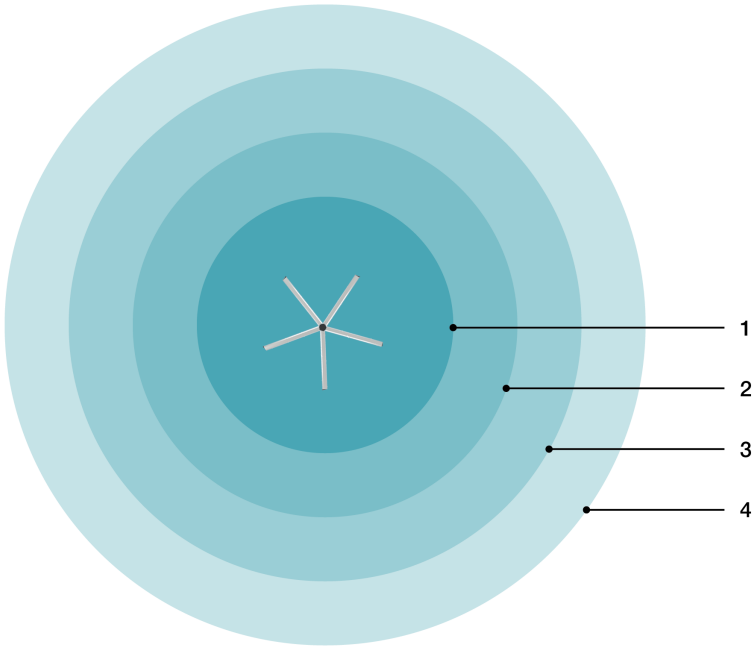
Heavy duty frame with protective finish - Extruded aluminum airfoils - High efficiency direct drive motor designed for either forward or reverse operation - Factory mounted and wired variable frequency drive - Factory installed plug and play wiring – Universal ceiling mount - Heavy duty safety restraint cable – Airfoil retaining systems - Energy Star Certified

Selected Options & Accessories:

5 Blade Airfoil Kit
Extruded Aluminum Airfoil; Mill Finish, No Color
Aluminum Winglet; Hi-Pro Polyester Finish, Flat Black (044) Color
Universal Mounting Kit; Hi-Pro Polyester Finish, Flat Black (044) Color
1 ft Drop Length; Hi-Pro Polyester Finish, Flat Black (044) Color
Hub Plate and Impeller Hub; Hi-Pro Polyester Finish, Flat Black (044) Color
Power Wiring with Quick-Connect Terminals, Internal, General
Plug-and-Play Network Communication Wiring, Internal
100 ft of Shielded, Twisted Pair (STP) CAT-5e Control Cable
Braided Galvanized Steel Safety Cable
Cable Clamp Hardware for Safety Cable
Electrical Warranty: 3 Yrs (Standard)
Mechanical Warranty: 10 Yrs (Standard)

Model: DC-5-6-3MV
High Volume, Low Speed Ceiling Fan

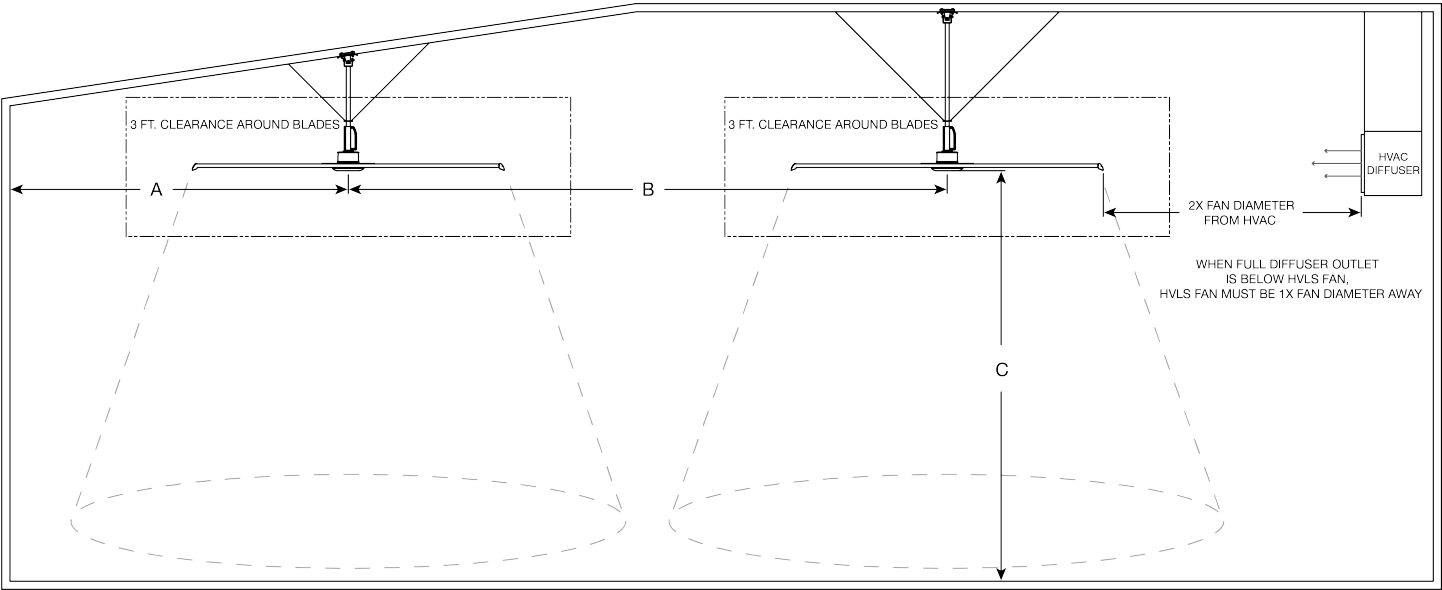
Fan Coverage Data



	Fan Speed (RPM)	Zone 1 375+ FPM Air Speed Radius (ft)	Zone 2 230+ FPM Air Speed Radius (ft)	Zone 3 105+ FPM Air Speed Radius (ft)	Zone 4 <105 FPM Air Speed Radius (ft)	Recommended Coverage Radius Per Fan (ft)
Selected	61	0	0	0	32	665
Maximum	165	0	0	10	46	29

Model: DC-5-6-3MV
High Volume, Low Speed Ceiling Fan

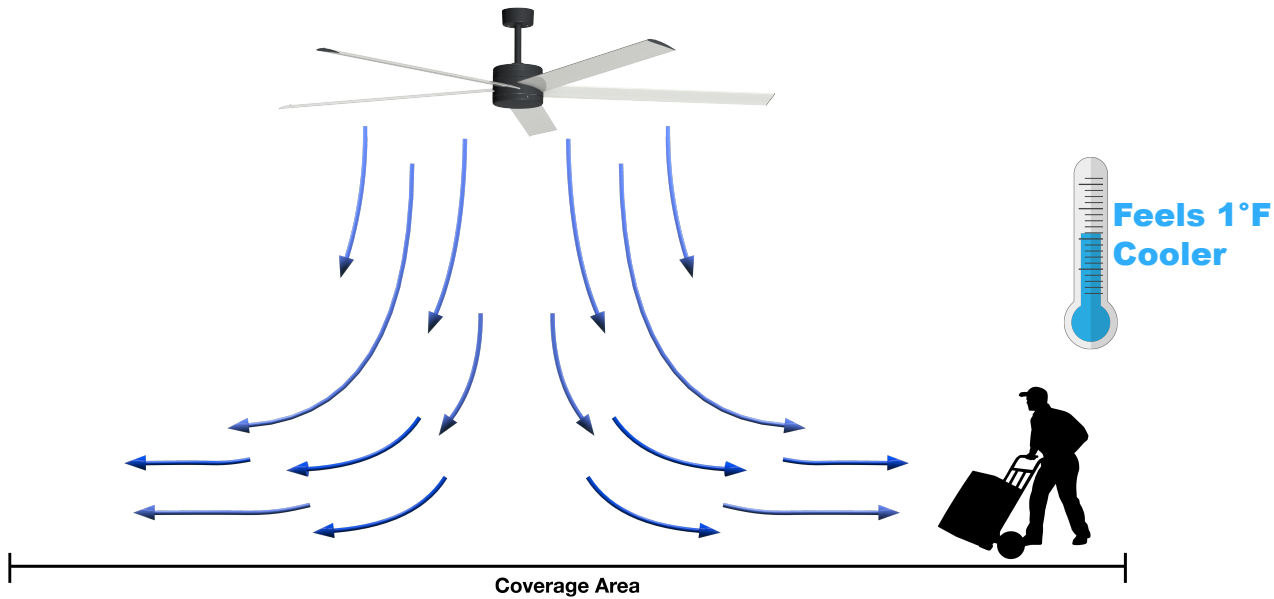
Fan Spacing & Clearances



	A - Clearance to Wall (ft)	B - Fan Spacing (ft)	C - Clearance to Floor (ft)
Minimum	9	18	7

Additional Requirements

Perceived Cooling Effect



Perceived Cooling Effect Based on ASHRAE 55-2017

Coverage Area Per Fan (ft ²)	Operative Temp. (F)	Relative Humidity (%)	Metabolic Rate	Clothing Level	Avg. Air Speed (ft/min)	Perceived Cooling Effect (F)
665	77	60	1.7 Walking	0.57 Pants, Short Sleeves	34	1

Model: DC-5-6-3MV

High Volume, Low Speed Ceiling Fan

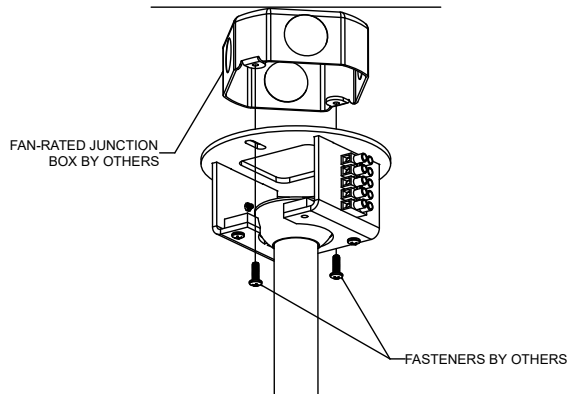
Mechanical Installation Requirements

Selected Mounting Kit: Universal

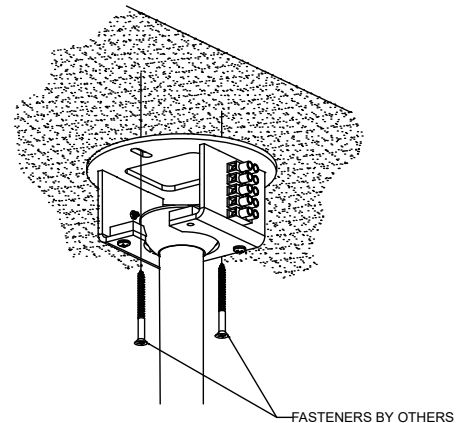
⚠ IMPORTANT: HVLS fans must be mounted to building structure as shown in one of the mounting details on this page. Other mounting methods are not acceptable unless approved by Structural Engineer of Record (SEOR). For complete installation instructions, refer to the installation, operation and maintenance manual (IOM).

⚠ IMPORTANT: Failure to install the fan's safety retention cable and guy wires (if provided) will result in voiding of the fan warranty.

FAN-RATED JUNCTION BOX INSTALLATION



ALTERNATE STRUCTURE INSTALLATION

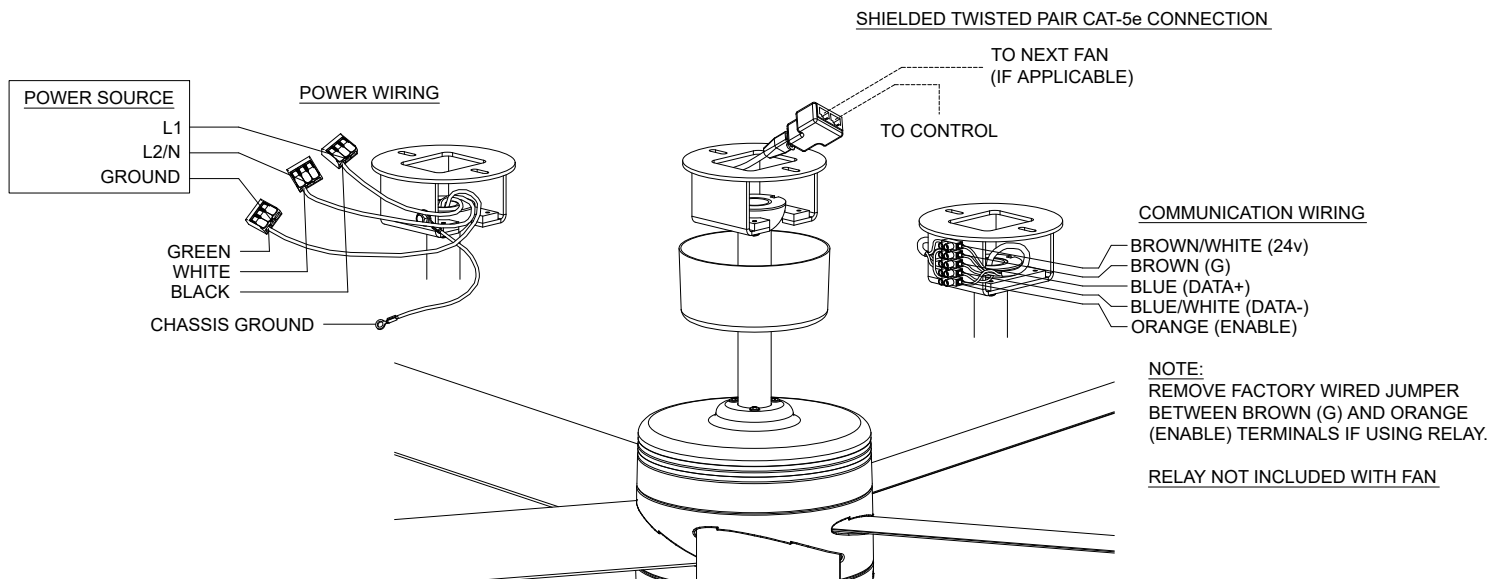


Model: DC-5-6-3MV

High Volume, Low Speed Ceiling Fan

Electrical Installation Requirements

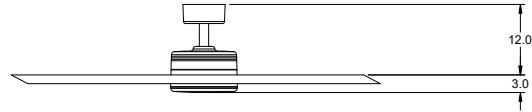
⚠ IMPORTANT: HVLS fans must be installed with the supplied CAT-5e communication cable or shielded, twisted pair (STP) CAT-5e (by others) that complies with the following specifications. Cable must be twisted pair, shielded 26 ga. CAT-5e cable with a drain wire and must be compliant with ISO 11801. Cable must use shielded RJ45 connectors with a soldered drain and wiring configuration must follow EIA/TIA T568B wiring pinout. Individual CAT-5e cable lengths must not exceed 200 ft. in order to prevent network communication issues.



NOTE: If networking multiple HVLS fans to run using a single control source, additional wiring and network modification may be required. Please refer to the fans's installation, operation and maintenance manual (IOM)

Model: DC-5-5-3MV

High Volume, Low Speed Ceiling Fan



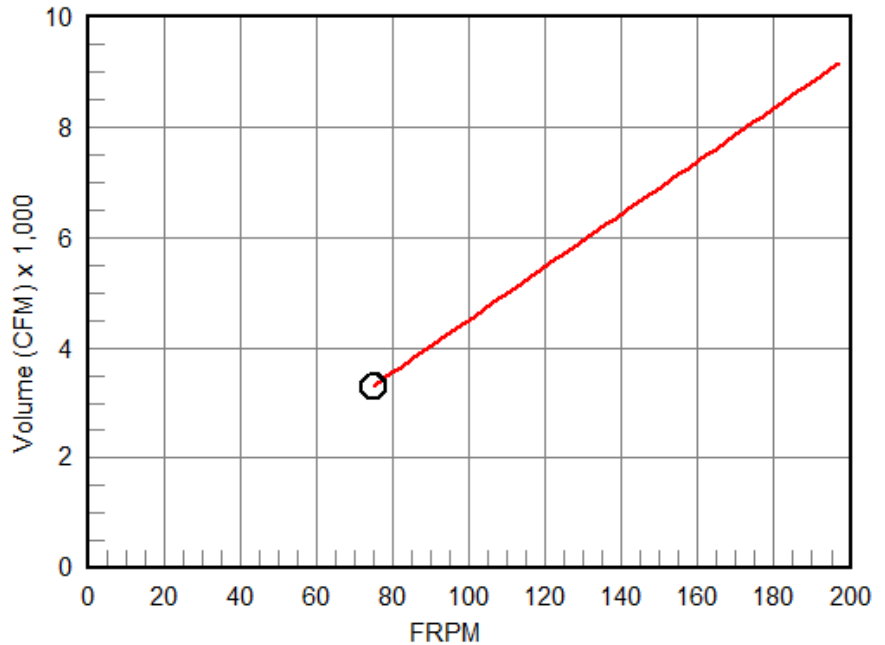
Dimensional	
Impeller Diameter (ft)	5
Impeller Diameter (in.)	60
Quantity	1
Weight w/o Acc's (lb)	24
Weight w/ Acc's (lb)	29

Installation Clearances	
Minimum Fan Spacing (ft)	15
Clearance to Wall (ft)	7.5
Blade Tip Clearance (ft)	3
Vertical Blade Clearance (ft)	3
Standby Blade Deflection (in.)	0.1

Performance Per Fan	
*Tested Direction of Operation	Forward
Actual Volume (CFM)	3,312
Coverage Area (ft2)	614
Max Coverage Area (ft2)	1,600
Avg. Air Speed (ft/min)	33
Max Avg. Air Speed (ft/min)	90
Fan RPM	75
Max Fan RPM	197
**CFEI at 40% Speed	-
**CFEI at 100% Speed	-
***Integrated Efficiency (CFM/W)	163.00
Total Sound Pressure (dBA)	21

Fan Operation	
Direction of Operation Capability	Forward or Reverse
Communication Protocol	Modbus RTU

Motor	
Size (W)	50
Voltage/Cycle/Phase	115/60/1
Enclosure	IP40
Max Motor RPM	196
***System FLA (Amps)	1.6
**Standby Power (W)	3
**Input Power (W)	7



○ Operating point
— Fan curve

Notes:

All dimensions shown are in units of in. (unless specified otherwise)
Dimensions shown may vary with fan speed. Consult installation manual for clearance requirements.
dBA – A weighted sound pressure level measured 5 ft off the ground at 20 ft from the center of the fan – dBA levels are not licensed by Energy Star
*Cataloged performance data tested using forward direction of operation per 10 CFR Part 430.
**Based on 115/60/1 testing per 10 CFR 430
***FLA is based on worst case system voltage and phase combination



Model: DC-5-5-3MV

High Volume, Low Speed Ceiling Fan

Standard Construction Features:

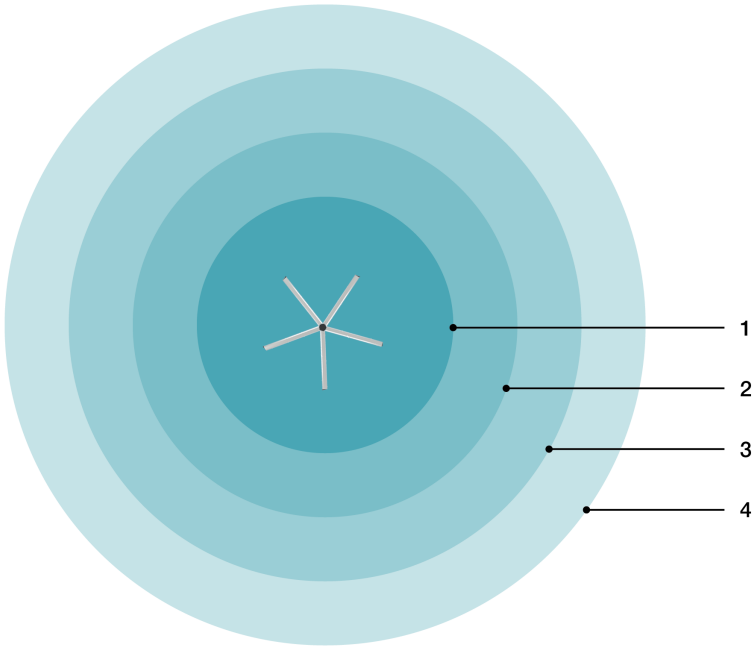
Heavy duty frame with protective finish - Extruded aluminum airfoils - High efficiency direct drive motor designed for either forward or reverse operation - Factory mounted and wired variable frequency drive - Factory installed plug and play wiring – Universal ceiling mount - Heavy duty safety restraint cable – Airfoil retaining systems - Energy Star Certified

Selected Options & Accessories:

5 Blade Airfoil Kit
Extruded Aluminum Airfoil; Mill Finish, No Color
Aluminum Winglet; Hi-Pro Polyester Finish, Flat Black (044) Color
Universal Mounting Kit; Hi-Pro Polyester Finish, Flat Black (044) Color
1 ft Drop Length; Hi-Pro Polyester Finish, Flat Black (044) Color
Hub Plate and Impeller Hub; Hi-Pro Polyester Finish, Flat Black (044) Color
Power Wiring with Quick-Connect Terminals, Internal, General
Plug-and-Play Network Communication Wiring, Internal
100 ft of Shielded, Twisted Pair (STP) CAT-5e Control Cable
Braided Galvanized Steel Safety Cable
Cable Clamp Hardware for Safety Cable
Electrical Warranty: 3 Yrs (Standard)
Mechanical Warranty: 10 Yrs (Standard)

Model: DC-5-5-3MV
High Volume, Low Speed Ceiling Fan

Fan Coverage Data

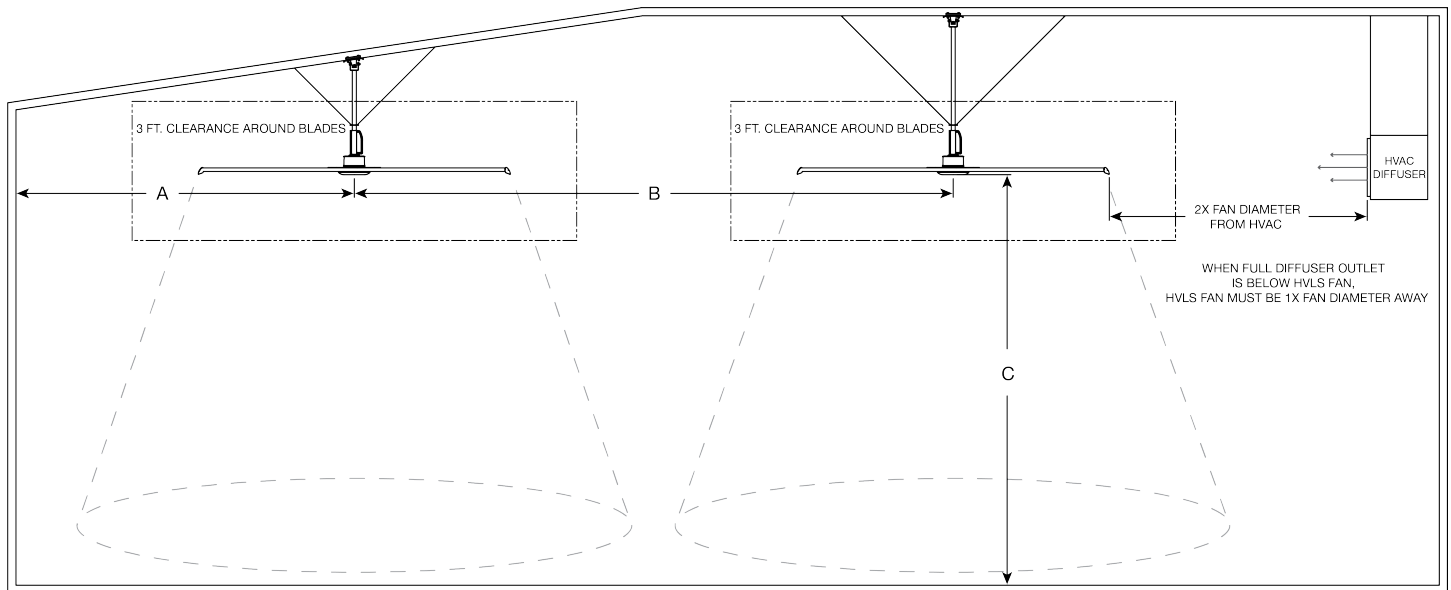


	Fan Speed (RPM)	Zone 1 375+ FPM Air Speed Radius (ft)	Zone 2 230+ FPM Air Speed Radius (ft)	Zone 3 105+ FPM Air Speed Radius (ft)	Zone 4 <105 FPM Air Speed Radius (ft)	Recommended Coverage Radius Per Fan (ft)
Selected	75	0	0	0	30	614
Maximum	197	0	0	5	39	23

Model: DC-5-5-3MV

High Volume, Low Speed Ceiling Fan

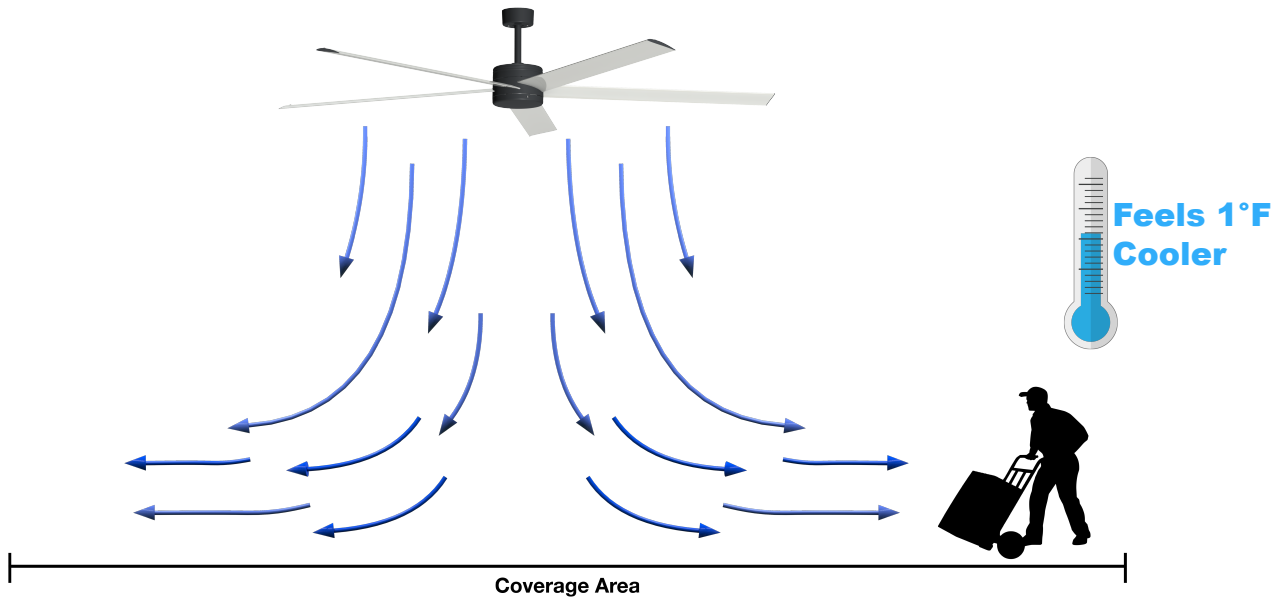
Fan Spacing & Clearances



	A - Clearance to Wall (ft)	B - Fan Spacing (ft)	C - Clearance to Floor (ft)
Minimum	7.5	15	7

Additional Requirements

Perceived Cooling Effect



Perceived Cooling Effect Based on ASHRAE 55-2017

Coverage Area Per Fan (ft ²)	Operative Temp. (F)	Relative Humidity (%)	Metabolic Rate	Clothing Level	Avg. Air Speed (ft/min)	Perceived Cooling Effect (F)
614	77	60	1.7 Walking	0.57 Pants, Short Sleeves	33	1

Model: DC-5-5-3MV

High Volume, Low Speed Ceiling Fan

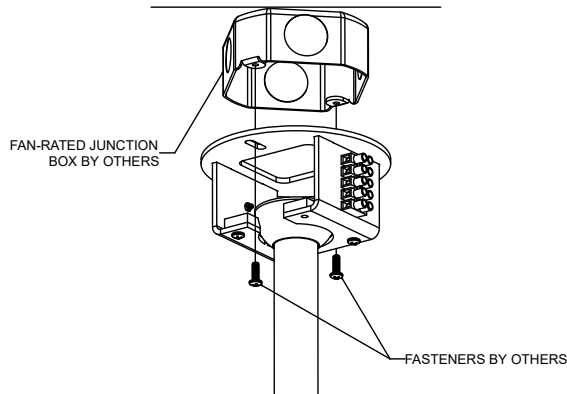
Mechanical Installation Requirements

Selected Mounting Kit: Universal

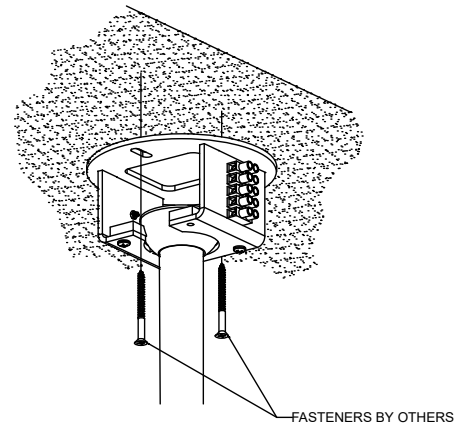
⚠ IMPORTANT: HVLS fans must be mounted to building structure as shown in one of the mounting details on this page. Other mounting methods are not acceptable unless approved by Structural Engineer of Record (SEOR). For complete installation instructions, refer to the installation, operation and maintenance manual (IOM).

⚠ IMPORTANT: Failure to install the fan's safety retention cable and guy wires (if provided) will result in voiding of the fan warranty.

FAN-RATED JUNCTION BOX INSTALLATION



ALTERNATE STRUCTURE INSTALLATION

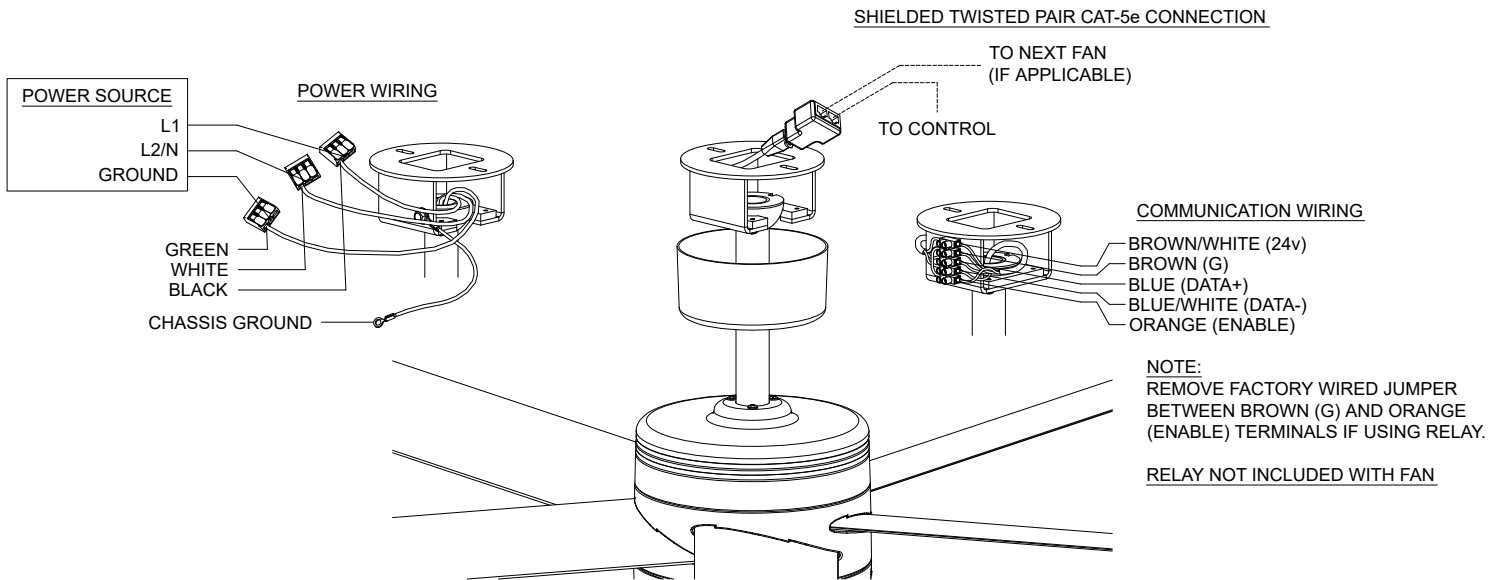


Model: DC-5-5-3MV

High Volume, Low Speed Ceiling Fan

Electrical Installation Requirements

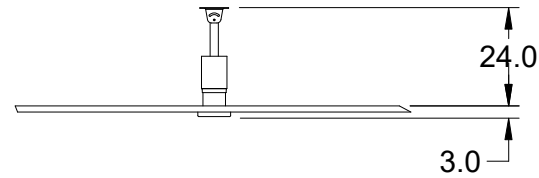
⚠ IMPORTANT: HVLS fans must be installed with the supplied CAT-5e communication cable or shielded, twisted pair (STP) CAT-5e (by others) that complies with the following specifications. Cable must be twisted pair, shielded 26 ga. CAT-5e cable with a drain wire and must be compliant with ISO 11801. Cable must use shielded RJ45 connectors with a soldered drain and wiring configuration must follow EIA/TIA T568B wiring pinout. Individual CAT-5e cable lengths must not exceed 200 ft. in order to prevent network communication issues.



NOTE: If networking multiple HVLS fans to run using a single control source, additional wiring and network modification may be required. Please refer to the fans's installation, operation and maintenance manual (IOM)

Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan



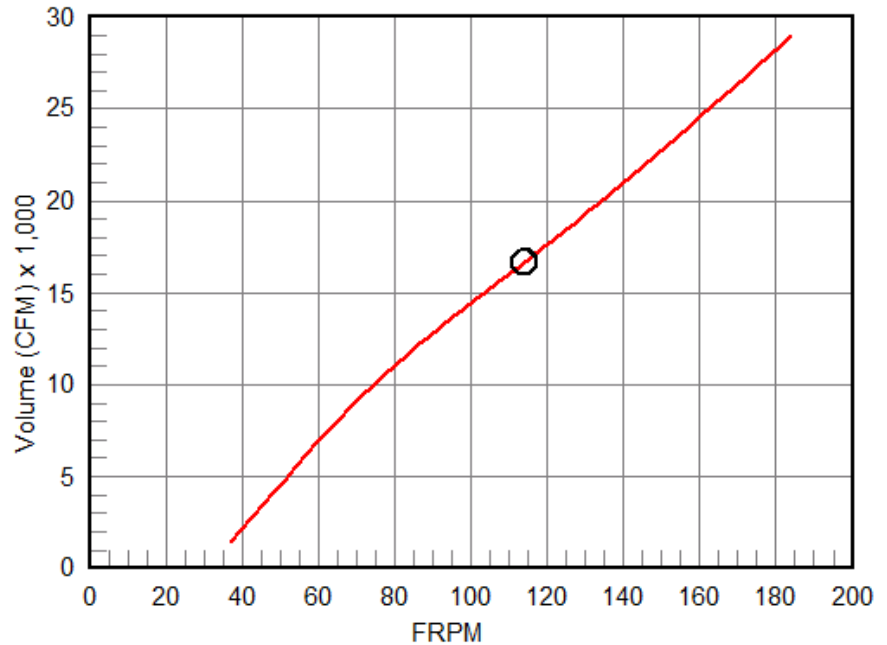
Dimensional	
Impeller Diameter (ft)	8
Impeller Diameter (in.)	96
Quantity	1
Weight w/o Acc's (lb)	44
Weight w/ Acc's (lb)	86

Installation Clearances	
Minimum Fan Spacing (ft)	24
Clearance to Wall (ft)	12
Blade Tip Clearance (ft)	3
Vertical Blade Clearance (ft)	3
Standby Blade Deflection (in.)	0.4

Performance Per Fan	
*Tested Direction of Operation	Forward
Actual Volume (CFM)	16,674
Coverage Area (ft ²)	2,500
Max Coverage Area (ft ²)	9,200
Avg. Air Speed (ft/min)	123
Max Avg. Air Speed (ft/min)	209
Fan RPM	114
Max Fan RPM	184
**CFEI at 40% Speed	3.68
**CFEI at 100% Speed	1.85
**Integrated Efficiency (CFM/W)	-
Total Sound Pressure (dBA)	39

Fan Operation	
Direction of Operation Capability	Forward or Reverse
Communication Protocol	Modbus RTU

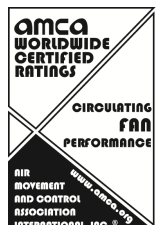
Motor	
Size (W)	175
Voltage/Cycle/Phase	115/60/1
Enclosure	IP54
Max Motor RPM	184
***System FLA (Amps)	5.0
**Standby Power (W)	5
**Input Power (W)	83



○ Operating point
— Fan curve

Notes:

All dimensions shown are in units of in. (unless specified otherwise)
Dimensions shown may vary with fan speed. Consult installation manual for clearance requirements.
dBA – A weighted sound pressure level measured 5 ft off the ground at 20 ft from the center of the fan – dBA levels are not licensed by AMCA International
*Cataloged performance data tested using forward direction of operation per 10 CFR Part 430.
**Based on 115/60/1 testing per 10 CFR 430
***FLA is based on worst case system voltage and phase combination



Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan

Standard Construction Features:

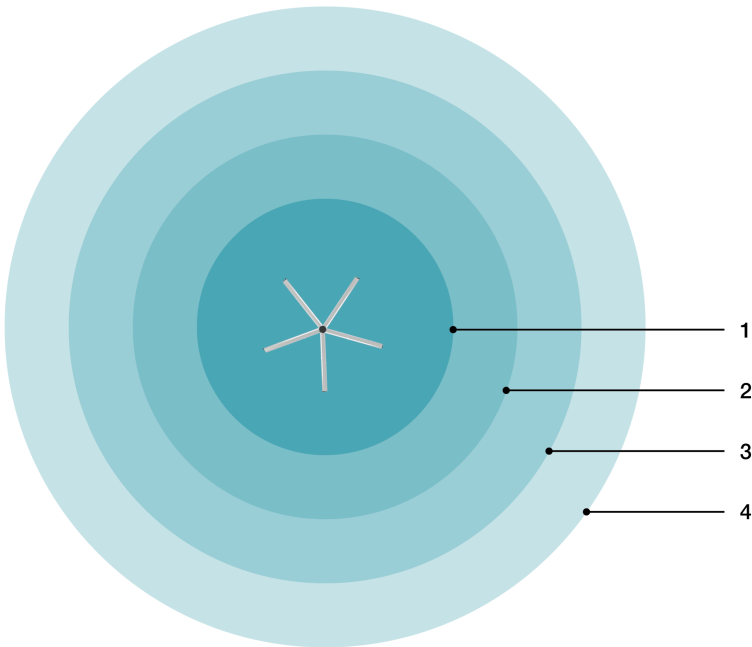
Heavy duty frame with protective finish - Extruded aluminum airfoils - High efficiency direct drive motor designed for either forward or reverse operation - Factory mounted and wired variable frequency drive - Factory installed plug and play wiring - Universal ceiling mount - Heavy duty safety restraint cable - Airfoil and fan hub retaining systems - AMCA certified for Circulating Fan Performance

Selected Options & Accessories:

5 Blade, Extruded Aluminum Airfoil Kit
Mill Finish, No Color
Aluminum Winglet; Hi-Pro Polyester Finish, Flat Black (044) Color
Steel Truss Mounting Kit; Hi-Pro Polyester Finish, Flat Black (044) Color
2 ft Drop Length; Hi-Pro Polyester Finish, Flat Black (044) Color
Hub Plate and Impeller Hub; Hi-Pro Polyester Finish, Flat Black (044) Color
Power Wiring Pigtail, Internal, General, 3 ft of Flexible Power Cord from Unit, Unstripped Wire
Plug-and-Play Network Communication Wiring Pigtail, Internal, Terminated with Shielded CAT-5e Splitter (RJ45 Ports)
100 ft of Shielded, Twisted Pair (STP) CAT-5e Control Cable
Fire Alarm Wiring Pigtail, Internal, 4 ft from Unit, Terminated with Crimp Connector
Low-Voltage (24VDC/VAC or 115VAC), Normally Closed Electromechanical Fire Alarm Relay
Braided Galvanized Steel Safety Cable, 18 ft from Unit
Cable Clamp Hardware for Safety Cable
Electrical Warranty: 1 Yr (Standard)
Mechanical Warranty: 10 Yrs (Standard)

Model: DC-5-8-13LV
High Volume, Low Speed Ceiling Fan

Fan Coverage Data

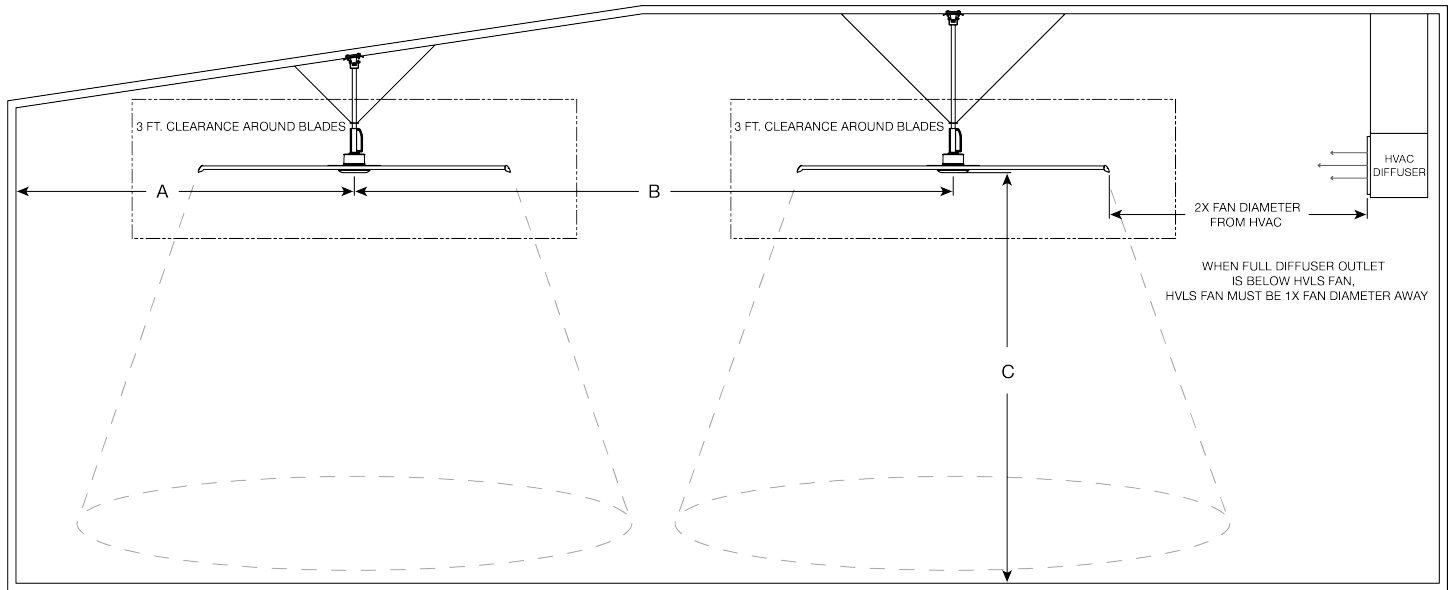


	Fan Speed (RPM)	Zone 1 375+ FPM Air Speed Radius (ft)	Zone 2 230+ FPM Air Speed Radius (ft)	Zone 3 105+ FPM Air Speed Radius (ft)	Zone 4 <105 FPM Air Speed Radius (ft)	Recommended Coverage Radius Per Fan (ft)
Selected	114	0	0	26	62	2,500
Maximum	184	0	15	43	66	55

Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan

Fan Spacing & Clearances

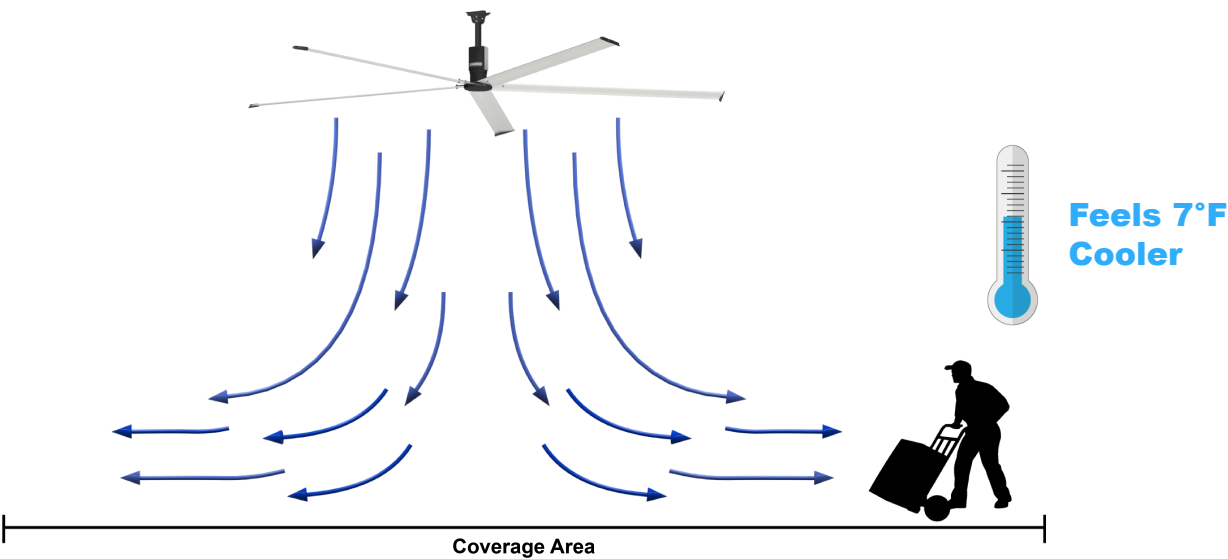


	A - Clearance to Wall (ft)	B - Fan Spacing (ft)	C - Clearance to Floor (ft)
Minimum	12	24	10

Additional Requirements

- For NFPA 13 compliance in buildings equipped with sprinklers:
 - Fan must be centered approximately between four adjacent sprinklers
 - Vertical clearance from fan to sprinkler deflector must be a minimum of 3 ft (36 in.)
 - Fan must be interlocked to shut down immediately upon a waterflow alarm from the building's fire alarm system
 - Interlock with building's fire alarm system shall be in accordance with the requirements of NFPA 72
- Avoid installing fan directly below a light source to prevent a strobing effect that can be caused by fan rotation

Perceived Cooling Effect



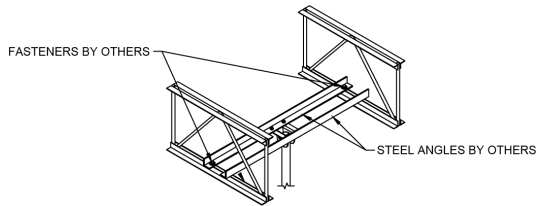
Perceived Cooling Effect Based on ASHRAE 55-2017						
Coverage Area Per Fan (ft2)	Operative Temp. (F)	Relative Humidity (%)	Metabolic Rate	Clothing Level	Avg. Air Speed (ft/min)	Perceived Cooling Effect (F)
2,500	77	60	1.7 Walking	0.57 Pants, Short Sleeves	123	7

Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan

Mechanical Installation Requirements

Selected Mounting Kit: Steel Truss



IMPORTANT: HVLS fans must be mounted to building structure as shown in one of the mounting details on this page. Other mounting methods are not acceptable unless approved by Structural Engineer of Record (SEOR). For complete installation instructions, refer to the installation, operation and maintenance manual (IOM).

IMPORTANT: Failure to install the fan's safety retention cable and guy wires (if provided) will result in voiding of the fan warranty.

Available Mounting Kits (Additional Charges May Apply):

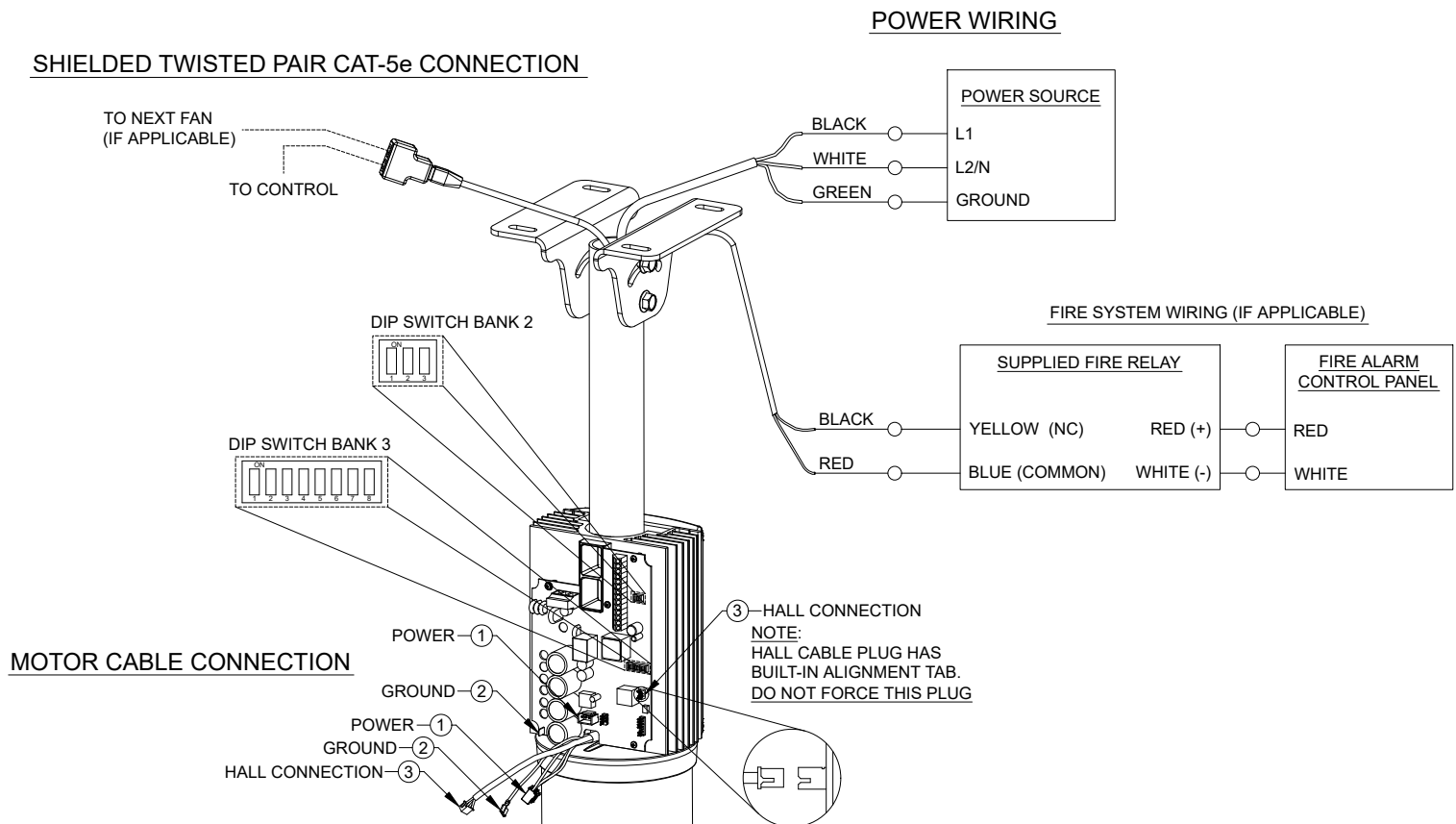
Z-PURLIN STEEL ANGLE BY OTHERS	WOOD BEAM FASTENERS BY OTHERS
UNISTRUT UNISTRUT COMPONENTS BY OTHERS	I-BEAM

Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan

Electrical Installation Requirements

⚠ IMPORTANT: HVLS fans must be installed with the supplied CAT-5e communication cable or shielded, twisted pair (STP) CAT-5e (by others) that complies with the following specifications. Cable must be twisted pair, shielded 26 ga. CAT-5e cable with a drain wire and must be compliant with ISO 11801. Cable must use shielded RJ45 connectors with a soldered drain and wiring configuration must follow EIA/TIA T568B wiring pinout. Individual CAT-5e cable lengths must not exceed 200 ft. in order to prevent network communication issues.



NOTE: If networking multiple HVLS fans to run using a single control source, additional wiring and network modification may be required. Please refer to the fans's installation, operation and maintenance manual (IOM)

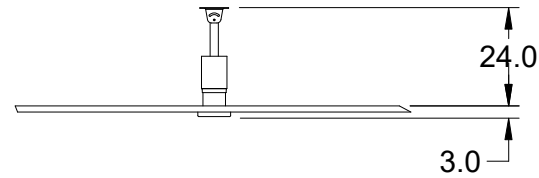
AMCA



Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only. The AMCA Certified Ratings Seal applies at free delivery only. Performance ratings do not include the effects of appurtenances (accessories).

Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan



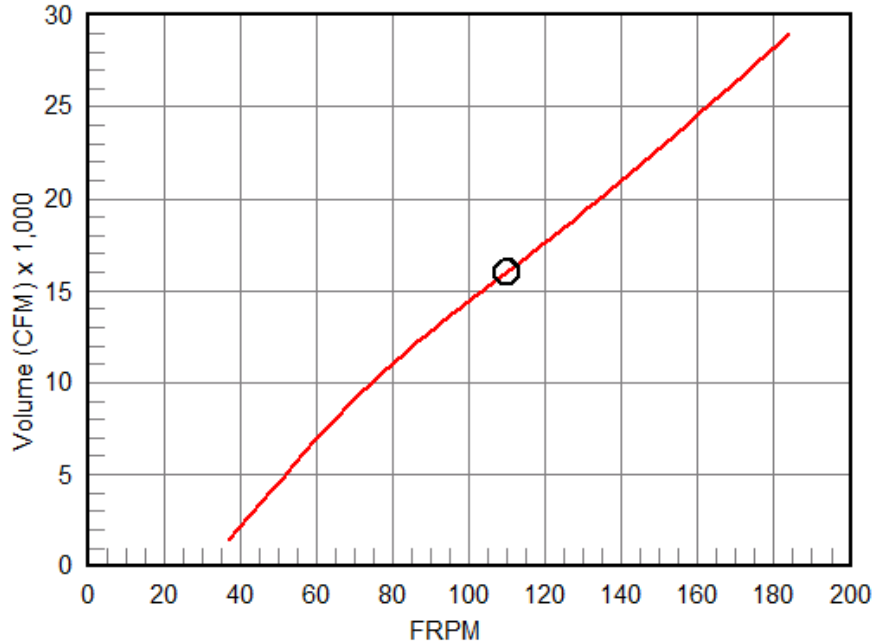
Dimensional	
Impeller Diameter (ft)	8
Impeller Diameter (in.)	96
Quantity	1
Weight w/o Acc's (lb)	44
Weight w/ Acc's (lb)	86

Installation Clearances	
Minimum Fan Spacing (ft)	24
Clearance to Wall (ft)	12
Blade Tip Clearance (ft)	3
Vertical Blade Clearance (ft)	3
Standby Blade Deflection (in.)	0.4

Performance Per Fan	
*Tested Direction of Operation	Forward
Actual Volume (CFM)	16,000
Coverage Area (ft2)	2,400
Max Coverage Area (ft2)	9,200
Avg. Air Speed (ft/min)	119
Max Avg. Air Speed (ft/min)	211
Fan RPM	110
Max Fan RPM	184
**CFEI at 40% Speed	3.68
**CFEI at 100% Speed	1.85
**Integrated Efficiency (CFM/W)	-
Total Sound Pressure (dBA)	38

Fan Operation	
Direction of Operation Capability	Forward or Reverse
Communication Protocol	Modbus RTU

Motor	
Size (W)	175
Voltage/Cycle/Phase	115/60/1
Enclosure	IP54
Max Motor RPM	184
***System FLA (Amps)	5.0
**Standby Power (W)	5
**Input Power (W)	75



○ Operating point
— Fan curve

Notes:

All dimensions shown are in units of in. (unless specified otherwise)

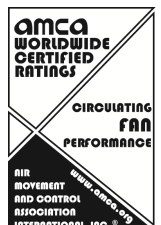
Dimensions shown may vary with fan speed. Consult installation manual for clearance requirements.

dBA – A weighted sound pressure level measured 5 ft off the ground at 20 ft from the center of the fan – dBA levels are not licensed by AMCA International

*Cataloged performance data tested using forward direction of operation per 10 CFR Part 430.

**Based on 115/60/1 testing per 10 CFR 430

***FLA is based on worst case system voltage and phase combination



Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan

Standard Construction Features:

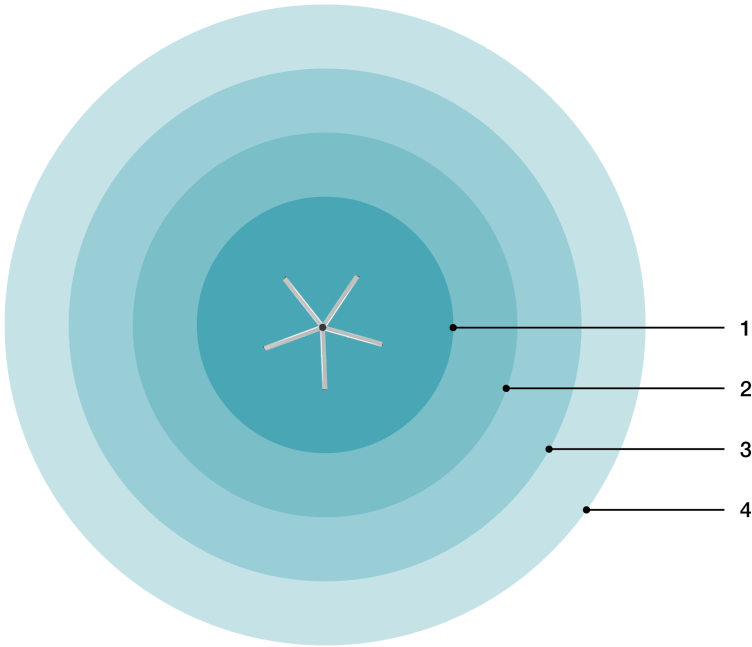
Heavy duty frame with protective finish - Extruded aluminum airfoils - High efficiency direct drive motor designed for either forward or reverse operation - Factory mounted and wired variable frequency drive - Factory installed plug and play wiring - Universal ceiling mount - Heavy duty safety restraint cable - Airfoil and fan hub retaining systems - AMCA certified for Circulating Fan Performance

Selected Options & Accessories:

5 Blade, Extruded Aluminum Airfoil Kit
Mill Finish, No Color
Aluminum Winglet; Hi-Pro Polyester Finish, Flat Black (044) Color
Steel Truss Mounting Kit; Hi-Pro Polyester Finish, Flat Black (044) Color
2 ft Drop Length; Hi-Pro Polyester Finish, Flat Black (044) Color
Hub Plate and Impeller Hub; Hi-Pro Polyester Finish, Flat Black (044) Color
Power Wiring Pigtail, Internal, General, 3 ft of Flexible Power Cord from Unit, Unstripped Wire
Plug-and-Play Network Communication Wiring Pigtail, Internal, Terminated with Shielded CAT-5e Splitter (RJ45 Ports)
100 ft of Shielded, Twisted Pair (STP) CAT-5e Control Cable
Fire Alarm Wiring Pigtail, Internal, 4 ft from Unit, Terminated with Crimp Connector
Low-Voltage (24VDC/VAC or 115VAC), Normally Closed Electromechanical Fire Alarm Relay
Braided Galvanized Steel Safety Cable, 18 ft from Unit
Cable Clamp Hardware for Safety Cable
Electrical Warranty: 1 Yr (Standard)
Mechanical Warranty: 10 Yrs (Standard)

Model: DC-5-8-13LV
High Volume, Low Speed Ceiling Fan

Fan Coverage Data

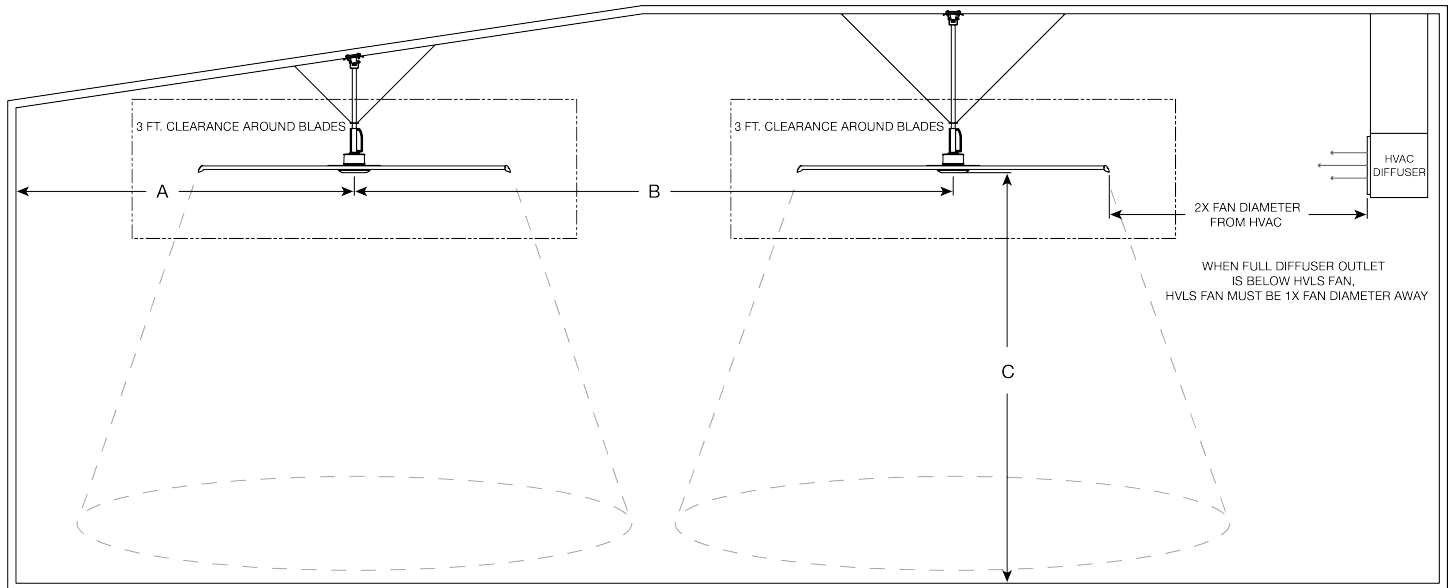


	Fan Speed (RPM)	Zone 1 375+ FPM Air Speed Radius (ft)	Zone 2 230+ FPM Air Speed Radius (ft)	Zone 3 105+ FPM Air Speed Radius (ft)	Zone 4 <105 FPM Air Speed Radius (ft)	Recommended Coverage Radius Per Fan (ft)
Selected	110	0	0	25	61	2,400
Maximum	184	0	15	43	66	55

Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan

Fan Spacing & Clearances

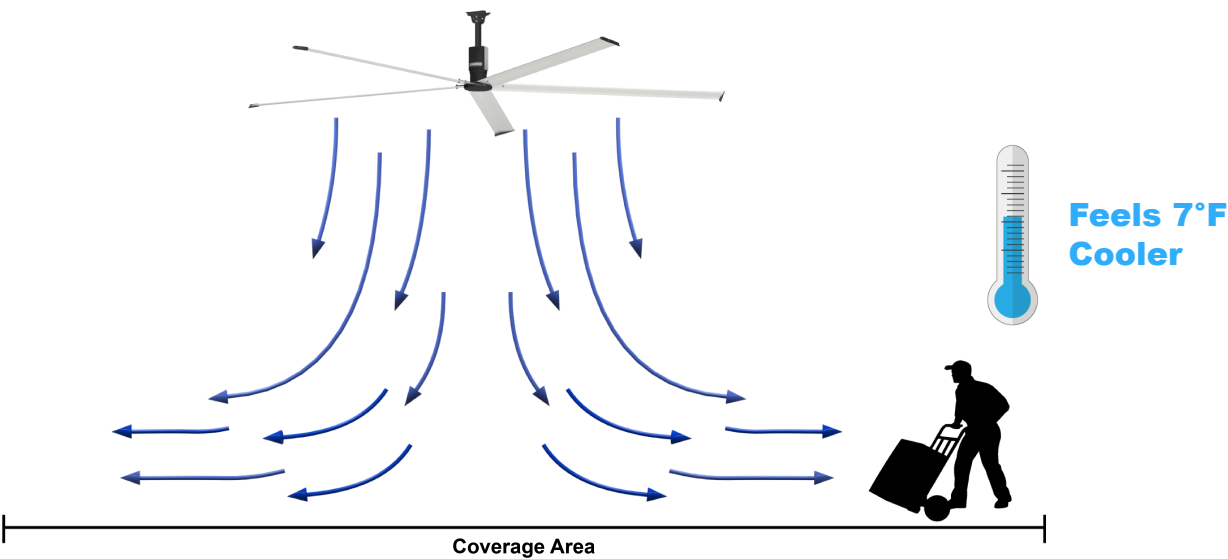


	A - Clearance to Wall (ft)	B - Fan Spacing (ft)	C - Clearance to Floor (ft)
Minimum	12	24	10

Additional Requirements

- For NFPA 13 compliance in buildings equipped with sprinklers:
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 - Interlock with building's fire alarm system shall be in accordance with the requirements of NFPA 72
- Avoid installing fan directly below a light source to prevent a strobing effect that can be caused by fan rotation

Perceived Cooling Effect

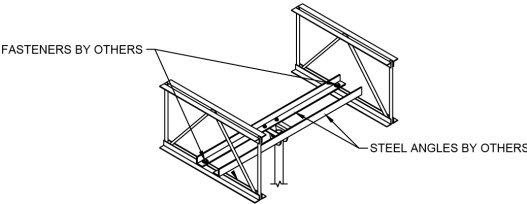


Perceived Cooling Effect Based on ASHRAE 55-2017						
Coverage Area Per Fan (ft2)	Operative Temp. (F)	Relative Humidity (%)	Metabolic Rate	Clothing Level	Avg. Air Speed (ft/min)	Perceived Cooling Effect (F)
2,400	77	60	1.7 Walking	0.57 Pants, Short Sleeves	119	7

Model: DC-5-8-13LV
High Volume, Low Speed Ceiling Fan

Mechanical Installation Requirements

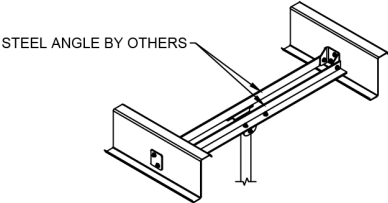
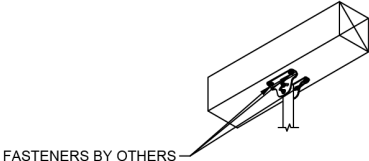
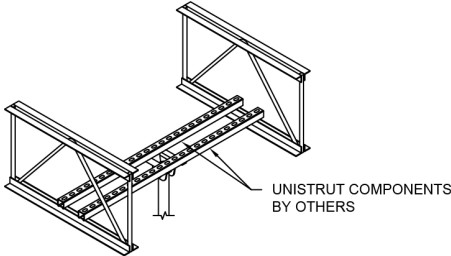
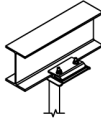
Selected Mounting Kit: Steel Truss



⚠ IMPORTANT: HVLS fans must be mounted to building structure as shown in one of the mounting details on this page. Other mounting methods are not acceptable unless approved by Structural Engineer of Record (SEOR). For complete installation instructions, refer to the installation, operation and maintenance manual (IOM).

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Available Mounting Kits (Additional Charges May Apply):

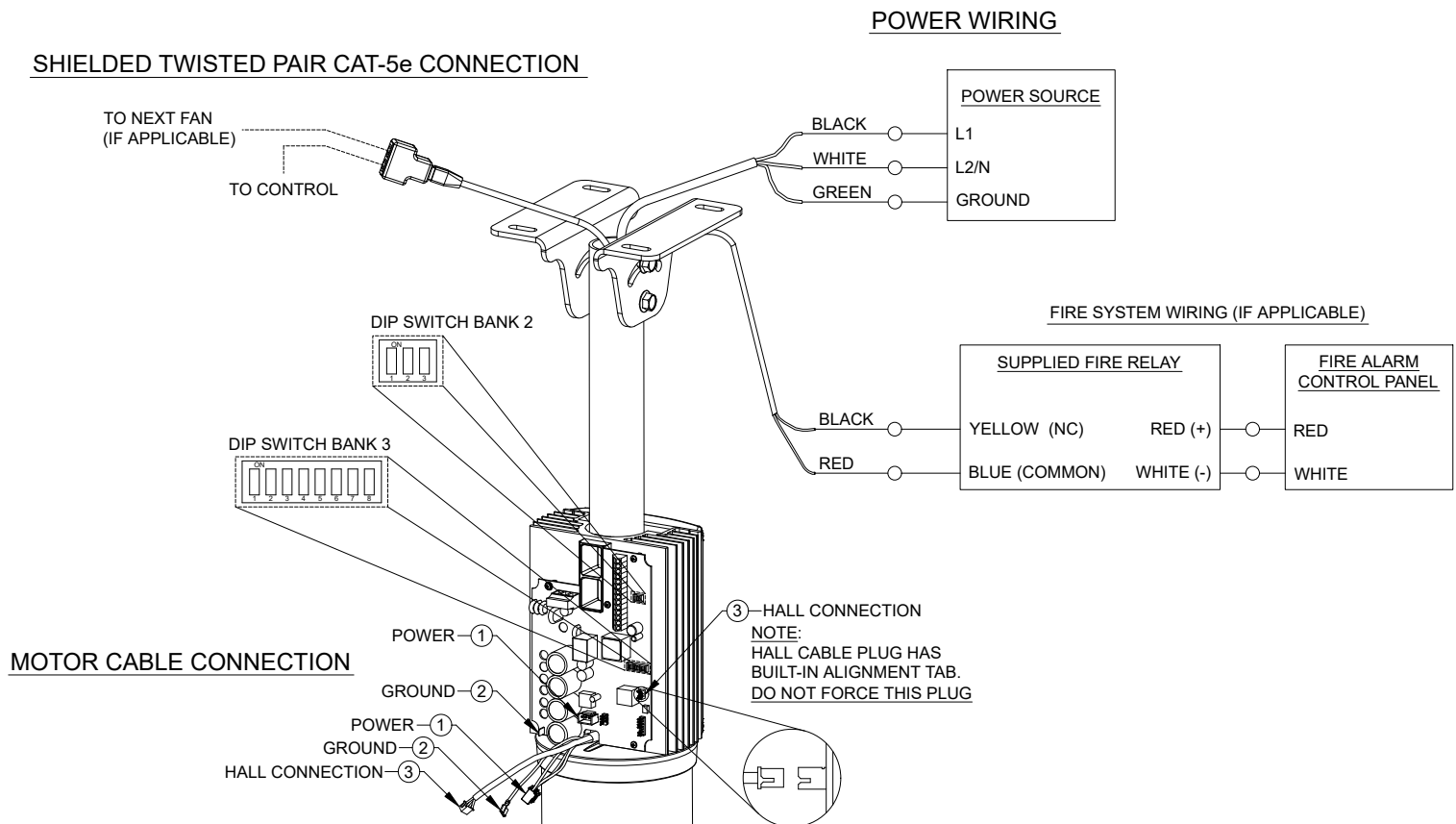
Z-PURLIN  STEEL ANGLE BY OTHERS	WOOD BEAM  FASTENERS BY OTHERS
UNISTRUT  UNISTRUT COMPONENTS BY OTHERS	I-BEAM 

Model: DC-5-8-13LV

High Volume, Low Speed Ceiling Fan

Electrical Installation Requirements

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NOTE: If networking multiple HVLS fans to run using a single control source, additional wiring and network modification may be required. Please refer to the fans's installation, operation and maintenance manual (IOM)

AMCA



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Performance	
Quantity	1
Volume (CFM)	3,000
Total External SP (in. wg)	2.1
Operating Power (hp)	1.67
Required Power (hp)	1.77
Fan RPM	2051
Max Fan RPM	2,504
Oper. Frequency (Hz)	70
Elevation (ft)	453
Start-up Temp.(F)	70
Operating Temp.(F)	100

Fan Configuration	
Size	15
Wheel Type	BI
Arrangement	4
Drive Type	Direct
Class	I
Rotation	CW
Discharge Position	UB
Construction Type	PermaLock
Spark Resistance	None
Scroll Material	Steel
Wheel Material	Steel
Inlet Cone Material	Steel
Pedestal Material	Steel

Equipment Weights	
Fan (LMD)(lb)	181
Motor/Drive (lb)	48
Control Box (lb)	50
Accessories (lb)	2
Fan Total (lb)	281

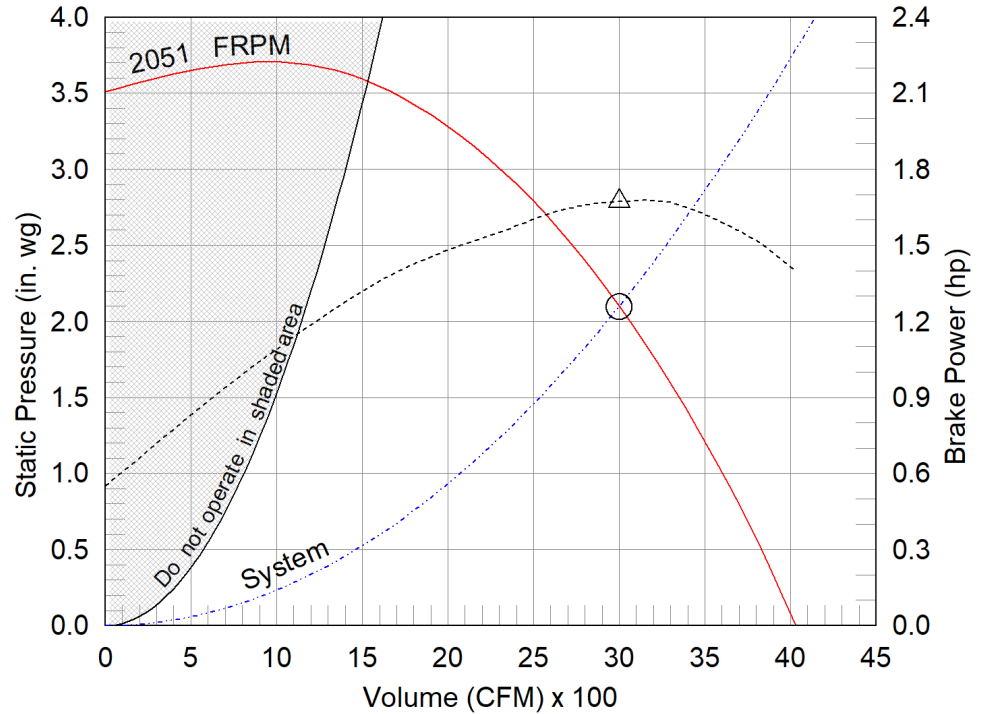
Misc Fan Data	
Fan Energy Index (FEI)	1.28
Outlet Velocity (ft/min)	2,318
Static Efficiency (%)	59
Tip Speed (ft/min)	8,056
Shaft Bearing Type	N/A
Bearing Life Calculation	N/A

Motor and Drives	
Motor	Included
Size (hp)	2
RPM	1770
Enclosure	TEFC
Power Supply(V/C/P)	208/60/1
Frame Size	182
Max Frame Size	215
Location	Centered
MCA* (Amps)	21.7
MOP* (Amps)	30
SCCR* (Kiloamps)	5

Model: USF-15

Universal Single Width Fan

Operating Performance



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: USF-15-3-B6-00-02-02

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	88	80	84	79	76	75	72	66	83	71	20
Outlet	96	88	84	79	79	77	74	67	84	73	24

*Values are estimated and subject to change. Actual values provided on fan at time of manufacture.

LwA - A weighted sound power level, based on ANSI S1.4

dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 5 ft- dBA levels are not licensed by AMCA International

Sones - calculated using AMCA 301 at 5 ft



Model: USF-15

Universal Single Width Fan

Standard Construction Features:

HOUSING: Class II and under feature Perma-Lock construction on sizes 4 - 49 and continuously welded on sizes 54 - 73 and all class III fans - Unit support angles with mounting holes - Adjustable motor plate - Corrosion resistant fasteners - Inlet collars - Outlet flange standard on sizes 27 - 73 and all class III fans - Untreated steel parts are processed through a multi-stage cleaning and pre-treatment and then finished with a high-performance powder coating. Sizes 24 and less are rotatable in 45 deg. increments. Sizes 27 to 40 are rotatable in 90 deg. increments. Sizes greater than 40 and all class III are not rotatable.

BEARINGS, SHAFT, AND WHEEL: Air handling quality, self-aligning, ball bearing in pillow block housing - Polished, solid steel shafts with rust inhibitor - Centrifugal wheel

Selected Options & Accessories:

Motor VFD Rated

Field power supply 1 phase, microdrive converted to 3 phase

Control - ABB ACS320 VFD, Mounted and Wired

Control - Hand/Off/Auto, Mounted and Wired

Control - 24V Transformer, Mounted & Wired

Control Box - NEMA 3R Enclosure w/disconnect, Ship Loose

Motor sized for fan rpm operation with VFD, not power line Hz

Motor with Aegis Shaft Grounding

Motor with Class B or Greater Insulation

Finish - Coated

Coating - Permatecor, Concrete Gray-RAL 7023, Fan and Attached Accessories

Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired

Rotation - CW

Discharge Position - UB

Arrangement - 4

UL/cUL-705 - Power Ventilators

Inlet Connection, Slip Fit

Outlet Connection, Slip Fit

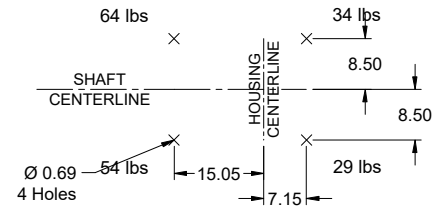
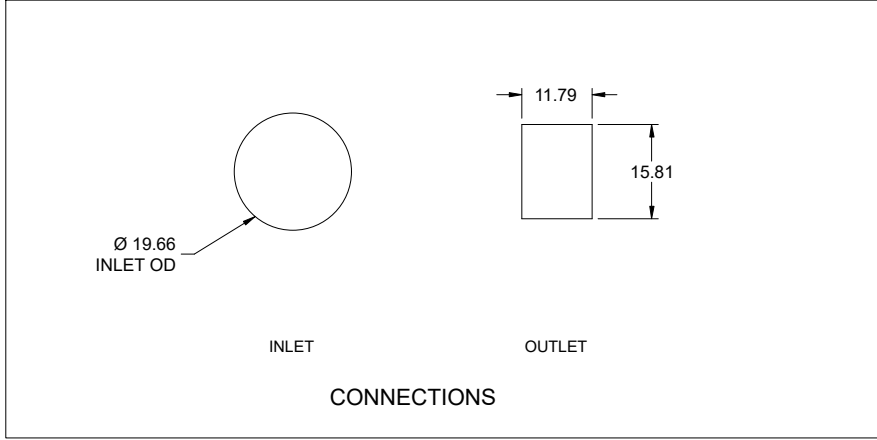
Motor Cover - Steel Construction

Fasteners - Standard

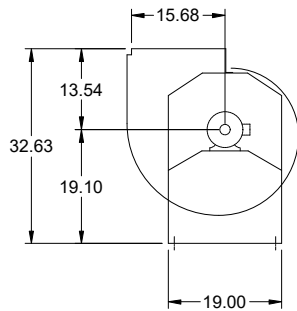
Unit Warranty: 1 Yr (Standard)

Model: USF-15

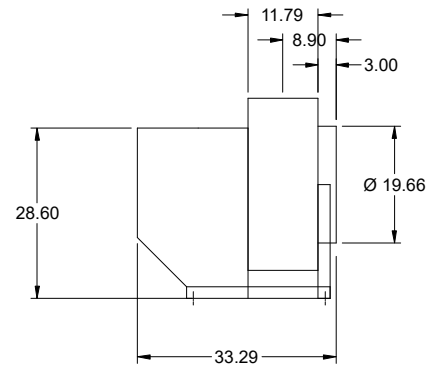
Universal Single Width Fan



FOOTPRINT VIEW



SIDE VIEW

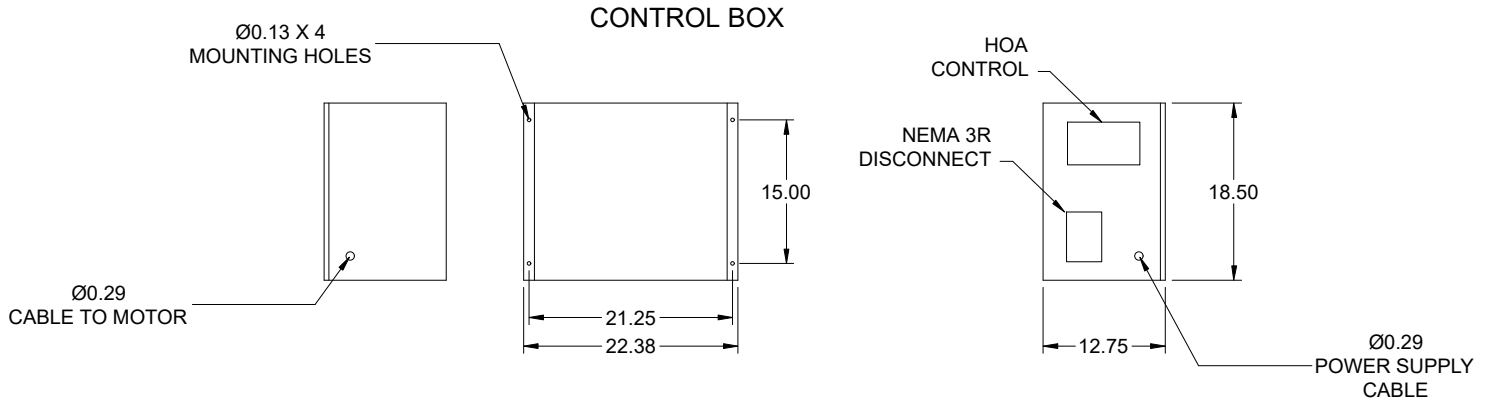


END VIEW

Notes: All dimensions shown are in units of in.

Model: USF-15

Universal Single Width Fan



Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance and FEI ratings. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA certified ratings seal applies to sound and air performance and FEI ratings only. Performance certified is for installation type B: Free inlet, Ducted outlet. Performance ratings do not include the effects of appurtenances (accessories). Power ratings (BHP/kW) include transmission losses. The sound power level ratings shown are in decibels, referred to 10-12 watts calculated per AMCA Standard 301. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet Lwi, LwiA, and outlet Lwo, LwoA sound power levels for installation type B: Free inlet, Ducted outlet. Outlet ratings include the effects of duct end correction. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal for Sound applies to inlet LwiA and outlet LwoA ratings only.

Model: SQ-160-VG

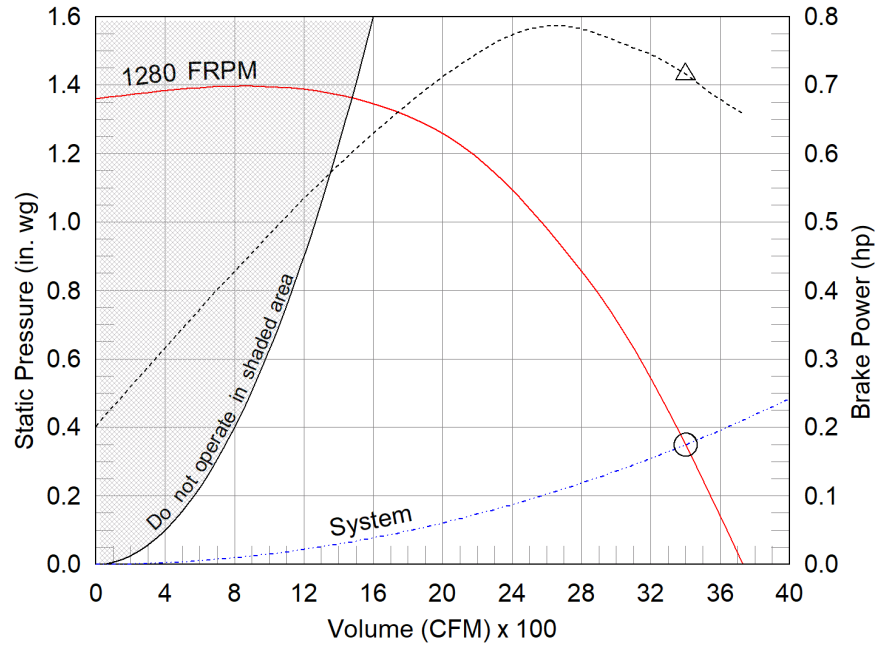
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	115
Weight w/ Acc's (lb)	117
Optional Side Damper(s) (in.)	23 X 23

Performance	
Requested Volume (CFM)	3,400
Actual Volume (CFM)	3,400
Total External SP (in. wg)	0.35
Fan RPM	1280
Operating Power (hp)	0.72
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	5,614
Static Eff. (%)	26

Misc Fan Data	
Fan Eff. Index (FEI)	1.14
Outlet Velocity (ft/min)	947

Motor	
Motor Mounted	Yes
Size (hp)	1
Voltage/Cycle/Phase	115/60/1
Enclosure	TENV
Motor RPM	1300
Windings	1
FLA (Amps)	11.5
Min. Circuit Ampacity (MCA)	14
Max. Overcurrent Protection (MOP)	30
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- - - System curve
- - - Brake horsepower curve

Nameplate Model: SQ-160-VG-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	74	75	80	79	71	68	63	59	79	68	15.0
Radiated	77	76	76	73	63	53	45	43	73	61	9.9

Notes:

All dimensions shown are in units of in.
*Please consult factory for actual motor amp draw
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB
attenuation per Octave band at 5 ft - dBA levels are not
licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft

Model: SQ-160-VG

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

Motor - Vari-Green EC motor

Control - Vari-Green Dial on Exterior of Fan Housing, Mounted and Wired

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped Separate,

Stainless Steel Fasteners - 300 Series

Aluminum Housing

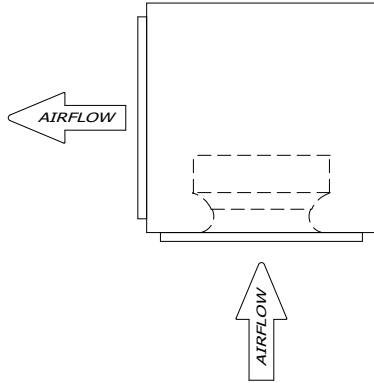
Aluminum Wheel Material

Left Discharge - Viewing Inlet with Motor on Top

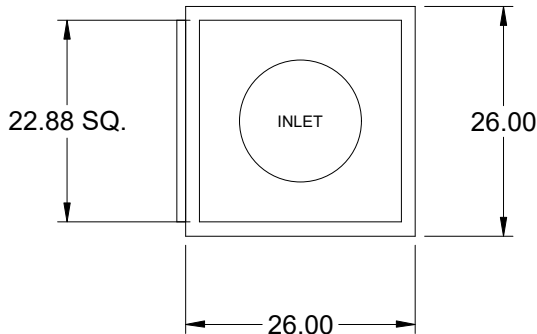
Unit Warranty: 1 Yr (Standard)

SQ-160-VG

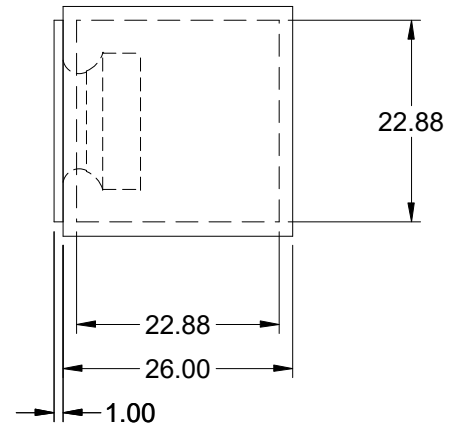
Direct Drive Centrifugal Inline Fan



TOP VIEW



END VIEW



SIDE VIEW

Notes: All dimensions shown are in units of in.

Model: SQ-160

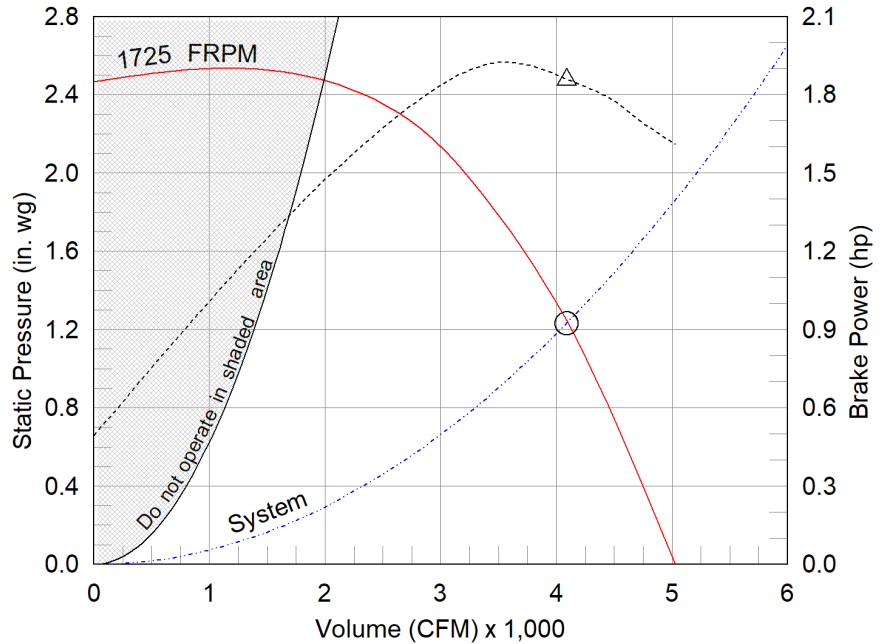
Direct Drive Centrifugal Inline Fan

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	153
Weight w/ Acc's (lb)	251
Max T Motor Frame Size	145

Performance	
Requested Volume (CFM)	3,550
Actual Volume (CFM)	4,091
Total External SP (in. wg)	1.233
Fan RPM	1725
Operating Power (hp)	1.86
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	7,564
Static Eff. (%)	43

Misc Fan Data	
Fan Eff. Index (FEI)	1.03
Outlet Velocity (ft/min)	1,140

Motor	
Motor Mounted	Yes
Size (hp)	2
Voltage/Cycle/Phase	460/60/3
Enclosure	ODP
Motor RPM	1725
Windings	1
NEC FLA* (Amps)	3.4
Min. Circuit Ampacity (MCA)	4.25
Max. Overcurrent Protection (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- System curve
- Brake horsepower curve

Static Pressure Calculations

External SP	0.5 in. wg
Filters	0.428 in. wg
Direct Drive RPM Adjustment	0.304 in. wg
Total External SP	1.233 in. wg

Nameplate Model: SQ-160-X

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	81	80	89	87	77	77	73	70	87	75	24
Radiated	84	81	85	81	69	61	55	53	81	69	16.1

Notes:

All dimensions shown are in units of in.
*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft



Model: SQ-160

Direct Drive Centrifugal Inline Fan

Greenheck model SQ Mixed Flow meets or exceeds legacy centrifugal models SQ/BSQ in performance and features. SQ Mixed flow is an approved equal and can be considered a direct replacement for these models.

Standard Construction Features:

- Galvanized steel housing - Backward inclined composite (sizes 60-95) or aluminum (sizes 97-160) wheel - Two bolted access panels - Integral duct connection flanges - Ball bearing motors (sizes 97-160 and all vari-green motors), sleeve bearing motors (sizes 60-95) - Corrosion resistant fasteners

Selected Options & Accessories:

UL/cUL 705 Listed - "Power Ventilators"

Junction Box Mounted and Wired

Switch, NEMA-1, Toggle, Shipped Separate,

Aluminum Wheel Material

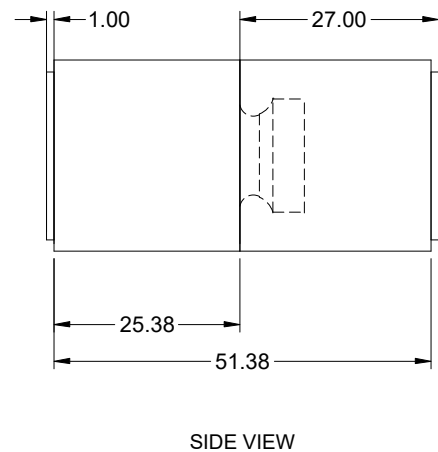
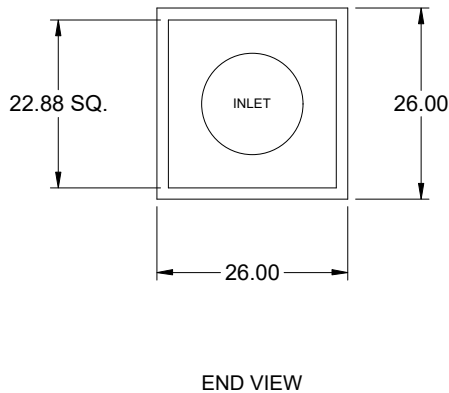
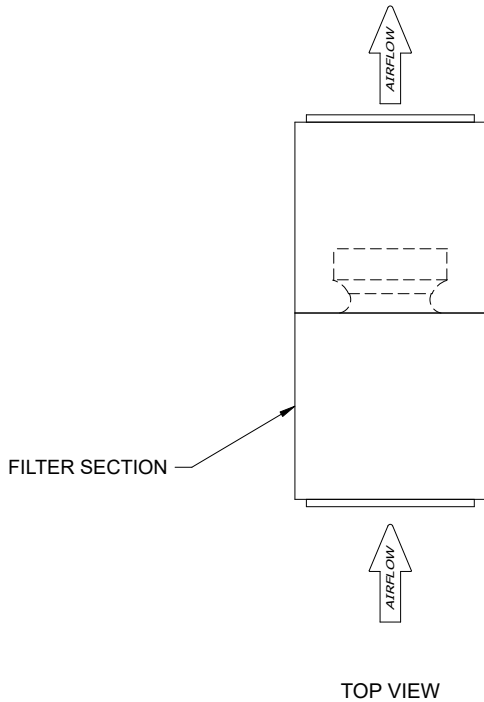
Motor Cover

Sloped Filter Box, 2 in. Pleated (MERV 8) Filters

Unit Warranty: 1 Yr (Standard)

SQ-160

Direct Drive Centrifugal Inline Fan



Notes: All dimensions shown are in units of in.

AMCA



AMCA Licensed for Sound and Air Performance and FEI ratings Without Appurtenances (Accessories). Power rating (BHP/kW) does not include transmission losses

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA certified ratings seal applies to sound and air performance and FEI ratings only. Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The inlet sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type B: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to inlet sone ratings only. Radiated (casing) sound data is the sound generated through the fan housing when the fan is ducted on both the inlet and outlet.

The AMCA licensed air and/or sound performance data has been modified for installation, appurtenances or accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the product.

SHR 800

Heat Recovery Ventilator



STANDARD FEATURES

- Premium aluminum cell
- Fans with backward curved blades
- Dual service doors & Reversible electrical box
- Push-pull configuration
- External electrical box
- Electrostatic filters
- Removable screw terminal for easy connection
- Full length drain pan
- Outdoor ducts on the same side

OPTIONS & CONTROLS

- MERV6 rated filters
- Compatible with all Fantech HRV controls
- CO2 sensor
- Shut off damper



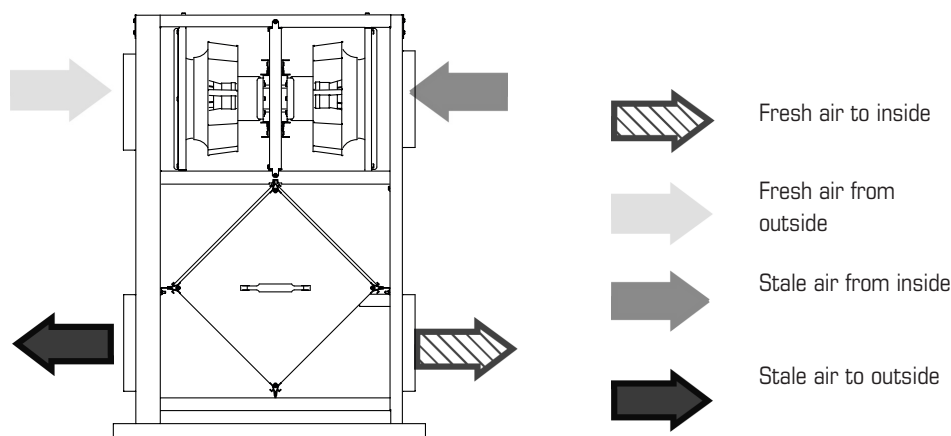
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Job Location:			
Job Reference Number:			
Unit Reference Number:			
Engineer:			
Distributor:			
Contractor:			
For Reference:	For Approval:	For Construction:	
Submitted by:		Date:	
Address:			
Tel:	Fax:	Email:	
Notes:			

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Canada 50 Kanalfakt Way • Bouctouche, NB E4S 3M5 • 1.800.565.3548 • www.fantech.net

Fantech reserves the right to make technical changes.
 For updated documentation please refer to www.fantech.net

Descriptions

Cabinet:	22 gauge G90 galvanized steel sheet coated with baked powder paint, insulated with 1 in. (25 mm) fiberglass with FSK facing and 2 in. (50 mm) of foil-faced high density polystyrene foam on the outdoor air side for condensation control.
Blowers:	Two maintenance-free Ebm-Papst™ backward inclined motorized impellers with permanently lubricated sealed ball bearings and (TOP) thermal overload protected.
Heat recovery core*:	Two (2) heat recovery fixed plate cross-flow heat exchanger using aluminum alloy 1100 and capable of transferring sensible heat between air streams. The heat recovery cores are engineered with a turbulence inducing geometry in order to maximize heat transfer while allowing an effective evacuation of condensate. The plates are hemmed to avoid cross-contamination of airstreams.
Filters:	The exhaust and fresh air streams are protected by MERV1 washable filters constructed to meet UL 900. Optional MERV6 filters are direct replacement to the MERV1. Use of MERV6 filters will add an additional system pressure of 0.76 in.wg (190) Pa at 800 cfm (378 l/s). Additional MERV Rated filters available upon request.
Controls:	External three (3) position (Low / Standby / High) rocker switch that will offer continuous ventilation. Compatible with all Fantech HRV wall controls.
Frost control:	A preset frost control sequence is initiated if the outdoor temperature falls below the set point of 23°F (-5°C). During the initial stage, the supply blower shuts down & the exhaust blower switches into high speed to eliminate frost build-up in the core. The unit then returns to normal operation for the final stage of the frost control sequence at which time the sequence is repeated if the outdoor air temperatures is still below the set point.
Serviceability:	Cores, filters and drain pan can be accessed easily from both sides of the HRV from hinged access panels. Cores conveniently slide out with only 15" (380 mm) clearance. Blowers can be accessed from both side of the HRV from fastened access panels. Blowers are easily removed by taking off the access panel and sliding the motor plates out of the HRV. A quick connect allows for fast inspection of blowers.
Mounting:	Unit may be suspended by using threaded rod, not supplied, or placed on a platform. Unit shall be adaptable for easy service of electrical components.
Warranty:	The heat recovery ventilator is warranted to be free from defect in material, workmanship and all parts for a period of 3 years from the purchase date. The heat recovery core is warranted to be free from defects in material and workmanship for a lifetime period under circumstances of normal use.



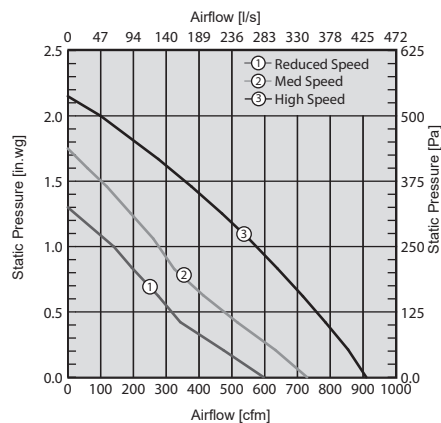
* AHRI certifies the published performance ratings of the COMPONENT used in this product in accordance with AHRI 1060. AHRI Certified Reference Number: 3629105, model number TE-HRC 305H. Note that only the COMPONENT is AHRI 1060 certified and not the product itself.

Specifications

- Volts: 120V
- Phase: Single
- Amperage: 5.3 Amps Total
- Blowers (x2): 115V, 60Hz, 2.7 Amps

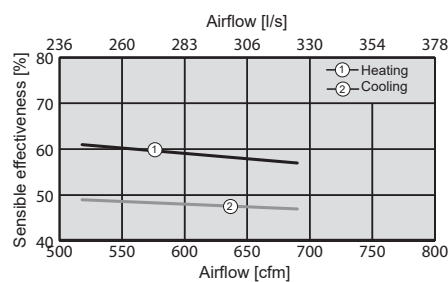
- Weight: 158 Lbs (90 Kg)
- Shipping Weight: 228 Lbs (103 Kg)
- Shipping Dim.: 28 x 42 x 38" (974 x 1041 x 946mm)

Ventilation Performance

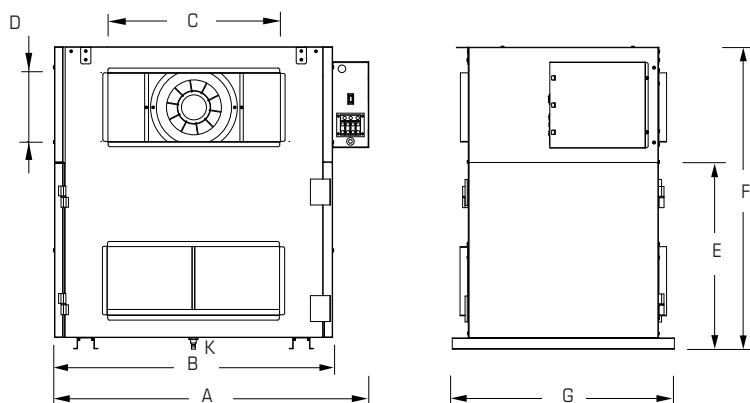


Energy Performance

	Supply temperature		Net airflow		Net Effectiveness	
	°F	°C	cfm	L/s	Sensible %	Total %
Heating	35	1.7	690	326	57	37
	35	1.7	518	244	61	40
Cooling	95	35	690	326	47	18
	95	35	518	244	49	19



Dimensions



Model	A		B		C		D		E		F		G		K	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
SHR 800	36 1/2	927	32 3/16	818	21 1/8	537	7 15/16	202	21 1/2	546	35	889	25 3/4	654	1 1/2	13

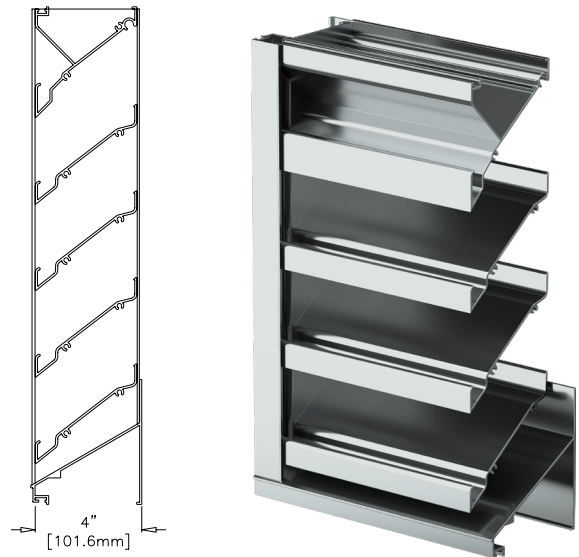
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Fantech reserves the right to make technical changes.
For updated documentation please refer to www.fantech.net

Standard Construction

Frame	Heavy gauge extruded 6063-T5 aluminum, 4 in. (102 mm) x 0.081 in. (2 mm) nominal wall thickness
Blades	Drainable design, heavy gauge extruded 6063-T5 aluminum, 0.081 in. (2 mm) nominal wall thickness, positioned 37.5° on approximately 3-1/4 in. (83 mm) centers
Louver Depth	4 in. (102 mm)
Construction	Mechanically fastened
Finish	Mill
Minimum Size	12 in. W x 9 in. H (305 mm W x 229 mm H)
Maximum Single Section Size	120 in. W x 120 in. H (3048 mm W x 3048 mm H) Limited to 70 sq. ft. (6.5 sq. m)
Wind Load	25 PSF (1.2 kPa)



Performance Ratings



Greenheck Fan Corporation certifies that the ESD-435 louvers shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to Water Penetration and Air Performance ratings.

Louvers were tested in accordance with AMCA Standard 500-L.

Performance of 48 in. x 48 in. (1219 mm x 1219 mm) Louver

Free Area	
Area	8.92 sq. ft. (0.829 sq. m)
Percent	55.8%
Performance at Beginning Point of Water Penetration	
Free Area Velocity	989 fpm (5.024 m/s)
Max Intake Volume	8,822 cfm (4.163 m³/s)
Performance at 6,000 CFM (2.832 m³/s) Intake	
Pressure Drop	0.073 in. wg (0.018 kPa)

Document Links

[Louver Finishes & Colors](#)
[Louver Product Selection Guide](#)
[Louver Products Catalog](#)
[Louver Warranty Statement](#)

Options and Accessories

- [Bird Screen](#)
- [Blank Off Panels](#)
- [Extended Sill](#)
- [Filter Rack/Filter](#)
- [Flange Frame](#)
- [Glazing Frame](#)
- [Hinged Frame](#)
- [Insect Screen](#)
- [Mounting Angles](#)
- [Security Bars](#)
- [Variety of Architectural Finishes](#)
- Welded Construction
- 0.125 in. (3 mm) Nominal Frame and/or Blade Thickness

Standard Details

ESD-435 Standard Details

Structural reinforcing members may be required to adequately support and install multiple louver sections within a large opening. Structural reinforcing members along with any associated installation hardware is not provided by Greenheck unless indicated otherwise by Greenheck. Options and accessories including, but not limited to, screens, filter racks, louver doors, and blank off panels are not subject to structural analysis unless indicated otherwise by Greenheck.

Free Area Chart

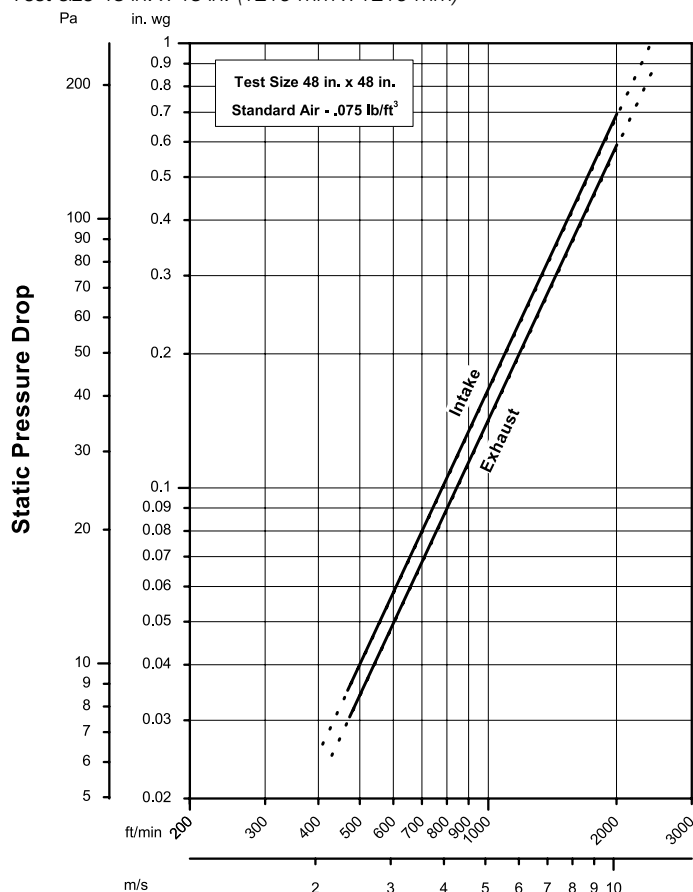
Free Area Chart shows free area in square feet and square meters.

Louver Height Inches (Meters)	Louver Width in Inches (Meters)																		
	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
0.30	0.30	0.46	0.61	0.76	0.91	1.07	1.22	1.37	1.52	1.68	1.83	1.98	2.13	2.29	2.44	2.59	2.74	2.90	3.05
12	0.30	0.49	0.68	0.87	1.07	1.26	1.45	1.59	1.79	1.98	2.17	2.36	2.56	2.70	2.89	3.08	3.28	3.47	3.66
0.30	0.03	0.05	0.06	0.08	0.10	0.12	0.13	0.15	0.17	0.18	0.20	0.22	0.24	0.25	0.27	0.29	0.30	0.32	0.34
18	0.54	0.88	1.23	1.58	1.93	2.28	2.62	2.88	3.23	3.58	3.93	4.28	4.62	4.88	5.23	5.58	5.93	6.28	6.62
0.46	0.05	0.08	0.11	0.15	0.18	0.21	0.24	0.27	0.30	0.33	0.37	0.40	0.43	0.45	0.49	0.52	0.55	0.58	0.62
24	0.79	1.30	1.81	2.32	2.83	3.33	3.84	4.23	4.74	5.25	5.76	6.27	6.78	7.16	7.67	8.18	8.69	9.20	9.71
0.61	0.07	0.12	0.17	0.22	0.26	0.31	0.36	0.39	0.44	0.49	0.54	0.58	0.63	0.67	0.71	0.76	0.81	0.85	0.90
30	1.04	1.71	2.38	3.06	3.73	4.40	5.08	5.58	6.26	6.93	7.60	8.28	8.95	9.45	10.13	10.80	11.47	12.15	12.82
0.76	0.10	0.16	0.22	0.28	0.35	0.41	0.47	0.52	0.58	0.64	0.71	0.77	0.83	0.88	0.94	1.00	1.07	1.13	1.19
36	1.29	2.13	2.97	3.81	4.65	5.49	6.33	6.96	7.80	8.64	9.48	10.31	11.15	11.78	12.62	13.46	14.30	15.14	15.98
0.91	0.12	0.20	0.28	0.35	0.43	0.51	0.59	0.65	0.72	0.80	0.88	0.96	1.04	1.09	1.17	1.25	1.33	1.41	1.48
42	1.55	2.55	3.55	4.56	5.56	6.56	7.57	8.32	9.32	10.32	11.33	12.33	13.33	14.09	15.09	16.09	17.10	18.10	19.10
1.07	0.14	0.24	0.33	0.42	0.52	0.61	0.70	0.77	0.87	0.96	1.05	1.15	1.24	1.31	1.40	1.49	1.59	1.68	1.77
48	1.82	3.01	4.19	5.37	6.55	7.74	8.92	9.81	10.99	12.17	13.35	14.54	15.72	16.61	17.79	18.97	20.16	21.34	22.52
1.22	0.17	0.28	0.39	0.50	0.61	0.72	0.83	0.91	1.02	1.13	1.24	1.35	1.46	1.54	1.65	1.76	1.87	1.98	2.09
54	2.08	3.44	4.79	6.14	7.49	8.85	10.20	11.21	12.56	13.92	15.27	16.62	17.97	18.99	20.34	21.69	23.04	24.40	25.75
1.37	0.19	0.32	0.45	0.57	0.70	0.82	0.95	1.04	1.17	1.29	1.42	1.54	1.67	1.76	1.89	2.02	2.14	2.27	2.39
60	2.33	3.85	5.36	6.87	8.39	9.90	11.42	12.55	14.06	15.58	17.09	18.61	20.12	21.26	22.77	24.28	25.80	27.31	28.82
1.52	0.22	0.36	0.50	0.64	0.78	0.92	1.06	1.17	1.31	1.45	1.59	1.73	1.87	1.98	2.12	2.26	2.40	2.54	2.68
66	2.58	4.26	5.94	7.61	9.29	10.97	12.64	13.90	15.58	17.25	18.93	20.60	22.28	23.54	25.21	26.89	28.57	30.24	31.92
1.68	0.24	0.40	0.55	0.71	0.86	1.02	1.17	1.29	1.45	1.60	1.76	1.91	2.07	2.19	2.34	2.50	2.65	2.81	2.97
72	2.84	4.68	6.52	8.36	10.20	12.05	13.89	15.27	17.11	18.95	20.79	22.64	24.48	25.86	27.70	29.54	31.38	33.22	35.07
1.83	0.26	0.43	0.61	0.78	0.95	1.12	1.29	1.42	1.59	1.76	1.93	2.10	2.27	2.40	2.57	2.74	2.92	3.09	3.26
78	3.09	5.10	7.10	9.11	11.11	13.12	15.12	16.63	18.63	20.64	22.65	24.65	26.66	28.16	30.17	32.17	34.18	36.18	38.19
1.98	0.29	0.47	0.66	0.85	1.03	1.22	1.40	1.54	1.73	1.92	2.10	2.29	2.48	2.62	2.80	2.99	3.18	3.36	3.55
84	3.35	5.53	7.70	9.88	12.05	14.23	16.40	18.03	20.21	22.38	24.56	26.73	28.91	30.54	32.71	34.89	37.06	39.23	41.41
2.13	0.31	0.51	0.72	0.92	1.12	1.32	1.52	1.68	1.88	2.08	2.28	2.48	2.69	2.84	3.04	3.24	3.44	3.64	3.85
90	3.64	6.00	8.37	10.73	13.09	15.45	17.82	19.59	21.95	24.31	26.67	29.04	31.40						
2.29	0.34	0.56	0.78	1.00	1.22	1.44	1.66	1.82	2.04	2.26	2.48	2.70	2.92						
96	3.88	6.40	8.92	11.44	13.95	16.47	18.99	20.88	23.40	25.91	28.43	30.95	33.47						
2.44	0.36	0.59	0.83	1.06	1.30	1.53	1.76	1.94	2.17	2.41	2.64	2.88	3.11						
102	4.13	6.81	9.49	12.17	14.85	17.53	20.21	22.22	24.90	27.58	30.26	32.94	35.62						
2.59	0.38	0.63	0.88	1.13	1.38	1.63	1.88	2.06	2.31	2.56	2.81	3.06	3.31						
108	4.38	7.23	10.07	12.91	15.76	18.60	21.44	23.58	26.42	29.26	32.11	34.95	37.79						
2.74	0.41	0.67	0.94	1.20	1.46	1.73	1.99	2.19	2.45	2.72	2.98	3.25	3.51						
114	4.64	7.65	10.66	13.67	16.68	19.68	22.69	24.95	27.96	30.97	33.98	36.99	40.00						
2.90	0.43	0.71	0.99	1.27	1.55	1.83	2.11	2.32	2.60	2.88	3.16	3.44	3.72						
120	4.89	8.07	11.24	14.41	17.58	20.76	23.93	26.31	29.48	32.66	35.83	39.00	42.18						
3.05	0.45	0.75	1.04	1.34	1.63	1.93	2.22	2.44	2.74	3.03	3.33	3.62	3.92						

Airflow Resistance

Standard Air - 0.075 lb/ft³ (1.2 kg/m³)

Test size 48 in. x 48 in. (1219 mm x 1219 mm)



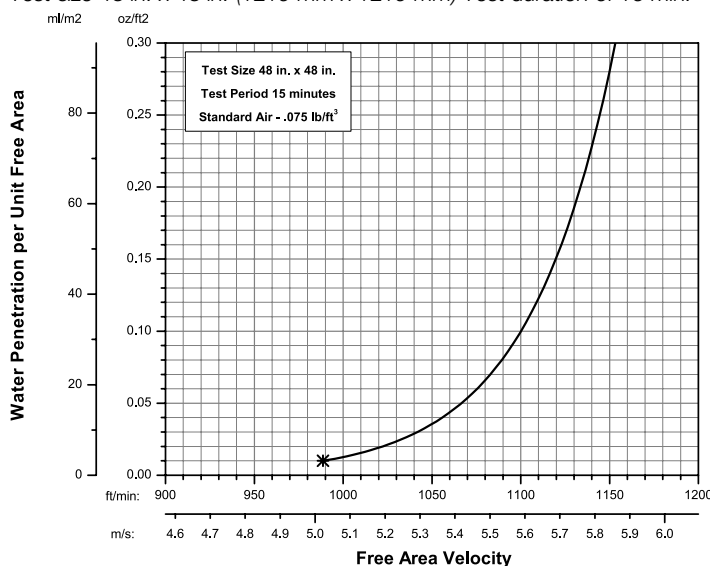
Free Air Velocity

Model ESD-435 resistance to airflow (pressure drop) varies depending on louver application (air intake or air exhaust). Free area velocities (shown) are higher than average velocity through the overall louver size. See louver selection information. (Test Figure 5.5-6.5)

Water Penetration

Standard Air - 0.075 lb/ft³ (1.2 kg/m³)

Test size 48 in. x 48 in. (1219 mm x 1219 mm) Test duration of 15 min.



The AMCA Water Penetration Test provides a method for comparing various louver models and designs as to their efficiency in resisting the penetration of rainfall under specific laboratory test conditions. The beginning point of water penetration is defined as that velocity where the water penetration curve projects through 0.01 oz. (3 g) of water (penetration) per sq. ft. (m²) of louver free area. ***The beginning point of water penetration for Model ESD-435 is 989 fpm (5.024 m/s) free area velocity.** These performance ratings do not guarantee a louver to be weatherproof or stormproof and should be used in combination with other factors including good engineering judgement in selecting louvers.

SHR 450

Heat Recovery Ventilator



STANDARD FEATURES

- Premium aluminum cell
- Fans with backward curved blades
- Dual service doors & Reversible electrical box
- Push-pull configuration
- External electrical box
- Electrostatic filters
- Removable screw terminal for easy connection
- Full length drain pan
- Outdoor ducts on the same side

OPTIONS & CONTROLS

- MERV6 rated filters
- Compatible with all Fantech HRV controls
- CO2 sensor
- Shut off damper



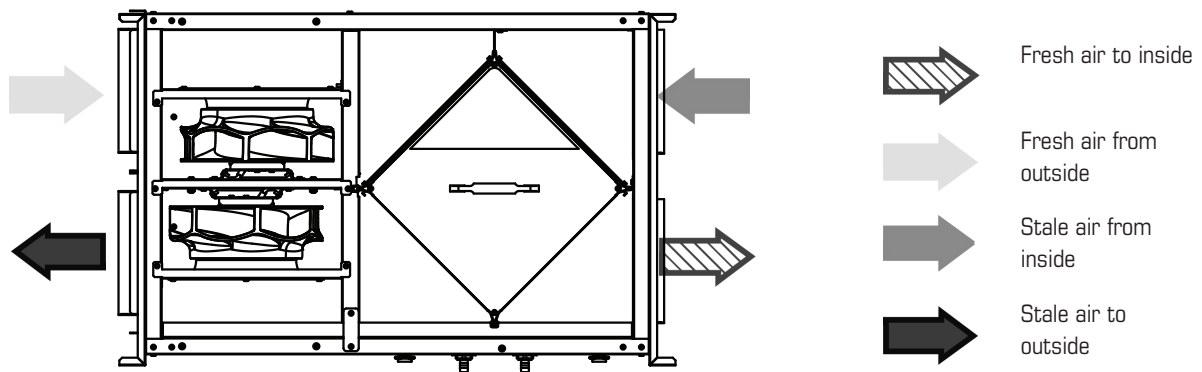
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Job Location:			
Job Reference Number:			
Unit Reference Number:			
Engineer:			
Distributor:			
Contractor:			
For Reference:	For Approval:	For Construction:	
Submitted by:		Date:	
Address:			
Tel:	Fax:	Email:	
Notes:			

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Fantech reserves the right to make technical changes.
 For updated documentation please refer to www.fantech.net

Descriptions

Cabinets:	22 gauge G90 galvanized steel sheet coated with baked powder paint, insulated with 1in. (25 mm) fiberglass with FSK facing for condensation control.
Blowers:	Two maintenance-free Ebm-Papst™ backward inclined motorized impellers with permanently lubricated sealed ball bearings and (TOP) thermal overload protected.
Heat recovery core*:	Two (2) heat recovery cores fixed plate cross-flow heat exchanger using 1100 alloy aluminum and capable of transferring sensible heat between air streams. The heat recovery cores are engineered with a turbulence inducing geometry in order to maximize heat transfer while allowing an effective evacuation of condensate. The plates are hemmed to avoid cross-contamination of airstreams.
Filters:	The exhaust and fresh air streams are protected by MERV1 washable filters constructed to meet UL 900. Optional MERV6 filters are direct replacement to the MERV1. Use of MERV6 filters will add an additional system pressure of 0.52 in.wg (130 Pa) at 450 cfm (212 l/s). Additional MERV Rated filters available upon request.
Controls:	External three (3) position (Low / Standby / High) rocker switch that will offer continuous ventilation. Compatible with all Fantech HRV controls.
Frost control:	A preset frost control sequence is initiated if the outdoor temperature falls below the set point of 23°F (-5°C). During the initial stage, the supply blower shuts down & the exhaust blower switches into high speed to eliminate frost build-up in the core. The unit then returns to normal operation for the final stage of the frost control sequence at which time the sequence is repeated if the outdoor air temperatures is still below the set point.
Serviceability:	Cores, filters and drain pan can be accessed easily from both sides of the HRV from hinged access panels. Cores conveniently slide out with only 15" (380 mm) clearance. Blowers can be accessed from both side of the HRV from fastened access panels. Blowers are easily removed by taking off the access panel and sliding the motor plates out of the HRV. A quick connect allows for fast inspection of blowers.
Mounting:	Unit may be suspended by using threaded rod, not supplied, or placed on a platform. Unit shall be adaptable for easy service of electrical components.
Warranty:	The heat recovery ventilator is warranted to be free from defect in material, workmanship and all parts for a period of 3 years from the purchase date. The heat recovery core is warranted to be free from defects in material and workmanship for a lifetime period under circumstances of normal use.



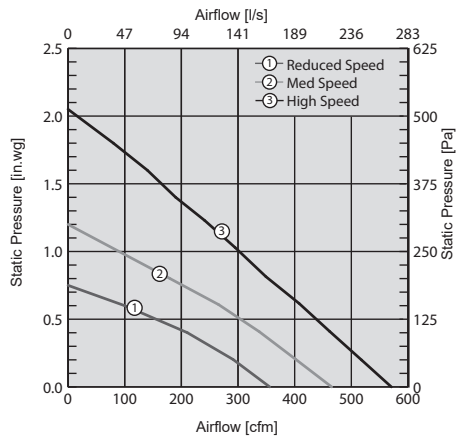
* AHRI certifies the published performance ratings of the COMPONENT used in this product in accordance with AHRI 1060. AHRI Certified Reference Number: 10514479, model number TE-HRC 305S. Note that only the COMPONENT is AHRI 1060 certified and not the product itself.

Specifications

- Volts: 120V
- Phase: Single
- Amperage: 3.92 Amps Total
- Blowers (x2): 115V, 60Hz, 1.96 Amps

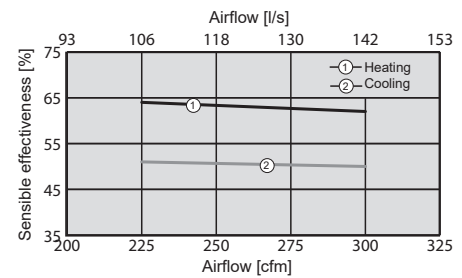
- Weight: 146 Lbs (66 Kg)
- Shipping Weight: 255 Lbs (116 Kg)
- Shipping Dim.: 38 x 38 x 27" (965 x 965 x 686mm)

Ventilation Performance

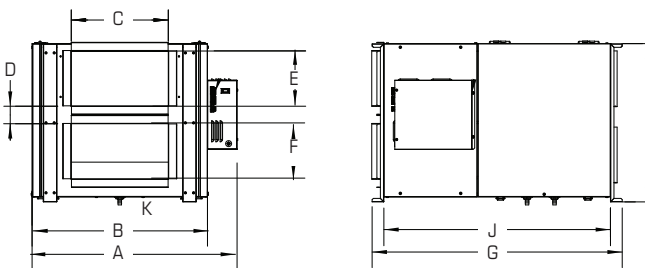


Energy Performance

	Supply temperature		Net airflow		Net Effectiveness	
	°F	°C	cfm	L/s	Sensible %	Total %
Heating	35	1.7	300	142	62	41
	35	1.7	225	106	64	42
Cooling	95	35	300	142	50	19
	95	35	225	106	51	19



Dimensions



Model	A		B		C		D		E		F		G		I		J		K	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
SHR 450	29 1/2	747	25 1/8	639	14	355	2 1/2	64	8	203	8	203	35 15/16	911	22 11/16	577	32 1/2	826	1 1/2	13

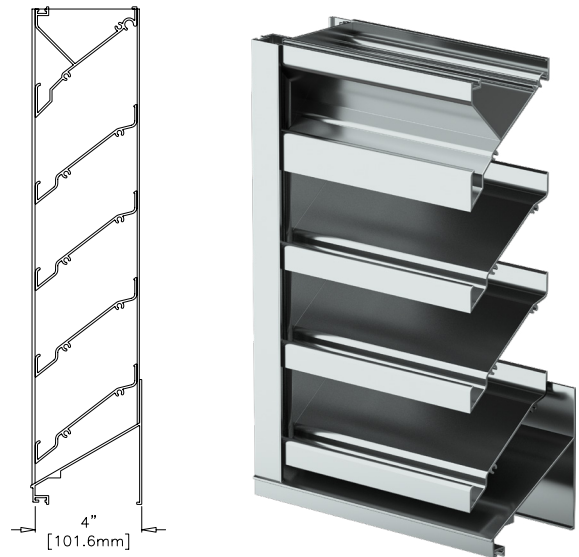
United States 10048 Industrial Blvd. • Lenexa, KS 66215 • 1.800.747.1762 • www.fantech.net

Canada 50 Kanafllakt Way • Bouctouche, NB E4S 3M5 • 1.800.565.3548 • www.fantech.net

Fantech reserves the right to make technical changes.
For updated documentation please refer to www.fantech.net

Standard Construction

Frame	Heavy gauge extruded 6063-T5 aluminum, 4 in. (102 mm) x 0.081 in. (2 mm) nominal wall thickness
Blades	Drainable design, heavy gauge extruded 6063-T5 aluminum, 0.081 in. (2 mm) nominal wall thickness, positioned 37.5° on approximately 3-1/4 in. (83 mm) centers
Louver Depth	4 in. (102 mm)
Construction	Mechanically fastened
Finish	Mill
Minimum Size	12 in. W x 9 in. H (305 mm W x 229 mm H)
Maximum Single Section Size	120 in. W x 120 in. H (3048 mm W x 3048 mm H) Limited to 70 sq. ft. (6.5 sq. m)
Wind Load	25 PSF (1.2 kPa)



Performance Ratings



Greenheck Fan Corporation certifies that the ESD-435 louvers shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to Water Penetration and Air Performance ratings.

Louvers were tested in accordance with AMCA Standard 500-L.

Performance of 48 in. x 48 in. (1219 mm x 1219 mm) Louver

Free Area	
Area	8.92 sq. ft. (0.829 sq. m)
Percent	55.8%
Performance at Beginning Point of Water Penetration	
Free Area Velocity	989 fpm (5.024 m/s)
Max Intake Volume	8,822 cfm (4.163 m³/s)
Performance at 6,000 CFM (2.832 m³/s) Intake	
Pressure Drop	0.073 in. wg (0.018 kPa)

Document Links

[Louver Finishes & Colors](#)
[Louver Product Selection Guide](#)
[Louver Products Catalog](#)
[Louver Warranty Statement](#)

Options and Accessories

- [Bird Screen](#)
- [Blank Off Panels](#)
- [Extended Sill](#)
- [Filter Rack/Filter](#)
- [Flange Frame](#)
- [Glazing Frame](#)
- [Hinged Frame](#)
- [Insect Screen](#)
- [Mounting Angles](#)
- [Security Bars](#)
- [Variety of Architectural Finishes](#)
- Welded Construction
- 0.125 in. (3 mm) Nominal Frame and/or Blade Thickness

Standard Details

ESD-435 Standard Details

Structural reinforcing members may be required to adequately support and install multiple louver sections within a large opening. Structural reinforcing members along with any associated installation hardware is not provided by Greenheck unless indicated otherwise by Greenheck. Options and accessories including, but not limited to, screens, filter racks, louver doors, and blank off panels are not subject to structural analysis unless indicated otherwise by Greenheck.

Free Area Chart

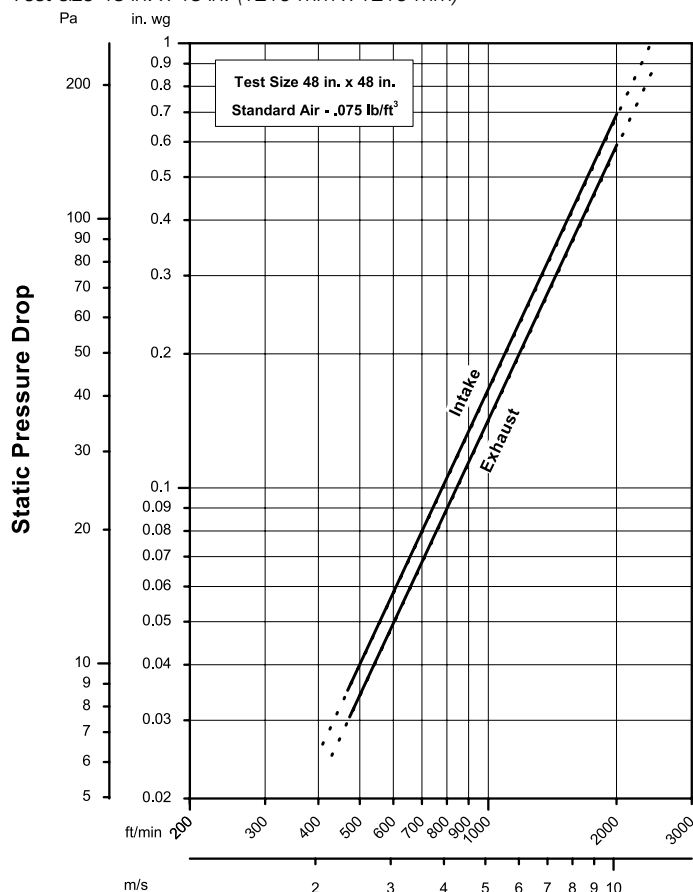
Free Area Chart shows free area in square feet and square meters.

Louver Height Inches (Meters)	Louver Width in Inches (Meters)																		
	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
0.30	0.30	0.46	0.61	0.76	0.91	1.07	1.22	1.37	1.52	1.68	1.83	1.98	2.13	2.29	2.44	2.59	2.74	2.90	3.05
12	0.30	0.49	0.68	0.87	1.07	1.26	1.45	1.59	1.79	1.98	2.17	2.36	2.56	2.70	2.89	3.08	3.28	3.47	3.66
0.30	0.03	0.05	0.06	0.08	0.10	0.12	0.13	0.15	0.17	0.18	0.20	0.22	0.24	0.25	0.27	0.29	0.30	0.32	0.34
18	0.54	0.88	1.23	1.58	1.93	2.28	2.62	2.88	3.23	3.58	3.93	4.28	4.62	4.88	5.23	5.58	5.93	6.28	6.62
0.46	0.05	0.08	0.11	0.15	0.18	0.21	0.24	0.27	0.30	0.33	0.37	0.40	0.43	0.45	0.49	0.52	0.55	0.58	0.62
24	0.79	1.30	1.81	2.32	2.83	3.33	3.84	4.23	4.74	5.25	5.76	6.27	6.78	7.16	7.67	8.18	8.69	9.20	9.71
0.61	0.07	0.12	0.17	0.22	0.26	0.31	0.36	0.39	0.44	0.49	0.54	0.58	0.63	0.67	0.71	0.76	0.81	0.85	0.90
30	1.04	1.71	2.38	3.06	3.73	4.40	5.08	5.58	6.26	6.93	7.60	8.28	8.95	9.45	10.13	10.80	11.47	12.15	12.82
0.76	0.10	0.16	0.22	0.28	0.35	0.41	0.47	0.52	0.58	0.64	0.71	0.77	0.83	0.88	0.94	1.00	1.07	1.13	1.19
36	1.29	2.13	2.97	3.81	4.65	5.49	6.33	6.96	7.80	8.64	9.48	10.31	11.15	11.78	12.62	13.46	14.30	15.14	15.98
0.91	0.12	0.20	0.28	0.35	0.43	0.51	0.59	0.65	0.72	0.80	0.88	0.96	1.04	1.09	1.17	1.25	1.33	1.41	1.48
42	1.55	2.55	3.55	4.56	5.56	6.56	7.57	8.32	9.32	10.32	11.33	12.33	13.33	14.09	15.09	16.09	17.10	18.10	19.10
1.07	0.14	0.24	0.33	0.42	0.52	0.61	0.70	0.77	0.87	0.96	1.05	1.15	1.24	1.31	1.40	1.49	1.59	1.68	1.77
48	1.82	3.01	4.19	5.37	6.55	7.74	8.92	9.81	10.99	12.17	13.35	14.54	15.72	16.61	17.79	18.97	20.16	21.34	22.52
1.22	0.17	0.28	0.39	0.50	0.61	0.72	0.83	0.91	1.02	1.13	1.24	1.35	1.46	1.54	1.65	1.76	1.87	1.98	2.09
54	2.08	3.44	4.79	6.14	7.49	8.85	10.20	11.21	12.56	13.92	15.27	16.62	17.97	18.99	20.34	21.69	23.04	24.40	25.75
1.37	0.19	0.32	0.45	0.57	0.70	0.82	0.95	1.04	1.17	1.29	1.42	1.54	1.67	1.76	1.89	2.02	2.14	2.27	2.39
60	2.33	3.85	5.36	6.87	8.39	9.90	11.42	12.55	14.06	15.58	17.09	18.61	20.12	21.26	22.77	24.28	25.80	27.31	28.82
1.52	0.22	0.36	0.50	0.64	0.78	0.92	1.06	1.17	1.31	1.45	1.59	1.73	1.87	1.98	2.12	2.26	2.40	2.54	2.68
66	2.58	4.26	5.94	7.61	9.29	10.97	12.64	13.90	15.58	17.25	18.93	20.60	22.28	23.54	25.21	26.89	28.57	30.24	31.92
1.68	0.24	0.40	0.55	0.71	0.86	1.02	1.17	1.29	1.45	1.60	1.76	1.91	2.07	2.19	2.34	2.50	2.65	2.81	2.97
72	2.84	4.68	6.52	8.36	10.20	12.05	13.89	15.27	17.11	18.95	20.79	22.64	24.48	25.86	27.70	29.54	31.38	33.22	35.07
1.83	0.26	0.43	0.61	0.78	0.95	1.12	1.29	1.42	1.59	1.76	1.93	2.10	2.27	2.40	2.57	2.74	2.92	3.09	3.26
78	3.09	5.10	7.10	9.11	11.11	13.12	15.12	16.63	18.63	20.64	22.65	24.65	26.66	28.16	30.17	32.17	34.18	36.18	38.19
1.98	0.29	0.47	0.66	0.85	1.03	1.22	1.40	1.54	1.73	1.92	2.10	2.29	2.48	2.62	2.80	2.99	3.18	3.36	3.55
84	3.35	5.53	7.70	9.88	12.05	14.23	16.40	18.03	20.21	22.38	24.56	26.73	28.91	30.54	32.71	34.89	37.06	39.23	41.41
2.13	0.31	0.51	0.72	0.92	1.12	1.32	1.52	1.68	1.88	2.08	2.28	2.48	2.69	2.84	3.04	3.24	3.44	3.64	3.85
90	3.64	6.00	8.37	10.73	13.09	15.45	17.82	19.59	21.95	24.31	26.67	29.04	31.40						
2.29	0.34	0.56	0.78	1.00	1.22	1.44	1.66	1.82	2.04	2.26	2.48	2.70	2.92						
96	3.88	6.40	8.92	11.44	13.95	16.47	18.99	20.88	23.40	25.91	28.43	30.95	33.47						
2.44	0.36	0.59	0.83	1.06	1.30	1.53	1.76	1.94	2.17	2.41	2.64	2.88	3.11						
102	4.13	6.81	9.49	12.17	14.85	17.53	20.21	22.22	24.90	27.58	30.26	32.94	35.62						
2.59	0.38	0.63	0.88	1.13	1.38	1.63	1.88	2.06	2.31	2.56	2.81	3.06	3.31						
108	4.38	7.23	10.07	12.91	15.76	18.60	21.44	23.58	26.42	29.26	32.11	34.95	37.79						
2.74	0.41	0.67	0.94	1.20	1.46	1.73	1.99	2.19	2.45	2.72	2.98	3.25	3.51						
114	4.64	7.65	10.66	13.67	16.68	19.68	22.69	24.95	27.96	30.97	33.98	36.99	40.00						
2.90	0.43	0.71	0.99	1.27	1.55	1.83	2.11	2.32	2.60	2.88	3.16	3.44	3.72						
120	4.89	8.07	11.24	14.41	17.58	20.76	23.93	26.31	29.48	32.66	35.83	39.00	42.18						
3.05	0.45	0.75	1.04	1.34	1.63	1.93	2.22	2.44	2.74	3.03	3.33	3.62	3.92						

Airflow Resistance

Standard Air - 0.075 lb/ft³ (1.2 kg/m³)

Test size 48 in. x 48 in. (1219 mm x 1219 mm)



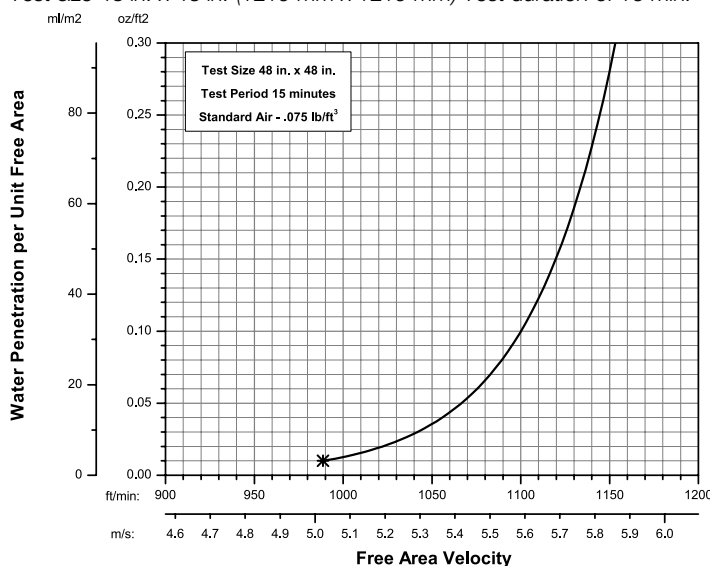
Free Air Velocity

Model ESD-435 resistance to airflow (pressure drop) varies depending on louver application (air intake or air exhaust). Free area velocities (shown) are higher than average velocity through the overall louver size. See louver selection information. (Test Figure 5.5-6.5)

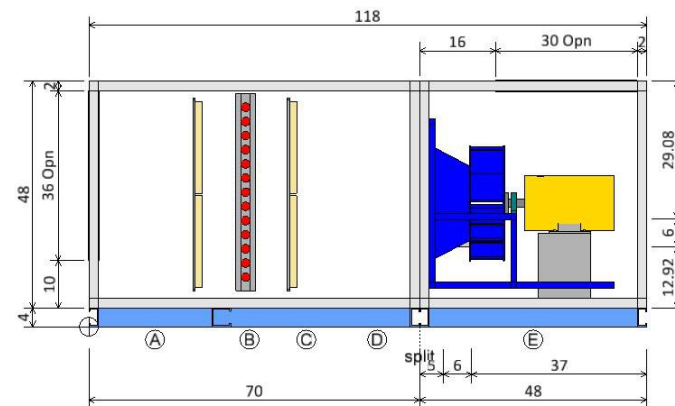
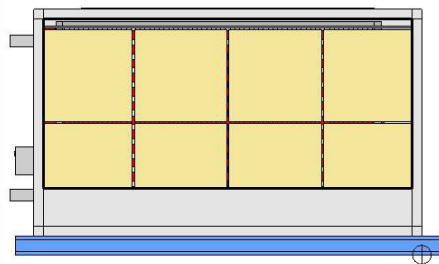
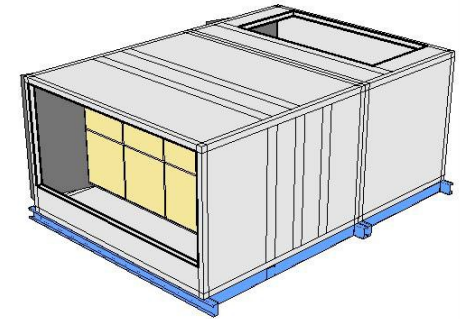
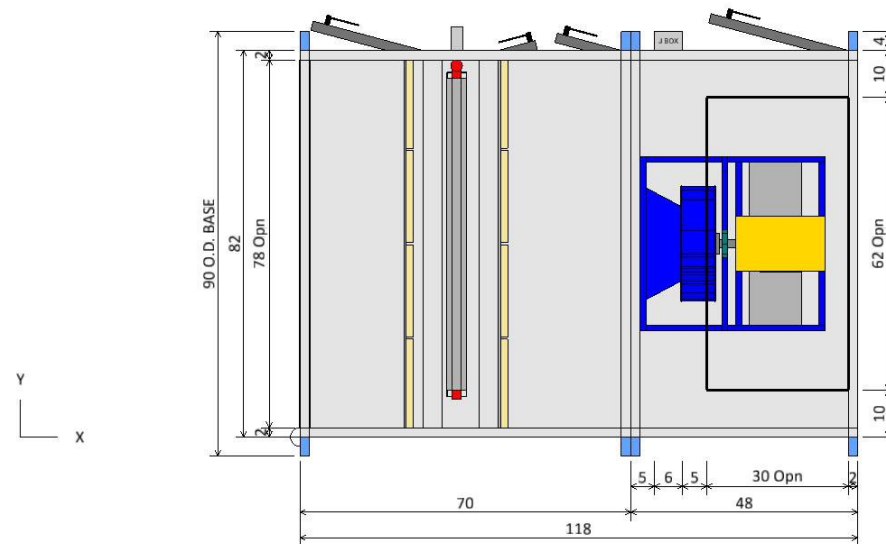
Water Penetration

Standard Air - 0.075 lb/ft³ (1.2 kg/m³)

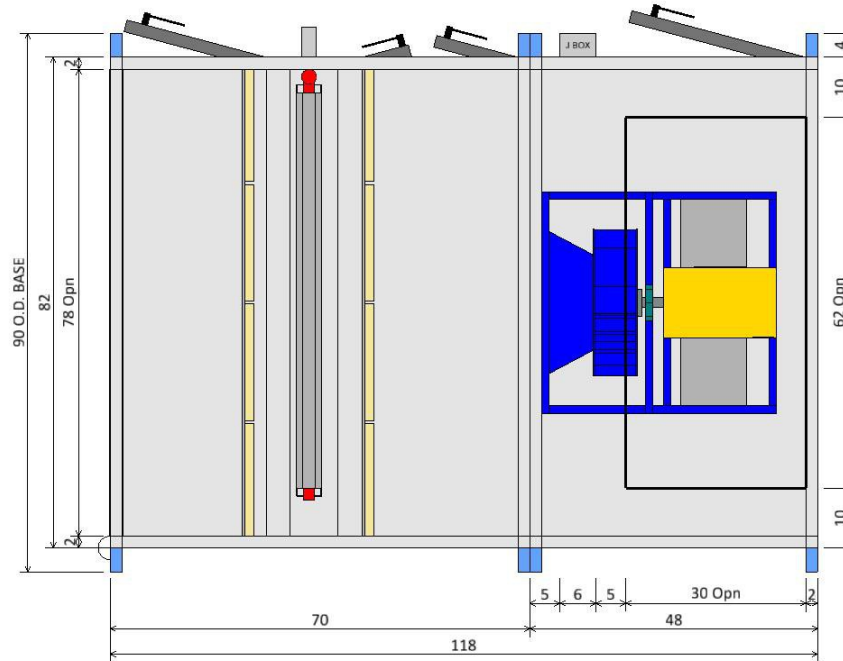
Test size 48 in. x 48 in. (1219 mm x 1219 mm) Test duration of 15 min.



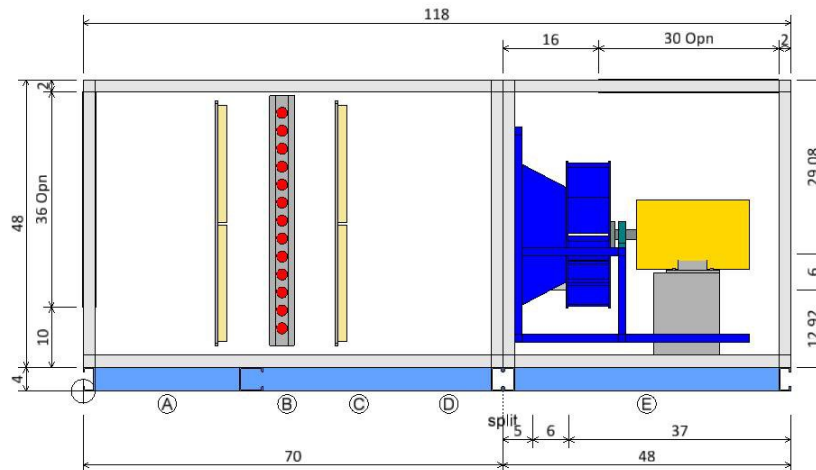
The AMCA Water Penetration Test provides a method for comparing various louver models and designs as to their efficiency in resisting the penetration of rainfall under specific laboratory test conditions. The beginning point of water penetration is defined as that velocity where the water penetration curve projects through 0.01 oz. (3 g) of water (penetration) per sq. ft. (m²) of louver free area. ***The beginning point of water penetration for Model ESD-435 is 989 fpm (5.024 m/s) free area velocity.** These performance ratings do not guarantee a louver to be weatherproof or stormproof and should be used in combination with other factors including good engineering judgement in selecting louvers.



FRONT END VIEW				ELEVATION VIEW			REAR END VIEW	
Plan/Elevation		Unit Tag: AHU-1			Sales Office: Stinebaugh & Company			 13600 Industrial Park Blvd, Minneapolis, MN 55441 www.DaikinApplied.com Software Version: 13.31
Product: Vision Air Handler		Project Name: SC2400047 Haines M&O			Sales Engineer:			
Model: CAH019GHGM		May 24, 2024	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/-0.25"	Dwg Units: in	
All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.								



PLAN VIEW



ELEVATION VIEW

Component Key

Mixing Box	
(A) Filter Type:	PerfectPleat HC M8
Left Door (WxH): 24 ins x 44 ins	
Hot Water Coil	
(B) Coil Model:	5WS0802B
Total Capacity: 676141.0 Btu/hr	
Panel Filter	
(C) Filter Type:	Pleated (MERV 8)
Left Door (WxH): 8 ins x 44 ins	
Access Section	
(D) Left Door (WxH):	14 ins x 44 ins
Supply Fan	
Fan Type: Centrifugal - Plenum	
Fan Size (Class): 24 (2)	
(E) Air Flowrate:	9000.0 cfm
T.S.P: 2.3 insWg	
Motor Power: 7.5 HP	
Left Door (WxH): 30 ins x 44 ins	

Plan/Elevation - No Ends

Unit Tag: AHU-1

Sales Office: Stinebaugh & Company

Product: Vision Air Handler

Project Name: SC2400047 Haines M&O

Sales Engineer:

Model: CAH019GHGM

May 24, 2024

Ver/Rev:

Sheet: 1 of 1

Scale: NTS

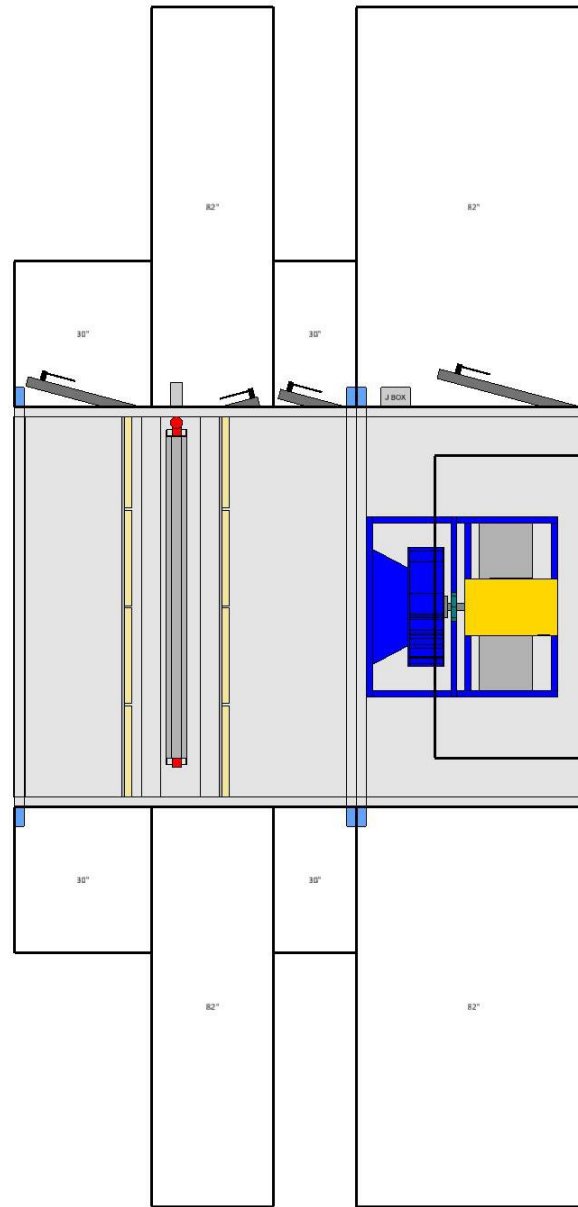
Tolerance: +/-0.25"

Dwg Units: in



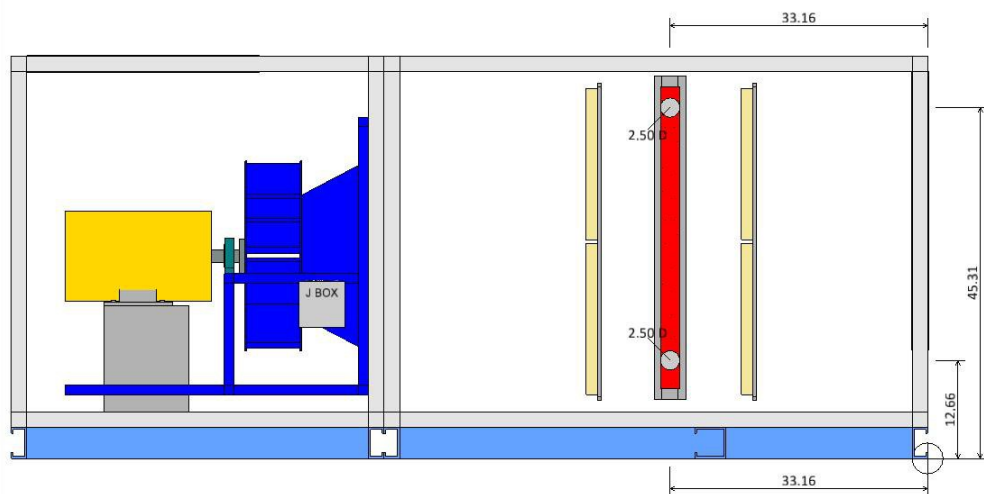
13600 Industrial Park Blvd, Minneapolis, MN 55441
www.DaikinApplied.com Software Version: 13.31

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.

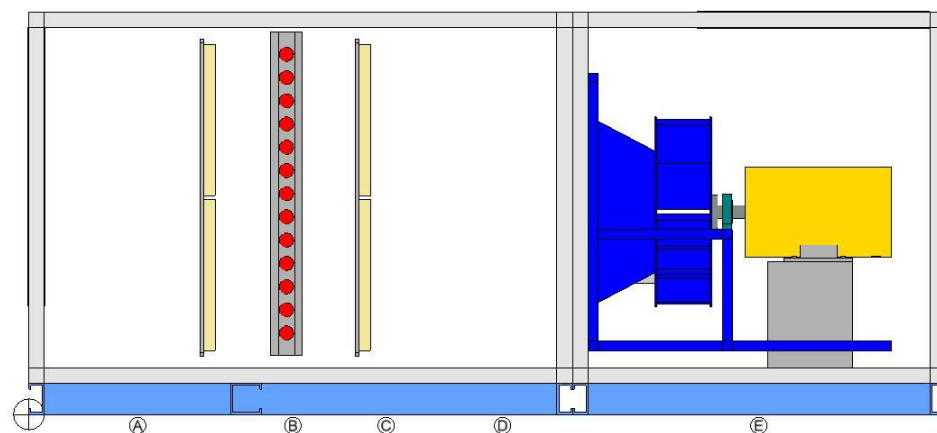


Access is only required on one side of the unit.

Service Clearance View		Unit Tag: AHU-1		Sales Office: Stinebaugh & Company			 13600 Industrial Park Blvd, Minneapolis, MN 55441 www.DaikinApplied.com Software Version: 13.31
Product: Vision Air Handler		Project Name: SC2400047 Haines M&O		Sales Engineer:			
Model: CAH019GHGM		May 24, 2024	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/-0.25" Dwg Units: in	
All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.							



LEFT ELEVATION VIEW



RIGHT ELEVATION VIEW

Coil and Drain Connections

Type	X	Y	Z	Diam
Hot Water Coil				
Hot water inlet:	33.16	87.00	12.66	2.50
Hot water outlet:	33.16	87.00	45.31	2.50

Note: Dimensions are measured from the origin point.

Coil and Drain Connections

Product: Vision Air Handler

Model: CAH019GHGM

Unit Tag: AHU-1

Project Name: SC2400047 Haines M&O

May 24, 2024

Ver/Rev:

Sheet: 1 of 1

Sales Office: Stinebaugh & Company

Sales Engineer:

Scale: NTS

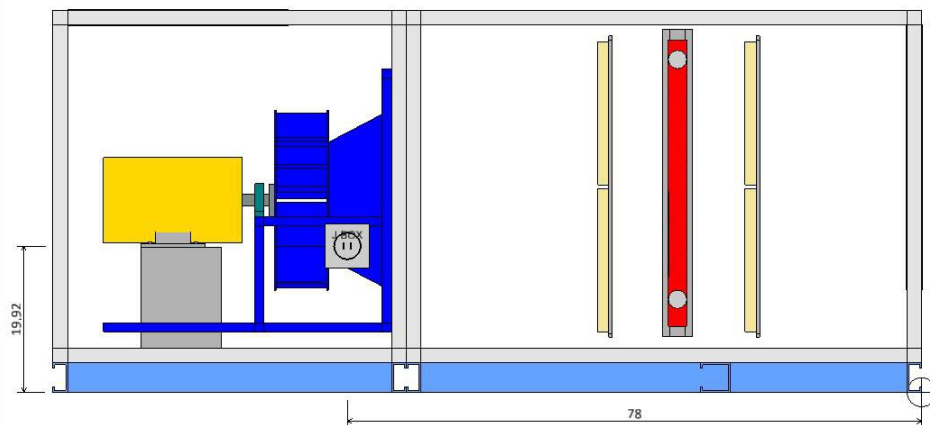
Tolerance: +/-0.25"

Dwg Units: in

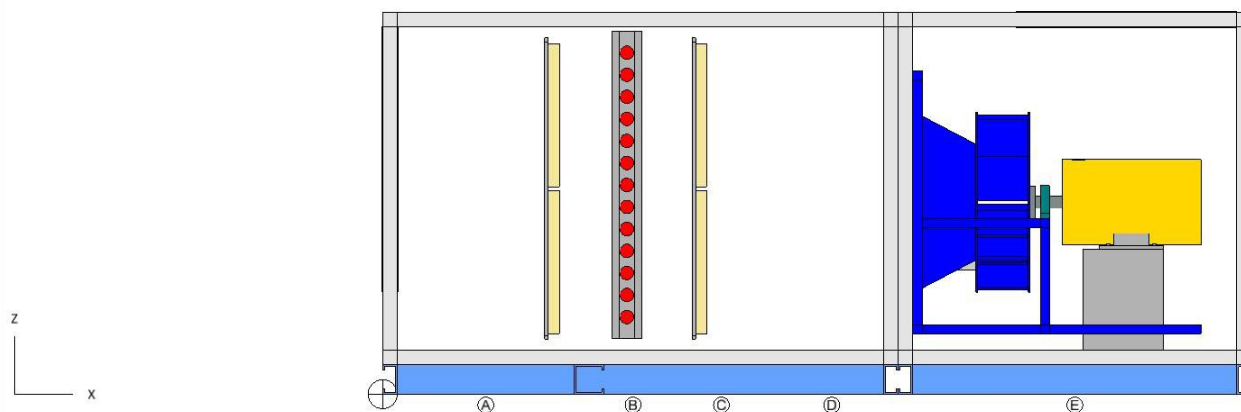


13600 Industrial Park Blvd, Minneapolis, MN 55441
www.DaikinApplied.com Software Version: 13.31

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.



LEFT ELEVATION VIEW



RIGHT ELEVATION VIEW

Component Key

	Type	X	Y	Z	Volts	Phase
Ⓔ	Supply Fan Fan	78.00	82.00	19.92	200	3

Note: Dimensions are measured from the origin point.

Electrical Connections

Product: Vision Air Handler

Model: CAH019GHGM

Unit Tag: AHU-1

Project Name: SC2400047 Haines M&O

May 24, 2024

Ver/Rev:

Sheet: 1 of 1

Sales Office: Stinebaugh & Company

Sales Engineer:

Scale: NTS

Tolerance: +/-0.25"

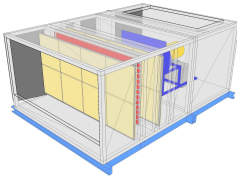
Dwg Units: in



13600 Industrial Park Blvd, Minneapolis, MN 55441
www.DaikinApplied.com Software Version: 13.31

All opening dimensions have a 1" mounting flange along the inner edge. The actual airflow area of the opening is 2" smaller in each dimension.

Job Information		Technical Data Sheet
Job Name	SC2400047 Haines M&O	
Date	May 24 2024	
Submitted By	AK	
Software Version	13.31	
Unit Tag	AHU-1	



Unit Overview

Model Number	Air Volume cfm	Supply				
		Static Pressure		External Dimensions		
		External inWc	Total inWc	Height in	Width in	Length in
CAH019GHGM	9000	1.50	2.31	48*	82*	118

*Not including base rails, coil connectors, drain connectors and control boxes.

Unit

Model Number:	CAH019GHGM				
Approval:	ETL Listed / ETL Listed to Canadian Safety Standards (ETL Label / ETLc Label)				
Outer Panel:	24 gauge G90 Galvanized Steel (unpainted)				
Liner:	24 gauge Galvanized Steel (unless noted per section)				
Insulation:	R-13 Injected Foam				
Unit Configuration:	Inline horizontal		Drive (Handling) Location:	Left	
Base:	4" formed channel		Wall Thickness:	2 in	
Shipping Stretch Wrap:	Yes		Altitude:	0 ft	
Parts Warranty:	Standard One Year				

Mixing Box

Portion	Damper					Blade Action	Rated CFM	Air Pressure Drop	Quantity
	Size (length x width)		Location	Type	Actuation				
	Overall	Opening							
Outside Air	36 in x 78 in	36 in x 78 in	End	None	NA	None	9000 cfm	0.02 insWg	1
Return Air	No opening	No opening		None		None	9000 cfm		0

Filter Data							
Type	Efficiency	Face Velocity	Face Area	Air Volume	Filter Loading		
Pleated	MERV 8	426 ft/min	21.1 ft²	9000 cfm	Side		
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec	8	20 in	20 in	2 in
0.19 inWc	0.59 inWc	1.00 inWc	N/A				

Door		
Location	Width	Opening
Drive side	24 in	Outward

Special Options	
Sound Baffle	Filter Gauge
(As casing details)	Magnehelic 0-2"

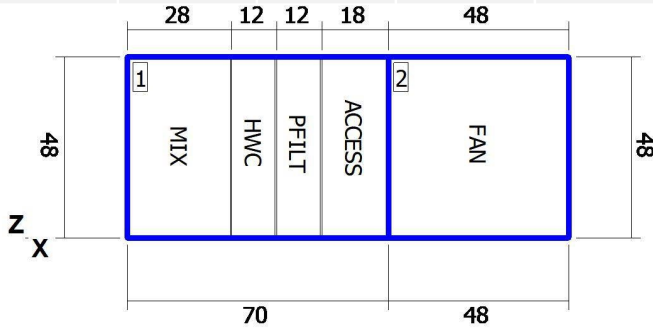
Special Text
Extra filters 1 set(s)

Hot Water Coil		Component: 2		Length: 12 in		Shipping Section: 1	
Coil Model	Total Capacity	Number of Coils	Number of Rows	Fins per Inch	Tube Diameter	Tube Spacing (Face x Row)	
5WS0802B	676141 Btu/hr	1	2	8	0.625 in	1.50 in x 1.299 in	
Air Volume	Air Temperature		Coil Air Pressure Drop	Finned Height	Finned Length	Face Area	Face Velocity
	Entering	Leaving					
	Dry Bulb	Dry Bulb					
9000 cfm	0.0 °F	68.7 °F	0.16 inWc	39 in	66 in	17.88 ft²	503 ft/min
Fluid		Flow Rate	Pressure Drop	Velocity	Volume	Weight	
Entering	Leaving						
180.0 °F	158.9 °F	67.40 gpm	3.50 ftHd	2.80 ft/s	6.0 gal	53.00 lb	
Connection [Data Per Coil]				Glycol Type	Min. Fin Surface Temp.	Min. Tube Wall Surface Temp.	Fouling Factor
Type	Size	Location	Material	Propylene (30%)	158.9 °F	158.9 °F	0.000
OD Sweat	2.50 in	Drive side	Copper tube				
Material							
Fin		Tube		Header		Case	
Aluminum .0075 in		Copper .020 in		Copper		Galv. steel	
AHRI 410 Certification							
Coil is NOT certified by AHRI							
Panel							
Location		Width			Opening		
Removable panels		- in			Outward		
Panel Filter		Component: 3		Length: 12 in		Shipping Section: 1	
Type	Efficiency	Face Velocity		Face Area	Air Volume	Filter Loading	
Pleated	MERV 8	426 ft/min		21.1 ft²	9000 cfm	Side	
Air Pressure Drop				Number of Filters	Height	Width	Depth
Clean Air	Mean Air	Dirty Air	User Spec				
0.19 inWc	0.59 inWc	1.00 inWc	0.01 inWc	8	20 in	20 in	2 in
Door							
Location		Width			Opening		
Drive side		8 in			Outward		
Special Options							
Sound Baffle				Filter Gauge			
(As casing details)				Magnehelic 0-2"			
Access Section		Component: 4		Length: 18 in		Shipping Section: 1	
Air Pressure Drop							
0.00 inWc							
Door							
Location		Width			Opening		
Drive side		14 in			Outward		

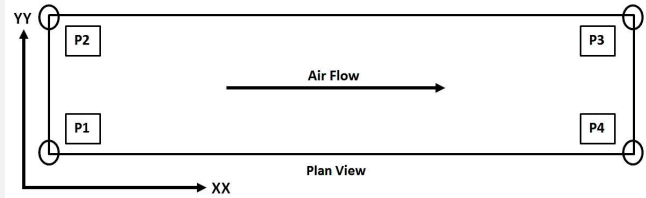
Supply Fan		Component: 5			Length: 48 in		Shipping Section: 2		
Fan Performance									
Air Volume	Static Pressure			Fan Energy Index(FEI)	Total Input Power	Fan Shaft Power	Speed		Outlet Velocity
	External	Total	Cabinet				Operating	Maximum	
9000 cfm	1.50 inWc	2.31 inWc	0.03 inWc	1.26	4.5 kW	5.05 BHP	1408 rpm	2183 rpm	0 ft/min
Fan Data									
Fan Type	Blade Type / Class	Nominal Fan Size	Quantity of Fans	Wheel Diameter	Material Type	Number of Blades	Discharge	Motor Location	
Centrifugal - Plenum	Airfoil / 2	DDPL24	1	24.50 in	Aluminum	9	-	Behind Fan	
Motor Data									
Power	Electrical Supply	Speed	Efficiency	Enclosure	Frame Size	Supplier	Number of Poles	Lock Rotor Current	Full Load Current
7.5 HP	200/60/3 V/Hz/Phase	1160 rpm	Premium	ODP	254 T frame	Generic	6	144.97 A	25.00 A
Fan Options									
Seismic Restraint:		With snubbers			Isolator Type:		Spring		
VFD/Starter/Disconnect Data									
Selection Type:		External J-Box			Vendor:		Factory Standard		
Voltage:		200 v			Height x Width x Depth:		6.00 in x 6.00 in x 4.00 in		
Mounting:		Door Side			Enclosure:		NEMA 1		
Custom Openings									
Custom Opening		Location		Width		Height		Rainhood w/Screen	
1		Top		62 in		30 in		None	
Door									
Location			Width			Opening			
Drive side			30 in			Outward			
Unit Sound Power (dB)									
Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
Radiated:	69	67	68	59	57	49	46	51	
Unit Discharge:	79	77	83	80	79	77	70	66	
Unit Return:	69	69	76	66	64	65	56	54	

Shipping Section Details

Section	Length in	Weight lb	Corner Weights (lb)				Center of Gravity (in)		
			P1	P2	P3	P4	XX	YY	ZZ
1	70	997	247	253	252	246	35	41	25
2	48	1021	275	279	235	232	22	41	21
Entire Unit	118	2018	459	468	550	541	64	41	23



Elevation View



Plan View

NOTE: Special components aren't included in the corner weights and center of gravity data.

NOTE: Shipping weights listed do not include weight of water (listed in coil section(s) above).

Supply Static Pressure Drop

Component	Option	Static Pressure Drop
Mixing Box	Filter	0.59 insWg
Mixing Box	Mixing Box	0.02 insWg
Hot Water Coil	Hot Water Coil	0.16 insWg
Panel Filter	Panel Filter	0.01 insWg
Access Section	Access Section	
Supply Fan	Cabinet	0.03 insWg
External Static	External Static	1.50 insWg
Total Supply Fan Static		2.31 insWg

AHRI Certification



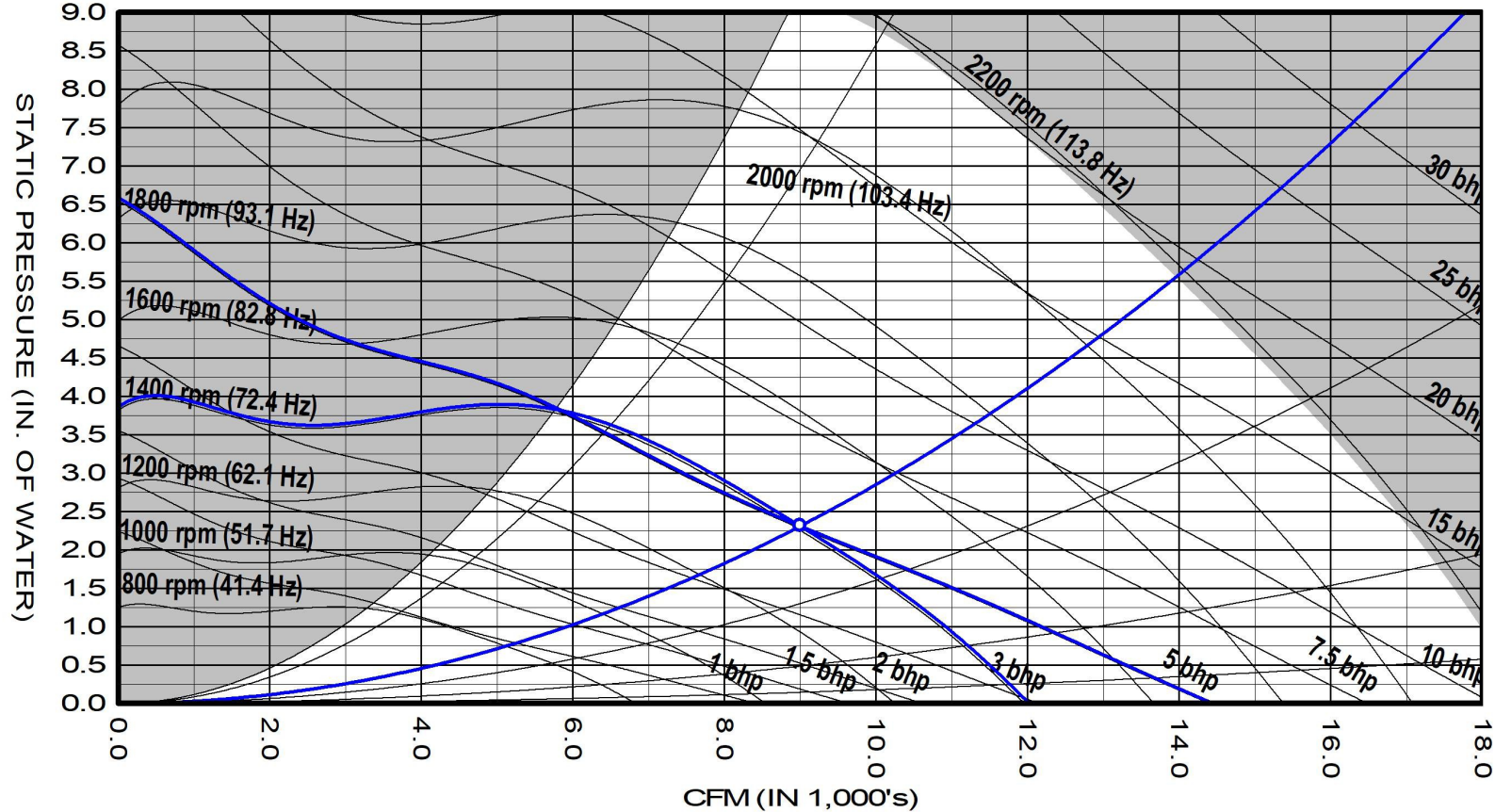
Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, which is based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

Notes

Standard

1. As a standalone component, unit meets or exceeds requirements of ASHRAE 90.1 - 2007. The approving authority is responsible for compliance of multi - component building systems.

Daikin AHU Fan Curve



AF 24 DD PLENUM 9BL (100% Width) 1x1 Supply Fan at Standard Conditions					
Air volume	9000	cfm	Fan speed	1408	rpm
Total static	2.31	insWg	Max speed	2183	rpm
Fan Shaft Power	5.0	bhp	Efficiency	64.8	%
Approx VFD Setting	72.8	Hz	Motor Speed	1160	rpm
Fan Energy Index(FEI)	1.26				
Unit tagging	AHU-1		Date	May-24-2024	
Job name	SC2400047 Haines M&O		Time	07:47	



Supply fan performance is certified in accordance with the Central Station Air-Handling Unit Certification Program, which is based on AHRI Standard 430.

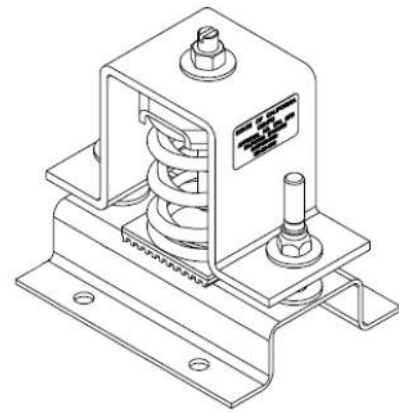
Seismic Restraint for Plenum Fans

Description

Daikin seismic restraints come with factory-mounted springs to protect HVAC equipment in areas where seismic activity is expected. In addition to protection from seismic activity, seismic restraints reduce the energy transferred from the equipment to the building structure. This helps keep noise and vibration compatible with the intended use of the conditioned air space. All fans are dynamically balanced.

Features

- Factory mounted inside cabinetry
- Spring rating: 2" deflection
- Housing finish: zinc plate
- Springs finish: powder coated



Example of spring design. Actual spring provided is dependent on fan weights and size.

PerfectPleat® HC M8 2" Filter

Description

The PerfectPleat HC M8 filter is designed to consistently increase efficiency throughout the service life of the filter. The PerfectPleat HC M8 filter is ideal for applications where pleated filters are currently used and higher performance is desired. It has an initial MERV 8 rating and the efficiency increases significantly when dust holding begins. PerfectPleat HC M8 filters have distinctive self-supporting characteristics that allow a pleating pattern, which promotes airflow and maximizes dust holding capacity (DHC). Lower pressure drop and higher DHC translate to reductions in energy consumption and operating costs.

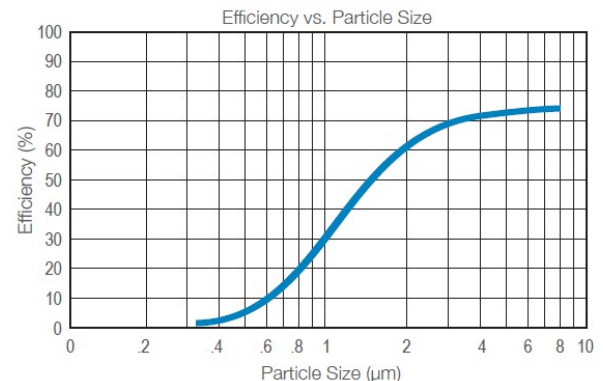
Support straps on the air-entering side are used in combination with uniquely designed pleat stabilizers on the air-leaving side of this 2" filter to provide additional strength. The support straps and pleat stabilizers ensure integrity against turbulent airflow. The 2" filter resists crushing and abuse and provides excellent lateral stability for installation in side-access systems.

Performance Data

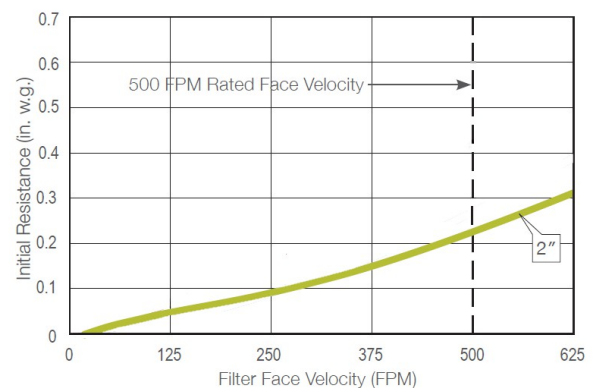
PerfectPleat HC M8 2" Filter		
Pleats per lineal foot		15.0
Rated initial resistance (in. W.g.)	330 fpm	0.12
	500 fpm	0.23
	625 fpm	0.31
Recommended final resistance (in. W.g.)		1.0
MERV		8.0
Continuous operating temperature limits		150°F (66°C)



Composite Minimum Efficiency Curve



Initial Resistance vs. Filter Face Velocity



Magnehelic® Differential Pressure Gauge

Description

Dwyer's simple, frictionless Magnehelic® Gauge movement quickly indicates air or noncorrosive gas pressures--either positive, negative (vacuum) or differential. The design resists shock, vibration, over-pressures, and is weatherproof to IP67.

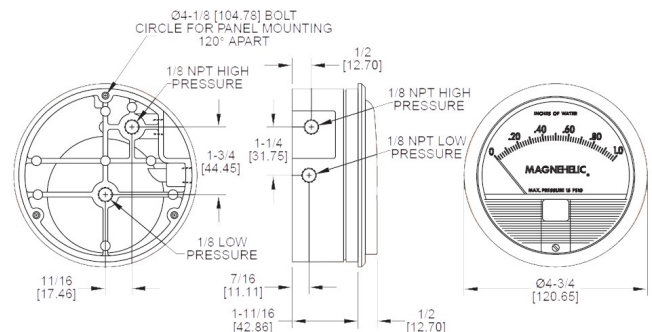
Features

- Offered in 0 – 1", 0 – 2", 0 – 3", and 0 – 5" measurements
- Easy to read gauge through undistorted plastic face permits viewing from far away
- Patented design provides quick response to pressure changes, meaning no delay in assessing critical situations
- Durable housing and high-quality components combine to provide long service life and minimized down-time
- Pointer stops of molded rubber prevent pointer over-travel without damage
- Jeweled bearings are shock-resistant mounted, providing virtually frictionless motion for the helix
- Motion is damped with high viscosity silicone fluid
- Zero adjustment screw is located in the plastic cover and can be accessed without removing the cover
- Diecast aluminum case is precision made and iridite-dipped to withstand a 168 hour salt spray corrosion test
- Overpressure protection blowout plug is comprised of a rubber plug on the rear which functions as a relief valve by unseating and venting the gauge interior when over pressure reaches approximately 25 psig (1.7 bar)
- O-ring seal for cover assures pressure integrity of case
- Samarium Cobalt magnet mounted at one end of range spring rotates helix without mechanical linkages



Magnehelic® Differential Pressure Gauge (0 - 1" model shown)

Dimensions



PERFORMANCE DATA

specialized grilles

MODELS: 50F, 50F-NT, 50R, 50R-SS AND 50FF
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

www.titus-hvac.com
Redefine your comfort zone.™

RG-1,2 →

								NC 20	NC 30	NC 40		
Nominal Duct Size (in.)	Nominal Duct Area sq. ft	Core Area sq. ft	Core Velocity Velocity Pressure 1x1x1 Neg. Ps ½x½x½ Neg. Ps	300 0.006 0.013 0.013	400 0.01 0.024 0.024	500 0.016 0.037 0.037	600 0.022 0.054 0.053	700 0.031 0.073 0.073	800 0.04 0.096 0.095	1000 0.062 0.15 0.148	1200 0.09 0.216 0.213	1400 0.122 0.294 0.29
6x6	0.25	0.19	Airflow, cfm NC	57 -	76 -	95 -	114 10	133 17	152 22	190 31	228 39	266 45
8x6	0.33	0.26	Airflow, cfm NC	78 -	104 -	130 -	156 10	182 17	208 22	260 31	312 39	364 45
10x6	0.42	0.34	Airflow, cfm NC	102 -	136 -	170 -	204 11	238 17	272 23	340 32	408 39	476 46
8x8	0.44	0.37	Airflow, cfm NC	111 -	148 -	185 -	222 11	259 17	296 23	370 32	444 39	518 46
12x6	0.50	0.41	Airflow, cfm NC	123 -	164 -	205 -	246 11	287 18	328 23	410 32	492 40	574 46
14x6	0.58	0.48	Airflow, cfm NC	144 -	192 -	240 -	288 11	336 18	384 23	480 32	576 40	672 46
16x6	0.67	0.57	Airflow, cfm	171	228	285	342	399	456	570	684	798
12x8			NC	-	-	-	12	18	23	32	40	46
10x10	0.69	0.59	Airflow, cfm NC	177 -	236 -	295 -	354 12	413 18	472 23	590 33	708 40	826 46
18x6	0.75	0.63	Airflow, cfm NC	189 -	252 -	315 -	378 12	441 18	504 24	630 33	756 40	882 46
20x6	0.83	0.72	Airflow, cfm	216	288	360	432	504	576	720	864	1008
12x10			NC	-	-	-	12	18	24	33	40	46
22x6	0.92	0.77	Airflow, cfm NC	231 -	308 -	385 -	462 12	539 18	616 24	770 33	924 40	1078 47
24x6	1.00	0.88	Airflow, cfm	264	352	440	528	616	704	880	1056	1232
12x12			NC	-	-	-	12	18	24	33	40	47
30x6	1.25	1.11	Airflow, cfm	333	444	555	666	777	888	1110	1332	1554
18x10			NC	-	-	-	13	19	24	34	41	47
14x14	1.36	1.22	Airflow, cfm NC	366 -	488 -	610 -	732 13	854 19	976 24	1220 34	1464 41	1708 47
36x6	1.50	1.35	Airflow, cfm	405	540	675	810	945	1080	1350	1620	1890
18x12			NC	-	-	-	13	19	24	34	41	47
22x10	1.53	1.37	Airflow, cfm NC	411 -	548 -	685 -	822 13	959 19	1096 25	1370 34	1644 41	1918 47
30x8	1.67	1.49	Airflow, cfm	447	596	745	894	1043	1192	1490	1788	2086
24x10			NC	-	-	-	13	19	25	34	41	47
42x6	1.75	1.59	Airflow, cfm	477	636	795	954	1113	1272	1590	1908	2226
18x14			NC	-	-	-	13	19	25	34	41	47
16x16	1.78	1.62	Airflow, cfm NC	486 -	648 -	810 -	972 13	1134 19	1296 25	1620 34	1944 41	2268 48
24x12	2.00	1.82	Airflow, cfm	546	728	910	1092	1274	1456	1820	2184	2548
18x16			NC	-	-	-	13	19	25	34	41	48
18x18	2.25	2.07	Airflow, cfm NC	621 -	828 -	1035 -	1242 13	1449 19	1656 25	2070 34	2484 41	2898 48
24x14	2.33	2.14	Airflow, cfm NC	642 -	856 -	1070 -	1284 13	1498 20	1712 25	2140 34	2568 42	2996 48
30x12	2.50	2.29	Airflow, cfm NC	687 -	916 -	1145 -	1374 13	1603 20	1832 25	2290 34	2748 42	3206 48
24x16	2.67	2.46	Airflow, cfm NC	738 -	984 -	1230 -	1476 13	1722 20	1968 25	2460 34	2952 42	3444 48
20x20	2.78	2.57	Airflow, cfm NC	771 -	1028 -	1285 -	1542 13	1799 20	2056 25	2570 34	3084 42	3598 48
36x12	3.00	2.75	Airflow, cfm NC	825 -	1100 -	1375 -	1650 14	1925 20	2200 25	2750 34	3300 42	3850 48
30x16	3.33	3.11	Airflow, cfm	933	1244	1555	1866	2177	2488	3110	3732	4354
24x20			NC	-	-	-	14	20	25	35	42	48
22x22	3.36	3.14	Airflow, cfm NC	942 -	1256 -	1570 -	1884 14	2198 20	2512 25	3140 35	3768 42	4396 48
42x12	3.50	3.22	Airflow, cfm	966	1288	1610	1932	2254	2576	3220	3864	4508
36x14			NC	-	-	-	14	20	26	35	42	48
24x22	3.67	3.43	Airflow, cfm NC	1029 -	1372 -	1715 -	2058 14	2401 20	2744 26	3430 35	4116 42	4802 48
30x18	3.75	3.50	Airflow, cfm NC	1050 -	1400 -	1750 -	2100 14	2450 20	2800 26	3500 35	4200 42	4900 48

- Static pressures are negative, in inches of water, measured per ANSI/ASHRAE Standard 70-2006

- NC based on room absorption of 10dB, re 10⁻¹² watts, measured per ANSI/ASHRAE Standard 70-2006

MODELS: 50F, 50F-NT, 50R, 50R-SS AND 50FF
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

								NC 20	NC 30	NC 40			
Nominal Duct Size (in.)	Nominal Duct Area sq. ft	Core Area sq. ft	Core Velocity Pressure 1x1x1 Neg. Ps ½x½x½ Neg. Ps	300 0.006 0.013 0.013	400 0.01 0.024 0.024	500 0.016 0.037 0.037	600 0.022 0.054 0.053	700 0.031 0.073 0.073	800 0.04 0.096 0.095	1000 0.062 0.15 0.148	1200 0.09 0.216 0.213	1400 0.122 0.294 0.29	
48x12 24x24	4.00	3.75	Airflow, cfm NC	1125 -	1500 -	1875 -	2250 14	2625 20	3000 26	3750 35	4500 42	5250 49	
36x18	4.50	4.22	Airflow, cfm NC	1266 -	1688 -	2110 -	2532 14	2954 20	3376 26	4220 35	5064 42	5908 49	
36x20 30x24	5.00	4.71	Airflow, cfm NC	1413 -	1884 -	2355 -	2826 14	3297 21	3768 26	4710 35	5652 43	6594 49	
42x18	5.25	4.94	Airflow, cfm NC	1482 -	1976 -	2470 -	2964 14	3458 21	3952 26	4940 35	5928 43	6916 49	
28x28	5.44	5.16	Airflow, cfm NC	1548 -	2064 -	2580 -	3096 14	3612 21	4128 26	5160 35	6192 43	7224 49	
42x20 30x28	5.83	5.51	Airflow, cfm NC	1653 -	2204 -	2755 -	3306 14	3857 21	4408 26	5510 35	6612 43	7714 49	
48x18 36x24	6.00	5.66	Airflow, cfm NC	1698 -	2264 -	2830 -	3396 14	3962 21	4528 26	5660 35	6792 43	7924 49	
30x30	6.25	5.94	Airflow, cfm NC	1782 -	2376 -	2970 -	3564 15	4158 21	4752 26	5940 35	7128 43	8316 49	
42x24 36x28	7.00	6.66	Airflow, cfm NC	1998 -	2664 -	3330 -	3996 15	4662 21	5328 26	6660 36	7992 43	9324 49	
46x22	7.03	6.68	Airflow, cfm NC	2004 -	2672 -	3340 -	4008 15	4676 21	5344 26	6680 36	8016 43	9352 49	
32x32	7.11	6.78	Airflow, cfm NC	2034 -	2712 -	3390 -	4068 15	4746 21	5424 27	6780 36	8136 43	9492 49	
36x30	7.50	7.16	Airflow, cfm NC	2148 -	2864 -	3580 -	4296 15	5012 21	5728 27	7160 36	8592 43	10024 49	
48x24 36x32	8.00	7.63	Airflow, cfm NC	2289 -	3052 -	3815 -	4578 15	5341 21	6104 27	7630 36	9156 43	10682 49	
34x34	8.03	7.68	Airflow, cfm NC	2304 -	3072 -	3840 -	4608 15	5376 21	6144 27	7680 36	9216 43	10752 49	
36x34	8.50	8.14	Airflow, cfm NC	2442 -	3256 -	4070 -	4884 15	5698 21	6512 27	8140 36	9768 43	11396 50	
42x30	8.75	8.38	Airflow, cfm NC	2514 -	3352 -	4190 -	5028 15	5866 21	6704 27	8380 36	10056 43	11732 50	
36x36	9.00	8.63	Airflow, cfm NC	2589 -	3452 -	4315 -	5178 15	6041 21	6904 27	8630 36	10356 43	12082 50	
42x34 48x30	10.00	9.60	Airflow, cfm NC	2880 -	3840 -	4800 -	5760 15	6720 21	7680 27	9600 36	11520 43	13440 50	
38x38	10.03	9.64	Airflow, cfm NC	2892 -	3856 -	4820 -	5784 15	6748 21	7712 27	9640 36	11568 43	13496 50	
42x36	10.50	10.10	Airflow, cfm NC	3030 -	4040 -	5050 -	6060 15	7070 22	8080 27	10100 36	12120 44	14140 50	
46x34	10.86	10.45	Airflow, cfm NC	3135 -	4180 -	5225 -	6270 15	7315 22	8360 27	10450 36	12540 44	14630 50	
42x38	11.08	10.67	Airflow, cfm NC	3201 -	4268 -	5335 -	6402 15	7469 22	8536 27	10670 36	12804 44	14938 50	
40x40	11.11	10.70	Airflow, cfm NC	3210 -	4280 -	5350 -	6420 15	7490 22	8560 27	10700 36	12840 44	14980 50	
48x36	12.00	11.57	Airflow, cfm NC	3471 -	4628 -	5785 -	6942 15	8099 22	9256 27	11570 36	13884 44	16198 50	
42x42	12.25	11.82	Airflow, cfm NC	3546 -	4728 -	5910 -	7092 15	8274 22	9456 27	11820 36	14184 44	16548 50	
44x44	13.44	12.99	Airflow, cfm NC	3897 -	5196 -	6495 -	7794 16	9093 22	10392 27	12990 36	15588 44	18186 50	
48x42	14.00	13.54	Airflow, cfm NC	4062 -	5416 -	6770 -	8124 16	9478 22	10832 27	13540 37	16248 44	18956 50	
46x46	14.69	14.22	Airflow, cfm NC	4266 -	5688 -	7110 -	8532 16	9954 22	11376 27	14220 37	17064 44	19908 50	
48x46	15.33	14.85	Airflow, cfm NC	4455 -	5940 -	7425 -	8910 16	10395 22	11880 27	14850 37	17820 44	20790 50	
48x48	16.00	15.50	Airflow, cfm NC	4650 -	6200 -	7750 -	9300 16	10850 22	12400 28	15500 37	18600 44	21700 50	

• Static pressures are negative, in inches of water, measured per ANSI/ASHRAE Standard 70-2006

• NC based on room absorption of 10dB, re 10⁻¹² watts, measured per ANSI/ASHRAE Standard 70-2006



Eggcrate Return Grilles • Aluminum Grid • Aluminum Border

☐ 50F • Code A • ½ x ½ x ½ Grid

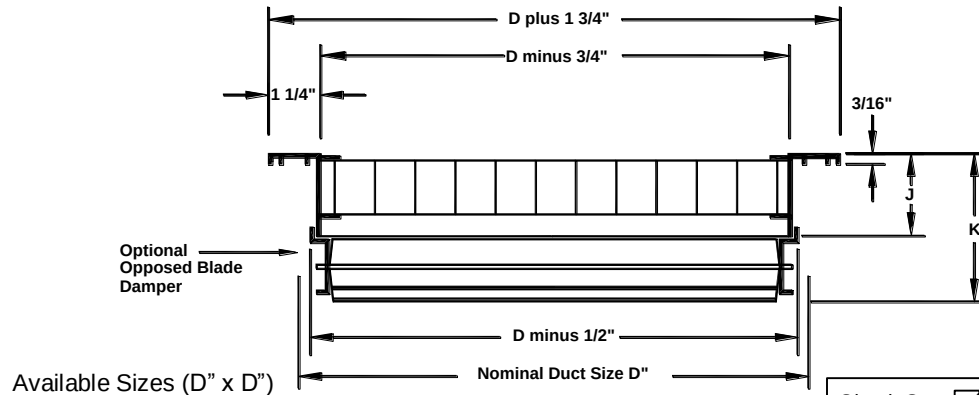
☐ 50F-NT • Code A • ½ x ½ x ½ Grid • Narrow Tee Border

☐ 50F • Code B • ½ x ½ x 1 Grid

☐ 50F-NT • Code B • ½ x ½ x 1 Grid • Narrow Tee Border

☐ 50F • Code C • 1 x 1 x 1 Grid

☐ 50F-NT • Code C • 1 x 1 x 1 Grid • Narrow Tee Border

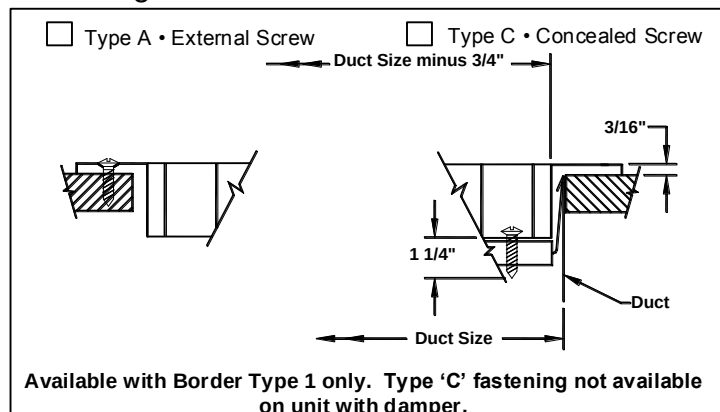
☐ Border Type 1 (Surface Mount)


Available Sizes (D" x D")

Check One ☒	☐	☐	☐
Dimension	½" x ½" x ½"	½" x ½" x 1"	1" x 1" x 1"
J	1 ¼"	1 ¼"	1 ¼"
K	2 ½"	2 15/16"	2 15/16"

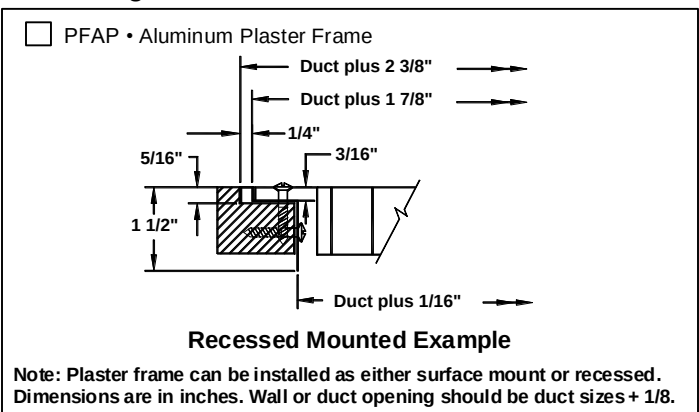
Border Type 1 available in sizes 6" x 4" through 48" x 48" in one piece construction. Sizes larger than 48" x 48" are shipped in multiple sections. Odd and fractional sizes are available at additional cost. Wall or duct opening should be duct size ± 1/8. All dimensions are in inches.

Fastenings



Available with Border Type 1 only. Type 'C' fastening not available on unit with damper.

Mounting Frames



Recessed Mounted Example

Note: Plaster frame can be installed as either surface mount or recessed. Dimensions are in inches. Wall or duct opening should be duct sizes + 1/8.

Accessories (Optional) Check ☒ if provided.

- ☐ Neck mounted opposed blade damper (galvanized steel)
- ☐ IS • Insect Screen (1/16" square mesh – galvanized steel)
- ☐ EQT • Earthquake Tabs
- ☐ DS • Debris Screen (1/4" square mesh – galvanized steel)
- ☐ Other: _____

Standard Finish: #26 White

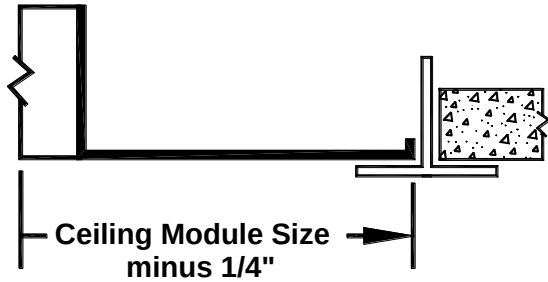
☐ Other Finish: _____

General Description

- #8 x 1 1/4 lg. Phillips flat head sheet metal screws painted white.
- Insect and debris screens are not available when dampers are fitted.
- Optional opposed blade damper has screwdriver adjustment accessible through face of grille.
- Material is aluminum.
- All dimensions are ± 1/16"

Optional Border Types Available

- ☐ Border Type 3 (Lay-in)
Panel Mounted



Available as panel-mounted in all standard module sizes with neck sizes up to module size minus 2". Note: Module size minus 2" sizes do not require panel mounting.

Border Type 3

• Accessories & Options

Check ☒ if provided.

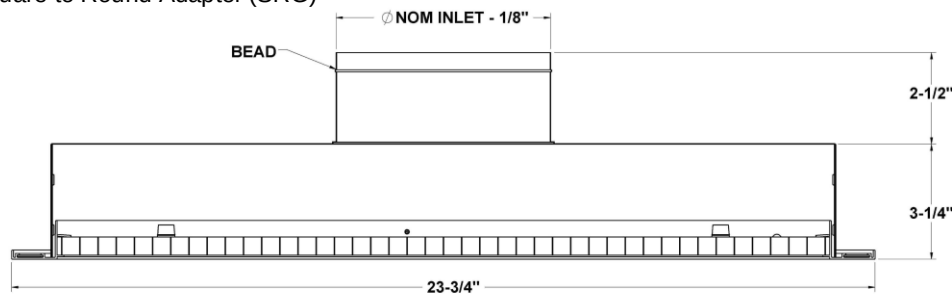
- ☐ Neck mounted opposed blade damper (galvanized steel)
- ☐ IS • Insect Screen (1/16" square mesh – galvanized steel)
- ☐ DS • Debris Screen (1/4" square mesh – galvanized steel)
- ☐ EQT • Earthquake tabs
- ☐ Other: _____

Note: Insect and Debris Screen are not available with Damper option

Standard Finish: #26 White

- ☐ Other Finish: _____

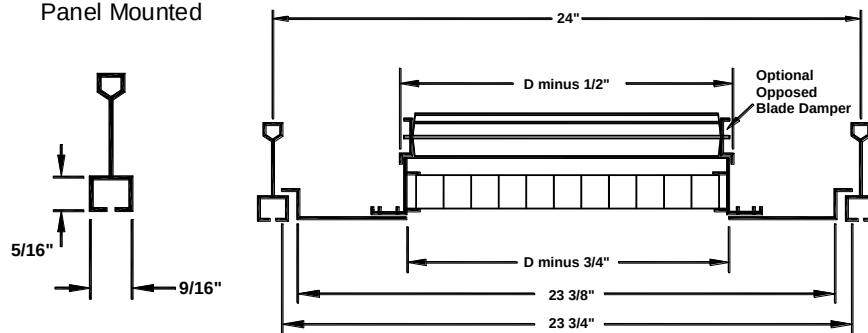
- ☐ Square to Round Adapter (SRG)



Adapter interior is black and factory-mounted to grille

24 X 24 Module Size	
Nominal Grille Size	Nominal Round Inlet Size
22x22	6
	8
	10
	12
	14
	16
	18
	20

- ☐ Border Type NT (Lay-in)
Panel Mounted



Available Sizes (D" x D")
6" x 4" through 22" x 22" in 1" increments. Dimensions are in inches.

Border Type NT

Check ☒ if provided.

• Accessories & Options

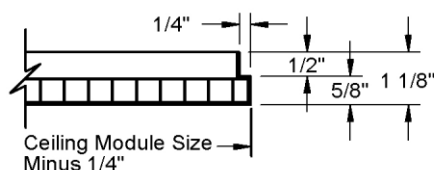
- ☐ Neck mounted opposed blade damper (galvanized steel)
- ☐ EQT • Earthquake Tabs
- ☐ IS • Insect Screen (1/16" square mesh – galvanized steel)
- ☐ DS • Debris Screen (1/4" square mesh – galvanized steel)
- ☐ Other: _____

Note: Insect and Debris Screen are mutually exclusive options

Standard Finish: #26 White

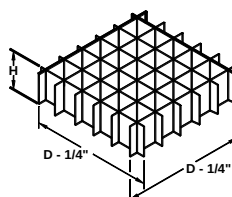
- ☐ Other Finish: _____

- ☐ Border Type 7 (Channel)



Available in sizes up to 48" x 48".

- ☐ Border Type 8 (Core only)



Available in sizes up to 48" x 48"

Border Type 7 and 8

• Accessories & Options

Check ☒ if provided.

- ☐ EQT • Earthquake tabs
- ☐ Other: _____

Standard Finish: #26 White

- ☐ Other Finish: _____

This submittal is meant to demonstrate general dimensions of this product. The drawings are not meant to detail every aspect of the product. Drawings are not to scale. Titus

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TMS / SQUARE CEILING / ROUND NECK / HIGH PERFORMANCE

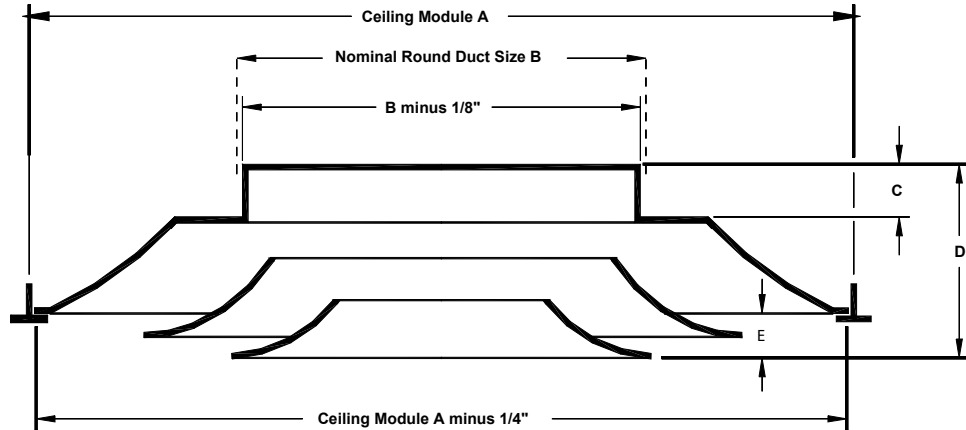
		Neck Velocity	400	500	600	700	800	1000	1200	1400	1600
		Velocity Pressure	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122	0.160
12" x 12" Module Size	4" Dia.	Airflow, cfm	35	44	52	61	70	87	105	122	140
		Total Pressure	0.012	0.018	0.026	0.035	0.046	0.072	0.104	0.141	0.184
		NC (Noise Criteria)	-	-	-	-	12	20	26	31	36
		Throw feet	1-1-3	1-2-4	1-2-4	2-3-5	2-3-6	2-4-7	3-4-7	3-5-8	4-6-8
	5" Dia.	Airflow, cfm	55	68	82	95	109	136	164	191	218
		Total Pressure	0.015	0.023	0.033	0.044	0.058	0.091	0.131	0.178	0.232
		NC (Noise Criteria)	-	-	-	-	15	23	29	34	39
		Throw feet	1-2-4	2-2-5	2-3-6	2-3-7	2-4-7	3-5-8	4-6-9	4-7-10	5-7-10
	6" Dia.	Airflow, cfm	79	98	118	137	157	196	236	275	314
		Total Pressure	0.018	0.028	0.041	0.056	0.073	0.114	0.164	0.223	0.291
		NC (Noise Criteria)	-	-	-	13	18	25	32	37	42
		Throw feet	2-2-5	2-3-6	2-3-7	3-4-8	3-5-9	4-6-10	5-7-11	5-8-12	6-9-13
	7" Dia.	Airflow, cfm	107	134	160	187	214	267	321	374	428
		Total Pressure	0.020	0.031	0.045	0.062	0.081	0.126	0.181	0.247	0.322
		NC (Noise Criteria)	-	-	-	15	20	28	34	39	44
		Throw feet	2-3-5	2-3-7	3-4-8	3-5-9	4-5-10	4-7-12	5-8-13	6-9-14	7-10-15
	8" Dia.	Airflow, cfm	140	175	209	244	279	349	419	489	559
		Total Pressure	0.022	0.035	0.050	0.069	0.090	0.140	0.202	0.275	0.359
		NC (Noise Criteria)	-	-	12	17	22	29	36	41	46
		Throw feet	2-3-6	3-4-8	3-5-9	4-5-11	4-6-12	5-8-13	6-9-14	7-11-16	8-12-17
20" x 20" Module Size	6" Dia.	Airflow, cfm	79	98	118	137	157	196	236	275	
		Total Pressure	0.016	0.025	0.035	0.048	0.063	0.099	0.142	0.193	
		NC (Noise Criteria)	-	-	-	14	18	24	30	34	
		Throw feet	1-1-4	1-2-4	2-3-5	2-3-6	2-4-7	3-4-9	4-5-10	4-6-12	
	8" Dia.	Airflow, cfm	140	175	209	244	279	349	419	489	
		Total Pressure	0.017	0.027	0.038	0.057	0.067	0.105	0.152	0.207	
		NC (Noise Criteria)	-	-	-	13	19	23	29	34	
		Throw feet	2-4-5	2-4-6	3-4-8	4-6-9	5-7-12	5-8-13	5-9-15	5-10-17	
	10" Dia.	Airflow, cfm	218	273	327	382	436	545	654	764	
		Total Pressure	0.020	0.032	0.045	0.062	0.081	0.126	0.180	0.240	
		NC (Noise Criteria)	-	-	17	20	24	31	36	41	
		Throw feet	2-5-7	3-6-10	4-7-11	4-8-14	5-9-15	6-9-18	7-11-19	8-12-21	
24" x 24" Module Size	6" Dia.	Airflow, cfm	79	98	118	137	157	196	236	275	314
		Total Pressure	0.016	0.025	0.035	0.048	0.063	0.099	0.142	0.193	0.252
		NC (Noise Criteria)	-	-	-	12	16	22	28	32	36
		Throw feet	1-2-4	1-2-4	2-3-5	2-3-6	2-4-7	3-4-9	4-5-11	4-6-12	5-7-13
	8" Dia.	Airflow, cfm	140	175	209	244	279	349	419	489	559
		Total Pressure	0.016	0.025	0.036	0.049	0.064	0.101	0.145	0.197	0.257
		NC (Noise Criteria)	-	-	11	15	19	26	31	36	40
		Throw feet	2-3-5	2-3-7	3-4-8	3-5-9	4-5-11	4-7-13	5-8-14	6-9-16	7-11-17
	10" Dia.	Airflow, cfm	218	273	327	382	436	545	654	764	873
		Total Pressure	0.017	0.026	0.037	0.051	0.066	0.103	0.149	0.202	0.264
		NC (Noise Criteria)	-	-	14	18	22	29	34	39	43
		Throw feet	2-4-7	3-5-9	4-5-11	4-6-13	5-7-14	6-9-17	7-11-18	8-13-20	10-14-21
	12" Dia.	Airflow, cfm	314	393	471	550	628	785	942	1100	1257
		Total Pressure	0.017	0.027	0.038	0.052	0.068	0.106	0.153	0.208	0.272
		NC (Noise Criteria)	-	11	16	21	24	31	36	41	45
		Throw feet	3-5-9	4-6-11	5-7-14	5-8-16	6-9-18	8-11-20	9-14-22	11-16-23	12-18-25
	14" Dia.	Airflow, cfm	428	535	641	748	855	1069	1283	1497	1710
		Total Pressure	0.018	0.028	0.040	0.054	0.071	0.110	0.159	0.216	0.282
		NC (Noise Criteria)	-	13	18	22	26	33	38	43	47
		Throw feet	4-5-11	5-7-14	5-8-16	6-10-19	7-11-21	9-14-23	11-16-25	13-19-27	14-21-29
	15" Dia.	Airflow, cfm	491	614	736	859	982	1227	1473	1718	1963
		Total Pressure	0.018	0.028	0.040	0.055	0.072	0.112	0.162	0.220	0.287
		NC (Noise Criteria)	-	13	19	23	27	34	39	44	48
		Throw feet	4-6-12	5-7-15	6-9-18	7-10-21	8-12-22	10-15-25	12-18-27	14-21-29	16-22-31

- Data obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70-2006. Actual performance, with flexible duct inlet, may vary in the field. See the Engineering Guidelines section of this catalog for additional information.
- If the diffuser is mounted on an exposed duct, the throw values are 70% of those listed in the table
- Throw values given are for terminal velocities of 150, 100 and 50 fpm and for isothermal conditions. See the section, Engineering Guidelines, for an explanation of catalog throw data.
- NC values based on octave band 2 to 7 sound power levels minus a room absorption of 10 dB
- Each NC value represents the noise criteria curve which will not be exceeded by the sound pressure in any of the octave bands, 2nd through 7th, with a room absorption of 10 dB, re 10-12 watts
- Dash (-) in space denotes an NC value of less than 10
- All pressures are given in inches of water
- To obtain static pressure, subtract the velocity pressure from the total pressure

TMS • Round Neck

Square Ceiling Diffusers
Steel • High Performance

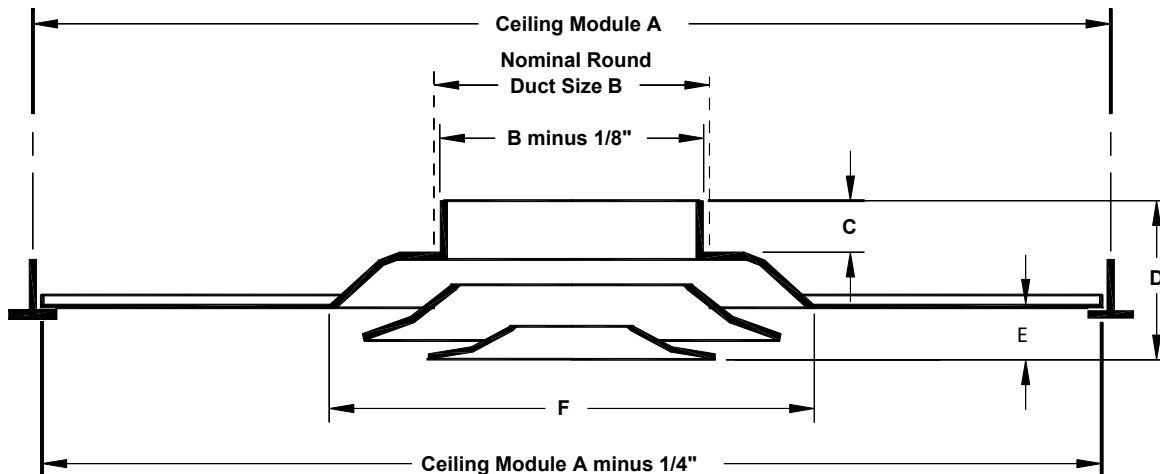
☐ Border Type 3 (Lay-In) Full Face. For other border types, please see next page.



Ceiling Module A	Nominal Round Duct Size B	C	D	E
12 x 12	4, 5*	3 1/8	5 3/8	1 1/8
12 x 12	6, 7	1 1/8	3 3/8	1 1/8
12 x 12	8	1 1/4	3 1/2	1 1/8
20 x 20	4, 5*	2 3/4	6 3/8	1 1/4
20 x 20	6, 8, 10	3/4	4 3/8	1 1/4
24 x 24	6, 8	1 1/4	5	1 1/4
24 x 24	10, 12, 14, 15	1 3/8	5 1/8	1 1/4

* Adapter is provided for Sizes 4 & 5

☐ Border Type 3 (Lay-In) Panel Mount. For other border types, please see next page.

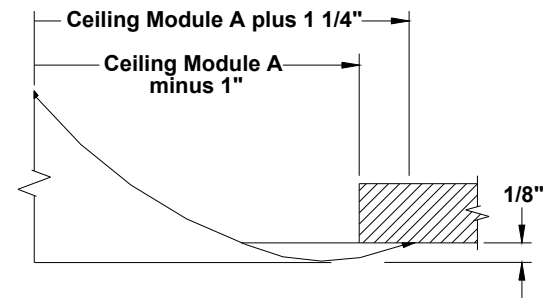


Ceiling Module A	Nominal Round Duct Size B	Nominal Face Sizes F	C	D	E
24 x 24	4, 5*	12 X 12	2 3/4	5	1 1/8
24 x 24	6, 7	12 X 12	3/4	3	1 1/8
24 x 24	8	12 x 12	3/4	3	1 1/8

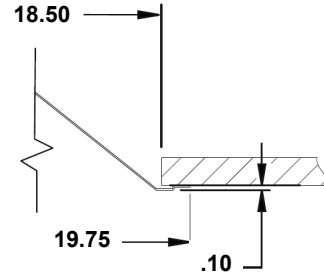
* Adapter is provided for Sizes 4 & 5

Other Available Border Types

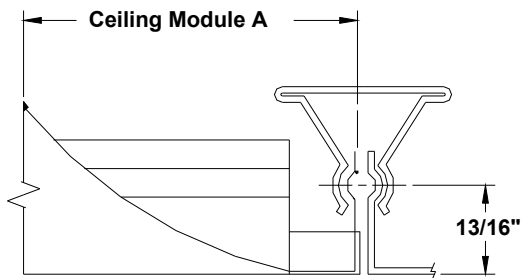
- ☐ Border Type 1 (Surface Mount)
Full Face



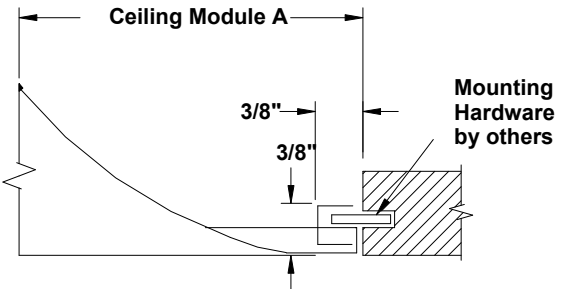
- ☐ Border Type 1
20 x 20 Module Only



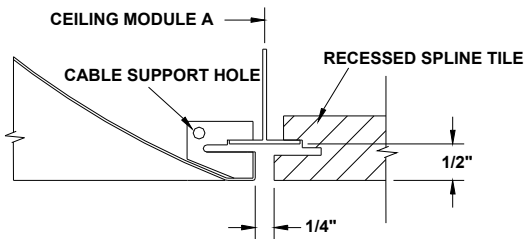
- ☐ Border Type 2 (Snap-In)
Full Face or Panel Mounted



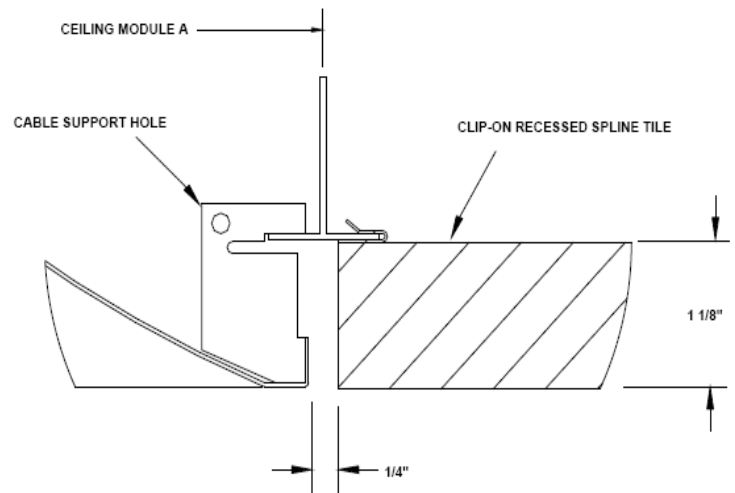
- ☐ Border Type 4 (Spline)
Full Face or Panel Mounted



- ☐ Border Type 4V (Recessed Spline)



- ☐ Border Type 4T (Clip-on Recessed Spline)

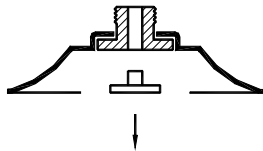


Note: If Border 4V is adjacent to a light fixture a gap will be visible above the backpan. A t-bar extender is available to fill this void, available from the ceiling manufacturer.

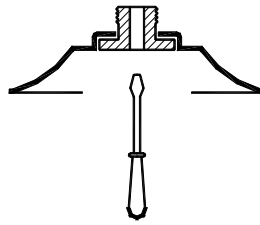
Borders 4V & 4T have four mounting clips. Two clips on opposed sides with holes to attach mounting wire from above. Borders 4V & 4T are only available in 24x24 full face module size.

Ceiling Module	Face Size	Nominal Round Duct Sizes	Border Types
12 x 12	12 x 12	4, 5, 6, 7, 8	1, 2, 3, 4
20 x 20	20 x 20	4, 5, 6, 8, 10	1, 3
24 x 24	24 x 24	6, 8, 10, 12, 14, 15	1, 2, 3, 4, 4V, 4T
24 x 24 (Panel)	12 x 12	4, 5, 6, 7, 8	2, 3, 4

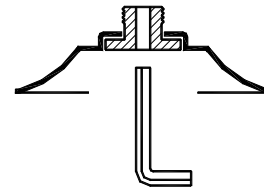
Adjusting Optional Damper • Removing Center Cone



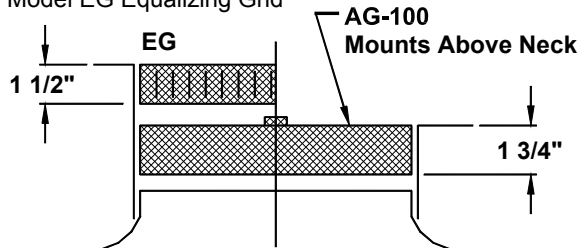
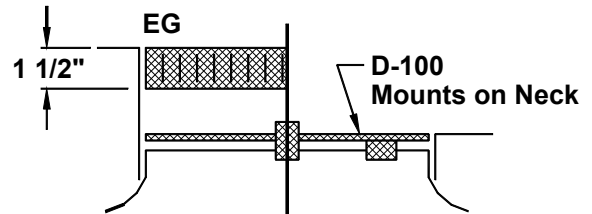
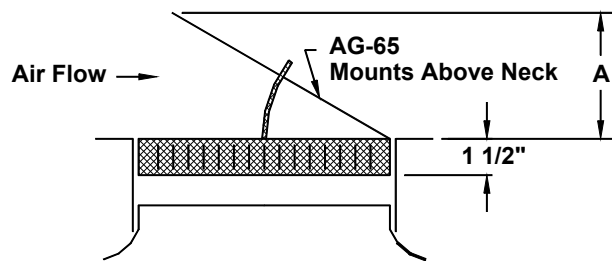
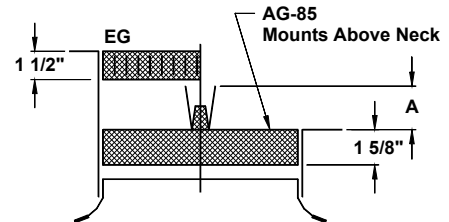
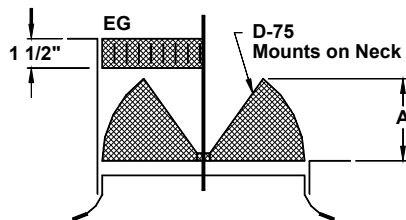
1. Remove center pin.



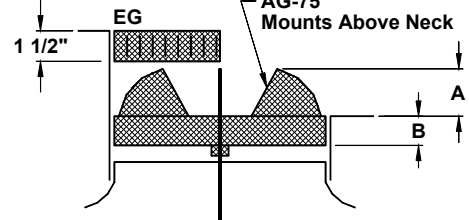
2. To adjust optional damper, insert screwdriver through hex hole.



3. To remove center cone, insert hex key (by others) and unscrew center hub.

Accessories (Optional) Check ☒ if provided.☐ Model AG-100 Radial Sliding Blade Damper☐ Model EG Equalizing Grid☐ Model D-100 Radial Sliding Blade Damper☐ Model EG Equalizing Grid☐ Model AG-65 Combination Damper and Equalizing Grid☐ Model AG-85 Butterfly Damper☐ Model EG Equalizing Grid☐ Model D-75 Opposed Blade Damper☐ Model EG Equalizing Grid

Model D-75 damper is available in duct sizes 6 thru 12 inches only.

☐ Model AG-75 Opposed Blade Damper☐ Model EG Equalizing Grid

Model AG-75 damper is available in 6, 7, 8, 10, 12, 14, and 15 inch duct sizes only.

Dimension "A" in Inches, for Dampers Shown as Above

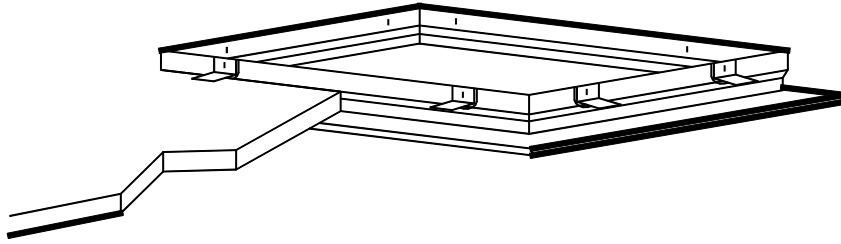
Accessories	Nominal Round Duct Sizes						
	6	7	8	10	12	14	15
AG-100	—	—	—	—	—	—	N/A
D-100	—	—	—	—	—	—	N/A
D-75	2 3/8	2 7/8	3 1/4	4 1/8	4 7/8	N/A	N/A
AG-85	2 1/2	3	3 1/2	4 1/2	5 1/2	6 1/2	7
AG-65	3 3/8	4	4 1/2	5 1/2	7 1/8	8 5/8	9
AG-75	2 3/4	3 1/4	3 5/8	4 1/2	5 3/8	2 3/4	3

Note:

D-100 and AG-100 dampers have radial blades that slide in a horizontal plane. For that reason, no opening clearance "A" is dimensioned.

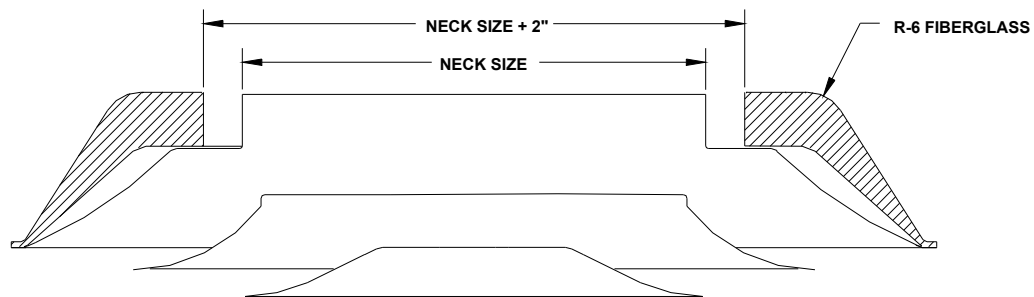
Other Accessories (Optional) Check ☒ if provided.

☐ TRM TITUS Rapid Mount Frame

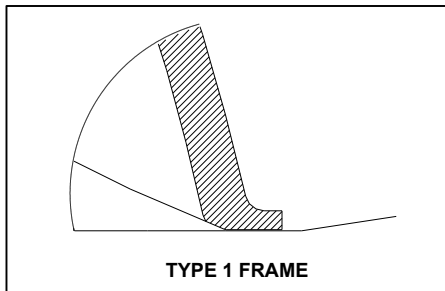


For Surface Mounting Border Type 3

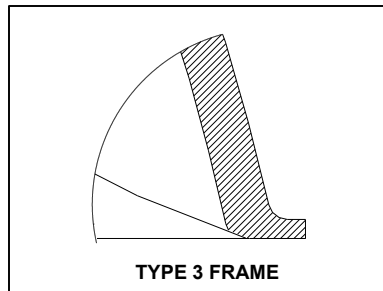
☐ IB Molded Insulation Blanket



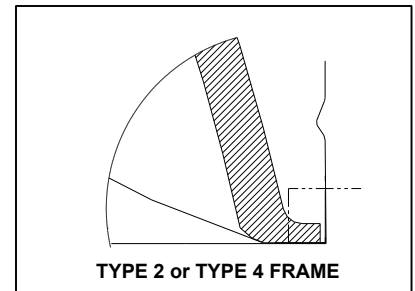
Type 3 Border Shown



TYPE 1 FRAME



TYPE 3 FRAME



TYPE 2 or TYPE 4 FRAME

Standard Finish: #26 White

General Description

- Model TMS delivers supply air in a true 360° pattern. Designed to protect ceiling from streaking and smudging.
- Excellent for variable volume systems. The uniform, nearly horizontal jet from the outer cone maintains effective room air distribution even when air volume varies over a considerable range.
- The TMS consists of 3 concentric cones in all sizes. This uniformity of design enhances appearance in installations where more than one size is involved.
- Screwdriver adjustment of the optional damper is achieved without removing the inner cone. (See Note 2, Page 2).
- Quick removal of inner cone with a hex key speeds installation. (See Note 3, Page 2).
- All cones are die-stamped one piece construction with smooth, clean surfaces and no corner joints.
- Material is heavy gauge steel.
- Optional molded insulation blanket (IB) with R-6 rating available for use with border styles 1, 2, 3, and 4, 24x24 full face models.



Note: This submittal is meant to demonstrate general dimensions of this product. The drawings on this submittal are not meant to detail every aspect of the product with exactness. Drawings are not to scale. TITUS reserves the right to make changes without written notice.

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PAS FLUSH FACE / SUPPLY / STEEL / ADJUSTABLE

		Neck Velocity	300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
12 x 12 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-2-7	2-4-10	2-6-12	4-7-15	5-9-17	6-10-18	8-12-20	10-15-22	11-17-23
		2-Way - Horizontal Throw	1-2-5	2-4-7	2-4-9	4-5-11	4-6-12	5-7-14	6-9-17	7-11-18	8-12-20
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-9	4-5-11	4-6-12	5-8-14	6-9-15	7-11-16
		4-Way - Horizontal Throw	1-2-3	1-2-5	2-3-6	2-3-7	3-4-8	3-5-9	4-6-11	5-7-12	5-8-13
		6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300
	Total Pressure	0.017	0.029	0.046	0.066	0.090	0.118	0.184	0.265	0.360	
	NC (Noise Criteria)	-	-	13	19	23	28	35	41	45	
	1-Way - Horizontal Throw	1-2-8	2-4-11	3-6-14	4-8-17	5-10-19	7-11-20	9-14-22	11-17-24	13-19-26	
	2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-12	5-7-14	5-8-16	7-10-19	8-12-21	9-14-22	
	3-Way - Horizontal Throw	1-3-5	2-3-7	3-4-9	3-5-10	4-6-12	5-7-14	6-9-16	7-10-17	8-12-19	
4-Way - Horizontal Throw	1-2-4	1-3-5	2-3-7	3-4-8	3-5-9	3-5-10	4-7-12	5-8-13	6-9-15		
24 x 12 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-2-7	2-4-10	2-6-12	4-7-15	5-9-17	6-10-18	8-12-20	10-15-22	11-17-23
		2-Way - Horizontal Throw	1-2-5	2-4-7	2-4-9	4-5-11	4-6-12	5-7-14	6-9-17	7-11-18	8-12-20
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-9	4-5-11	4-6-12	5-8-14	6-9-15	7-11-16
		4-Way - Horizontal Throw	1-2-3	1-2-5	2-3-6	2-3-7	3-4-8	3-5-9	4-6-11	5-7-12	5-8-13
		6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300
	Total Pressure	0.017	0.029	0.046	0.066	0.090	0.118	0.184	0.265	0.360	
	NC (Noise Criteria)	-	-	13	19	23	28	35	41	45	
	1-Way - Horizontal Throw	1-2-8	2-4-11	3-6-14	4-8-17	5-10-19	7-11-20	9-14-22	11-17-24	13-19-26	
	2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-12	5-7-14	5-8-16	7-10-19	8-12-21	9-14-22	
	3-Way - Horizontal Throw	1-3-5	2-3-7	3-4-9	3-5-10	4-6-12	5-7-14	6-9-16	7-10-17	8-12-19	
4-Way - Horizontal Throw	1-2-4	1-3-5	2-3-7	3-4-8	3-5-9	3-5-10	4-7-12	5-8-13	6-9-15		
16 x 16 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-2-8	2-4-10	3-7-13	4-8-15	6-9-17	7-10-18	9-13-20	10-15-22	12-17-23
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-11	4-7-13	5-8-15	6-10-17	8-11-18	9-13-20
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-10	4-6-11	4-6-12	5-8-14	6-10-15	8-11-16
		4-Way - Horizontal Throw	1-2-4	2-2-5	2-3-6	2-4-7	3-4-9	3-5-10	4-6-11	5-7-12	6-9-13
		6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300
	Total Pressure	0.017	0.029	0.046	0.066	0.090	0.118	0.184	0.265	0.360	
	NC (Noise Criteria)	-	-	13	19	23	28	35	41	45	
	1-Way - Horizontal Throw	1-3-9	2-5-12	3-7-15	5-9-17	7-10-19	8-12-20	10-15-22	12-17-24	14-19-26	
	2-Way - Horizontal Throw	1-3-6	2-4-9	3-5-11	4-6-13	5-8-15	6-9-17	7-11-19	9-13-21	10-15-22	
	3-Way - Horizontal Throw	1-3-5	2-4-7	3-5-9	4-5-11	4-6-13	5-7-14	6-9-16	7-11-17	9-13-19	
4-Way - Horizontal Throw	1-2-4	2-3-6	2-3-7	3-4-8	3-5-10	4-6-11	5-7-12	6-8-13	7-10-15		
16 x 16 Module	8" Dia.	Airflow, cfm	105	140	175	209	244	279	349	419	489
		Total Pressure	0.018	0.032	0.049	0.071	0.097	0.126	0.197	0.284	0.386
		NC (Noise Criteria)	-	-	16	22	27	31	38	44	49
		1-Way - Horizontal Throw	1-3-10	3-6-14	4-9-17	6-10-20	8-12-22	9-14-24	12-17-26	14-20-29	16-22-31
		2-Way - Horizontal Throw	1-3-8	3-5-10	4-6-13	5-8-15	6-9-18	7-10-20	8-13-22	10-15-25	12-18-27
		3-Way - Horizontal Throw	2-3-6	3-4-9	4-5-11	4-6-13	5-8-15	6-9-17	7-11-18	9-13-20	10-15-22
		4-Way - Horizontal Throw	1-2-5	2-3-7	3-4-8	3-5-10	4-6-12	4-7-13	5-8-15	7-10-16	8-12-17
		8 x 8 Neck	Airflow, cfm	133	178	222	267	311	356	444	533
	Total Pressure	0.019	0.034	0.052	0.075	0.103	0.134	0.210	0.302	0.411	
	NC (Noise Criteria)	-	12	19	25	29	34	41	47	51	
	1-Way - Horizontal Throw	2-4-12	3-7-16	5-10-20	7-12-23	9-14-25	10-16-27	13-20-30	16-23-33	18-25-35	
	2-Way - Horizontal Throw	2-4-9	3-6-11	5-7-14	6-9-17	7-10-20	8-11-23	10-14-25	11-17-28	13-20-30	
	3-Way - Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-15	6-9-17	6-10-19	8-12-21	10-15-23	11-17-25	
4-Way - Horizontal Throw	1-3-6	2-4-7	3-5-9	4-6-11	4-7-13	5-7-15	6-9-16	7-11-18	9-13-19		
16 x 16 Module	10" Dia.	Airflow, cfm	164	218	273	327	382	436	545	654	764
		Total Pressure	0.020	0.036	0.056	0.080	0.109	0.143	0.223	0.321	0.437
		NC (Noise Criteria)	-	14	21	27	32	36	43	49	54
		1-Way - Horizontal Throw	2-4-13	3-7-17	5-11-22	7-13-26	10-15-28	12-17-30	15-22-33	17-26-36	20-28-39
		2-Way - Horizontal Throw	2-4-10	3-6-13	5-8-16	6-10-19	7-11-22	8-13-25	11-16-28	13-19-31	15-22-33
		3-Way - Horizontal Throw	2-4-8	4-5-11	4-7-13	5-8-16	6-9-19	7-11-21	9-13-23	11-16-25	13-19-27
		4-Way - Horizontal Throw	1-3-6	3-4-8	3-5-10	4-6-12	5-7-14	5-8-16	7-10-18	8-12-20	10-14-21
		10" Dia.	Airflow, cfm	164	218	273	327	382	436	545	654
	Total Pressure	0.020	0.036	0.056	0.080	0.109	0.143	0.223	0.321	0.437	
	NC (Noise Criteria)	-	14	21	27	32	36	43	49	54	
	1-Way - Horizontal Throw	2-4-13	3-7-17	5-11-22	7-13-26	10-15-28	12-17-30	15-22-33	17-26-36	20-28-39	
	2-Way - Horizontal Throw	2-4-10	3-6-13	5-8-16	6-10-19	7-11-22	8-13-25	11-16-28	13-19-31	15-22-33	
	3-Way - Horizontal Throw	2-4-8	4-5-11	4-7-13	5-8-16	6-9-19	7-11-21	9-13-23	11-16-25	13-19-27	

PAS FLUSH FACE / SUPPLY / STEEL / ADJUSTABLE

		Neck Velocity	300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
20 x 20 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-2-8	2-4-10	3-7-13	4-8-15	6-9-17	7-10-18	9-13-20	10-15-22	12-17-23
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-11	4-7-13	5-8-15	6-10-17	8-11-18	9-13-20
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-10	4-6-11	4-6-12	5-8-14	6-10-15	8-11-16
		4-Way - Horizontal Throw	1-2-4	2-2-5	2-3-6	2-4-7	3-4-9	3-5-10	4-6-11	5-7-12	6-9-13
	6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300	350
		Total Pressure	0.017	0.029	0.046	0.066	0.090	0.118	0.184	0.265	0.360
		NC (Noise Criteria)	-	-	13	19	23	28	35	41	45
		1-Way - Horizontal Throw	1-3-9	2-5-12	3-7-15	5-9-17	7-10-19	8-12-20	10-15-22	12-17-24	14-19-26
		2-Way - Horizontal Throw	1-3-6	2-4-9	3-5-11	4-6-13	5-8-15	6-9-17	7-11-19	9-13-21	10-15-22
		3-Way - Horizontal Throw	1-3-5	2-4-7	3-5-9	4-5-11	4-6-13	5-7-14	6-9-16	7-11-17	9-13-19
		4-Way - Horizontal Throw	1-2-4	2-3-6	2-3-7	3-4-8	3-5-10	4-6-11	5-7-12	6-8-13	7-10-15
	8" Dia.	Airflow, cfm	105	140	175	209	244	279	349	419	489
		Total Pressure	0.018	0.032	0.049	0.071	0.097	0.126	0.197	0.284	0.386
		NC (Noise Criteria)	-	-	16	22	27	31	38	44	49
		1-Way - Horizontal Throw	1-3-10	3-6-14	4-9-17	6-10-20	8-12-22	9-14-24	12-17-26	14-20-29	16-22-31
		2-Way - Horizontal Throw	1-3-8	3-5-10	4-6-13	5-8-15	6-9-18	7-10-20	8-13-22	10-15-25	12-18-27
		3-Way - Horizontal Throw	2-3-6	3-4-9	4-5-11	4-6-13	5-8-15	6-9-17	7-11-18	9-13-20	10-15-22
		4-Way - Horizontal Throw	1-2-5	2-3-7	3-4-8	3-5-10	4-6-12	4-7-13	5-8-15	7-10-16	8-12-17
	8 x 8 Neck	Airflow, cfm	133	178	222	267	311	356	444	533	622
		Total Pressure	0.019	0.034	0.052	0.075	0.103	0.134	0.210	0.302	0.411
		NC (Noise Criteria)	-	12	19	25	29	34	41	47	51
		1-Way - Horizontal Throw	2-4-12	3-7-16	5-10-20	7-12-23	9-14-25	10-16-27	13-20-30	16-23-33	18-25-35
		2-Way - Horizontal Throw	2-4-9	3-6-11	5-7-14	6-9-17	7-10-20	8-11-23	10-14-25	11-17-28	13-20-30
		3-Way - Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-15	6-9-17	6-10-19	8-12-21	10-15-23	11-17-25
		4-Way - Horizontal Throw	1-3-6	2-4-7	3-5-9	4-6-11	4-7-13	5-7-15	6-9-16	7-11-18	9-13-19
	10" Dia.	Airflow, cfm	164	218	273	327	382	436	545	654	764
		Total Pressure	0.020	0.036	0.056	0.080	0.109	0.143	0.223	0.321	0.437
		NC (Noise Criteria)	-	14	21	27	32	36	43	49	54
		1-Way - Horizontal Throw	2-4-13	3-7-17	5-11-22	7-13-26	10-15-28	12-17-30	15-22-33	17-26-36	20-28-39
		2-Way - Horizontal Throw	2-4-10	3-6-13	5-8-16	6-10-19	7-11-22	8-13-25	11-16-28	13-19-31	15-22-33
		3-Way - Horizontal Throw	2-4-8	4-5-11	4-7-13	5-8-16	6-9-19	7-11-21	9-13-23	11-16-25	13-19-27
		4-Way - Horizontal Throw	1-3-6	3-4-8	3-5-10	4-6-12	5-7-14	5-8-16	7-10-18	8-12-20	10-14-21
	10 x 10 Neck	Airflow, cfm	208	278	347	417	486	556	694	833	972
		Total Pressure	0.022	0.039	0.061	0.087	0.119	0.155	0.243	0.349	0.476
		NC (Noise Criteria)	-	16	23	29	34	38	45	51	56
		1-Way - Horizontal Throw	2-5-15	4-8-20	6-12-25	8-15-29	11-17-31	13-20-33	16-25-37	20-29-41	23-31-44
		2-Way - Horizontal Throw	2-5-11	4-7-14	6-9-18	7-11-21	8-13-25	10-14-28	12-18-32	14-21-35	17-25-37
		3-Way - Horizontal Throw	2-5-9	4-6-12	5-8-15	6-9-18	7-11-21	8-12-23	10-15-26	12-18-29	14-21-31
		4-Way - Horizontal Throw	2-3-7	3-5-9	4-6-12	5-7-14	5-8-16	6-9-18	8-12-20	9-14-22	11-16-24
	12" Dia.	Airflow, cfm	236	314	393	471	550	628	785	942	1100
		Total Pressure	0.032	0.057	0.089	0.128	0.174	0.227	0.355	0.510	0.695
		NC (Noise Criteria)	-	18	25	30	35	40	47	52	57
		1-Way - Horizontal Throw	7-12-22	10-16-25	13-19-28	16-22-31	18-23-33	20-25-35	23-28-40	25-31-43	27-33-47
		2-Way - Horizontal Throw	6-8-17	8-11-21	9-14-24	11-17-26	13-20-28	15-21-30	19-24-34	21-26-37	23-28-40
		3-Way - Horizontal Throw	5-7-14	6-10-18	8-12-20	10-14-21	11-16-23	13-18-25	16-20-28	18-21-30	19-23-33
		4-Way - Horizontal Throw	4-6-11	5-7-14	6-9-15	7-11-17	9-13-18	10-14-19	12-15-22	14-17-24	15-18-26
	14" Dia.	Airflow, cfm	321	428	535	641	748	855	1069	1283	1497
		Total Pressure	0.034	0.060	0.093	0.135	0.183	0.239	0.374	0.538	0.733
		NC (Noise Criteria)	12	21	28	34	38	43	50	56	60
		1-Way - Horizontal Throw	8-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	32-39-55
		2-Way - Horizontal Throw	7-10-20	9-13-25	11-17-28	13-20-30	15-23-33	18-25-35	22-28-39	25-30-43	27-33-47
		3-Way - Horizontal Throw	6-8-17	7-11-20	9-14-23	11-17-25	13-19-27	15-20-29	19-23-32	20-25-35	22-27-38
		4-Way - Horizontal Throw	4-6-13	6-9-16	7-11-18	9-13-20	10-15-21	11-16-23	14-18-25	16-20-28	17-21-30

PAS FLUSH FACE / SUPPLY / STEEL / ADJUSTABLE

24 x 24 Module	6" Dia.	Neck Velocity	300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
		Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-2-8	2-4-10	3-7-13	4-8-15	6-9-17	7-10-18	9-13-20	10-15-22	12-17-23
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-11	4-7-13	5-8-15	6-10-17	8-11-18	9-13-20
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-10	4-6-11	4-6-12	5-8-14	6-10-15	8-11-16
		4-Way - Horizontal Throw	1-2-4	2-2-5	2-3-6	2-4-7	3-4-9	3-5-10	4-6-11	5-7-12	6-9-13
		Airflow, cfm	75	100	125	150	175	200	250	300	350
	6 x 6 Neck	Total Pressure	0.017	0.029	0.046	0.066	0.090	0.118	0.184	0.265	0.360
		NC (Noise Criteria)	-	-	13	19	23	28	35	41	45
		1-Way - Horizontal Throw	1-3-9	2-5-12	3-7-15	5-9-17	7-10-19	8-12-20	10-15-22	12-17-24	14-19-26
		2-Way - Horizontal Throw	1-3-6	2-4-9	3-5-11	4-6-13	5-8-15	6-9-17	7-11-19	9-13-21	10-15-22
		3-Way - Horizontal Throw	1-3-5	2-4-7	3-5-9	4-5-11	4-6-13	5-7-14	6-9-16	7-11-17	9-13-19
		4-Way - Horizontal Throw	1-2-4	2-3-6	2-3-7	3-4-8	3-5-10	4-6-11	5-7-12	6-8-13	7-10-15
	8" Dia.	Airflow, cfm	105	140	175	209	244	279	349	419	489
		Total Pressure	0.018	0.032	0.049	0.071	0.097	0.126	0.197	0.284	0.386
		NC (Noise Criteria)	-	-	16	22	27	31	38	44	49
		1-Way - Horizontal Throw	1-3-10	3-6-14	4-9-17	6-10-20	8-12-22	9-14-24	12-17-26	14-20-29	16-22-31
		2-Way - Horizontal Throw	1-3-8	3-5-10	4-6-13	5-8-15	6-9-18	7-10-20	8-13-22	10-15-25	12-18-27
		3-Way - Horizontal Throw	2-3-6	3-4-9	4-5-11	4-6-13	5-8-15	6-9-17	7-11-18	9-13-20	10-15-22
	8 x 8 Neck	4-Way - Horizontal Throw	1-2-5	2-3-7	3-4-8	3-5-10	4-6-12	4-7-13	5-8-15	7-10-16	8-12-17
		Airflow, cfm	133	178	222	267	311	356	444	533	622
		Total Pressure	0.019	0.034	0.052	0.075	0.103	0.134	0.210	0.302	0.411
		NC (Noise Criteria)	-	12	19	25	29	34	41	47	51
		1-Way - Horizontal Throw	2-4-12	3-7-16	5-10-20	7-12-23	9-14-25	10-16-27	13-20-30	16-23-33	18-25-35
		2-Way - Horizontal Throw	2-4-9	3-6-11	5-7-14	6-9-17	7-10-20	8-11-23	10-14-25	11-17-28	13-20-30
	10" Dia.	3-Way - Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-15	6-9-17	6-10-19	8-12-21	10-15-23	11-17-25
		4-Way - Horizontal Throw	1-3-6	2-4-7	3-5-9	4-6-11	4-7-13	5-7-15	6-9-16	7-11-18	9-13-19
		Airflow, cfm	164	218	273	327	382	436	545	654	764
		Total Pressure	0.020	0.036	0.056	0.080	0.109	0.143	0.223	0.321	0.437
		NC (Noise Criteria)	-	14	21	27	32	36	43	49	54
		1-Way - Horizontal Throw	2-4-13	3-7-17	5-11-22	7-13-26	10-15-28	12-17-30	15-22-33	17-26-36	20-28-39
	10 x 10 Neck	2-Way - Horizontal Throw	2-4-10	3-6-13	5-8-16	6-10-19	7-11-22	8-13-25	11-16-28	13-19-31	15-22-33
		3-Way - Horizontal Throw	2-4-8	4-5-11	4-7-13	5-8-16	6-9-19	7-11-21	9-13-23	11-16-25	13-19-27
		4-Way - Horizontal Throw	1-3-6	3-4-8	3-5-10	4-6-12	5-7-14	5-8-16	7-10-18	8-12-20	10-14-21
		Airflow, cfm	208	278	347	417	486	556	694	833	972
		Total Pressure	0.022	0.039	0.061	0.087	0.119	0.155	0.243	0.349	0.476
		NC (Noise Criteria)	-	16	23	29	34	38	45	51	56
	12" Dia.	1-Way - Horizontal Throw	2-5-15	4-8-20	6-12-25	8-15-29	11-17-31	13-20-33	16-25-37	20-29-41	23-31-44
		2-Way - Horizontal Throw	2-5-11	4-7-14	6-9-18	7-11-21	8-13-25	10-14-28	12-18-32	14-21-35	17-25-37
		3-Way - Horizontal Throw	2-5-9	4-6-12	5-8-15	6-9-18	7-11-21	8-12-23	10-15-26	12-18-29	14-21-31
		4-Way - Horizontal Throw	2-3-7	3-5-9	4-6-12	5-7-14	5-8-16	6-9-18	8-12-20	9-14-22	11-16-24
		Airflow, cfm	236	314	393	471	550	628	785	942	1100
		Total Pressure	0.032	0.057	0.089	0.128	0.174	0.227	0.355	0.510	0.695
	12 x 12 Neck	NC (Noise Criteria)	-	18	25	30	35	40	47	52	57
		1-Way - Horizontal Throw	7-12-22	10-16-25	13-19-28	16-22-31	18-23-33	20-25-35	23-28-40	25-31-43	27-33-47
		2-Way - Horizontal Throw	6-8-17	8-11-21	9-14-24	11-17-26	13-20-28	15-21-30	19-24-34	21-26-37	23-28-40
		3-Way - Horizontal Throw	5-7-14	6-10-18	8-12-20	10-14-21	11-16-23	13-18-25	16-20-28	18-21-30	19-23-33
		4-Way - Horizontal Throw	4-6-11	5-7-14	6-9-15	7-11-17	9-13-18	10-14-19	12-15-22	14-17-24	15-18-26
		Airflow, cfm	300	400	500	600	700	800	1000	1200	1400
	14" Dia.	Total Pressure	0.033	0.059	0.092	0.133	0.181	0.236	0.369	0.531	0.723
		NC (Noise Criteria)	-	20	27	33	38	42	49	55	60
		1-Way - Horizontal Throw	8-13-24	12-18-28	15-22-32	18-24-35	20-26-37	23-28-40	26-32-45	28-35-49	31-37-53
		2-Way - Horizontal Throw	6-10-19	9-13-24	11-16-27	13-19-29	15-22-32	17-24-34	21-27-38	24-29-42	26-32-45
		3-Way - Horizontal Throw	5-8-16	7-11-20	9-14-22	11-16-24	13-19-26	14-20-28	18-22-31	20-24-34	21-26-37
		4-Way - Horizontal Throw	4-6-12	6-8-16	7-10-17	8-12-19	10-15-21	11-16-22	14-17-25	16-19-27	17-21-29
	16" Dia.	Airflow, cfm	321	428	535	641	748	855	1069	1283	1497
		Total Pressure	0.034	0.060	0.093	0.135	0.183	0.239	0.374	0.538	0.733
		NC (Noise Criteria)	12	21	28	34	38	43	50	56	60
		1-Way - Horizontal Throw	8-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	32-39-55
		2-Way - Horizontal Throw	7-10-20	9-13-25	11-17-28	13-20-30	15-23-33	17-25-35	22-28-39	25-30-43	27-33-47
		3-Way - Horizontal Throw	6-8-17	7-11-20	9-14-23	11-17-25	13-19-27	15-20-29	19-23-32	20-25-35	22-27-38
	16 x 16 Neck	4-Way - Horizontal Throw	4-6-13	6-9-16	7-11-18	9-13-20	10-15-21	11-16-23	14-18-25	16-20-28	17-21-30
		Airflow, cfm	419	559	698	838	977	1117	1396	1676	1955
		Total Pressure	0.036	0.063	0.099	0.143	0.194	0.253	0.396	0.570	0.776
		NC (Noise Criteria)	14	23	31	36	41	45	53	58	63
		1-Way - Horizontal Throw	10-16-29	14-21-33	17-26-37	21-29-41	24-31-44	27-33-47	31-37-53	33-41-58	36-44-63
		2-Way - Horizontal Throw	8-11-23	10-15-28	13-19-32	15-23-35	18-26-38	20-28-40	25-32-45	28-35-49	31-38-53
		3-Way - Horizontal Throw	6-10-19	9-13-23	11-16-26	13-19-29	15-22-31	17-23-33	21-26-37	23-29-41	25-31-44
		4-Way - Horizontal Throw	5-7-15	7-10-18	8-12-21	10-15-23	11-17-24	13-18-26	16-21-29	18-23-32	20-24-34

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		Neck Velocity	300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
12 x 12 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.014	0.025	0.039	0.056	0.077	0.100	0.157	0.226	0.307
		NC (Noise Criteria)	-	-	-	13	18	22	30	35	40
		1-Way - Horizontal Throw	1-2-7	2-4-10	2-6-12	4-7-13	5-9-14	6-10-15	8-12-17	10-13-19	11-14-20
		2-Way - Horizontal Throw	1-2-5	2-4-7	2-4-9	4-5-11	4-6-12	5-7-13	6-9-15	7-11-16	8-12-18
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-9	4-5-9	4-6-10	5-8-11	6-9-12	7-9-13
		4-Way - Horizontal Throw	1-2-3	1-2-5	2-3-6	2-3-7	3-4-8	3-5-8	4-6-9	5-7-10	5-8-11
	6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300	350
		Total Pressure	0.015	0.026	0.041	0.059	0.080	0.105	0.164	0.236	0.321
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-2-8	2-4-11	3-6-14	4-8-15	5-10-16	7-11-17	9-14-19	11-15-21	13-16-23
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-12	5-7-14	6-8-15	7-10-17	8-12-19	9-14-20
		3-Way - Horizontal Throw	1-3-5	2-3-7	3-4-9	3-5-10	4-6-10	5-7-11	6-9-13	7-10-14	8-10-15
24 x 12 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.014	0.025	0.039	0.056	0.077	0.100	0.157	0.226	0.307
		NC (Noise Criteria)	-	-	-	13	18	22	30	35	40
		1-Way - Horizontal Throw	1-2-7	2-4-10	2-6-12	4-7-13	5-9-14	6-10-15	8-12-17	10-13-19	11-14-20
		2-Way - Horizontal Throw	1-2-5	2-4-7	2-4-9	4-5-11	4-6-12	5-7-13	6-9-15	7-11-16	8-12-18
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-9	4-5-9	4-6-10	5-8-11	6-9-12	7-9-13
		4-Way - Horizontal Throw	1-2-3	1-2-5	2-3-6	2-3-7	3-4-8	3-5-8	4-6-9	5-7-10	5-8-11
	6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300	350
		Total Pressure	0.015	0.026	0.041	0.059	0.080	0.105	0.164	0.236	0.321
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-2-8	2-4-11	3-6-14	4-8-15	5-10-16	7-11-17	9-14-19	11-15-21	13-16-23
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-12	5-7-14	6-8-15	7-10-17	8-12-19	9-14-20
		3-Way - Horizontal Throw	1-3-5	2-3-7	3-4-9	3-5-10	4-6-10	5-7-11	6-9-13	7-10-14	8-10-15
16 x 16 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.014	0.025	0.039	0.056	0.077	0.100	0.157	0.226	0.307
		NC (Noise Criteria)	-	-	-	13	18	22	30	35	40
		1-Way - Horizontal Throw	1-2-8	2-4-10	3-7-12	4-8-13	6-9-14	7-10-15	9-12-17	10-13-19	12-14-20
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-11	4-7-13	5-8-13	6-10-15	8-11-16	9-13-18
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-9	4-6-9	4-6-10	5-8-11	6-9-12	8-9-13
		4-Way - Horizontal Throw	1-2-4	2-2-5	2-3-6	2-4-7	3-4-8	3-5-8	4-6-9	5-7-10	6-8-11
	6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300	350
		Total Pressure	0.015	0.026	0.041	0.059	0.080	0.105	0.164	0.236	0.321
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-3-9	2-5-12	3-7-14	5-9-15	7-10-16	8-12-17	10-14-19	12-15-21	13-16-23
		2-Way - Horizontal Throw	1-3-6	2-4-9	3-5-11	4-6-13	5-8-14	6-9-15	7-11-17	9-13-19	10-14-20
		3-Way - Horizontal Throw	1-3-5	2-4-7	3-5-9	4-5-10	4-6-10	5-7-11	6-9-13	7-10-14	8-10-15
16 x 16 Module	8" Dia.	Airflow, cfm	105	140	175	209	244	279	349	419	489
		Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	13	19	24	28	35	41	46
		1-Way - Horizontal Throw	1-3-10	3-6-14	4-9-16	6-10-18	8-12-19	9-14-20	12-16-23	14-18-25	16-19-27
		2-Way - Horizontal Throw	1-3-8	3-5-10	4-6-13	5-8-15	6-9-17	7-10-18	8-13-20	10-15-22	12-17-24
		3-Way - Horizontal Throw	2-3-6	3-4-9	4-5-10	4-6-11	5-8-12	6-9-13	7-10-15	9-11-16	10-12-18
		4-Way - Horizontal Throw	1-2-5	2-3-7	3-4-8	3-5-9	4-6-10	4-7-11	5-8-12	7-9-13	8-10-14
	8 x 8 Neck	Airflow, cfm	133	178	222	267	311	356	444	533	622
		Total Pressure	0.017	0.030	0.047	0.068	0.093	0.121	0.190	0.273	0.372
		NC (Noise Criteria)	-	-	16	22	27	31	38	44	49
		1-Way - Horizontal Throw	2-4-12	3-7-16	5-10-18	7-12-20	9-14-21	10-16-23	13-18-26	16-20-28	18-21-30
		2-Way - Horizontal Throw	2-4-9	3-6-11	5-7-14	6-9-17	7-10-19	8-11-20	10-14-23	11-17-25	13-19-27
		3-Way - Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-13	6-9-14	6-10-15	8-12-17	10-13-18	11-14-20
16 x 16 Module	10" Dia.	4-Way - Horizontal Throw	1-3-6	2-4-7	3-5-9	4-6-11	4-7-11	5-7-12	6-9-14	7-11-15	9-11-16
		Airflow, cfm	164	218	273	327	382	436	545	654	764
		Total Pressure	0.018	0.032	0.051	0.073	0.099	0.130	0.203	0.292	0.398
		NC (Noise Criteria)	-	-	18	24	29	33	40	46	51
		1-Way - Horizontal Throw	2-4-13	3-7-17	5-11-20	7-13-22	10-15-24	12-17-25	15-20-28	17-22-31	19-24-34
		2-Way - Horizontal Throw	2-4-10	3-6-13	5-8-16	6-10-19	7-11-21	8-13-22	11-16-25	13-19-27	15-21-30
16 x 16 Module		3-Way - Horizontal Throw	2-4-8	4-5-11	4-7-13	5-8-14	6-9-15	7-11-17	9-13-18	11-14-20	13-15-22
		4-Way - Horizontal Throw	1-3-6	3-4-8	3-5-10	4-6-12	5-7-13	5-8-14	7-10-15	8-12-17	10-13-18

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		Neck Velocity	300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
20 x 20 Module	6" Dia.	Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.014	0.025	0.039	0.056	0.077	0.100	0.157	0.226	0.307
		NC (Noise Criteria)	-	-	-	13	18	22	30	35	40
		1-Way - Horizontal Throw	1-2-8	2-4-10	3-7-12	4-8-13	6-9-14	7-10-15	9-12-17	10-13-19	12-14-20
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-11	4-7-13	5-8-13	6-10-15	8-11-16	9-13-18
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-9	4-6-9	4-6-10	5-8-11	6-9-12	8-9-13
		4-Way - Horizontal Throw	1-2-4	2-2-5	2-3-6	2-4-7	3-4-8	3-5-8	4-6-9	5-7-10	6-8-11
	6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300	350
		Total Pressure	0.015	0.026	0.041	0.059	0.080	0.105	0.164	0.236	0.321
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-3-9	2-5-12	3-7-14	5-9-15	7-10-16	8-12-17	10-14-19	12-15-21	13-16-23
		2-Way - Horizontal Throw	1-3-6	2-4-9	3-5-11	4-6-13	5-8-14	6-9-15	7-11-17	9-13-19	10-14-20
		3-Way - Horizontal Throw	1-3-5	2-4-7	3-5-9	4-5-10	4-6-10	5-7-11	6-9-13	7-10-14	9-10-15
		4-Way - Horizontal Throw	1-2-4	2-3-6	2-3-7	3-4-8	3-5-9	4-6-9	5-7-10	6-8-11	7-9-12
	8" Dia.	Airflow, cfm	105	140	175	209	244	279	349	419	489
		Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	13	19	24	28	35	41	46
		1-Way - Horizontal Throw	1-3-10	3-6-14	4-9-16	6-10-18	8-12-19	9-14-20	12-16-23	14-18-25	16-19-27
		2-Way - Horizontal Throw	1-3-8	3-5-10	4-6-13	5-8-15	6-9-17	7-10-18	8-13-20	10-15-22	12-17-24
		3-Way - Horizontal Throw	2-3-6	3-4-9	4-5-10	4-6-11	5-8-12	6-9-13	7-10-15	9-11-16	10-12-18
		4-Way - Horizontal Throw	1-2-5	2-3-7	3-4-8	3-5-9	4-6-10	4-7-11	5-8-12	7-9-13	8-10-14
	8 x 8 Neck	Airflow, cfm	133	178	222	267	311	356	444	533	622
		Total Pressure	0.017	0.030	0.047	0.068	0.093	0.121	0.190	0.273	0.372
		NC (Noise Criteria)	-	-	16	22	27	31	38	44	49
		1-Way - Horizontal Throw	2-4-12	3-7-16	5-10-18	7-12-20	9-14-21	10-16-23	13-18-26	16-20-28	18-21-30
		2-Way - Horizontal Throw	2-4-9	3-6-11	5-7-14	6-9-17	7-10-19	8-11-20	10-14-23	11-17-25	13-19-27
		3-Way - Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-13	6-9-14	6-10-15	8-12-17	10-13-18	11-14-20
		4-Way - Horizontal Throw	1-3-6	2-4-7	3-5-9	4-6-11	4-7-11	5-7-12	6-9-14	7-11-15	9-11-16
	10" Dia.	Airflow, cfm	164	218	273	327	382	436	545	654	764
		Total Pressure	0.018	0.032	0.051	0.073	0.099	0.130	0.203	0.292	0.398
		NC (Noise Criteria)	-	-	18	24	29	33	40	46	51
		1-Way - Horizontal Throw	2-4-13	3-7-17	5-11-20	7-13-22	10-15-24	12-17-25	15-20-28	17-22-31	19-24-34
		2-Way - Horizontal Throw	2-4-10	3-6-13	5-8-16	6-10-19	7-11-21	8-13-22	11-16-25	13-19-27	15-21-30
		3-Way - Horizontal Throw	2-4-8	4-5-11	4-7-13	5-8-14	6-9-15	7-11-17	9-13-18	11-14-20	13-15-22
		4-Way - Horizontal Throw	1-3-6	3-4-8	3-5-10	4-6-12	5-7-13	5-8-14	7-10-15	8-12-17	10-13-18
	10 x 10 Neck	Airflow, cfm	208	278	347	417	486	556	694	833	972
		Total Pressure	0.020	0.036	0.056	0.080	0.109	0.143	0.223	0.321	0.437
		NC (Noise Criteria)	-	13	21	26	31	35	43	48	53
		1-Way - Horizontal Throw	2-5-15	4-8-20	6-12-23	8-15-25	11-17-27	13-20-29	16-23-32	20-25-35	22-27-38
		2-Way - Horizontal Throw	2-5-11	4-7-14	6-9-18	7-11-21	8-13-24	10-14-25	12-18-28	14-21-31	17-24-34
		3-Way - Horizontal Throw	2-5-9	4-6-12	5-8-15	6-9-16	7-11-17	8-12-19	10-15-21	12-16-23	14-17-25
		4-Way - Horizontal Throw	2-3-7	3-5-9	4-6-12	5-7-13	5-8-14	6-9-15	8-12-17	9-13-19	11-14-20
	12" Dia.	Airflow, cfm	236	314	393	471	550	628	785	942	1100
		Total Pressure	0.027	0.048	0.076	0.109	0.148	0.194	0.303	0.436	0.593
		NC (Noise Criteria)	-	15	22	28	33	37	44	50	55
		1-Way - Horizontal Throw	7-12-19	10-15-22	13-17-24	15-19-26	16-20-29	18-22-30	20-24-34	22-26-37	23-29-40
		2-Way - Horizontal Throw	6-8-16	8-11-19	9-14-21	11-16-23	13-18-25	15-19-27	17-21-30	19-23-33	21-25-36
		3-Way - Horizontal Throw	5-7-12	6-10-14	8-11-16	10-12-17	11-13-19	11-14-20	13-16-22	14-17-24	15-19-26
		4-Way - Horizontal Throw	4-6-10	5-7-12	6-9-13	7-10-14	9-11-15	9-12-16	11-13-18	12-14-20	12-15-22
	14" Dia.	Airflow, cfm	321	428	535	641	748	855	1069	1283	1497
		Total Pressure	0.029	0.052	0.081	0.116	0.158	0.206	0.322	0.464	0.631
		NC (Noise Criteria)	-	18	25	31	36	40	47	53	58
		1-Way - Horizontal Throw	8-14-22	12-18-25	15-20-28	18-22-31	19-24-33	21-25-36	23-28-40	25-31-44	27-33-47
		2-Way - Horizontal Throw	7-10-19	9-13-22	11-17-25	13-19-27	15-21-29	18-22-31	20-25-35	22-27-38	24-29-42
		3-Way - Horizontal Throw	6-8-14	7-11-16	9-13-18	11-14-20	13-15-22	13-16-23	15-18-26	16-20-28	18-22-31
		4-Way - Horizontal Throw	4-6-12	6-9-13	7-11-15	9-12-16	10-13-18	11-13-19	12-15-21	13-16-23	15-18-25

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24 x 24 Module	6" Dia.	Neck Velocity	300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
		Airflow, cfm	59	79	98	118	137	157	196	236	275
		Total Pressure	0.014	0.025	0.039	0.056	0.077	0.100	0.157	0.226	0.307
		NC (Noise Criteria)	-	-	-	13	18	22	30	35	40
		1-Way - Horizontal Throw	1-2-8	2-4-10	3-7-12	4-8-13	6-9-14	7-10-15	9-12-17	10-13-19	12-14-20
		2-Way - Horizontal Throw	1-2-6	2-4-8	3-5-10	4-6-11	4-7-13	5-8-13	6-10-15	8-11-16	9-13-18
		3-Way - Horizontal Throw	1-2-5	2-3-6	3-4-8	3-5-9	4-6-9	4-6-10	5-8-11	6-9-12	8-9-13
		4-Way - Horizontal Throw	1-2-4	2-2-5	2-3-6	2-4-7	3-4-8	3-5-8	4-6-9	5-7-10	6-8-11
	6 x 6 Neck	Airflow, cfm	75	100	125	150	175	200	250	300	350
		Total Pressure	0.015	0.026	0.041	0.059	0.080	0.105	0.164	0.236	0.321
		NC (Noise Criteria)	-	-	-	16	21	25	32	38	43
		1-Way - Horizontal Throw	1-3-9	2-5-12	3-7-14	5-9-15	7-10-16	8-12-17	10-14-19	12-15-21	13-16-23
		2-Way - Horizontal Throw	1-3-6	2-4-9	3-5-11	4-6-13	5-8-14	6-9-15	7-11-17	9-13-19	10-14-20
		3-Way - Horizontal Throw	1-3-5	2-4-7	3-5-9	4-5-10	4-6-10	5-7-11	6-9-13	7-10-14	9-10-15
		4-Way - Horizontal Throw	1-2-4	2-3-6	2-3-7	3-4-8	3-5-9	4-6-9	5-7-10	6-8-11	7-9-12
		Airflow, cfm	105	140	175	209	244	279	349	419	489
	8" Dia.	Total Pressure	0.016	0.028	0.044	0.064	0.087	0.113	0.177	0.255	0.347
		NC (Noise Criteria)	-	-	13	19	24	28	35	41	46
		1-Way - Horizontal Throw	1-3-10	3-6-14	4-9-16	6-10-18	8-12-19	9-14-20	12-16-23	14-18-25	16-19-27
		2-Way - Horizontal Throw	1-3-8	3-5-10	4-6-13	5-8-15	6-9-17	7-10-18	8-13-20	10-15-22	12-17-24
		3-Way - Horizontal Throw	2-3-6	3-4-9	4-5-10	4-6-11	5-8-12	6-9-13	7-10-15	9-11-16	10-12-18
		4-Way - Horizontal Throw	1-2-5	2-3-7	3-4-8	3-5-9	4-6-10	4-7-11	5-8-12	7-9-13	8-10-14
	8 x 8 Neck	Airflow, cfm	133	178	222	267	311	356	444	533	622
		Total Pressure	0.017	0.030	0.047	0.068	0.093	0.121	0.190	0.273	0.372
		NC (Noise Criteria)	-	-	16	22	27	31	38	44	49
		1-Way - Horizontal Throw	2-4-12	3-7-16	5-10-18	7-12-20	9-14-21	10-16-23	13-18-26	16-20-28	18-21-30
		2-Way - Horizontal Throw	2-4-9	3-6-11	5-7-14	6-9-17	7-10-19	8-11-20	10-14-23	11-17-25	13-19-27
		3-Way - Horizontal Throw	2-4-7	3-5-10	4-6-12	5-7-13	6-9-14	6-10-15	8-12-17	10-13-18	11-14-20
		4-Way - Horizontal Throw	1-3-6	2-4-7	3-5-9	4-6-11	4-7-11	5-7-12	6-9-14	7-11-15	9-11-16
	10" Dia.	Airflow, cfm	164	218	273	327	382	436	545	654	764
		Total Pressure	0.018	0.032	0.051	0.073	0.099	0.130	0.203	0.292	0.398
		NC (Noise Criteria)	-	-	18	24	29	33	40	46	51
		1-Way - Horizontal Throw	2-4-13	3-7-17	5-11-20	7-13-22	10-15-24	12-17-25	15-20-28	17-22-31	19-24-34
		2-Way - Horizontal Throw	2-4-10	3-6-13	5-8-16	6-10-19	7-11-21	8-13-22	11-16-25	13-19-27	15-21-30
		3-Way - Horizontal Throw	2-4-8	4-5-11	4-7-13	5-8-14	6-9-15	7-11-17	9-13-18	11-14-20	13-15-22
		4-Way - Horizontal Throw	1-3-6	3-4-8	3-5-10	4-6-12	5-7-13	5-8-14	7-10-15	8-12-17	10-13-18
	10 x 10 Neck	Airflow, cfm	208	278	347	417	486	556	694	833	972
		Total Pressure	0.020	0.036	0.056	0.080	0.109	0.143	0.223	0.321	0.437
		NC (Noise Criteria)	-	13	21	26	31	35	43	48	53
		1-Way - Horizontal Throw	2-5-15	4-8-20	6-12-23	8-15-25	11-17-27	13-20-29	16-23-32	20-25-35	22-27-38
		2-Way - Horizontal Throw	2-5-11	4-7-14	6-9-18	7-11-21	8-13-24	10-14-25	12-18-28	14-21-31	17-24-34
		3-Way - Horizontal Throw	2-5-9	4-6-12	5-8-15	6-9-16	7-11-17	8-12-19	10-15-21	12-16-23	14-17-25
		4-Way - Horizontal Throw	2-3-7	3-5-9	4-6-12	5-7-13	5-8-14	6-9-15	8-12-17	9-13-19	11-14-20
	12" Dia.	Airflow, cfm	236	314	393	471	550	628	785	942	1100
		Total Pressure	0.027	0.048	0.076	0.109	0.148	0.194	0.303	0.436	0.593
		NC (Noise Criteria)	-	15	22	28	33	37	44	50	55
		1-Way - Horizontal Throw	7-12-19	10-15-22	13-17-24	15-19-26	16-20-29	18-22-30	20-24-34	22-26-37	23-29-40
		2-Way - Horizontal Throw	6-8-16	8-11-19	9-14-21	11-16-23	13-18-25	15-19-27	17-21-30	19-23-33	21-25-36
		3-Way - Horizontal Throw	5-7-12	6-10-14	8-11-16	10-12-17	11-13-19	11-14-20	13-16-22	14-17-24	15-19-26
		4-Way - Horizontal Throw	4-6-10	5-7-12	6-9-13	7-10-14	9-11-15	9-12-16	11-13-18	12-14-20	12-15-22
	12 x 12 Neck	Airflow, cfm	300	400	500	600	700	800	1000	1200	1400
		Total Pressure	0.029	0.051	0.079	0.114	0.156	0.203	0.317	0.457	0.622
		NC (Noise Criteria)	-	17	24	30	35	39	46	52	57
		1-Way - Horizontal Throw	8-13-21	12-17-24	15-19-27	17-21-30	19-23-32	20-24-34	22-27-38	24-30-42	26-32-46
		2-Way - Horizontal Throw	6-10-19	9-13-21	11-16-24	13-19-26	15-20-28	17-21-30	20-24-34	21-26-37	23-28-40
		3-Way - Horizontal Throw	5-8-14	7-11-16	9-13-18	11-14-19	12-15-21	13-16-22	14-18-25	16-19-27	17-21-30
		4-Way - Horizontal Throw	4-6-11	6-8-13	7-10-15	8-11-16	10-12-17	11-13-18	12-15-21	13-16-23	14-17-24
	14" Dia.	Airflow, cfm	321	428	535	641	748	855	1069	1283	1497
		Total Pressure	0.029	0.052	0.081	0.116	0.158	0.206	0.322	0.464	0.631
		NC (Noise Criteria)	-	18	25	31	36	40	47	53	58
		1-Way - Horizontal Throw	8-14-22	12-18-25	15-20-28	18-22-31	19-24-33	21-25-36	23-28-40	25-31-44	27-33-47
		2-Way - Horizontal Throw	7-10-19	9-13-22	11-17-25	13-19-27	15-21-29	18-22-31	20-25-35	22-27-38	24-29-42
		3-Way - Horizontal Throw	6-8-14	7-11-16	9-13-18	11-14-20	13-15-22	13-16-23	15-18-26	16-20-28	18-22-31
		4-Way - Horizontal Throw	4-6-12	6-9-13	7-11-15	9-12-16	10-13-18	11-13-19	12-15-21	13-16-23	15-18-25
	16" Dia.	Airflow, cfm	419	559	698	838	977	1117	1396	1676	1955
		Total Pressure	0.031	0.055	0.086	0.124	0.169	0.220	0.344	0.496	0.675
		NC (Noise Criteria)	12	21	28	34	38	43	50	56	60
		1-Way - Horizontal Throw	10-16-25	14-20-29	17-23-32	20-25-35	22-27-38	23-29-41	26-32-45	29-35-50	31-38-54
		2-Way - Horizontal Throw	8-11-22	10-15-25	13-19-28	15-22-31	18-24-34	20-25-36	23-28-40	25-31-44	27-34-48
		3-Way - Horizontal Throw	6-10-16	9-13-19	11-15-21	13-16-23	14-18-25	15-19-26	17-21-30	19-23-32	20-25-35
		4-Way - Horizontal Throw	5-7-13	7-10-15	8-12-17	10-13-19	11-14-20	13-15-22	14-17-24	15-19-27	17-20-29

PERFORMANCE DATA

diffusers

- Data obtained from tests conducted in accordance with ANSI / ASHRAE Standard 70-2006. Actual performance, with flexible duct inlet, may vary in the field. See the Engineering Guidelines section of this catalog for additional information.
- Throw values given are for terminal velocities of 150, 100 and 50 fpm and for isothermal conditions
- For an explanation of catalog throw data, see the section, Engineering Guidelines
- NC values based on octave band 2 to 7 sound power levels minus a room absorption of 10 dB
- Each NC value represents the noise criteria curve that will not be exceeded by the sound pressure in any of the octave bands, 2 through 7, with a room absorption of 10 dB, re 10⁻¹² watts
- Dash (-) in space denotes an NC value of less than 10
- All pressures are given in inches of water
- To obtain static pressure, subtract the velocity pressure from the total pressure

PAR, PXP, PMR, PXP-DR, PDR PERFORMANCE DATA

PAR, PXP, PMR - FLUSH FACE - RETURN; PXP-DR, PDR - DROP FACE - RETURN

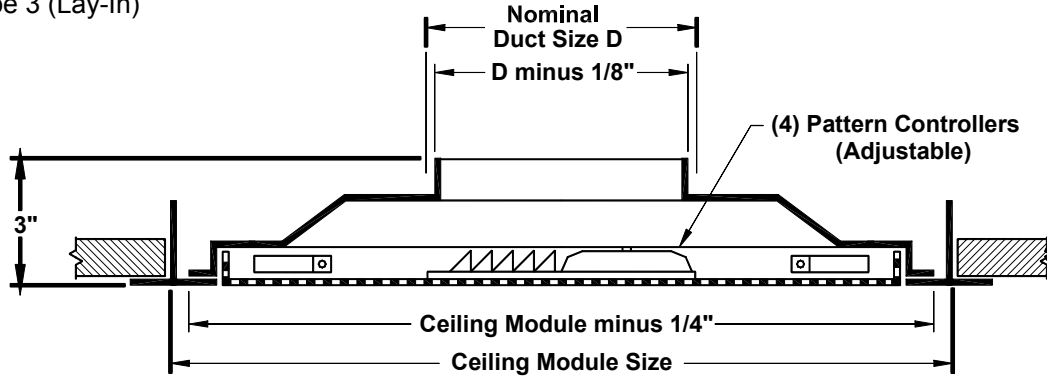
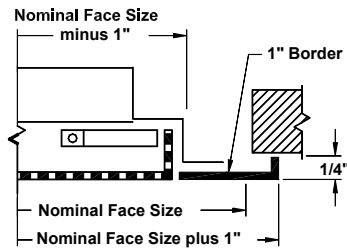
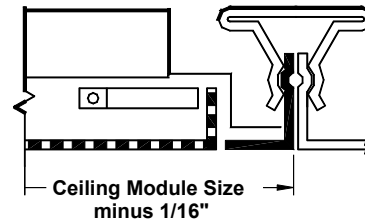
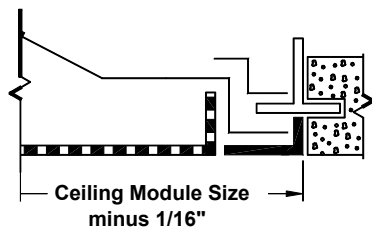
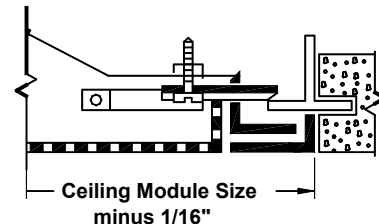
12 x 12 Face	Neck Size	Neck Vel, fpm	300	400	500	600	700	800	1000	1200	1400
		Vp, in. Wg	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.09	0.12
		Ps (-), in. Wg	0.03	0.06	0.09	0.13	0.17	0.23	0.36	0.51	0.70
	6 Dia. *	Flow Rate, cfm	59	78	98	118	137	157	196	235	275
		Room NC	-	-	-	14	18	21	27	32	36
	6 x 6 Neck *	Flow Rate, cfm	75	100	125	150	175	200	250	300	350
		Room NC	-	-	12	17	21	24	30	35	39
	10 x 10 Neck	Flow Rate, cfm	208	278	347	417	486	556	694	833	972
Room NC		15	23	29	33	37	41	47	51	55	
24 x 24 Face	Neck Size	Neck Vel, fpm	300	400	500	600	700	800	1000	1200	1400
		Vp, in. Wg	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.09	0.12
		Ps (-), in. Wg	0.03	0.06	0.09	0.13	0.18	0.24	0.37	0.54	0.73
	6 Dia. *	Flow Rate, cfm	59	78	98	118	137	157	196	235	275
		Room NC	-	-	-	13	17	20	26	31	34
	6 x 6 Neck *	Flow Rate, cfm	75	100	125	150	175	200	250	300	350
		Room NC	-	-	-	14	18	21	27	32	35
	8 Dia. *	Flow Rate, cfm	105	140	174	209	244	279	349	419	488
		Room NC	-	-	13	17	21	24	30	35	38
	8 x 8 Neck *	Flow Rate, cfm	133	178	222	267	311	356	444	533	622
		Room NC	-	-	14	18	22	25	31	36	39
	10 Dia.*	Flow Rate, cfm	164	218	273	327	382	436	545	654	763
		Room NC	-	-	16	20	24	27	33	38	41
	10 x 10 Neck *	Flow Rate, cfm	208	278	347	417	486	556	694	833	972
		Room NC	-	11	17	21	25	28	34	39	42
	12 Dia. *	Flow Rate, cfm	235	314	392	471	549	628	785	942	1099
		Room NC	-	12	17	22	26	29	34	39	43
	12 x 12 Neck *	Flow Rate, cfm	300	400	500	600	700	800	1000	1200	1400
		Room NC	-	14	20	24	28	31	37	42	45
	14 Dia. *	Flow Rate, cfm	320	427	534	641	748	855	1068	1282	1495
		Room NC	-	15	21	25	29	32	38	43	46
	15 x 15 Neck *	Flow Rate, cfm	469	625	781	938	1094	1250	1563	1875	2188
		Room NC	-	16	22	26	30	33	39	44	47
	16 Dia. *	Flow Rate, cfm	419	558	698	837	977	1116	1395	1674	1953
		Room NC	11	18	24	28	32	35	41	46	49
	18 x 18 Neck *	Flow Rate, cfm	675	900	1125	1350	1575	1800	2250	2700	3150
		Room NC	11	18	24	28	32	36	41	46	49
	22 x 22 Neck	Flow Rate, cfm	1008	1344	1681	2017	2353	2689	3361	4033	4706
Room NC		13	20	26	30	34	37	43	47	51	
Other Sizes	Neck Size	Neck Vel, fpm	300	400	500	600	700	800	1000	1200	1400
		Vp, in. Wg	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.09	0.12
		Ps (-), in. Wg	0.03	0.06	0.09	0.13	0.17	0.23	0.36	0.51	0.70
	10 x 22 (12 x 24 Face)	Flow Rate, cfm	458	611	764	917	1069	1222	1528	1833	2139
		Room NC	-	-	-	14	18	21	27	32	36
	14 x 14 (16 x 16 Face)	Flow Rate, cfm	408	544	681	817	953	1089	1361	1633	1906
		Room NC	-	-	12	17	21	24	30	35	39
	18 x 18 (20 x 20 Face)	Flow Rate, cfm	675	900	1125	1350	1575	1800	2250	2700	3150
		Room NC	-	11	17	22	26	29	35	40	44
	22 x 46 (24 x 48 Face)	Flow Rate, cfm	2108	2811	3514	4217	4919	5622	7028	8433	9839
Room NC		12	20	25	30	34	38	43	48	52	

PAR, PXP, PMR, PXP-DR, PDR PERFORMANCE NOTES

- Supply unit with deflectors removed
- Static pressures are negative, in inches of water, measured per ANSI/ASHRAE Standard 70-2006
- Noise Criteria (NC) based on a room absorption of 10 dB, re 10⁻¹² watts, measured per ANSI/ASHRAE Standard 70-2006
- These products have been tested per ANSI/ASHRAE Standard 70-2006. Actual performance, with flexible duct inlet, may vary in the field.
- See the section, Engineering Guidelines for additional information

PAS • Supply • 1, 2, 3, or 4 Way Adjustable Discharge Pattern

Perforated Ceiling Diffusers
Steel • Flush Face

☐ Border Type 3 (Lay-In)

☐ Border Type 1 (Surface Mount)

☐ Border Type 2 (Snap-In)

☐ Border Type 4 (Spline)

☐ Border Type 4SL (Spline Side Lock)


Note: 4SL can be installed after ceiling tiles are in place.

Available Sizes for Border Types 1, 2, 3, 4, 4SL

Available Sizes for Border Types 1, 2, 3, 4, 4SL													
Face or Ceiling Module Size	Nominal Duct Size D												
	6 x 6	8 x 8	10 x 10	12 x 12	15 x 15	18 x 18	18 x 6	6" Dia.	8" Dia.	10" Dia.	12" Dia.	14" Dia.	16" Dia.
12 x12	•							•					
24 x 12	•						•	•					
16 x 16	•	•						•	•	•			
20 x 20	•	•	•					•	•	•	•	•	
24 x 24	•	•	•	•	•	•		•	•	•	•	•	•
48 x 24	•	•	•	•				•	•	•	•	•	•

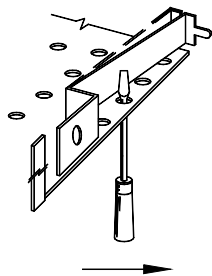
• Indicates available combination

All dimensions are in inches.

Removing Perforated Face

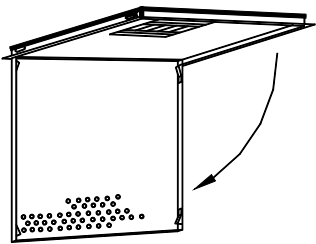
1. Insert small Screwdriver or other slim instrument to push latch inward from border.

2. Repeat on opposite side.



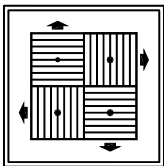
3. Face will now swing down with 2 remaining latches acting as hinges.

For complete removal, release 2 remaining latches at left.

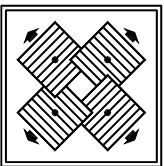


Adjusting Pattern Controllers

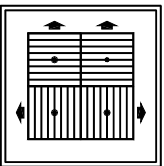
4-Way



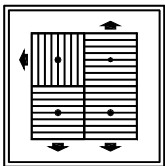
4-Way Corner



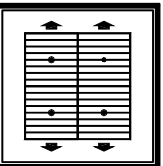
3-Way



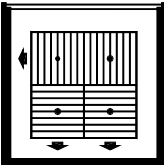
3-Way



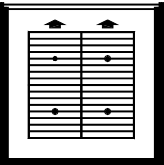
2-Way



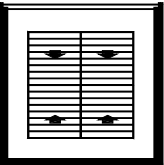
2-Way Corner



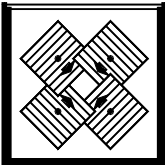
1-Way



Vertical



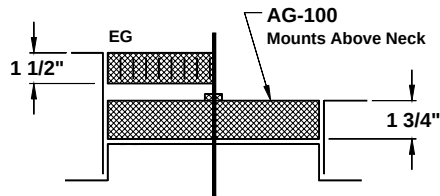
Vertical



Accessories (Optional) for Round Neck

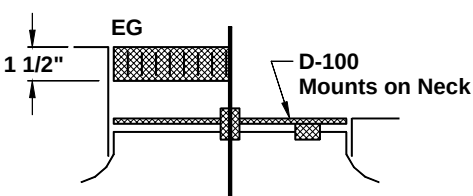
Check ☒ if provided.

- ☐ Model AG-100 Radial Sliding Blade Damper
- ☐ Model EG Equalizing Grid



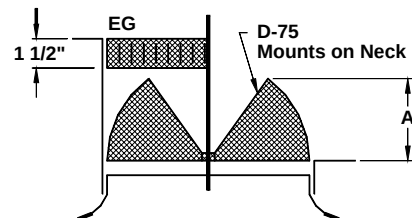
Model AG-100 damper is available in duct sizes 6 thru 14 inches only.

- ☐ Model D-100 Radial Sliding Blade Damper
- ☐ Model EG Equalizing Grid



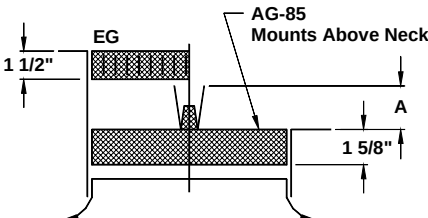
Model D-100 damper is available in duct sizes 6 thru 14 inches only.

- ☐ Model D-75 Opposed Blade Damper
- ☐ Model EG Equalizing Grid



Model D-75 damper is available in duct sizes 6 thru 12 inches only.

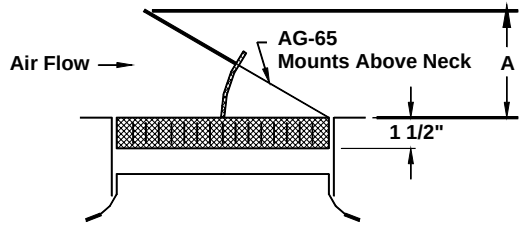
- ☐ Model AG-85 Butterfly Damper
- ☐ Model EG Equalizing Grid



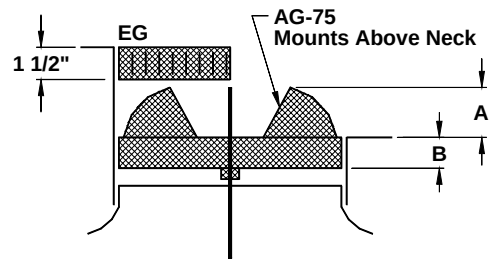
Accessories (Optional) for Round Neck

Check ☒ if provided.

☐ Model AG-65 Combination Damper and Equalizing Grid



☐ Model AG-75 Opposed Blade Damper
☐ Model EG Equalizing Grid



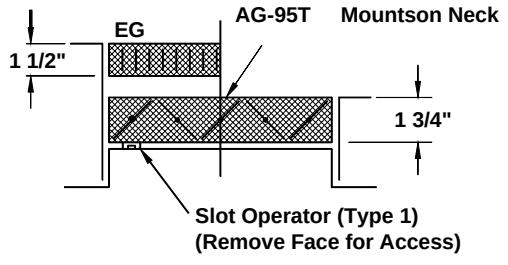
Accessories	Nominal Round Duct Sizes					
	6	8	10	12	14	16
AG-100	—	—	—	—	—	N/A
D-100	—	—	—	—	—	N/A
D-75	2 3/8	3 1/4	4 1/8	4 7/8	N/A	N/A
AG-85	2 1/2	3 1/2	4 1/2	5 1/2	6 1/2	7 1/2
AG-65	3 3/8	4 1/2	5 1/2	7 1/8	8 5/8	9 7/8
AG-75	4 1/4	5 1/8	6	6 7/8	2 3/4	3 1/2

Note: Model AG-100 and D-100 dampers have radial blades that slide in a horizontal plane. For that reason, no opening clearance "A" is dimensioned.

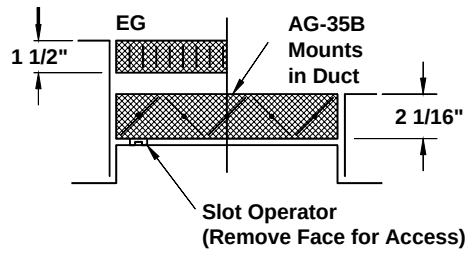
Accessories (Optional) for Rectangular Neck

Check ☒ if provided.

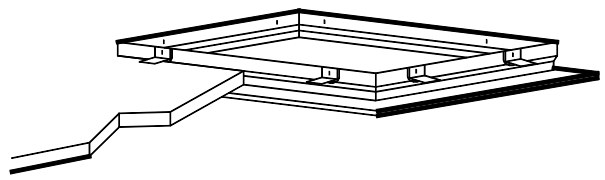
☐ Model AG-95 Opposed Blade Damper
☐ Model EG Equalizing Grid



☐ Model AG-35B Opposed Blade Damper
☐ Model EG Equalizing Grid



☐ TRM TITUS Rapid Mount Frame



For Surface Mounting Border Type 3

Accessories (Optional) for Rectangular and Round Neck

Check ☒ if provided.

☐ IB Molded Insulation Blanket



Insulation is R-6 where blanket has the most depth. One-inch clearance on each side of neck is left for insulated duct connection. 24 x 24-inch module size only. Blanket is factory installed.

Standard Finish: #26 White

General Description

- Excellent performance in variable air volume systems.
- A tight, uniform horizontal blanket of air protects the ceiling against smudging.
- Discharge pattern can be adjusted to vertical as well as to 1, 2, 3 or 4 way horizontal. Can be adjusted before or after installation.
- Discharge pattern is adjusted by dropping the perforated face (see Page 2) and rotating the pattern controllers.
- Dropping the perforated face also gives access for adjusting the optional dampers.
- Perforated face has 3/16" diameter holes on 1/4" staggered centers.
- Inlet collar is approximately 1½" deep to allow easy duct connection.
- Material is heavy gauge steel.

This submittal is meant to demonstrate general dimensions of this product. The drawings are not meant to detail every aspect of the product. Drawings are not to scale. Titus reserves the right to make changes without written notice.



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PERFORMANCE DATA

specialized grilles

DL / DL-SV / S-DL / S-DL-SV / 15° UP

Min. Duct Area sq. ft.	Listed Size, Inches	Duct Velocity fpm	300	400	500	600	700	800	900	1000
		Vel. Press, in wg.	0.006	0.010	0.016	0.022	0.031	0.040	0.050	0.062
0.33	12 X 4	cfm	100	123	166	200	233	266	300	333
		NC (Noise Criteria)	-	-	-	15	19	31	37	41
		Total Pressure, in. wg.	0.04	0.06	0.10	0.14	0.19	0.26	0.32	0.40
		Throw, ft.	10-13-20	13-16-23	15-18-26	16-19-29	18-21-31	19-22-33	20-23-36	21-25-38
0.50	18 X 4	cfm	150	200	250	300	350	400	450	500
		NC (Noise Criteria)	-	-	-	19	26	34	37	43
		Total Pressure, in. wg.	0.03	0.05	0.07	0.11	0.15	0.20	0.25	0.31
		Throw, ft.	14-16-23	16-19-27	18-21-31	19-23-34	21-25-36	22-27-39	24-29-41	25-30-43
0.66	24 X 4	cfm	200	266	333	400	466	535	600	665
		NC (Noise Criteria)	-	-	10	20	27	35	38	44
		Total Pressure, in. wg.	0.03	0.05	0.10	0.11	0.15	0.20	0.25	0.31
		Throw, ft.	16-19-27	18-22-32	20-24-26	23-27-39	24-29-42	27-31-45	28-33-49	29-35-51
0.83	30 X 4	cfm	250	333	415	500	583	665	750	830
		NC (Noise Criteria)	-	-	12	22	28	35	39	46
		Total Pressure, in. wg.	0.03	0.05	0.07	0.11	0.15	0.20	0.25	0.33
		Throw, ft.	18-21-31	20-24-35	23-28-40	25-30-44	28-33-47	29-35-51	31-37-54	32-39-56
1.00	36 X 4	cfm	300	400	500	600	700	800	900	1000
		NC (Noise Criteria)	-	-	13	23	30	37	41	47
		Total Pressure, in. wg.	0.03	0.05	0.07	0.11	0.15	0.20	0.25	0.31
		Throw, ft.	19-23-33	22-26-38	25-30-43	27-33-48	29-35-51	31-38-55	33-40-58	35-42-62
1.16	42 X 4	cfm	350	465	583	700	815	933	1050	1160
		NC (Noise Criteria)	-	-	14	25	32	38	42	49
		Total Pressure, in. wg.	0.03	0.05	0.07	0.11	0.15	0.20	0.25	0.31
		Throw, ft.	21-25-36	24-28-42	26-32-47	29-35-51	32-38-58	34-41-60	36-43-64	38-46-67
1.33	48 X 4	cfm	400	533	665	800	933	1065	1200	1330
		NC (Noise Criteria)	-	-	15	25	32	38	42	50
		Total Pressure, in. wg.	0.03	0.05	0.07	0.11	0.15	0.20	0.25	0.31
		Throw, ft.	22-27-39	26-31-45	28-35-50	32-39-55	34-42-60	36-45-64	38-47-66	40-50-71
1.66	60 X 4	cfm	500	665	833	1000	1160	1330	1500	1660
		NC (Noise Criteria)	-	-	16	26	35	39	43	50
		Total Pressure, in. wg.	0.03	0.05	0.07	0.11	0.15	0.20	0.25	0.31
		Throw, ft.	26-30-43	29-34-50	33-39-56	36-43-61	39-45-66	41-49-71	43-52-75	47-55-80
0.43	9 X 6	cfm	129	172	215	258	301	344	387	430
		NC (Noise Criteria)	<10	<10	17	23	29	34	43	42
		Total Pressure, in. wg.	0.05	0.08	0.13	0.18	0.25	0.32	0.41	0.51
		Throw, ft.	5-6-16	7-11-22	9-14-26	11-16-29	13-19-31	15-22-33	16-25-35	18-26-37
0.83	18 X 6	cfm	250	333	416	500	583	666	749	833
		NC (Noise Criteria)	<10	11	19	25	31	35	40	43
		Total Pressure, in. wg.	0.05	0.08	0.13	0.18	0.25	0.32	0.41	0.51
		Throw, ft.	11-16-28	14-21-33	18-26-37	21-28-40	25-31-43	27-33-46	28-35-49	30-37-52
1.37	30 X 6	cfm	411	548	685	821	958	1095	1232	1369
		NC (Noise Criteria)	<10	10	18	24	29	34	38	42
		Total Pressure, in. wg.	0.05	0.08	0.13	0.18	0.25	0.32	0.41	0.51
		Throw, ft.	17-26-37	23-30-42	27-33-47	30-37-52	32-39-56	34-42-60	37-45-63	38-47-67
2.71	60 X 6	cfm	813	1084	1355	1626	1897	2168	2439	2710
		NC (Noise Criteria)	<10	16	23	30	35	40	44	48
		Total Pressure, in. wg.	0.05	0.08	0.13	0.18	0.25	0.32	0.41	0.51
		Throw, ft.	30-36-51	34-42-59	38-47-66	42-51-73	45-55-78	48-59-84	51-63-89	54-66-94
0.66	12 X 8	cfm	200	266	333	400	465	533	600	665
		NC (Noise Criteria)	-	-	-	19	27	33	40	45
		Total Pressure, in. wg.	0.04	0.06	0.10	0.14	0.20	0.26	0.32	0.40
		Throw, ft.	12-19-28	16-22-32	19-24-36	22-26-39	23-28-42	25-36-45	28-32-49	29-35-50
1.00	18 X 8	cfm	300	400	500	600	700	800	900	1000
		NC (Noise Criteria)	-	-	-	19	26	34	37	43
		Total Pressure, in. wg.	0.04	0.06	0.10	0.14	0.20	0.26	0.32	0.40
		Throw, ft.	18-23-33	21-26-38	24-29-42	27-32-47	29-34-50	31-37-54	33-39-58	34-41-60
1.33	24 X 8	cfm	400	533	665	800	933	1065	1200	1330
		NC (Noise Criteria)	-	-	13	22	30	37	43	48
		Total Pressure, in. wg.	0.04	0.06	0.10	0.14	0.20	0.26	0.32	0.40
		Throw, ft.	21-26-39	25-30-44	27-34-49	31-37-54	33-40-59	35-43-63	38-46-66	40-49-70
1.66	30 X 8	cfm	500	665	833	1000	1165	1333	1500	1665
		NC (Noise Criteria)	-	-	15	25	32	38	44	49
		Total Pressure, in. wg.	0.04	0.06	0.10	0.14	0.20	0.26	0.32	0.40
		Throw, ft.	24-29-43	28-34-50	31-38-55	33-42-60	36-45-66	38-49-70	41-52-74	43-55-79

All performance data reported is without damper or volume extractor

DL / DL-SV / S-DL / S-DL-SV / 15° UP CONTINUED

All performance data reported is without damper or volume extractor

Min. Duct Area sq. ft.	Listed Size, Inches	Duct Velocity fpm	300	400	500	600	700	800	900	1000
		Vel. Press, in wg.	0.006	0.010	0.016	0.022	0.031	0.040	0.050	0.062
2.00	36 X 8	cfm	600	800	1000	1200	1400	1600	1800	2000
		NC (Noise Criteria)	-	-	16	26	33	40	45	50
		Total Pressure, in. wg.	0.04	0.07	0.11	0.15	0.22	0.28	0.35	0.44
		Throw, ft.	27-32-47	31-37-54	35-41-60	38-45-66	41-49-71	43-52-76	46-55-81	48-59-85
2.33	42 X 8	cfm	700	933	1165	1400	1633	1865	2100	2335
		NC (Noise Criteria)	-	-	16	27	34	41	46	51
		Total Pressure, in. wg.	0.04	0.07	0.11	0.15	0.22	0.28	0.35	0.44
		Throw, ft.	28-34-50	32-39-58	36-44-64	39-48-70	43-52-76	46-56-82	48-59-87	50-62-92
2.66	48 X 8	cfm	400	533	665	800	933	1065	1200	1330
		NC (Noise Criteria)	-	-	17	27	35	42	47	51
		Total Pressure, in. wg.	0.04	0.07	0.11	0.15	0.22	0.28	0.35	0.44
		Throw, ft.	3-37-55	35-43-63	40-47-70	43-50-77	47-57-84	50-60-90	53-64-95	56-68-100
3.33	60 X 8	cfm	1000	1335	1665	2000	2335	2665	3000	3335
		NC (Noise Criteria)	-	-	18	28	35	42	48	52
		Total Pressure, in. wg.	0.04	0.07	0.11	0.15	0.22	0.28	0.35	0.44
		Throw, ft.	32-41-61	38-47-70	42-53-79	46-59-85	50-63-92	54-67-98	57-72-105	60-75-111
1.46	20 X 10	cfm	438	584	730	875	1021	1167	1313	1459
		NC (Noise Criteria)	<10	13	20	26	31	36	40	44
		Total Pressure, in. wg.	0.03	0.05	0.09	0.12	0.17	0.22	0.28	0.34
		Throw, ft.	18-27-38	25-31-44	28-34-49	31-38-53	33-41-58	36-44-62	38-46-65	40-49-69
3.58	50 X 10	cfm	1074	1433	1791	2149	2507	2865	3223	3582
		NC (Noise Criteria)	<10	16	23	29	35	40	44	48
		Total Pressure, in. wg.	0.03	0.05	0.09	0.12	0.17	0.22	0.28	0.34
		Throw, ft.	34-42-59	39-48-68	44-54-76	48-59-84	52-64-90	56-68-96	59-72-102	62-76-108
5.00	70 X 10	cfm	1499	1999	2498	2998	3498	3997	4497	4996
		NC (Noise Criteria)	<10	18	25	31	36	41	45	49
		Total Pressure, in. wg.	0.03	0.05	0.09	0.12	0.17	0.22	0.28	0.34
		Throw, ft.	40-49-70	47-57-81	52-64-90	57-70-99	62-75-107	66-81-114	70-85-121	74-90-127
1.75	20 X 12	cfm	524	698	873	1047	1222	1396	1571	1746
		NC (Noise Criteria)	<10	13	20	27	32	37	41	45
		Total Pressure, in. wg.	0.03	0.05	0.08	0.11	0.16	0.20	0.26	0.32
		Throw, ft.	22-29-41	27-34-48	31-38-53	34-41-58	36-45-63	39-48-67	41-50-71	43-53-75
3.44	40 X 12	cfm	1031	1375	1719	2063	2407	2751	3094	3438
		NC (Noise Criteria)	-	-	17	26	33	39	44	49
		Total Pressure, in. wg.	0.03	0.05	0.08	0.11	0.16	0.20	0.26	0.32
		Throw, ft.	33-41-58	39-47-67	43-53-75	47-58-82	51-62-88	55-67-94	58-71-100	61-75-106
5.98	70 X 12	cfm	1793	2391	2989	3586	4184	4782	5380	5977
		NC (Noise Criteria)	-	-	20	28	35	41	47	52
		Total Pressure, in. wg.	0.03	0.05	0.08	0.11	0.16	0.20	0.26	0.32
		Throw, ft.	44-54-76	51-62-88	57-70-98	62-76-108	67-82-117	72-88-125	76-93-132	80-98-139
1.65	15 X 15	cfm	494	659	824	989	1154	1318	1483	1648
		NC (Noise Criteria)	-	-	14	23	30	36	41	46
		Total Pressure, in. wg.	0.02	0.04	0.07	0.10	0.13	0.17	0.22	0.27
		Throw, ft.	19-28-40	25-33-46	30-37-52	33-40-57	35-43-61	38-46-65	40-49-69	42-52-73
5.34	50 X 15	cfm	1602	2136	2670	3204	3738	4271	4805	5339
		NC (Noise Criteria)	-	-	19	28	35	41	47	51
		Total Pressure, in. wg.	0.02	0.04	0.07	0.10	0.13	0.17	0.22	0.27
		Throw, ft.	42-51-72	48-59-83	54-66-93	59-72-102	64-78-110	68-83-118	72-88-125	76-93-132
6.25	60 X 15	cfm	1875	2500	3125	3750	4375	5000	5625	6250
		NC (Noise Criteria)	-	-	19	27	35	41	46	51
		Total Pressure, in. wg.	0.02	0.04	0.06	0.09	0.13	0.16	0.21	0.26
		Throw, ft.	45-55-78	52-64-90	58-71-101	64-78-110	69-84-119	74-90-127	78-96-135	82-101-142
7.45	70 X 15	cfm	2235	2979	3724	4469	5214	5959	6704	7449
		NC (Noise Criteria)	-	-	21	29	36	42	48	53
		Total Pressure, in. wg.	0.02	0.04	0.07	0.10	0.13	0.17	0.22	0.27
		Throw, ft.	49-60-85	57-70-98	63-78-110	70-85-120	75-92-130	80-98-139	85-104-148	90-110-155

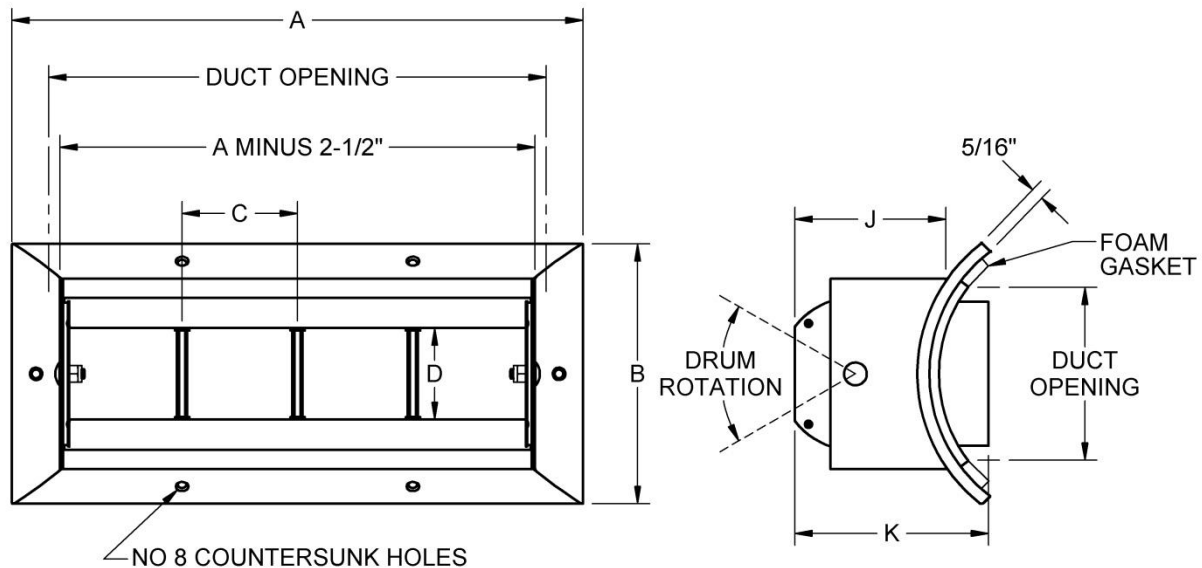
- All data is based on tests conducted in accordance with ANSI/ASHRAE Standard 70-2006
- Throw is based on isothermal air, 150, 100 and 50 fpm terminal velocities. See the section, Engineering Guidelines, in this catalog for throw information.
- Velocity Pressures are based on nominal duct velocity
- Listed size is slightly less than the minimum allowed duct dimensions. (see pages I57-I58 for actual duct dimension)
- Each NC value represents the noise criterion that will not be exceeded by the sound pressure in any of the octave bands, 2nd through 7th. Each NC value is based on a room absorption of 10dB, re 10⁻¹² watts.
- Throw is based on a 15° upward deflection. For 0° upward deflection multiply throw values shown by 1.2. For 30° upward deflection multiply throw values shown by 0.8.

VARIABLE AIR VOLUME APPLICATIONS

Deflection	Throw	Total Pressure	NC
0°	1.2	0.8	-4
30°	0.8	1.43	+4

- All Titus supply grilles can be applied to variable air volume systems with excellent results. For detailed selection methods, consult your Titus representative or the Engineering Guidelines section of this catalog.

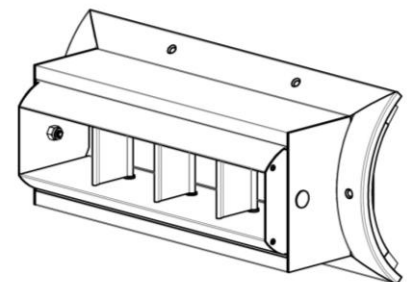
- ☐ S-DL • Drum Louver • Aluminum
 - ☐ S-DL-SV • Drum Louver • Split Vane • Aluminum
- Curved Frame for Round/Spiral Duct Mounting



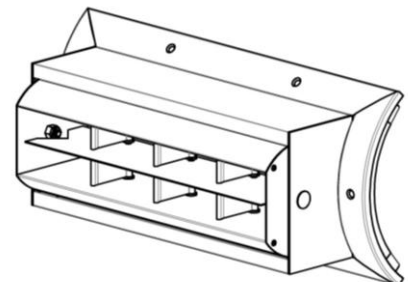
See sheet 2 for dimension table, sheet 3 for options

- Designed to handle large air capacity requirements and long throws.
- Installs directly on spiral ducts without the use of duct taps.
- Well suited for installations where the conditioned space is large, and where it is impractical to bring the duct work close to the occupants. Examples being shopping malls, coliseums, field houses, air terminals, factories and warehouses.
- Adjustable horizontal and vertical throw direction via a rotatable drum and pivoting blades.
- Felt seal between the drum and border to stop leakage and hold the drum securely in the position selected.
- Standard foam gasket seals frame against duct.
- Optional air extractor or heavy-duty damper with a screwdriver operator accessible through the face.
- Extruded aluminum/aluminum construction.
- Two blade spacing options.
- Optional split-vane option allows bi-directional horizontal throw.

S-DL



S-DL-SV
Split Vane Option



LISTED SIZE (L X H)	B (MAX)	A	C ₁	C ₂	D	J	K	L (MAX)	MINIMUM DUCT DIA.	BLADE QTY ₁	BLADE QTY ₂	MOUNTING HOLE QTY	DUCT OPENING
12 X 4	6 1/2	14 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	3	6	6	12 1/2 X 4 1/2
18 X 4	6 1/2	20 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	5	9	8	18 1/2 X 4 1/2
24 X 4	6 1/2	26 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	7	12	10	24 1/2 X 4 1/2
30 X 4	6 1/2	32 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	9	15	12	30 1/2 X 4 1/2
36 X 4	6 1/2	38 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	11	18	14	36 1/2 X 4 1/2
42 X 4	6 1/2	44 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	13	21	16	42 1/2 X 4 1/2
48 X 4	6 1/2	50 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	15	24	18	48 1/2 X 4 1/2
60 X 4	6 1/2	62 7/8	3	2	2 3/8	3 15/16	5 1/32	3 3/8	8	19	30	20	60 1/2 X 4 1/2
12 X 6	8 1/2	14 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	3	6	6	12 1/2 X 6 1/2
18 X 6	8 1/2	20 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	5	9	8	18 1/2 X 6 1/2
24 X 6	8 1/2	26 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	7	12	10	24 1/2 X 6 1/2
30 X 6	8 1/2	32 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	9	15	12	30 1/2 X 6 1/2
36 X 6	8 1/2	38 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	11	18	14	36 1/2 X 6 1/2
42 X 6	8 1/2	44 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	13	21	16	42 1/2 X 6 1/2
48 X 6	8 1/2	50 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	15	24	18	48 1/2 X 6 1/2
60 X 6	8 1/2	62 7/8	3	2	3 3/8	4 5/32	5 9/32	4 1/32	10	19	30	20	60 1/2 X 6 1/2
12 X 8	10 1/2	14 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	3	6	6	12 1/2 X 8 1/2
18 X 8	10 1/2	20 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	5	9	8	18 1/2 X 8 1/2
24 X 8	10 1/2	26 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	7	12	10	24 1/2 X 8 1/2
30 X 8	10 1/2	32 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	9	15	12	30 1/2 X 8 1/2
36 X 8	10 1/2	38 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	11	18	14	36 1/2 X 8 1/2
42 X 8	10 1/2	44 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	13	21	16	42 1/2 X 8 1/2
48 X 8	10 1/2	50 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	15	24	18	48 1/2 X 8 1/2
60 X 8	10 1/2	62 7/8	3	2	4 3/8	5 5/8	6 3/4	5 11/32	14	19	30	20	60 1/2 X 8 1/2
12 X 10	12 1/2	14 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	2	6	6	12 1/2 X 10 1/2
18 X 10	12 1/2	20 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	3	9	8	18 1/2 X 10 1/2
24 X 10	12 1/2	26 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	4	12	10	24 1/2 X 10 1/2
30 X 10	12 1/2	32 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	5	15	12	30 1/2 X 10 1/2
36 X 10	12 1/2	38 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	6	18	14	36 1/2 X 10 1/2
42 X 10	12 1/2	44 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	8	21	16	42 1/2 X 10 1/2
48 X 10	12 1/2	50 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	9	24	18	48 1/2 X 10 1/2
60 X 10	12 1/2	62 7/8	5	2	5 7/8	7 1/8	8 7/32	6 21/32	14	11	30	20	60 1/2 X 10 1/2
12 X 12	14 1/2	14 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	2	6	6	12 1/2 X 12 1/2
18 X 12	14 1/2	20 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	3	9	8	18 1/2 X 12 1/2
24 X 12	14 1/2	26 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	4	12	10	24 1/2 X 12 1/2
30 X 12	14 1/2	32 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	5	15	12	30 1/2 X 12 1/2
36 X 12	14 1/2	38 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	6	18	14	36 1/2 X 12 1/2
42 X 12	14 1/2	44 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	8	21	16	42 1/2 X 12 1/2
48 X 12	14 1/2	50 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	9	24	18	48 1/2 X 12 1/2
60 X 12	14 1/2	62 7/8	5	2	6 7/8	7 13/16	8 29/32	7 31/32	18	11	30	20	60 1/2 X 12 1/2
12 X 15	17 1/2	14 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	2	6	6	12 1/2 X 15 1/2
18 X 15	17 1/2	20 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	3	9	8	18 1/2 X 15 1/2
24 X 15	17 1/2	26 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	4	12	10	24 1/2 X 15 1/2
30 X 15	17 1/2	32 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	5	15	12	30 1/2 X 15 1/2
36 X 15	17 1/2	38 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	6	18	14	36 1/2 X 15 1/2
42 X 15	17 1/2	44 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	8	21	16	42 1/2 X 15 1/2
48 X 15	17 1/2	50 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	9	24	18	48 1/2 X 15 1/2
60 X 15	17 1/2	62 7/8	5	2	9 13/16	8 13/32	9 1/2	10 11/16	28	11	30	20	60 1/2 X 15 1/2

Notes:

- Minimum duct diameters for each unit height are listed.
- Diameters may be specified in 2" increments to a maximum duct diameter of 36.

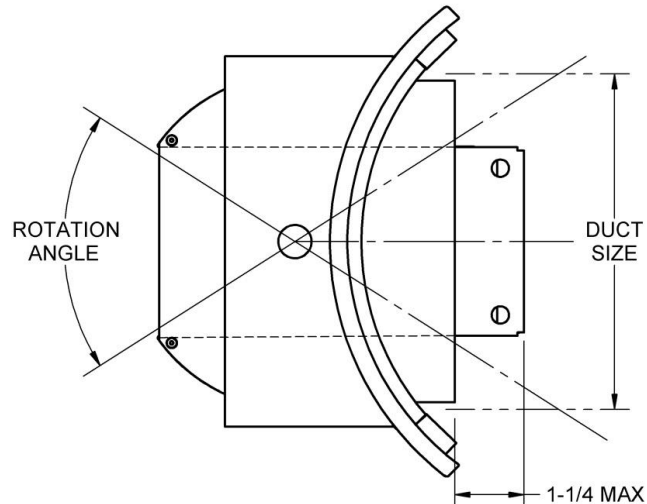
Unit may be selected with C1 or C2 blade spacing



Note: This submittal is meant to demonstrate general dimensions of this product. The drawings on this submittal are not meant to detail every aspect of the product with exactness. Drawings are not to scale. TITUS reserves the right to make changes without written notice.

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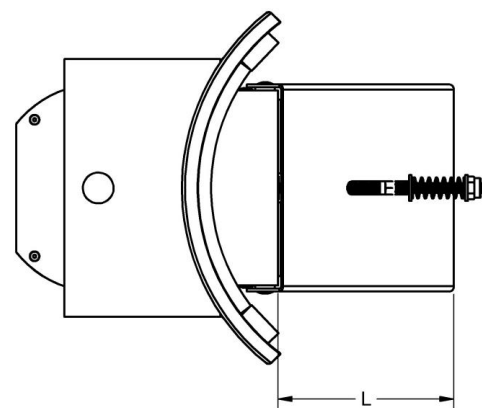
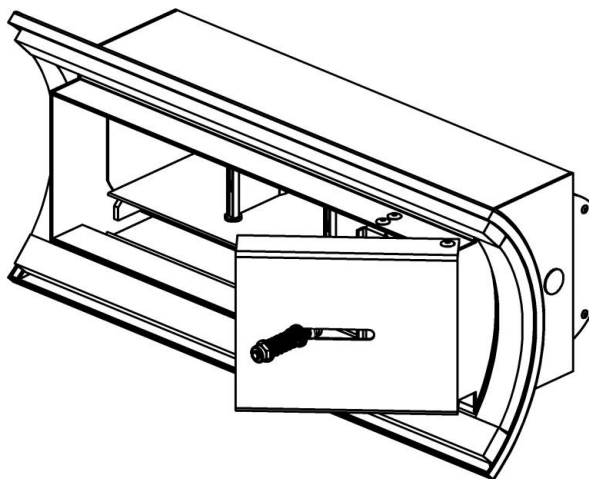
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☐ Model AG-15-HD Opposed Blade Damper


Duct Size D	With Damper	Without Damper
4	N/A	30
6	19	27
8	18	26
10	27	27
12	26	26
15	27	27

Notes:

Opposed blade damper is not available on duct height 4

☐ Model ASD Air Scoop Volume Extractor


See sheet 2 for dimension table

Standard Finish: #26 White

Optional Finish: #01 Aluminum or #84 Black

Notes:

- Volume Extractor and Opposed Blade Damper are mutually exclusive options and cannot be ordered together on the same unit



Note: This submittal is meant to demonstrate general dimensions of this product. The drawings on this submittal are not meant to detail every aspect of the product with exactness. Drawings are not to scale. TITUS reserves the right to make changes without written notice.

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300 / 350 Supply Grilles

300 / 350 grilles

301 / 300 (RL / RS)

301RS

- ¾" blade spacing
- Single deflection
- Individually adjustable blades
- Blades parallel to the short dimension

301RL

- Same as 301RS with blades parallel to the long dimension

300RS

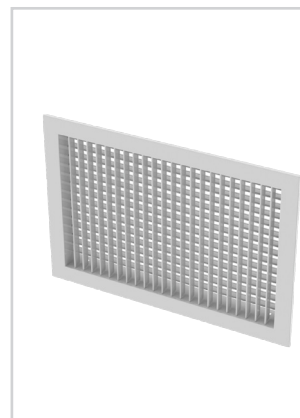
- ¾" blade spacing
- Double deflection
- Individually adjustable blades
- Front blades parallel to the short dimension

300RL

- Same as 300RS with front blades parallel to the long dimension



301RL



300RS



metric sizes

MODELS:

Single Deflection Models

301RL
301RS

Double Deflection Models

300RL
300RS

FINISH:

Standard Finish - #26 White

OVERVIEW

¾" Blade Spacing / Steel

Titus' 300 / 350 Series supply grilles define the standard for the industry. With high quality and competitive pricing these grilles form the backbone of a standard offering that will meet any application requirements.

PRODUCTS INCLUDE

- Material: Roll-formed Steel
- Welded Border
- Available Border Types:
 - #1 - Surface Mount
- Countersunk Screw Holes
- #8 x 1¼" Long Phillips Flat Head Sheet Metal Screws, Painted White
- Optional Steel-Opposed Blade Damper



See website for Specifications

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

Nom. Duct Size (in.)	Nom. Duct Area (ft ²)	Core Area (ft ²)	NC-20					NC-30		NC-40		
			Core Vel.	300	400	500	600	700	800	1000	1200	1400
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358
Throw (ft)			Total 22.5°	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401
			Press. 45°	0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606
			cfm	57	76	95	114	133	152	190	228	266
6x6	0.25	0.19	NC	-	-	-	15	20	24	31	36	41
			0°	5-7-14	7-10-16	8-12-18	10-14-20	12-15-21	13-16-23	15-18-25	16-20-28	17-21-30
			22.5°	4-6-11	5-8-12	6-10-14	8-11-15	9-12-16	10-12-18	11-14-20	12-15-22	13-16-23
8x6	0.33	0.26	45°	2-3-6	3-4-7	4-6-8	4-6-9	5-7-10	6-7-10	7-8-11	7-9-12	8-10-13
			cfm	78	104	130	156	182	208	260	312	364
			NC	-	-	11	17	21	25	32	38	42
10x6	0.42	0.34	0°	5-9-16	8-12-19	10-15-21	12-16-23	14-18-25	15-19-27	17-21-30	19-23-32	20-25-35
			22.5°	4-7-13	6-9-15	8-11-16	9-13-18	11-14-19	12-15-21	13-16-23	15-18-25	16-19-27
			45°	2-4-7	3-5-8	4-7-9	5-7-10	6-8-11	7-8-12	8-9-13	8-10-15	9-11-16
12x6	0.50	0.41	cfm	102	136	170	204	238	272	340	408	476
			NC	-	-	12	18	23	27	33	39	43
			0°	6-10-19	9-13-21	11-17-24	13-19-26	16-20-28	18-21-30	20-24-34	21-26-37	23-28-40
8x8	0.44	0.37	22.5°	5-8-14	7-10-17	9-13-19	10-14-20	12-16-22	14-17-23	15-19-26	17-20-29	18-22-31
			45°	3-4-8	4-6-10	5-7-11	6-8-12	7-9-13	8-10-14	9-11-15	10-12-17	10-13-18
			cfm	111	148	185	222	259	296	370	444	518
12x8	0.58	0.48	NC	-	-	13	18	23	27	34	39	44
			0°	6-10-19	9-14-22	12-17-25	14-19-27	16-21-30	18-22-32	20-25-35	22-27-39	24-30-42
			22.5°	5-8-15	7-11-17	9-13-19	11-15-21	13-16-23	14-17-25	16-19-27	17-21-30	19-23-32
14x6	0.67	0.57	45°	3-5-9	4-6-10	5-8-11	6-9-12	7-9-13	8-10-14	9-11-16	10-12-17	11-13-19
			cfm	123	164	205	246	287	328	410	492	574
			NC	-	-	13	19	23	27	34	39	44
16x6	0.75	0.63	0°	7-11-20	10-15-24	12-18-26	15-20-29	17-22-31	19-24-33	21-26-37	24-29-41	25-31-44
			22.5°	5-8-16	8-11-18	9-14-20	11-16-22	13-17-24	15-18-26	17-20-29	18-22-32	20-24-34
			45°	3-5-9	4-7-11	5-8-12	7-9-13	8-10-14	9-11-15	10-12-17	11-13-18	11-14-20
18x6	0.83	0.72	cfm	144	192	240	288	336	384	480	576	672
			NC	-	-	14	19	24	28	35	40	45
			0°	7-12-22	11-16-25	13-20-28	16-22-31	18-24-34	21-25-36	23-28-40	25-31-44	28-34-48
20x6	0.92	0.88	22.5°	6-9-17	8-12-20	10-15-22	12-17-24	14-18-26	16-20-28	18-22-31	20-24-34	21-26-37
			45°	3-5-10	5-7-11	6-9-13	7-10-14	8-11-15	9-11-16	10-13-18	11-14-20	12-15-21
			cfm	171	228	285	342	399	456	570	684	798
12x10	0.69	0.59	NC	-	-	15	20	25	29	35	41	46
			0°	8-13-24	11-17-28	14-22-31	17-24-34	20-26-37	23-28-39	25-31-44	28-34-48	30-37-52
			22.5°	6-10-19	9-13-22	11-17-24	13-19-26	16-20-28	18-22-30	20-24-34	22-26-37	23-28-40
18x8	0.75	0.63	45°	4-6-11	5-8-12	6-10-14	8-11-15	9-12-17	10-12-18	11-14-20	12-15-22	13-17-23
			cfm	177	236	295	354	413	472	590	708	826
			NC	-	-	15	20	25	29	35	41	46
22x6	0.83	0.72	0°	8-13-24	12-18-28	15-22-32	18-24-35	20-26-37	23-28-40	26-32-45	28-35-49	31-37-53
			22.5°	6-10-19	9-14-22	11-17-24	14-19-27	16-20-29	18-22-31	20-24-35	22-27-38	24-29-41
			45°	4-6-11	5-8-13	7-10-14	8-11-16	9-12-17	10-13-18	12-14-20	13-16-22	14-17-24
24x6	0.92	0.88	cfm	189	252	315	378	441	504	630	756	882
			NC	-	-	15	20	25	29	36	41	46
			0°	8-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	32-39-55
30x6	1.00	0.88	22.5°	7-11-20	9-14-23	12-18-25	14-20-28	16-21-30	18-23-32	21-25-36	23-28-39	24-30-42
			45°	4-6-11	5-8-13	7-10-15	8-11-16	9-12-17	11-13-19	12-15-21	13-16-23	14-17-25
			cfm	216	288	360	432	504	576	720	864	1008
18x12	1.25	1.11	NC	-	-	16	21	26	30	36	42	46
			0°	9-15-27	13-19-31	16-24-35	19-27-38	23-29-41	25-31-44	28-35-49	31-38-54	34-41-58
			22.5°	7-11-21	10-15-24	12-19-27	15-21-30	17-23-32	20-24-34	22-27-38	24-30-42	26-32-45
24x12	1.50	1.33	45°	4-7-12	6-9-14	7-11-16	9-12-17	10-13-19	11-14-20	13-16-22	14-17-24	15-19-26
			cfm	231	308	385	462	539	616	770	924	1078
			NC	-	-	16	21	26	30	37	42	47
30x12	1.75	1.59	0°	9-15-28	13-20-32	17-25-36	20-28-40	23-30-43	26-32-46	29-36-51	32-40-56	35-43-60
			22.5°	7-12-22	10-16-25	13-19-28	16-22-31	18-23-33	20-25-35	23-28-40	25-31-43	27-33-47
			45°	4-7-13	6-9-15	8-11-16	9-13-18	11-14-19	12-15-21	13-16-23	15-18-25	16-19-27
36x12	2.00	1.78	cfm	264	352	440	528	616	704	880	1056	1232
			NC	-	-	16	22	26	30	37	43	47
			0°	10-16-30	14-21-34	18-27-39	21-30-42	25-32-46	28-34-49	31-39-55	34-42-60	37-46-65
42x12	2.25	2.03	22.5°	8-12-23	11-17-27	14-21-30	17-23-33	19-25-35	22-27-38	24-30-42	27-33-46	29-35-50
			45°	4-7-13	6-10-16	8-12-17	10-13-19	11-15-21	13-16-22	14-17-25	16-19-27	17-21-29
			cfm	333	444	555	666	777	888	1110	1332	1554
48x12	2.50	2.28	NC	-	11	17	23	27	31	38	44	48
			0°	11-18-34	16-24-39	20-30-43	24-34-47	28-36-51	32-39-55	35-43-61	39-47-67	42-51-72
			22.5°	9-14-26	12-19-30	16-23-34	19-26-37	22-28-40	25-30-42	27-34-47	30-37-52	32-40-56
54x12	2.75	2.53	45°	5-8-15	7-11-17	9-14-19	11-15-21	13-16-23	14-17-25	16-19-28	17-21-30	19-23-33
			cfm	333	444	555	666	777	888	1110	1332	1554
			NC	-	11	17	23	27	31	38	44	48
60x12	3.00	2.78	0°	11-18-34	16-24-39	20-30-43	24-34-47	28-36-51	32-39-55	35-43-61	39-47-67	42-51-72
			22.5°	9-14-26	12-19-30	16-23-34	19-26-37	22-28-40	25-30-42	27-34-47	30-37-52	32-40-56
			45°	5-8-15	7-11-17	9-14-19	11-15-21	13-16-23	14-17-25	16-19-28	17-21-30	19-23-33

Performance notes appear at end of table

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

Nom. Duct Size (in.)	Nom. Duct Area (ft²)	Core Area (ft²)	NC-20				NC-30		NC-40		NC-50	
			Core Vel.	300	400	500	600	700	800	1000	1200	1400
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358
Throw (ft)	22.5°	45°	Total Press.	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401
			45°	0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606
14x14	1.36	1.22	cfm	366	488	610	732	854	976	1220	1464	1708
			NC	-	11	18	23	28	32	39	44	49
			0°	12-19-35	17-25-41	21-31-45	25-35-50	29-38-54	33-41-57	37-45-64	41-50-70	44-54-76
			22.5°	9-15-27	13-20-31	16-24-35	20-27-39	23-29-42	26-31-45	29-35-50	31-39-55	34-42-59
18x12	1.50	1.35	45°	5-8-16	8-11-18	9-14-20	11-16-22	13-17-24	15-18-26	17-20-29	18-22-32	20-24-34
			cfm	405	540	675	810	945	1080	1350	1620	1890
			NC	-	12	18	24	28	32	39	44	49
			0°	12-20-37	18-26-43	22-33-48	26-37-52	31-40-57	35-43-60	39-48-68	43-52-74	46-57-80
22x10	1.53	1.37	22.5°	10-15-29	14-21-33	17-26-37	21-29-41	24-31-44	27-33-47	30-37-52	33-41-57	36-44-62
			45°	6-9-17	8-12-19	10-15-21	12-17-24	14-18-25	16-19-27	18-21-30	19-24-33	21-25-36
			cfm	411	548	685	822	959	1096	1370	1644	1918
			NC	-	12	18	24	28	32	39	44	49
24x10	1.67	1.49	0°	12-20-37	18-27-43	22-33-48	27-37-53	31-40-57	35-43-61	39-48-68	43-53-75	46-57-81
			22.5°	10-16-29	14-21-33	17-26-37	21-29-41	24-31-44	27-33-47	30-37-53	33-41-58	36-44-62
			45°	6-9-17	8-12-19	10-15-22	12-17-24	14-18-26	16-19-27	18-22-31	19-24-34	21-26-36
			cfm	447	596	745	894	1043	1192	1490	1788	2086
30x8	1.67	1.49	NC	-	12	19	24	29	33	39	45	49
			0°	13-21-39	19-28-45	23-35-50	28-39-55	32-42-59	37-45-63	41-50-71	45-55-78	48-59-84
			22.5°	10-16-30	14-22-35	18-27-39	22-30-43	25-33-46	28-35-49	32-39-55	35-43-60	38-46-65
			45°	6-9-17	8-13-20	10-16-23	13-17-25	15-19-27	16-20-29	18-23-32	20-25-35	22-27-38
42x6	1.75	1.59	cfm	477	636	795	954	1113	1272	1590	1908	2226
			NC	-	12	19	24	29	33	40	45	50
			0°	13-22-40	19-29-46	24-36-52	29-40-57	34-43-61	38-46-66	42-52-73	46-57-80	50-61-87
			22.5°	10-17-31	15-22-36	19-28-40	22-31-44	26-34-48	29-36-51	33-40-57	36-44-62	39-48-67
16x16	1.78	1.62	45°	6-10-18	9-13-21	11-16-23	13-18-26	15-20-28	17-21-30	19-23-33	21-26-36	23-28-39
			cfm	486	648	810	972	1134	1296	1620	1944	2268
			NC	-	12	19	24	29	33	40	45	50
			0°	14-22-41	19-29-47	24-36-52	29-41-57	34-44-62	38-47-66	43-52-74	47-57-81	51-62-88
24x12	2.00	1.82	22.5°	11-17-31	15-22-36	19-28-41	22-31-44	26-34-48	30-36-51	33-41-57	36-44-63	39-48-68
			45°	6-10-18	9-13-21	11-16-24	13-18-26	15-20-28	17-21-30	19-24-33	21-26-36	23-28-39
			cfm	546	728	910	1092	1274	1456	1820	2184	2548
			NC	-	13	19	25	30	34	40	46	50
18x18	2.25	2.07	0°	14-23-43	20-31-50	26-38-55	31-43-61	36-46-66	41-50-70	45-55-78	50-61-86	54-66-93
			22.5°	11-18-33	16-24-38	20-30-43	24-33-47	28-36-51	31-38-54	35-43-61	38-47-67	42-51-72
			45°	6-10-19	9-14-22	12-17-25	14-19-27	16-21-30	18-22-32	20-25-35	22-27-39	24-30-42
			cfm	621	828	1035	1242	1449	1656	2070	2484	2898
24x14	2.33	2.14	NC	-	13	20	25	30	34	41	46	51
			0°	15-25-46	22-33-53	27-41-59	33-46-65	38-49-70	43-53-75	48-59-84	53-65-92	57-70-99
			22.5°	12-19-36	17-25-41	21-32-46	25-36-50	30-38-54	33-41-58	37-46-65	41-50-71	44-54-77
			45°	7-11-21	10-15-24	12-18-27	15-21-29	17-22-31	19-24-34	22-27-38	24-29-41	26-31-45
30x10	2.50	2.29	cfm	642	856	1070	1284	1498	1712	2140	2568	2996
			NC	-	13	20	26	30	34	41	46	51
			0°	16-25-47	22-33-54	28-42-60	33-47-66	39-50-71	44-54-76	49-60-85	54-66-93	58-71-101
			22.5°	12-19-36	17-26-42	22-32-47	26-36-51	30-39-55	34-42-59	38-47-66	42-51-72	45-55-78
48x8	2.67	2.46	45°	7-11-21	10-15-24	13-19-27	15-21-30	18-23-32	20-24-34	22-27-38	24-30-42	26-32-45
			cfm	687	916	1145	1374	1603	1832	2290	2748	3206
			NC	-	14	20	26	30	34	41	47	51
			0°	16-26-48	23-34-56	29-43-62	34-48-68	40-52-74	45-56-79	51-62-88	56-68-96	60-74-104
20x20	2.78	2.57	22.5°	12-20-37	18-27-43	22-33-48	27-37-53	31-40-57	35-43-61	39-48-68	43-53-75	47-57-81
			45°	7-12-22	10-16-25	13-19-28	16-22-31	18-23-33	20-25-35	23-28-40	25-31-43	27-33-47
			cfm	738	984	1230	1476	1722	1968	2460	2952	3444
			NC	-	14	21	26	31	35	41	47	51
36x12	3.00	2.75	0°	17-27-50	24-36-58	30-45-64	36-50-71	42-54-76	47-58-82	53-64-91	58-71-100	62-76-108
			22.5°	13-21-39	18-28-45	23-35-50	28-39-55	32-42-59	36-45-63	41-50-71	45-55-77	48-59-84
			45°	8-12-22	11-16-26	13-20-29	16-22-32	19-24-34	21-26-37	24-29-41	26-32-45	28-34-49
			cfm	771	1028	1285	1542	1799	2056	2570	3084	3598
24x18	3.00	2.75	NC	-	14	21	26	31	35	42	47	52
			0°	17-27-51	24-37-59	30-46-66	37-51-72	43-55-78	48-59-83	54-66-93	59-72-102	64-78-110
			22.5°	13-21-40	19-28-46	24-35-51	28-40-56	33-43-60	37-46-65	42-51-72	46-56-79	49-60-85
			45°	8-12-23	11-16-27	14-21-30	16-23-32	19-25-35	22-27-38	24-30-42	27-32-46	29-35-50
36x12	3.00	2.75	cfm	825	1100	1375	1650	1925	2200	2750	3300	3850
			NC	-	15	21	27	31	35	42	47	52
			0°	18-28-53	25-38-61	31-47-68	38-53-75	44-57-81	50-61-86	56-68-96	61-75-106	66-81-114
			22.5°	14-22-41	20-29-47	24-37-53	29-41-58	34-44-63	39-47-67	43-53-75	47-58-82	51-63-88
24x18	3.00	2.75	45°	8-13-24	11-17-27	14-21-31	17-24-34	20-26-36	22-27-39	25-31-43	27-34-48	30-36-51
			cfm	825	1100	1375	1650	1925	2200	2750	3300	3850

Performance notes appear at end of table

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

Nom. Duct Size (in.)	Nom. Duct Area (ft ²)	Core Area (ft ²)	NC-20			NC-30			NC-40			NC-50		
			Core Vel.	300	400	500	600	700	800	1000	1200	1400	Throw (ft)	
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122		
			Total Press.	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358		
48x10 30x16 24x20	3.33	3.11	45°	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401	cfm	NC
			45°	0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606		
			0°	933	1244	1555	1866	2177	2488	3110	3732	4354		
			0°	-	15	22	27	32	36	42	48	52		
22x22	3.36	3.14	22.5°	19-30-56	27-40-65	33-50-72	40-56-79	47-61-86	53-65-92	59-72-103	65-79-112	70-86-121	cfm	NC
			22.5°	15-23-44	21-31-50	26-39-56	31-44-62	36-47-66	41-50-71	46-56-79	50-62-87	55-67-94		
			45°	8-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	32-39-55		
			0°	942	1256	1570	1884	2198	2512	3140	3768	4396		
42x12 36x14	3.50	3.22	0°	19-30-56	27-40-65	34-50-73	40-56-80	47-61-86	53-65-92	59-73-103	65-80-113	70-86-122	cfm	NC
			22.5°	15-23-44	21-31-50	26-39-56	31-44-62	37-47-67	41-50-71	46-56-80	50-62-87	55-67-94		
			45°	8-14-25	12-18-29	15-23-33	18-25-36	21-27-39	24-29-41	27-33-46	29-36-51	32-39-55		
			0°	966	1288	1610	1932	2254	2576	3220	3864	4508		
24x22	3.67	3.43	0°	1029	1372	1715	2058	2401	2744	3430	4116	4802	cfm	NC
			22.5°	20-32-59	28-42-68	35-53-76	42-59-83	49-64-90	56-68-96	62-76-108	68-83-118	74-90-127		
			45°	15-25-46	22-33-53	27-41-59	33-46-65	38-49-70	43-53-75	48-59-83	53-65-91	57-70-99		
			0°	1050	1400	1750	2100	2450	2800	3500	4200	4900		
30x18	3.75	3.5	0°	20-32-60	28-43-69	36-53-77	43-60-84	50-64-91	56-69-97	63-77-109	69-84-119	74-91-129	cfm	NC
			22.5°	15-25-46	22-33-53	28-41-60	33-46-65	39-50-71	44-53-75	49-60-84	53-65-92	58-71-100		
			45°	9-14-27	13-19-31	16-24-35	19-27-38	22-29-41	25-31-44	28-35-49	31-38-54	33-41-58		
			0°	1125	1500	1875	2250	2625	3000	3750	4500	5250		
48x12 36x16 24x24	4.00	3.75	0°	21-33-62	29-44-71	37-55-80	44-62-87	51-67-94	58-71-101	65-80-113	71-87-123	77-94-133	cfm	NC
			22.5°	16-26-48	23-34-55	29-43-62	34-48-68	40-52-73	45-55-78	50-62-87	55-68-96	60-73-103		
			45°	9-15-28	13-20-32	17-25-36	20-28-39	23-30-42	26-32-45	29-36-51	32-39-55	35-42-60		
			0°	1266	1688	2110	2532	2954	3376	4220	5064	5908		
36x18	4.50	4.22	0°	22-35-65	31-47-76	39-59-84	47-65-93	55-71-100	62-76-107	69-84-119	76-93-131	82-100-141	cfm	NC
			22.5°	17-27-51	24-36-59	30-45-65	36-51-72	42-55-77	48-59-83	53-65-93	59-72-101	63-77-110		
			45°	10-16-29	14-21-34	18-26-38	21-29-42	25-32-45	28-34-48	31-38-54	34-42-59	37-45-64		
			0°	1413	1884	2355	2826	3297	3768	4710	5652	6594		
36x20 30x24	5.00	4.71	0°	23-37-69	33-49-80	41-62-89	49-69-98	58-75-106	65-80-113	73-89-126	80-98-138	86-106-149	cfm	NC
			22.5°	18-29-54	26-38-62	32-48-69	38-54-76	45-58-82	50-62-87	56-69-98	62-76-107	67-82-116		
			45°	10-17-31	15-22-36	19-28-40	22-31-44	26-34-48	29-36-51	33-40-57	36-44-62	39-48-67		
			0°	1482	1976	2470	2964	3458	3952	4940	5928	6916		
42x18	5.25	4.94	0°	24-38-71	34-51-82	42-63-91	51-71-100	59-76-108	67-82-116	75-91-129	82-100-142	88-108-153	cfm	NC
			22.5°	18-29-55	26-39-63	33-49-71	39-55-78	46-59-84	52-63-90	58-71-100	63-78-110	68-84-118		
			45°	11-17-32	15-23-37	19-28-41	23-32-45	27-34-49	30-37-52	34-41-58	37-45-64	40-49-69		
			0°	1548	2064	2580	3096	3612	4128	5160	6192	7224		
28x28	5.44	5.16	0°	24-39-72	35-52-84	43-65-93	52-72-102	60-78-110	68-84-118	76-93-132	84-102-145	90-110-156	cfm	NC
			22.5°	19-30-56	27-40-65	33-50-72	40-56-79	47-61-86	53-65-92	59-72-102	65-79-112	70-86-121		
			45°	11-17-33	16-23-38	19-29-42	23-33-46	27-35-50	31-38-53	34-42-59	38-46-65	41-50-70		
			0°	1653	2204	2755	3306	3857	4408	5510	6612	7714		
42x20 30x28	5.83	5.51	0°	25-40-75	36-54-86	45-67-96	54-75-106	62-81-114	70-86-122	79-96-136	86-106-149	93-114-161	cfm	NC
			22.5°	19-31-58	28-41-67	35-52-75	41-58-82	48-63-88	55-67-95	61-75-106	67-82-116	72-88-125		
			45°	11-18-34	16-24-39	20-30-43	24-34-48	28-36-51	32-39-55	35-43-61	39-48-67	42-51-73		
			0°	1698	2264	2830	3396	3962	4528	5660	6792	7924		
48x18 36x24	6.00	5.66	0°	25-41-76	36-54-87	45-68-98	54-76-107	63-82-116	71-87-124	80-98-138	87-107-152	94-116-164	cfm	NC
			22.5°	20-32-59	28-42-68	35-53-76	42-59-83	49-63-90	55-68-96	62-76-107	68-83-117	73-90-127		
			45°	11-18-34	16-24-39	20-31-44	24-34-48	28-37-52	32-39-56	36-44-62	39-48-68	43-52-74		
			0°	1782	2376	2970	3564	4158	4752	5940	7128	8316		
30x30	6.25	5.94	0°	26-42-78	37-56-90	46-69-100	56-78-110	65-84-119	73-90-127	82-100-142	90-110-155	97-119-168	cfm	NC
			22.5°	20-32-60	29-43-69	36-54-78	43-60-85	50-65-92	57-69-98	63-78-110	69-85-120	75-92-130		
			45°	12-19-35	17-25-40	21-31-45	25-35-49	29-38-53	33-40-57	37-45-64	40-49-70	44-53-75		
			0°	-	18	24	30	34	38	45	51	55		

Performance notes appear at end of table

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

			NC-20			NC-30			NC-40			NC-50		
Nom. Duct Size (in.)	Nom. Duct Area (ft ²)	Core Area (ft ²)	Core Vel.	300	400	500	600	700	800	1000	1200	1400		
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122		
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358		
			Total 22.5° Press. 45°	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401		
				0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606		
42x24 36x28	7.00	6.66	cfm	1998	2664	3330	3996	4662	5328	6660	7992	9324		
			NC	-	18	25	30	35	39	46	51	56		
			0°	28-44-82	39-59-95	49-74-106	59-82-116	69-89-126	77-95-134	87-106-150	95-116-164	102-126-178		
			Throw 22.5° (ft) 45°	21-34-64 12-20-37	30-46-74 18-26-43	38-57-82 22-33-48	46-64-90 26-37-52	53-69-97 31-40-56	60-74-104 35-43-60	67-82-116 39-48-68	74-90-127 43-52-74	79-97-138 46-56-80		
46x22	7.03	6.68	cfm	2004	2672	3340	4008	4676	5344	6680	8016	9352		
			NC	-	18	25	30	35	39	46	51	56		
			0°	28-44-82	39-59-95	49-74-106	59-82-116	69-89-126	78-95-134	87-106-150	95-116-165	103-126-178		
			Throw 22.5° (ft) 45°	21-34-64 12-20-37	30-46-74 18-27-43	38-57-82 22-33-48	46-64-90 27-37-52	53-69-97 31-40-57	60-74-104 35-43-60	67-82-116 39-48-68	74-90-128 43-52-74	80-97-138 46-57-80		
32x32	7.11	6.78	cfm	2034	2712	3390	4068	4746	5424	6780	8136	9492		
			NC	-	18	25	30	35	39	46	51	56		
			0°	28-45-83	40-59-96	49-74-107	59-83-117	69-90-127	78-96-135	87-107-151	96-117-166	103-127-179		
			Throw 22.5° (ft) 45°	22-34-64 12-20-37	31-46-74 18-27-43	38-57-83 22-33-48	46-64-91 27-37-53	54-69-98 31-40-57	61-74-105 35-43-61	68-83-117 39-48-68	74-91-129 43-53-75	80-98-139 47-57-81		
36x30	7.50	7.16	cfm	2148	2864	3580	4296	5012	5728	7160	8592	10024		
			NC	-	19	25	31	35	39	46	51	56		
			0°	29-46-85	41-61-98	51-76-110	61-85-121	71-92-130	80-98-139	90-110-156	98-121-170	106-130-184		
			Throw 22.5° (ft) 45°	22-35-66 13-21-38	32-47-76 18-27-44	39-59-85 23-34-50	47-66-93 27-38-54	55-71-101 32-41-59	62-76-108 36-44-63	70-85-121 40-50-70	76-93-132 44-54-77	82-101-143 48-59-83		
48x24 36x32	8.00	7.63	cfm	2289	3052	3815	4578	5341	6104	7630	9156	10682		
			NC	-	19	25	31	35	39	46	52	56		
			0°	29-47-88	42-63-102	52-79-114	63-88-124	73-95-134	83-102-144	93-114-161	102-124-176	110-134-190		
			Throw 22.5° (ft) 45°	23-37-68 13-21-40	33-49-79 19-28-46	41-61-88 24-35-51	49-68-96 28-40-56	57-74-104 33-43-60	64-79-111 37-46-65	72-88-124 42-51-72	79-96-136 46-56-79	85-104-147 49-60-86		
34x34	8.03	7.68	cfm	2304	3072	3840	4608	5376	6144	7680	9216	10752		
			NC	-	19	25	31	36	40	46	52	56		
			0°	30-47-88	42-63-102	53-79-114	63-88-125	74-95-135	83-102-144	93-114-161	102-125-176	110-135-191		
			Throw 22.5° (ft) 45°	23-37-68 13-21-40	33-49-79 19-28-46	41-61-88 24-36-51	49-68-97 28-40-56	57-74-104 33-43-61	64-79-112 37-46-65	72-88-125 42-51-73	79-97-137 46-56-79	85-104-148 50-61-86		
36x34	8.50	8.14	cfm	2442	3256	4070	4884	5698	6512	8140	9768	11396		
			NC	-	19	26	31	36	40	46	52	56		
			0°	30-49-91	43-65-105	54-81-117	65-91-128	76-98-139	86-105-148	96-117-166	105-128-182	113-139-196		
			Throw 22.5° (ft) 45°	24-38-70 14-22-41	34-50-81 20-29-47	42-63-91 24-37-53	50-70-100 29-41-58	59-76-108 34-44-62	66-81-115 39-47-67	74-91-129 43-53-75	81-100-141 47-58-82	88-108-152 51-62-88		
42x30	8.75	8.38	cfm	2514	3352	4190	5028	5866	6704	8380	10056	11732		
			NC	11	19	26	31	36	40	47	52	57		
			0°	31-49-92	44-66-106	55-82-119	66-92-130	77-100-141	87-106-151	97-119-168	106-130-184	115-141-199		
			Throw 22.5° (ft) 45°	24-38-71 14-22-41	34-51-82 20-30-48	43-64-92 25-37-54	51-71-101 30-41-59	60-77-109 35-45-63	67-82-117 39-48-68	75-92-130 44-54-76	82-101-143 48-59-83	89-109-154 52-63-90		
36x36	9.00	8.63	cfm	2589	3452	4315	5178	6041	6904	8630	10356	12082		
			NC	11	19	26	31	36	40	47	52	57		
			0°	31-50-94	45-67-108	56-84-121	67-94-132	78-101-143	88-108-153	99-121-171	108-132-187	117-143-202		
			Throw 22.5° (ft) 45°	24-39-72 14-23-42	35-52-84 20-30-49	43-65-94 25-38-54	52-72-103 30-42-60	61-78-111 35-45-64	68-84-118 40-49-69	76-94-132 44-54-77	84-103-145 49-60-84	90-111-157 53-64-91		
42x34 48x30	10.00	9.6	cfm	2880	3840	4800	5760	6720	7680	9600	11520	13440		
			NC	11	20	26	32	36	40	47	53	57		
			0°	33-53-99	47-71-114	59-88-127	71-99-140	82-107-151	93-114-161	104-127-180	114-140-197	123-151-213		
			Throw 22.5° (ft) 45°	26-41-76 15-24-44	36-55-88 21-32-51	46-68-99 26-40-57	55-76-108 32-44-63	64-83-117 37-48-68	72-88-125 42-51-73	81-99-140 47-57-81	88-108-153 51-63-89	95-117-165 55-68-96		
38x38	10.03	9.64	cfm	2892	3856	4820	5784	6748	7712	9640	11568	13496		
			NC	11	20	26	32	36	40	47	53	57		
			0°	33-53-99	47-71-114	59-88-128	71-99-140	83-107-151	93-114-161	104-128-181	114-140-198	123-151-214		
			Throw 22.5° (ft) 45°	26-41-77 15-24-44	37-55-88 21-32-51	46-69-99 27-40-57	55-77-108 32-44-63	64-83-117 37-48-68	72-88-125 42-51-73	81-99-140 47-57-81	88-108-153 51-63-89	96-117-166 55-68-96		
42x36	10.50	10.1	cfm	3030	4040	5050	6060	7070	8080	10100	12120	14140		
			NC	11	20	27	32	37	41	47	53	57		
			0°	34-54-101	48-72-117	60-91-131	72-101-143	85-109-155	95-117-165	107-131-185	117-143-202	126-155-219		
			Throw 22.5° (ft) 45°	26-42-78 15-24-46	37-56-91 22-33-53	47-70-101 27-41-59	56-78-111 33-46-64	65-85-120 38-49-70	74-91-128 43-53-74	83-101-143 48-59-83	91-111-157 53-64-91	98-120-169 57-70-98		
46x34	10.86	10.45	cfm	3135	4180	5225	6270	7315	8360	10450	12540	14630		
			NC	11	20	27	32	37	41	47	53	58		
			0°	34-55-103	49-74-119	61-92-133	74-103-146	86-111-157	97-119-168	109-133-188	119-146-206	128-157-222		
			Throw 22.5° (ft) 45°	27-43-80 16-25-46	38-57-92 22-33-53	48-71-103 28-41-60	57-80-113 28-41-60	67-86-122 39-50-71	75-92-130 44-53-76	84-103-146 49-60-85	92-113-160 53-66-93	99-122-172 58-71-100		

PERFORMANCE DATA

300 / 350 grilles

MODELS: 300R, 300F, 300R-SS, 300R-HD, 301R, 301F, 301R-SS AND 301R-HD
PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

			NC-20			NC-30			NC-40			NC-50		
Nom. Duct Size (in.)	Nom. Duct Area (ft²)	Core Area (ft²)	Core Vel.	300	400	500	600	700	800	1000	1200	1400		
			Vel. Press.	0.006	0.010	0.016	0.022	0.031	0.040	0.062	0.090	0.122		
			0°	0.016	0.029	0.046	0.066	0.090	0.117	0.183	0.263	0.358		
			Total 22.5° Press. 45°	0.018	0.033	0.051	0.074	0.100	0.131	0.204	0.294	0.401		
				0.028	0.049	0.077	0.111	0.152	0.198	0.309	0.445	0.606		
42x38	11.08	10.67	cfm	3201	4268	5335	6402	7469	8536	10670	12804	14938		
			NC	12	20	27	32	37	41	48	53	58		
			0°	35-56-104	50-74-120	62-93-134	74-104-147	87-112-159	98-120-170	110-134-190	120-147-208	130-159-225		
			Throw 22.5°	27-43-81	38-58-93	48-72-104	58-81-114	67-87-123	76-93-132	85-104-147	93-114-161	101-123-174		
			(ft) 45°	16-25-47	22-34-54	28-42-60	34-47-66	39-51-71	44-54-76	49-60-85	54-66-94	58-71-101		
40x40	11.11	10.7	cfm	3210	4280	5350	6420	7490	8560	10700	12840	14980		
			NC	12	20	27	32	37	41	48	53	58		
			0°	35-56-104	50-75-120	62-93-134	75-104-147	87-113-159	98-120-170	110-134-190	120-147-208	130-159-225		
			Throw 22.5°	27-43-81	39-58-93	48-72-104	58-81-114	67-87-123	76-93-132	85-104-147	93-114-161	101-123-174		
			(ft) 45°	16-25-47	22-34-54	28-42-61	34-47-66	39-51-72	44-54-77	49-61-86	54-66-94	58-72-101		
48x36	12.00	11.57	cfm	3471	4628	5785	6942	8099	9256	11570	13884	16198		
			NC	12	21	27	33	37	41	48	53	58		
			0°	36-58-108	52-78-125	65-97-140	78-108-153	90-117-165	102-125-177	114-140-198	125-153-217	135-165-234		
			Throw 22.5°	28-45-84	40-60-97	50-75-108	60-84-119	70-91-128	79-97-137	88-108-153	97-119-168	105-128-181		
			(ft) 45°	16-26-49	23-35-56	29-44-63	35-49-69	41-53-74	46-56-80	51-63-89	56-69-97	61-74-105		
42x42	12.25	11.82	cfm	3546	4728	5910	7092	8274	9456	11820	14184	16548		
			NC	12	21	27	33	37	41	48	53	58		
			0°	37-59-109	52-78-126	65-98-141	78-109-155	91-118-167	103-126-179	115-141-200	126-155-219	137-167-236		
			Throw 22.5°	28-46-85	40-61-98	51-76-110	61-85-120	71-92-130	80-98-139	89-110-155	98-120-170	106-130-183		
			(ft) 45°	16-26-49	24-35-57	29-44-64	35-49-70	41-53-75	46-57-80	52-64-90	57-70-99	61-75-106		
44x44	13.44	12.99	cfm	3897	5196	6495	7794	9093	10392	12990	15588	18186		
			NC	12	21	28	33	38	42	48	54	58		
			0°	38-62-115	55-82-133	68-103-148	82-115-162	96-124-175	108-133-187	121-148-210	133-162-230	143-175-248		
			Throw 22.5°	30-48-89	42-64-103	53-80-115	64-89-126	74-96-136	84-103-145	94-115-162	103-126-178	111-136-192		
			(ft) 45°	17-28-52	25-37-60	31-46-67	37-52-73	43-56-79	49-60-84	54-67-94	60-73-103	64-79-112		
48x42	14.00	13.54	cfm	4062	5416	6770	8124	9478	10832	13540	16248	18956		
			NC	13	21	28	33	38	42	49	54	59		
			0°	39-63-117	56-84-135	70-105-151	84-117-166	98-127-179	110-135-191	124-151-214	135-166-234	146-179-253		
			Throw 22.5°	30-49-91	43-65-105	54-81-117	65-91-128	76-98-139	86-105-148	96-117-166	105-128-182	113-139-196		
			(ft) 45°	18-28-53	25-38-61	31-47-68	38-53-75	44-57-81	50-61-86	56-68-96	61-75-105	66-81-114		
46x46	14.69	14.22	cfm	4266	5688	7110	8532	9954	11376	14220	17064	19908		
			NC	13	21	28	33	38	42	49	54	59		
			0°	40-64-120	57-86-139	72-107-155	86-120-170	100-130-183	113-139-196	127-155-219	139-170-240	150-183-259		
			Throw 22.5°	31-50-93	44-67-107	56-83-120	67-93-132	78-101-142	88-107-152	98-120-170	107-132-186	116-142-201		
			(ft) 45°	18-29-54	26-39-62	32-48-70	39-54-76	45-58-83	51-62-88	57-70-99	62-76-108	67-83-117		
48x46	15.33	14.85	cfm	4455	5940	7425	8910	10395	11880	14850	17820	20790		
			NC	13	22	28	34	38	42	49	54	59		
			0°	41-66-123	59-88-142	73-110-158	88-123-174	102-133-187	116-142-200	129-158-224	142-174-245	153-187-265		
			Throw 22.5°	32-51-95	45-68-110	57-85-123	68-95-134	79-103-145	90-110-155	100-123-174	110-134-190	119-145-205		
			(ft) 45°	18-30-55	26-40-64	33-49-71	40-55-78	46-60-84	52-64-90	58-71-101	64-78-110	69-84-119		
48x48	16.00	15.50	cfm	4650	6200	7750	9300	10850	12400	15500	18600	21700		
			NC	13	22	28	34	38	42	49	55	59		
			0°	42-67-125	60-90-145	75-112-162	90-125-177	105-135-192	118-145-205	132-162-229	145-177-251	156-192-271		
			Throw 22.5°	33-52-97	46-70-112	58-87-125	70-97-137	81-105-148	92-112-159	102-125-177	112-137-194	121-148-210		
			(ft) 45°	19-30-56	27-40-65	34-50-73	40-56-80	47-61-86	53-65-92	59-73-103	65-80-113	70-86-122		

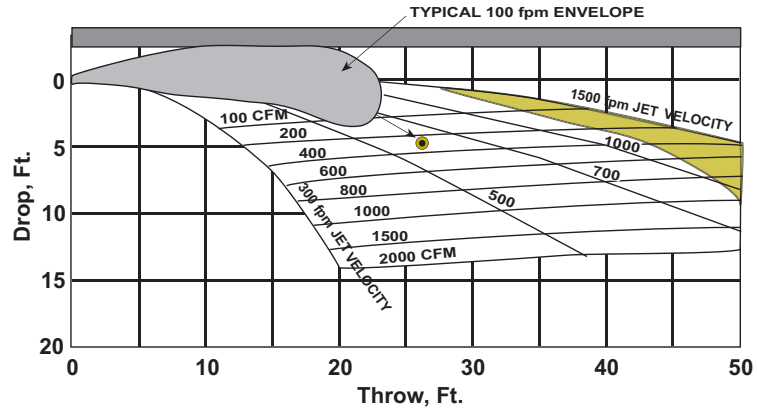
- 0°, 22.5° & 45° represent blade deflection angles
- Performance data is based on duct sizes in bold, the performance varies slightly for duct sizes not shown in bold
- See the section, Engineering Guidelines, for drop information when selecting larger supply grilles for cooling purposes
- See the "Performance Notes" portion in this section for notes and correction factors

- See the section, Engineering Guidelines, for catalog throw information
- Each NC value represents the noise criteria curve that will not be exceeded by the sound pressure in any of the octave bands, 2 through 7, with a room absorption of 10 dB, re 10⁻¹² watts

PERFORMANCE NOTES

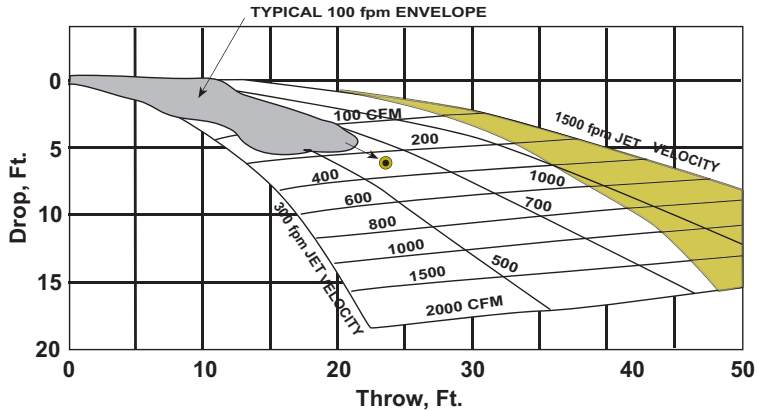
- Performance data includes damper
- Data obtained from tests conducted in accordance with ANSI/ASHRAE Standard 70-2006
- All pressures are in inches of water
- Core velocities are in feet per minute
- Throw values given are for isothermal terminal velocities of 150, 100 and 50 fpm
- Each NC value represents the noise criterion value that will not be exceeded by the sound pressure in any of the octave bands, 2 through 7. Each NC value is based on a room absorption of 10 dB, re 10⁻¹² watts. Each NC value is further based on grille operating at a 0° deflection. Settings of 22½° or 45°, increase the stated sound levels by 1 or 7 NC, respectively.
- Bold dividing lines on H17-H21 denote ranges of NC values
- The stated deflection settings refer to the horizontal setting of the blade's deflection angle. For a 20° upward deflection, use the throw rating for the 0° setting and the total pressure for the 22½° horizontal setting.
- Dash (—) in space indicates NC value less than 10
- For additional information concerning drop and throw, see the Engineering Guidelines section of this catalog

Drop Versus Throw Showing Ceiling Effect - 20°F ΔT Cooling



(Side view of air jet leaving wall mounted grille)

Drop Versus Throw without Ceiling Effect



(Side view of air jet leaving wall mounted grille)

VARIABLE AIR VOLUME APPLICATIONS

All Titus supply grilles can be applied to variable air volume systems with excellent results. For detailed selection methods, consult your Titus representative or the Engineering Guidelines section of this catalog.

Correction Factors for 300/301 Supply Grilles

Model	Damper	A_k / A_c	Throw	Total Pressure	NC
300R, 300F	With	0.77	1.00	1.00	0
301R, 301F	Without	0.82	0.98	0.88	-2

Note: Throw and total pressure corrections are multipliers. The NC correction is an addition. A_k is the flow factor. A_c is the core area from the main table.

HORIZONTAL DEFLECTION (SPREAD)

SUPPLY GRILLES

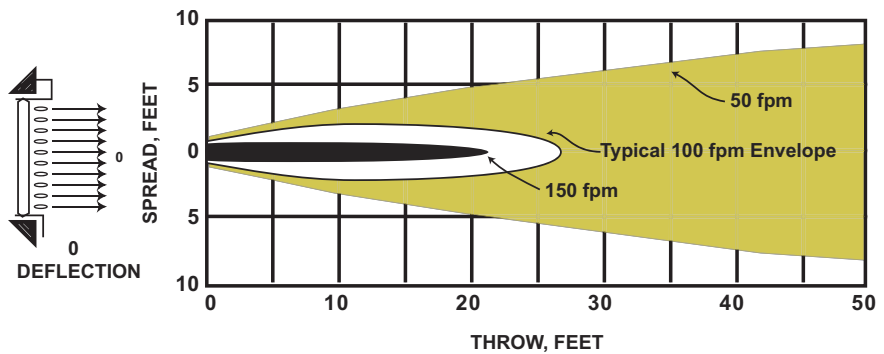
The figures depicting deflection, throw and drop are based on actual tests conducted by Titus. They show the relationship of spread to throw for a typical high side-wall supply outlet selection.

Notice the outer shaded area represents the 50 fpm isovel, the white area, the 100 fpm isovel, and the inner area, the 150 fpm isovel.

The spread angle also affects the airstream drop amount. Always consider for any given temperature, volume and core velocity; the wider spread results in a smaller drop. See section, Engineering Guidelines, for more drop, throw and spread relationship information.

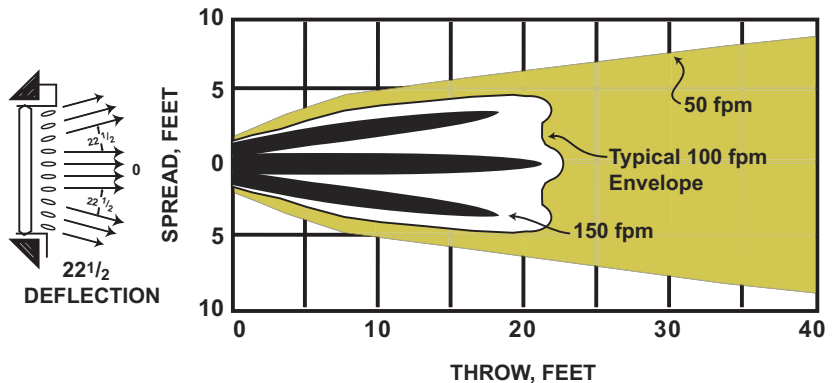
Titus grilles can be selected with a single set of blades for adjusting either horizontal or vertical deflection, or with two sets of blades for adjusting both horizontal and vertical deflections.

0° Horizontal Deflection



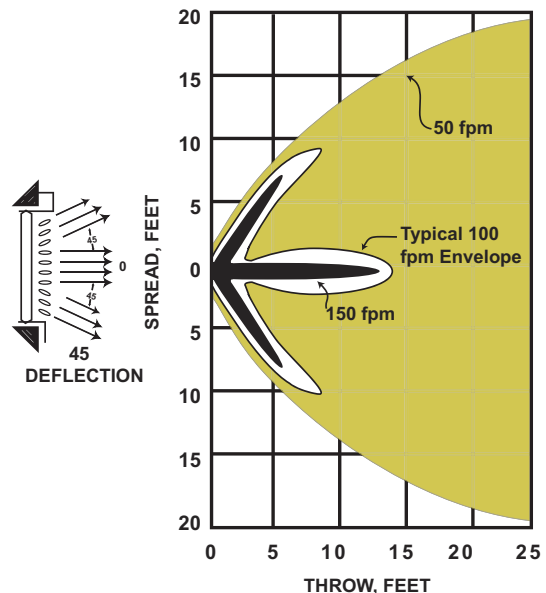
Spread versus throw at 0° horizontal deflection angle (Plan view of air jet leaving wall mounted grille).

22½° Horizontal Deflection



Spread versus throw at 22½° horizontal deflection angle (Plan view of air jet leaving wall mounted grille).

45° Horizontal Deflection



Spread versus throw at 45° horizontal deflection angle (Plan view of air jet leaving wall mounted grille).

PRICE ALL-IN-ONE

Terminal Unit Selection - SDV

Project:	Location:	Altitude:	0 (ft)	Model:	SDV
Tag: VAV-3	Quantity: 1				

Selection

Model	Size	Primary (CFM)		Static Pressure (in. w.g.)				Electrical	
	Unit	Max	Min	Inlet SP	Downstream SP	Differential PD	Min Oper. PD	MCA	MOP
SDV	10	1800	360	1.00	0.25	0.75	0.01	N/A	N/A

Sound Performance

Max Radiated Sound Power Levels (dB)						Max Radiated NC	Max Discharge Sound Power Levels (dB)						Max Discharge NC
Octave Band							Octave Band						
2	3	4	5	6	7		2	3	4	5	6	7	
63	55	47	41	34	30	26 (2)	75	69	61	61	54	51	28 (2)

Accessories

Terminal Liner : FG50	Accessory 2 : CRH
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Performance Notes:

1. Dashes (--) indicate NC values less than 20.
2. NC values are calculated based on procedures outlined in AHRI Standard 885-2008, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets."
3. Sound power levels are given in decibels (dB).
4. Dashes (--) indicate sound power levels below 36-29-26-22-19-17 for each octave band; values below these sound power levels are considered below significance per AHRI 880.
5. Minimum operating pressure is the minimum static pressure required to operate the terminal item assembly at maximum primary flow with a wide open damper.
6. NC values are derived from sound power levels obtained in accordance with ASHRAE Standard 130-2016 and AHRI Standard 880-2017, which include duct end reflection corrections.
7. Terminal item assembly is ETL certified in accordance with UL1995 and CSA 22.2.236.

PRICE ALL-IN-ONE

Terminal Unit Selection - SDV

Project:	Location:	Altitude:	0 (ft)	Model:	SDV
Tag: VAV-5	Quantity: 1				

Selection

Model	Size	Primary (CFM)		Static Pressure (in. w.g.)				Electrical	
	Unit	Max	Min	Inlet SP	Downstream SP	Differential PD	Min Oper. PD	MCA	MOP
SDV	4	200	50	1.00	0.25	0.75	0.01	N/A	N/A

Sound Performance

Max Radiated Sound Power Levels (dB)						Max Radiated NC	Max Discharge Sound Power Levels (dB)						Max Discharge NC
Octave Band							Octave Band						
2	3	4	5	6	7		2	3	4	5	6	7	
59	53	41	36	31	29	21 (3)	76	71	57	53	49	45	35 (2)

Accessories

Terminal Liner : FG50	Accessory 2 : CRH
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Performance Notes:

1. Dashes (--) indicate NC values less than 20.
2. NC values are calculated based on procedures outlined in AHRI Standard 885-2008, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets."
3. Sound power levels are given in decibels (dB).
4. Dashes (--) indicate sound power levels below 36-29-26-22-19-17 for each octave band; values below these sound power levels are considered below significance per AHRI 880.
5. Minimum operating pressure is the minimum static pressure required to operate the terminal item assembly at maximum primary flow with a wide open damper.
6. NC values are derived from sound power levels obtained in accordance with ASHRAE Standard 130-2016 and AHRI Standard 880-2017, which include duct end reflection corrections.
7. Terminal item assembly is ETL certified in accordance with UL1995 and CSA 22.2.236.

PRICE ALL-IN-ONE

Terminal Unit Selection - SDV

Project:	Location:	Altitude:	0 (ft)	Model:	SDV
Tag: VAV-6	Quantity: 1				

Selection

Model	Size	Primary (CFM)		Static Pressure (in. w.g.)				Electrical	
	Unit	Max	Min	Inlet SP	Downstream SP	Differential PD	Min Oper. PD	MCA	MOP
SDV	5	500	100	1.00	0.25	0.75	0.01	N/A	N/A

Sound Performance

Max Radiated Sound Power Levels (dB)						Max Radiated NC	Max Discharge Sound Power Levels (dB)						Max Discharge NC
Octave Band							Octave Band						
2	3	4	5	6	7		2	3	4	5	6	7	
67	60	50	42	37	31	31 (2)	80	75	65	59	53	49	36 (2)

Accessories

Terminal Liner : FG50	Accessory 2 : CRH
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Performance Notes:

1. Dashes (--) indicate NC values less than 20.
2. NC values are calculated based on procedures outlined in AHRI Standard 885-2008, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets."
3. Sound power levels are given in decibels (dB).
4. Dashes (--) indicate sound power levels below 36-29-26-22-19-17 for each octave band; values below these sound power levels are considered below significance per AHRI 880.
5. Minimum operating pressure is the minimum static pressure required to operate the terminal item assembly at maximum primary flow with a wide open damper.
6. NC values are derived from sound power levels obtained in accordance with ASHRAE Standard 130-2016 and AHRI Standard 880-2017, which include duct end reflection corrections.
7. Terminal item assembly is ETL certified in accordance with UL1995 and CSA 22.2.236.

PRICE ALL-IN-ONE

Terminal Unit Selection - SDV

Project:	Location:	Altitude:	0 (ft)	Model:	SDV
Tag: VAV-4	Quantity: 1				

Selection

Model	Size	Primary (CFM)		Static Pressure (in. w.g.)				Electrical	
	Unit	Max	Min	Inlet SP	Downstream SP	Differential PD	Min Oper. PD	MCA	MOP
SDV	7	700	140	1.00	0.25	0.75	0.12	N/A	N/A

Sound Performance

Max Radiated Sound Power Levels (dB)						Max Radiated NC	Max Discharge Sound Power Levels (dB)						Max Discharge NC
Octave Band							Octave Band						
2	3	4	5	6	7		2	3	4	5	6	7	
61	53	46	37	31	27	24 (2)	75	69	59	54	49	46	30 (2)

Accessories

Terminal Liner : FG50	Accessory 2 : CRH
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Performance Notes:

1. Dashes (--) indicate NC values less than 20.
2. NC values are calculated based on procedures outlined in AHRI Standard 885-2008, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets."
3. Sound power levels are given in decibels (dB).
4. Dashes (--) indicate sound power levels below 36-29-26-22-19-17 for each octave band; values below these sound power levels are considered below significance per AHRI 880.
5. Minimum operating pressure is the minimum static pressure required to operate the terminal item assembly at maximum primary flow with a wide open damper.
6. NC values are derived from sound power levels obtained in accordance with ASHRAE Standard 130-2016 and AHRI Standard 880-2017, which include duct end reflection corrections.
7. Terminal item assembly is ETL certified in accordance with UL1995 and CSA 22.2.236.

PRICE ALL-IN-ONE

Terminal Unit Selection - SDV

Project:	Location:	Altitude:	0 (ft)	Model:	SDV
Tag: VAV-2	Quantity: 1				

Selection

Model	Size	Primary (CFM)		Static Pressure (in. w.g.)				Electrical	
	Unit	Max	Min	Inlet SP	Downstream SP	Differential PD	Min Oper. PD	MCA	MOP
SDV	12	2200	440	1.00	0.25	0.75	0.01	N/A	N/A

Sound Performance

Max Radiated Sound Power Levels (dB)						Max Radiated NC	Max Discharge Sound Power Levels (dB)						Max Discharge NC
Octave Band							Octave Band						
2	3	4	5	6	7		2	3	4	5	6	7	
61	52	51	43	37	35	25 (4)	72	64	62	58	54	52	24 (2)

Accessories

Terminal Liner : FG50	Accessory 2 : CRH
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Performance Notes:

- 1. Dashes (--) indicate NC values less than 20.
- 2. NC values are calculated based on procedures outlined in AHRI Standard 885-2008, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets."
- 3. Sound power levels are given in decibels (dB).
- 4. Dashes (--) indicate sound power levels below 36-29-26-22-19-17 for each octave band; values below these sound power levels are considered below significance per AHRI 880.
- 5. Minimum operating pressure is the minimum static pressure required to operate the terminal item assembly at maximum primary flow with a wide open damper.
- 6. NC values are derived from sound power levels obtained in accordance with ASHRAE Standard 130-2016 and AHRI Standard 880-2017, which include duct end reflection corrections.
- 7. Terminal item assembly is ETL certified in accordance with UL1995 and CSA 22.2.236.

PRICE ALL-IN-ONE

Terminal Unit Selection - SDV

Project:	Location:	Altitude:	0 (ft)	Model:	SDV
Tag: VAV-1	Quantity: 1				

Selection

Model	Size	Primary (CFM)		Static Pressure (in. w.g.)				Electrical	
	Unit	Max	Min	Inlet SP	Downstream SP	Differential PD	Min Oper. PD	MCA	MOP
SDV	14	3600	720	1.00	0.25	0.75	0.01	N/A	N/A

Sound Performance

Max Radiated Sound Power Levels (dB)						Max Radiated NC	Max Discharge Sound Power Levels (dB)						Max Discharge NC
Octave Band							Octave Band						
2	3	4	5	6	7		2	3	4	5	6	7	
62	56	52	43	40	37	26 (4)	72	64	68	59	57	53	24 (2)

Accessories

Terminal Liner : FG50	Accessory 2 : CRH
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Performance Notes:

1. Dashes (--) indicate NC values less than 20.
2. NC values are calculated based on procedures outlined in AHRI Standard 885-2008, "A Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets."
3. Sound power levels are given in decibels (dB).
4. Dashes (--) indicate sound power levels below 36-29-26-22-19-17 for each octave band; values below these sound power levels are considered below significance per AHRI 880.
5. Minimum operating pressure is the minimum static pressure required to operate the terminal item assembly at maximum primary flow with a wide open damper.
6. NC values are derived from sound power levels obtained in accordance with ASHRAE Standard 130-2016 and AHRI Standard 880-2017, which include duct end reflection corrections.
7. Terminal item assembly is ETL certified in accordance with UL1995 and CSA 22.2.236.

Exhaust Hose Reel 865 - Electric Motor Driven

Electric Motor Driven Exhaust Hose Reel



The best solution in workshops with a high ceiling, where overhead cranes etc. have to be considered, or where high vehicles must pass. Operated via a hand unit either an IR control or pendant control. A receiving eye on the reel shows the status of operation. Electronic upper and lower limit switches reduce the risk of malfunction and unnecessary wearing of the hose. Fan start/stop is automatically controlled. Mounting of fan on reel is possible. No programming is lost when a power failure occurs. If the power is cut, the electro-magnetic brake will lock the drum instantly.

- Convenient and safe operation
- Automatic Fan for energy savings
- Quick & easy installation reduces cost
- Settings for limit switches made from floor level
- Compact, modern design

Product name	Exhaust Hose Reel 865 - Electric Motor Driven
Installation	Indoor
Material recycling (%)	100
Operating Temperature	14 - 122 F (-10 to +50 C)
Further technical data	Max lifting capacity: 30kg Power supply: 325 VA
Power Voltage (V)	100-230
Frequency (Hz)	50/60
No of phases	1
Colour	Blue
Body type	Wide body
Electric/Spring driven	Electric motor



Exhaust Hose Reel 865 - Electric Motor Driven

Image	Type of hose ¹	Delivered with hose	Diameter, hose (in)	Hose length (ft)	Weight (lbs)	Max hose length	Model
	NR-CP	Yes	4	25	90 - 108	41	20802965
	NFC-3	Yes	4	33	90 - 108	41	20803065
	NR-CP	Yes	5	33	90 - 108	33	20803365
	NFC-3	Yes	5	33	90 - 108	33	20803465
	NFC-3	Yes	6	33	90 - 108	33	20803865
	NR-CP	Yes	6	16	90 - 108	33	20803965
	Without	No	4	33	68	41	20802665*
	Without	No	5	49	68	33	20802765*
	Without	No	6	41	68	33	20802865*
	Without	No	8		68	23	20809165**
							89299121
							89299126
							89298143
							86900525

*Delivered without hose.

**Max hose length 22 ft coiled, Max weight of hose including nozzle 65 lbs.

¹ See table below

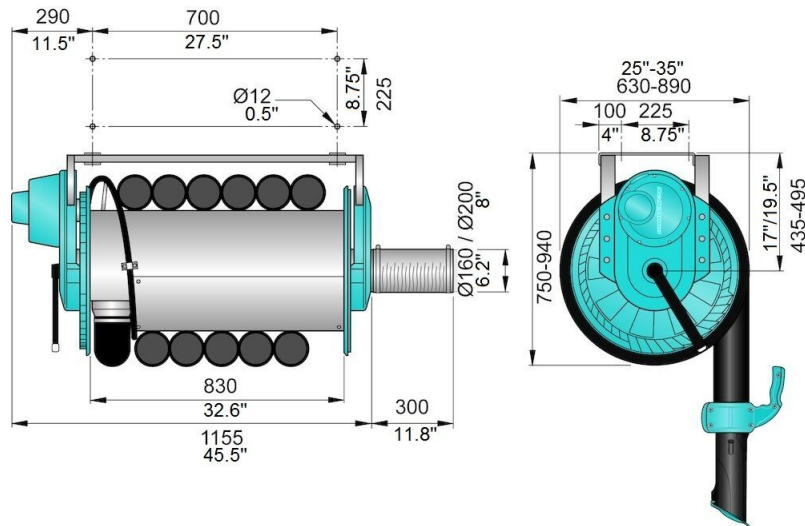
Exhaust Hose Reel 865 - Electric Motor Driven

Hose type	Specification	Temperature range, °C	Hose fittings in free hose end, distribution hose	Hose fitting on free hose end, inlet hose	Hose connection on reel, distribution hose	Hose connection on reel, inlet hose
NRCP	Polyester fabric, EPDM/PP coated. Helix in Polyester with EPDM cover. Max bending radius 22.5cm (inside)	-40 to +150 Deg. C (Inttermittent +170 Deg. C)				
NFC3	High temperature Kevlar based material. Helix in galvanized steel.	-60 to +300 Deg. C (Inttermittent +350 Deg. C)				

Exhaust Hose Reel 865 - Electric Motor Driven

Accessory		Part No
	Pendant control incl. cable bracket	20373712
	Transmitter with wall bracket	20373522
	Direct mount Stand for fan on 865 Hose Reel	20373556
	Transformer 230/250 V to 24 V. 75 VA.	10361560
	Transformer 230/250 V to 24 V. 25 VA.	10363189
	8in Clip Grip/Bridge Hose Clamp	87000934
	Flex Noz 6"complt w 9"opening2007en	89298063
	Flex Noz 6"complt w 8"opening2007en	89298058
	Bracket to mount 8" hose reel on Extension Arm	86900229
	Stainless Steel Nozzle for 5" hose with locking clamp & lifting sleeve	89298082
	NFC-4.2 Hose Ex 100mm/5 m	86900683
	Flex Noz 6"complt w10"opening2007en	89298062

Exhaust Hose Reel 865 - Electric Motor Driven



Single Exhaust Extractor

The simplest solution for effective exhaust extraction



Single Exhaust Extractor is a reliable and functional solution for all types of stationary vehicles. Available with balancer or a cord for manual hose suspension. The balancer automatically raises the hose and nozzle after disconnection, and keeps them lifted at all times. Models for high temperature application are available. Very easy to install, using the included bracket. Prepared for fan mounting on bracket.

- Easy handling of exhaust hose
- Takes up very little space
- Low cost solution
- Easy to install
- Prepared for Fan mounting on bracket

Product name	Single Exhaust Extractor
Installation	Indoor
No of phases	3
Delivered with hose	Yes
Colour	Blue hose



Single Exhaust Extractor

Image	Description	Type of hose ¹	Diameter, hose (in)	Hose length (ft)	Model
	Single exhaust extractor, manual hose suspension, with N16 fan	NTP	6	16	20814163*
	Single exhaust extractor, manual hose suspension	NTP	6	25	20814563
	Single exhaust extractor, manual hose suspension	NTP	75	16	20813063
	Single exhaust extractor, manual hose suspension	NTP	4	25	20813163
	Single exhaust extractor, with balancer for hose	NTP	4	25	20813263
	Single exhaust extractor, with balancer for hose	NTP	6	20	20813363
	Single exhaust extractor, with balancer for hose		6	20	20813463
	Single exhaust extractor, with balancer for hose, nozzle 20807061		8	16	20813563**
	Single exhaust extractor, manual hose suspension, with N16 fan	NTP	75	25	20813963***
	Kit Single Extraxtion Ø100/7,5m NR-B Nozzle, N16 fan, manual hose suspension	NTP	4	25	20814063***
	Single exhaust extractor, with balancer for hose	NFC-2	4	25	20814963
	Single exhaust extractor, with balancer for hose	NFC-2	6	25	20815063

*Fan included.

Fan starter not included.

**Nozzle included

***Fan and nozzle included.

Fan starter not included.

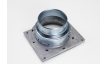
¹ See table below

Hose type	Specification	Temperature range, °C	Hose fittings in free hose end, distribution hose	Hose fitting on free hose end, inlet hose	Hose connection on reel, distribution hose	Hose connection on reel, inlet hose
NTP		up to 150				

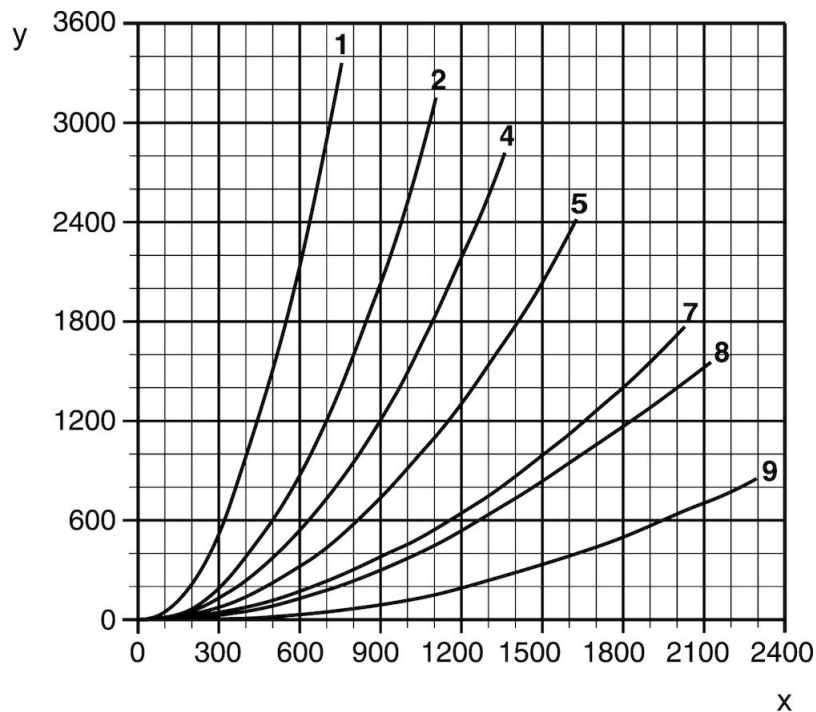
Single Exhaust Extractor

NFC2		Max 150, (Short term 200)				
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Single Exhaust Extractor

Accessory		Part No
	Single exhaust adaptor 4"	20374432
	Single exhaust adaptor 6"	20374433
	Twin exhaust extract. bracket 4"x2	20374584
	Single exhaust extract. bracket 4"	20374549
	Single exhaust extract. bracket 6"	20374550
	Single exhaust extract. bracket 8"	20374551
	Switch for balancer Ser 831	20374015
	FMS 1-1.6 F	14502137

Single Exhaust Extractor



1: Hose diam 75 mm, Length 5 m; 2: Hose diam 100 mm, Length 7,5 m; 4: Hose diam 100 mm, Length 5 m;

5: Hose diam 150 mm, Length 7,5 m; 7: Hose diam 150 mm, Length 6 m;

8: Hose diam 150 mm, Length 5 m; 9: Hose diam 200 mm, Length 6 m

Extraction Arm NEX MD

With high air flow and low pressure drop NEX MD extraction arm is perfect in medium to heavy duty welding fume and welding dust applications



NEX MD welding fume extraction arms are the top of the range arms when it comes to high airflows and extraction of media with higher temperatures than normal. The weld fume extractors are specially designed for working environments with very heavy smoke, vapours or non explosive dust. Typical workplaces are the metal fabrication industry or other type of industries where the need for extraction with large airflows is needed.

The applications can be welding, laser or hand plasma cutting, metal spraying, grinding where lots of spatter is generated, or other industrial processes where a perfect balanced and easily positioned extraction arm is required. Nederman NEX MD is an welding fume and welding dust extraction arm that also has a newly designed hood.

The hose, 160 mm in diameter (6,3"), in combination with the external arm system, provides a high air flow and a low pressure drop. Nederman NEX MD is thus perfect in medium to heavy duty applications. The arm is available in four lengths, 2-5 m (6.6-16 ft).

- Arm is suspended by a robust swivel, which allows the product to rotate 360 degrees
- Flexible in all directions, perfectly balanced and very simple to position
- Support mechanism of the arms are encapsulated which protects against dirt
- Can be mounted in combination with different brackets, extension arms or on exhaust rails

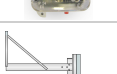
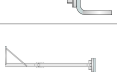
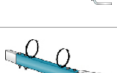
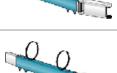
Product name	Extraction Arm NEX MD
Noise level (dB(A))	66
Installation	Indoor
Fume temperature	Max 70° C (158 F)
Extraction arm diameter (in)	6
Airflow (CFM)	765
Colour	Blue
Diameter, hose (in)	6 in



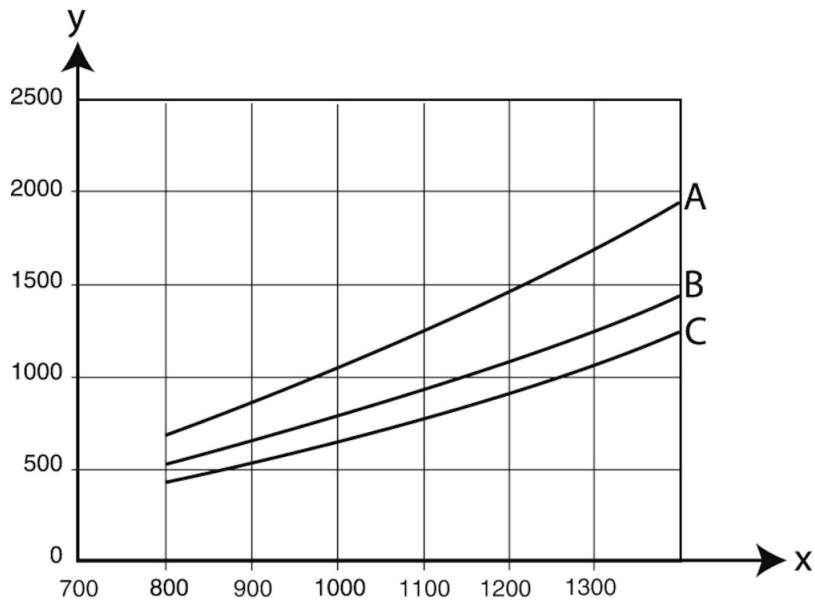
Extraction Arm NEX MD

Description	Arm length (ft)	Weight (lbs)	Model
Extractor arm NEX MD	7	35	10561032
Extractor arm NEX MD	10	44	10561132
Extractor arm NEX MD	13 ft 1in	60	10561232
Extractor arm NEX MD	16 ft 4in	71	10561332

Extraction Arm NEX MD

Accessory		Part No
	LED Light kit and fan start NEX MD	10376923
	LED lamp for fume extractor (replacement)	10376969
	Spark protection for Original/NEX MD-hood	10551335
	Transformer 230/250 V to 24 V. 25 VA.	10363189
	Transformer 230/250 V to 24 V. 75 VA.	10361560
	Wall bracket for fume extractor, 2m, 3m	10372215
	Wall bracket for 4-5 m NEX arms	10372722
	Airflow indicator 500-4500 Pa	10375373
	Airflow indicator 40-600 Pa	10375374
	Support 1m NEX	10512732
	Support 2m NEX	10512832
	Kit extension NEX MD/HD 1m	10510332
	Kit extension NEX MD/HD 2m	10510432
	Electrical Control Box for Light Kit, 115/230V Single Phase	89115569
	Electrical control box for light pkge, 230/460V Three Phase	89115570

Extraction Arm NEX MD

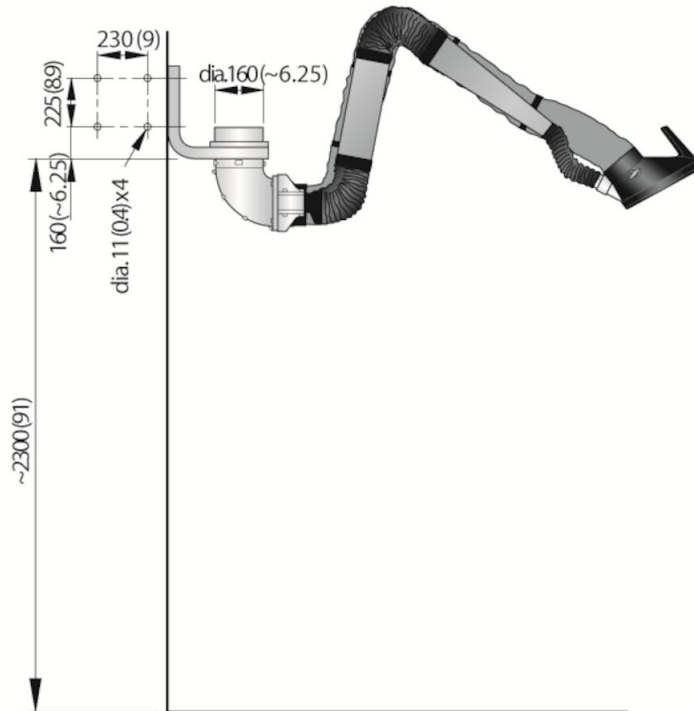


X: airflow, m³/h, Y: static pressure Pa,

A: 5 m, B: 4 m, C: 2 m and 3 m

Extraction Arm NEX MD

mm (inch)



FilterCart Advanced+

Mobile Filter for Intermittent Duty Fume

Effective and User-Friendly Fume Extraction Solution

FilterCart Advanced+ is an effective, convenient and easy to use engineering control that protects workers from the harmful effects of welding fume as recommended by global health and safety organizations. Designed for light and intermittent duty fume applications, the FilterCart has a small footprint and lightweight construction making it easy to move and place inside tight workspaces. Despite the small package, the unit is full of technology and features that make it easy to own and operate.

Reliable and Effective Capture

Protecting welders from the harmful effects of weld fume control begins with capturing the fume effectively at the source. The FilterCart's extraction arm is easily positioned and features an optimized hood design that expands the fume capture zone.

Enhanced Filter Technology

FilterCart Advanced+ features a MERV 14 Nanofiber filter effective at removing the fine metal and smoke particles from the air stream and extends the filter life with higher dust holding capacity. The filter construction includes a multi-layer mesh inner liner to help arrest sparks and fire retardant media to reduce the risk of fire. An optional HEPA after filter is available for high-toxicity fume including hexavalent chromium.

Simple to Use and Operate

Ensuring proper airflow is critical in effectively capturing the weld fume and the FilterCart includes a digital filter life indicator and audible alarm to inform the user when maintenance is required. Filter maintenance is tool-free and can be performed in a matter of minutes ensuring that welders remain productive.



Optional HEPA after filter
Additional filtration efficiency for difficult or toxic applications.

Filter media technology
Standard Nanofiber, fire retardant filter technology that efficiently removes weld fume (MERV 14).

Airflow and filter life indicator
Sensors measure if adequate airflow and visually/audibly notify users when maintenance required to ensure effective fume capture.



Original extraction arm
Best-in-class arm that is easy to locate and reliably hold its position.

Original hood
Designed for efficiency and ergonomic handling.

Narrow footprint
Allows for easy maneuverability through regular sized doors.

Durable mobility
Large diameter rear wheel for easy mobility in an industrial environment. Locking front casters to hold in place during use.

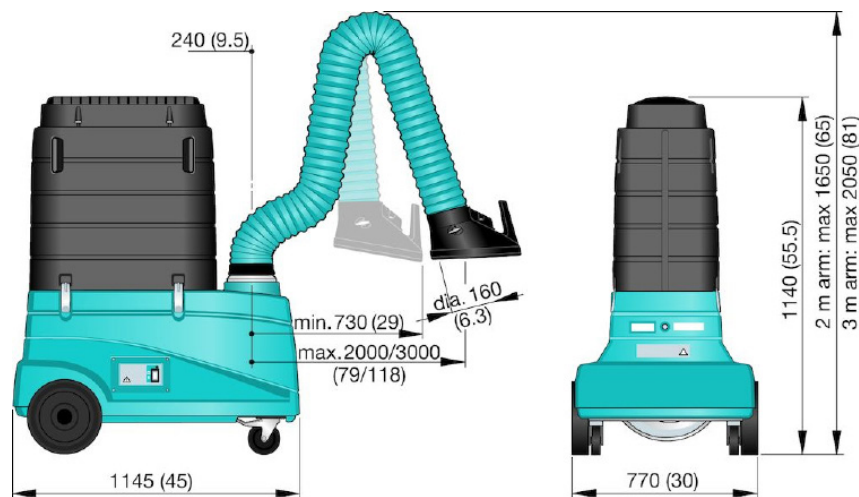
FilterCart Advanced+

Models and Specifications

Model	Arm Length ft (m)	Arm Diameter in (mm)	Air Flow cfm (m ³ /h)	Filter Load Indicator	Filter Area* ft ² (m ²)	Power Hp (kW)	Supply Power	Noise Level (dBA)
FilterCart Advanced+	10 (3)	6 (152)	620 (1,053)	Audible	323 (30)	1 (0.7)	120V/ 1PH/ 60Hz	73

*Filter area based on Nanofiber fire retardant media. All models evaluated for compliance in accordance with NEC and UL codes.

Product Dimensions mm (inches)



Accessories and Replacement Filters

Options	Description
Filter media	MERV 14 Nanofiber Filter
Spotlight	Hood mounted light kit for improved visibility. Includes unit on/off switch
Secondary filters	Certified H13/H14 HEPA filters

Nederman offers genuine replacement filters, spare parts and accessories to keep your equipment operating at maximum efficiency. Contact a local Nederman representative today or visit our spare parts search: www.nederman.com/en-us/service/spare-part-search



Our facilities are
ISO 14001:2015 certified