

# SQA

## *Airfoil Square Fans*



An ISO 9001 Company

**CHICAGO BLOWER**  
CORPORATION

# ***Undisputed Reliability***

Chicago's SQA fans have been selected for well over 100,000 industrial and commercial installations worldwide. The SQA fans are known for their exceptional durability and efficiency, and are continually updated and expanded to meet today's requirements and tomorrow's visions. This versatile innovative design packs maximum performance into a minimum footprint.

Chicago's SQAD is the direct drive alternative to the SQA fan. Size for size it delivers the same performance and efficiency in a more compact arrangement.

All SQA fans are available for quick delivery.

- Fan Sizes
  - SQA 8-3/4 to 44-1/2
  - SQAD 8-3/4 to 30
- Volumes to 55,000 CFM
- Pressures to 15" W.G.
- Arrangements
  - SQA 1, 8, 9
  - SQAD 4
- Construction Classes I, II, III
- Discharges: TH, BH, UB, DB
- AMCA Licensed Performance



## ***Universal Applications***

- Supply Air
- Clean Air
- Packaged Forced Air
- Pneumatic Conveying
- Aeration
- Pressurizing



# Features

- **Rugged Construction**

Heavy gauge steel housings are welded by AWS welders to assure structural integrity with extended durability. Flanged housing edges add to the fan's exceptional rigidity.

- **Hyperbolic Wheel Cone**

Chicago's exclusive hyperbolic spun steel wheel cone optimizes the smooth stable air flow across entire operating range.

- **Precision Shafts**

Shafts made from SAE 1045 carbon steel are turned, ground and polished to assure a tight bearing and hub fit. They are also sized to operate at least 20% below the first critical speed.

- **Adjustable Motor Base**

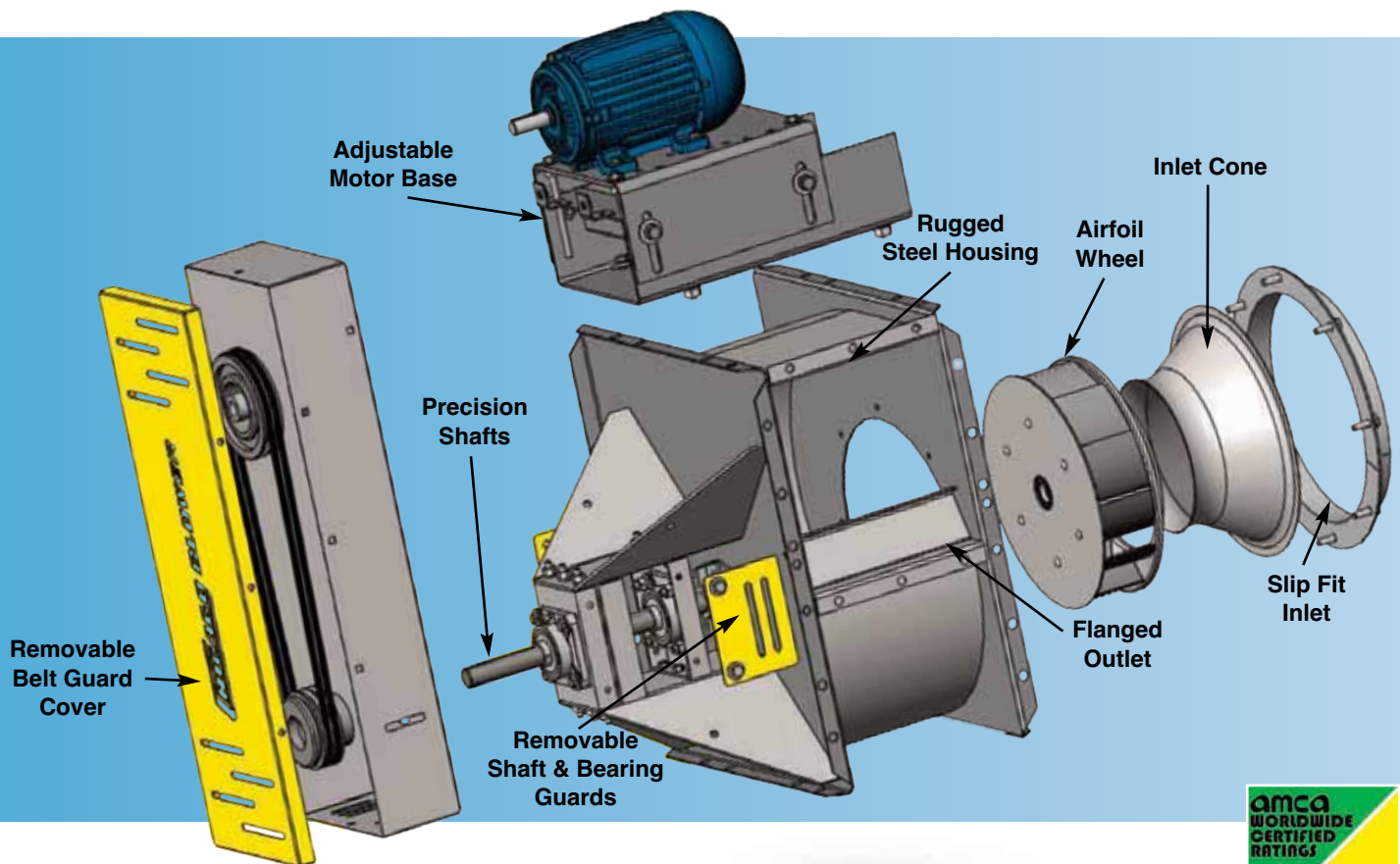
Arrangement 9 bases are pre-punched for popular motor frames, and feature threaded belt tension adjustment and positive locking.

- **Flanged Outlet**

All models are furnished with pre-punched flanged outlets for solid connection to system ductwork and to match the optional outlet damper.

- **Adjustable Discharge Positions**

The housings are easily rotated without disassembly to simplify installation and relocation while operating efficiently in all four discharge positions.



## Airfoil Efficiency

SQA's airfoil wheel provides higher wheel efficiency along with reduced energy costs. SQA blades create a smooth lifting airflow, requiring less horsepower to deliver comparable air volume, with reduced noise levels.

Chicago Blower's airfoil design provides a broad efficiency curve which offers a wide range with more selections for each fan size. The SQA with its steep pressure characteristics is ideal for applications with pressure variations.



**AMCA Certified**

Chicago Blower Corporation certifies that the Design 36 SQA Airfoil Centrifugal Square Fans shown herein are 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.

# Options

- **Inlets**

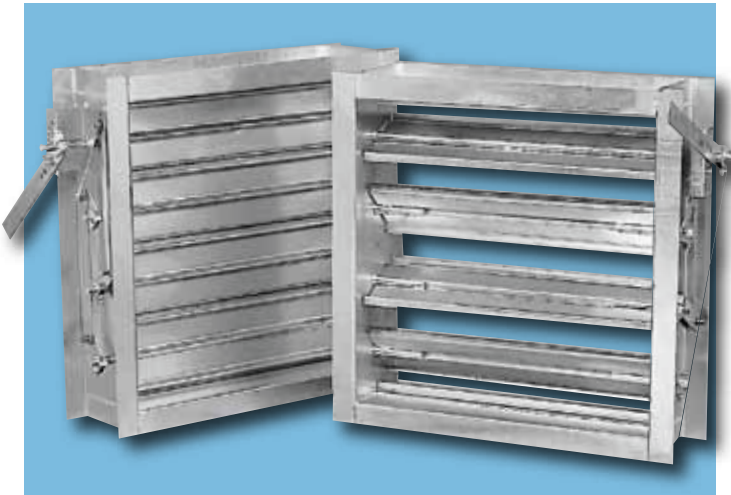
Open inlets, slip fit inlets and punched flanged inlets are available to meet installation requirements.

- **Inlet/Outlet Companion Flanges**

Structural angle assembly matches fan inlet or outlet flanges and allows fastening of ductwork for a flange-to-flange connection.

- **Outlet Dampers**

Designed to control air flow at low initial cost, outlet dampers (shown below) have punched flanges on both ends to simplify fan and duct connections. Parallel blades are standard with opposed blades available. Air volume is controlled manually or automatically by electric or pneumatic actuator.



- **Inlet Volume Control**

For varying or partial load applications, Chicago's Inlet Volume Control (IVC) provides precise air control and greater efficiency than an outlet damper. IVC is nested within the inlet cone. Air volume is controlled manually or automatically by electric or pneumatic actuator.



- **Inlet Box**

Bolt-on box (shown at right) simplifies duct connection when a horizontal connection is impractical. Assures fan performance when a sharp turn is required at the fan inlet.

- **Cast Aluminum Wheel**

Available on Sizes 12-1/4 and 13-1/2, Class I only. Temperatures to 200°F. Aluminum wheel standard on Sizes 8-3/4 and 10.

- **Inlet Screen**

Steel wire screen mounts within the inlet cone or outside the inlet vanes when furnished with IVC.

- **Shaft Seals**

Split steel or aluminum plate is designed to reduce leakage through the drive side shaft opening. Leak-resistant contact shaft seals are also available. Shaft seals are not gas tight.

- **Shaft Cooler**

For temperature applications over 300°F, an aluminum cooling wheel is required. Maximum temperature is 650°F.

- **Shaft and Bearing Guard**

The metal guard encloses the shaft and bearings. For easier lubrication, extended grease fittings are recommended.

- **Extended Grease Fittings**

For easier lubrication of belt drive fans, fittings are mounted on the bearing support gussets and lube lines extended to the bearings.

- **Belt Guard**

The guard is fully enclosed with a removable cover.

- **Access Door**

The flush mounted door features quick opening clamps and gasket. Bolted door or insulated plug type is also available.

- **Housing Drain**

A 1-1/2" half coupling is welded to the lowest point of the housing. Available with or without drain plug.

- **Unitary Base**

Belt drive fan and adjustable motor base are welded onto a unitary base of structural steel channel. Vibration isolators also available. (Refer to page 18 for dimensions.)

- **Vibration T-Rails**

Vibration isolation T-rails are mounted on anti-vibration springs to isolate all rotating components.

- **Spark Resistant Construction**

AMCA Type B and C spark resistant construction. Maximum temperature is 200°F for Type B and 650°F for Type C.

- **Special Coatings**

Numerous special paint and corrosion resistant coatings are available to meet the most stringent requirements.

# Fan Selection

Fan capacity tables are based on standard air at 70°F and sea level. For other operating conditions, correct the required Static Pressure (SP) before using the rating tables. The Brake Horsepower (BHP) is corrected after the fan selection has been made. Finally, determine the Class of fan.

Percent Width selections are also available for the SQAD. Refer to Chicago Blower's *Fan.net* selection software for exact selections.

## EXAMPLE:

**Select an SQA fan to handle 15,000 CFM at 3" SP at 500°F and at 2500 feet above sea level.**

1. Refer to Table I. At 2500 feet and 500°F, the correction factor is 1.98. To simplify the calculations, use 2.00. **Corrected SP is 2.00 x 3" SP = 6.00" SP at 70°F and sea level.**
2. Using the fan rating tables, one fan selection for 15,000 CFM at 6" SP is a Size 27. The fan will run at 1797 RPM and require 20.71 BHP at 70°F and sea level. (The actual RPM and BHP were calculated by interpolating between the 14,518 and 15,372 CFM given in the rating tables.)
3. **Correct the BHP. Dividing 20.71 by the correction factor (2.00).  $20.71 \div 2.00 = 10.35$  BHP at 500°F and 2500' altitude.**
4. To determine fan construction Class, the wheel and shaft must be checked for Maximum RPM using Table II and for Temperature Deration Factors in Table III.
  - a. Table III. Divide wheel operating RPM by the Wheel Deration Factor for 500°. Wheel RPM at 70°F is  $1797 \div .82 = 2191$ . Then divide the wheel operating RPM by the Shaft Deration Factor for 500°F. Shaft RPM at 70°F is  $1797 \div .97 = 1853$ .
  - b. Check Table II for maximum RPMs for a Size 27 fan. While the required wheel RPM of 2191 is within safe limits for a Class I fan, the required shaft RPM of 1853 is not. The Class II fan is needed because of high duty temperature.

**TABLE I – Temperature and Altitude Correction**

AIR TEMP (F°)	ALTITUDE (feet) with BAROMETRIC PRESSURE (HG)							
	0 29.92	500 29.38	1000 28.86	1500 28.33	2000 27.82	2500 27.31	3000 26.82	3500 26.32
-15	.79	.81	.82	.84	.85	.87	.88	.90
0	.87	.88	.90	.92	.93	.95	.97	.99
70	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14
100	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20
150	1.15	1.17	1.19	1.22	1.24	1.26	1.28	1.31
200	1.25	1.27	1.29	1.32	1.34	1.36	1.39	1.42
250	1.34	1.36	1.39	1.41	1.44	1.47	1.49	1.52
300	1.43	1.46	1.49	1.51	1.54	1.57	1.60	1.63
350	1.53	1.56	1.58	1.61	1.64	1.67	1.70	1.74
400	1.62	1.65	1.68	1.71	1.75	1.78	1.81	1.84
500	1.81	1.84	1.88	1.91	1.95	1.98	2.02	2.06
600	2.00	2.04	2.07	2.11	2.15	2.19	2.23	2.27
650	2.09	2.13	2.17	2.21	2.25	2.29	2.34	2.38

Correction factors for temperature (F°) and altitude (above sea level): standard air = .075 lbs. per cubic foot at sea level, 29.92" barometric pressure and 70° F.

**TABLE II – Maximum RPM at 70° F**

Note: For temperature deration only, not for air performance.

FAN SIZE	SQA						SQAD Wheel Only
	CLASS I		CLASS II		CLASS III		
	Shaft	Wheel	Shaft	Wheel	Shaft	Wheel	
12-1/4	4046	4983	4280	4983	—	—	3600
13-1/2	3675	4520	3884	4520	—	—	3600
15	3302	4067	3586	4067	—	—	3600
16-1/2	2992	3633	3509	3632	—	—	3600
18-1/4	2706	3285	3173	3285	—	—	3600
20	2469	2997	2895	2997	3359	3600	3600
22-1/4	2155	2653	2483	2653	2943	3228	1800
24-1/2	2015	2446	2300	2446	2674	3088	1800
27	1829	2219	2087	2219	2425	2692	1800
30	1657	1928	1807	1928	2166	2400	1800
33	1413	1643	1552	1643	1970	2080	—
36-1/2	1344	1412	1497	1497	1700	1792	—
40-1/4	903	1043	1179	1334	1541	1549	—
44-1/2	817	899	1066	1147	1394	1394	—

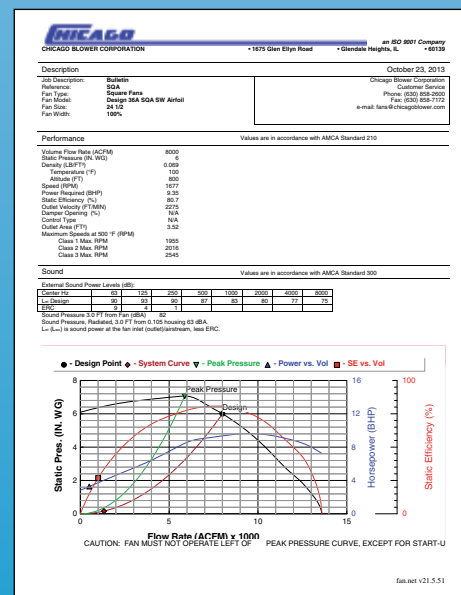
**TABLE III – Speed Deration**

Deration Factors		
Temp. (F°)	Steel Wheel	Steel Shaft
70	1.00	1.00
200	.94	1.00
300	.90	.99
400	.86	.98
500	.82	.97
600	.79	.96
650	.78	.95

Aluminum same as steel, max. temperature 200° F.

Refer to **Chicago Blower's fan.net** for performance, fan curves and sound data.

For software and assistance, visit [www.chicagoblower.com](http://www.chicagoblower.com)



# CHICAGO BLOWER CORPORATION

## Size 8 3/4

Outlet Area: .45 sq. ft. • Maximum BHP = .0126 (rpm ÷ 1000)<sup>3</sup> • Tip Speed (fpm) = 2.47 x rpm  
 Maximum Safe Speed **RPM** Class I **5000**

## FEG 90

CFM	OV FPM	1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		7/8" SP		1" SP		1-1/4" SP		1-1/2" SP		1-1/3" SP		
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
225	500	1001	0.01	1139	0.02																	
270	600	1097	0.02	1216	0.02	1331	0.03															
315	700	1198	0.02	1307	0.03	1410	0.04	1508	0.04	1605	0.05	1762	0.07	1846	0.08							
360	800	1306	0.03	1408	0.03	1502	0.04	1591	0.05	1678	0.06	1762	0.07	1846	0.08	2063	0.11					
405	900	1420	0.03	1513	0.04	1601	0.05	1683	0.06	1766	0.07	1843	0.08	1917	0.09	2063	0.11					
450	1000	1536	0.04	1623	0.05	1706	0.06	1784	0.07	1860	0.08	1932	0.09	2002	0.1	2139	0.12	2277	0.15			
495	1100	1656	0.05	1735	0.06	1813	0.07	1888	0.08	1960	0.09	2027	0.1	2092	0.12	2222	0.14	2350	0.16	2471	0.19	
540	1200	1785	0.06	1851	0.07	1924	0.09	1995	0.1	2063	0.11	2128	0.12	2194	0.13	2313	0.16	2431	0.18	2548	0.21	
585	1300	1912	0.08	1971	0.09	2039	0.1	2106	0.11	2170	0.12	2232	0.14	2292	0.15	2407	0.18	2520	0.2	2626	0.23	
630	1400	2040	0.09	2097	0.1	2154	0.12	2219	0.13	2281	0.14	2339	0.16	2396	0.17	2509	0.2	2614	0.22	2720	0.25	
675	1500	2169	0.11	2225	0.12	2273	0.14	2334	0.15	2390	0.16	2447	0.18	2506	0.19	2610	0.22	2714	0.25	2813	0.28	
720	1600	2297	0.13	2352	0.14	2400	0.16	2450	0.17	2506	0.19	2561	0.2	2612	0.22	2717	0.25	2816	0.28	2908	0.31	
765	1700	2429	0.15	2481	0.17	2528	0.18	2572	0.2	2622	0.21	2676	0.23	2725	0.24	2825	0.28	2918	0.31	3011	0.34	
810	1800	2561	0.18	2609	0.19	2656	0.21	2698	0.22	2741	0.24	2791	0.26	2840	0.27	2935	0.31	3025	0.34	3114	0.37	
855	1900	2690	0.20	2738	0.22	2783	0.24	2825	0.25	2862	0.27	2908	0.29	2980	0.31	3043	0.34	3130	0.37	3221	0.41	
900	2000	2824	0.23	2868	0.25	2911	0.27	2964	0.29	2990	0.3	3026	0.32	3071	0.34	3158	0.38	3246	0.41	3330	0.45	
990	2200	3090	0.30	3130	0.32	3169	0.34	3209	0.36	3264	0.38	3279	0.4	3312	0.42	3393	0.46	3470	0.5	3550	0.54	
1080	2400	3359	0.38	3393	0.41	3431	0.43	3464	0.45	3504	0.47	3538	0.49	3569	0.51	3631	0.55	3702	0.59	3774	0.64	
1170	2600	3627	0.48	3661	0.51	3692	0.53	3727	0.55	3756	0.57	3783	0.6	3824	0.62	3883	0.66	3941	0.71	4004	0.75	
1260	2800	3895	0.59	3927	0.62	3954	0.64	3987	0.67	4016	0.69	4047	0.72	4079	0.74	4139	0.79	4193	0.84	4246	0.88	
CFM	OV FPM	2" SP		2-1/2" SP		3" SP		3-1/2" SP		4" SP		4-1/2" SP		5" SP		5-1/2" SP		6" SP		7" SP		
585	1300	2738	0.26	2493	0.32																	
630	1400	2820	0.28	3015	0.34	3209	0.41															
675	1500	2912	0.31	3095	0.38	3279	0.44	3461	0.51													
720	1600	3003	0.34	3182	0.41	3356	0.48	3523	0.55	3692	0.62											
765	1700	3103	0.37	3271	0.44	3440	0.52	3602	0.59	3759	0.67	3918	0.74									
810	1800	3201	0.41	3366	0.48	3532	0.56	3685	0.63	3834	0.71	3989	0.8	4126	0.87							
855	1900	3306	0.44	3472	0.52	3628	0.6	3774	0.68	3918	0.76	4064	0.85	4202	0.93	4341	1.02					
900	2000	3412	0.49	3568	0.56	3720	0.64	3863	0.73	4004	0.81	4144	0.9	4278	0.99	4415	1.08	4554	1.17			
990	2200	3626	0.58	3776	0.66	3919	0.75	4054	0.83	4184	0.92	4320	1.02	4444	1.11	4567	1.2	4700	1.31	4942	1.51	
1080	2400	3847	0.68	3990	0.77	4126	0.86	4255	0.95	4388	1.05	4512	1.15	4626	1.24	4745	1.35					
1170	2600	4077	0.80	4211	0.9	4340	1	4463	1.09	4584	1.19	4709	1.3	4814	1.39	4929	1.5					
1260	2800	4307	0.93	4437	1.04	4561	1.15	4678	1.25	4792	1.35	4909	1.46									
1350	3000	4546	1.08	4668	1.2	4780	1.31															
1440	3200	4795	1.25	4900	1.37																	

If V-Belt driven over 3600 RPM, consult factory.

## Size 10

Outlet Area: .59 sq. ft. • Maximum BHP = .0227 (rpm ÷ 1000)<sup>3</sup> • Tip Speed (fpm) = 2.82 x rpm  
 Maximum Safe Speed **RPM** Class I **4962**

## FEG 90

CFM	OV FPM	1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		7/8" SP		1" SP		1-1/4" SP		1-1/2" SP		1-3/4" SP		
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM
295	500	874	0.02	1006	0.02																	
354	600	948	0.03	1063	0.03	1173	0.04															
413	700	1035	0.03	1131	0.03	1232	0.04	1328	0.05	1421	0.06											
472	800	1124	0.04	1216	0.04	1301	0.05	1389	0.06	1474	0.07											
531	900	1218	0.05	1305	0.05	1386	0.06	1459	0.07	1535	0.08	1555	0.08	1637	0.1	1692	0.11	1832	0.14			
590	1000	1315	0.06	1397	0.06	1473	0.07	1543	0.08	1608	0.1	1678	0.11	1747	0.12	1882	0.15	2012	0.18			
649	1100	1413	0.07	1490	0.07	1563	0.09	1630	0.1	1694	0.11	1753	0.12	1816	0.14	1941	0.17	2066	0.2	2187	0.23	
708	1200	1511	0.09	1583	0.09	1655	0.1	1721	0.12	1781	0.13	1840	0.14	1895	0.16	2008	0.19	2125	0.22	2240	0.25	
767	1300	1612	0.10	1683	0.1	1749	0.12	1811	0.13	1871	0.15	1928	0.16	1985	0.18	2083	0.21	2191	0.24	2300	0.28	
826	1400	1713	0.12	1783	0.12	1844	0.14	1904	0.15	1961	0.17	2017	0.19	2069	0.2	2170	0.23	2262	0.26	2362	0.3	
885	1500	1817	0.14	1880	0.14	1942	0.16	2000	0.17	2054	0.19	2108	0.21	2161	0.23	2255	0.26	2347	0.3	2435	0.33	
944	1600	1920	0.16	1982	0.16	2041	0.18	2096	0.2	2150	0.22	2199	0.24	2248	0.25	2344	0.29	2432	0.33	2521	0.37	
1003	1700	2026	0.19	2083	0.19	2141	0.2	2194	0.23	2247	0.25	2295	0.26	2341	0.28	2434	0.33	2523	0.36	2603	0.4	
1062	1800	2130	0.21	2185	0.21	2242	0.23	2294	0.26	2341	0.27	2390	0.3	2435	0.32	2524	0.36	2609	0.4	2692	0.44	
1121	1900	2237	0.24	2288	0.24	2343	0.26	2394	0.29	2441	0.31	2487	0.33	2531	0.35	2617	0.4	2700	0.44	2778	0.48	
1180	2000	2343	0.28	2394	0.28	2444	0.34	2495	0.32	2539	0.34	2587	0.37	2629	0.39	2711	0.44	2794	0.48	2869	0.53	
1298	2200	2556	0.35	2604	0.35	2651	0.38	2696	0.4	2740	0.43	2782	0.45	2825	0.48	2902	0.53	2980	0.58	3038	0.62	
1416	2400	2774	0.44	2816	0.44	2860	0.47	2902	0.5	2942	0.52	2983	0.55	3022	0.58	3098	0.63	3169	0.68	3247	0.75	
1534	2600	2987	0.55	3028	0.55	3069	0.58	3110	0.6	3145	0.63	3186	0.66	3223	0.69	3295	0.75	3366	0.81	3430	0.87	
1652	2800	3204	0.67	3245	0.67	3281	0.7	3320	0.73	3358	0.76	3392	0.79	3426	0.82	3500	0.89	3565	0.95	3625	1.01	
CFM	OV FPM	2" SP		2-1/2" SP		3" SP		3-1/2" SP		4" SP		4-1/2" SP		5" SP		6" SP		7" SP		8" SP		
826	1400	2464	0.34	2656	0.42	2842	0.5															
855	1500	2531	0.37	2717	0.45	2896	0.54	3058	0.62													
944	1600	2601	0.40	2778	0.49	2948	0.57	3110	0.66	3274	0.76											
1003	1700	2684																				

**CHICAGO BLOWER CORPORATION**

**Size 12 1/4** Outlet Area: .88 sq. ft. • Maximum BHP = .077 (rpm ÷ 1000)<sup>3</sup> • Tip Speed (fpm) = 3.46 x rpm  
**Maximum Safe Speed RPM** Class I **4046** Class II **4280** **FEG 85**

CFM	OV FPM	1/4" SP		1/2" SP		3/4" SP		1" SP		1-1/4" SP		1-1/2" SP		1-3/4" SP		2" SP		2-1/2" SP		3" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
440	500	684	0.02																		
528	600	743	0.03	921	0.05																
616	700	810	0.04	964	0.06																
704	800	880	0.05	1021	0.08	1154	0.11														
792	900	953	0.06	1086	0.09	1204	0.13	1328	0.17												
880	1000	1027	0.07	1153	0.11	1263	0.15	1369	0.19	1476	0.24	1580	0.29	1714	0.37	1841	0.46				
968	1100	1104	0.09	1222	0.13	1328	0.18	1425	0.22	1521	0.27	1618	0.32	1714	0.37	1841	0.46				
1056	1200	1183	0.11	1294	0.16	1395	0.2	1487	0.25	1576	0.3	1664	0.35	1753	0.41	1841	0.46				
1144	1300	1263	0.14	1368	0.19	1464	0.23	1553	0.28	1636	0.33	1717	0.39	1799	0.44	1881	0.5	2042	0.63		
1232	1400	1344	0.16	1442	0.22	1534	0.27	1620	0.32	1701	0.37	1777	0.43	1853	0.49	1928	0.55	2081	0.68		
1320	1500	1426	0.20	1518	0.25	1607	0.31	1689	0.36	1768	0.42	1841	0.48	1912	0.54	1982	0.6	2125	0.73	2267	0.87
1408	1600	1511	0.23	1597	0.29	1681	0.35	1760	0.41	1836	0.47	1908	0.53	1975	0.59	2041	0.65	2173	0.79	2308	0.93
1496	1700	1594	0.27	1676	0.33	1755	0.39	1832	0.46	1905	0.52	1975	0.58	2042	0.65	2104	0.71	2229	0.85	2355	1
1584	1800	1678	0.31	1756	0.38	1831	0.44	1906	0.51	1975	0.58	2044	0.64	2109	0.71	2171	0.78	2289	0.92	2407	1.07
1672	1900	1762	0.36	1837	0.43	1909	0.5	1980	0.57	2048	0.64	2112	0.71	2177	0.78	2238	0.85	2352	1	2464	1.15
1760	2000	1846	0.41	1918	0.49	1987	0.56	2054	0.63	2122	0.71	2183	0.78	2246	0.85	2305	0.93	2419	1.08	2525	1.24
1936	2200	2017	0.54	2084	0.62	2146	0.7	2208	0.78	2269	0.86	2331	0.94	2388	1.02	2444	1.1	2552	1.27	2656	1.44
2112	2400	2188	0.68	2252	0.77	2308	0.86	2365	0.94	2422	1.03	2478	1.12	2535	1.21	2588	1.3	2690	1.47	2789	1.65
2288	2600	2359	0.85	2418	0.95	2473	1.04	2526	1.13	2579	1.23	2630	1.32	2682	1.42	2734	1.52	2832	1.71	2927	1.9
2464	2800	2536	1.05	2590	1.15	2640	1.25	2688	1.35	2738	1.45	2786	1.56	2834	1.66	2883	1.76	2978	1.97	3067	2.17
CFM	OV FPM	3-1/2" SP		4" SP		4-1/2" SP		5" SP		5-1/2" SP		6" SP		7" SP		8" SP		9" SP		10" SP	
1320	1500	2441	1.09	2534	1.19																
1408	1600	2480	1.16	2566	1.26	2688	1.42														
1496	1700	2526	1.23	2605	1.33	2722	1.5	2839	1.68												
1584	1800	2576	1.31	2644	1.4	2762	1.58	2873	1.76	2982	1.95										
1672	1900	2632	1.41	2689	1.49	2801	1.66	2912	1.85	3016	2.04	3121	2.24	3221	2.46						
1760	2000	2737	1.58	2737	1.58	2845	1.76	2951	1.95	3057	2.15	3157	2.35	3251	2.56	3358	3.21				
1936	2200	2849	1.79	2849	1.79	2946	1.97	3042	2.16	3140	2.37	3237	2.57	3328	2.83	3427	3.01	3605	3.46	3777	3.94
2112	2400	2974	2.03	2974	2.03	3063	2.22	3150	2.42	3239	2.62	3328	2.83	3415	3.03	3505	3.27	3682	3.75	3849	4.24
2288	2600	3019	2.18	3107	2.3	3190	2.5	3271	2.7	3353	2.91	3434	3.13	3518	3.35	3598	3.58	3762	4.06	3927	4.57
2464	2800	3156	2.38	3241	2.6	3324	2.81	3402	3.03	3478	3.24	3553	3.47	3633	3.71	3705	3.93	3858	4.42	4010	4.93
2640	3000	3297	2.71	3378	2.93	3459	3.15	3535	3.38	3611	3.62	3682	3.84	3753	4.07	3823	4.32	3964	4.82	4106	5.33
2816	3200	3439	3.06	3519	3.29	3596	3.53	3671	3.77	3745	4.01	3815	4.26	3885	4.51	3955	4.75	4083	5.26		
2992	3400	3585	3.44	3664	3.69	3737	3.94	3809	4.19	3880	4.45	3949	4.7	4018	4.95	4083	5.23				
3168	3600	3734	3.86	3812	4.13	3882	4.39	3949	4.65	4019	4.92	4087	5.19								
3344	3800	3884	4.32	3960	4.6	4030	4.88	4095	5.16	4160	5.43										
3520	4000	4038	4.81	4108	5.1	4178	5.41														

If V-Belt driven over 3600 RPM, consult factory.

**Size 13 1/2** Outlet Area: 1.07 sq. ft. • Maximum BHP = .125 (rpm ÷ 1000)<sup>3</sup> • Tip Speed (fpm) = 3.81 x rpm  
**Maximum Safe Speed RPM** Class I **3675** Class II **3884** **FEG 85**

CFM	OV FPM	1/4" SP		1/2" SP		3/4" SP		1" SP		1-1/4" SP		1-1/2" SP		1-3/4" SP		2" SP		2-1/2" SP		3" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
535	500	621	0.03																		
642	600	679	0.03	836	0.07																
749	700	735	0.04	875	0.08																
856	800	799	0.06	926	0.09	1047	0.14														
963	900	865	0.07	985	0.11	1093	0.16	1200	0.21												
1070	1000	932	0.09	1046	0.14	1146	0.18	1242	0.24	1339	0.29	1434	0.35								
1177	1100	1002	0.11	1109	0.16	1205	0.21	1293	0.27	1380	0.32	1468	0.39	1555	0.45						
1284	1200	1073	0.14	1174	0.19	1266	0.25	1349	0.3	1430	0.36	1510	0.43	1591	0.49	1671	0.57				
1391	1300	1146	0.14	1241	0.23	1328	0.28	1409	0.34	1485	0.41	1568	0.47	1632	0.54	1707	0.61	1853	0.77		
1498	1400	1220	0.20	1308	0.26	1392	0.33	1470	0.39	1543	0.46	1612	0.52	1681	0.59	1749	0.67	1888	0.83		
1605	1500	1294	0.24	1377	0.31	1458	0.37	1533	0.44	1604	0.51	1671	0.58	1735	0.65	1798	0.73	1928	0.89	2057	1.06
1712	1600	1371	0.28	1449	0.35	1525	0.42	1597	0.49	1666	0.57	1731	0.64	1792	0.72	1852	0.79	1972	0.96	2094	1.13
1819	1700	1446	0.33	1521	0.4	1592	0.48	1662	0.56	1729	0.63	1792	0.71	1853	0.79	1909	0.87	2023	1.04	2137	1.22
1926	1800	1523	0.38	1593	0.46	1661	0.54	1730	0.62	1792	0.7	1855	0.78	1914	0.87	1970	0.95	2077	1.12	2184	1.31
2033	1900	1599	0.44	1667	0.52	1732	0.61	1797	0.69	1858	0.78	1916	0.86	1975	0.95	2031	1.04	2134	1.22	2236	1.4
2140	2000	1675	0.50	1740	0.59	1803	0.68	1864	0.77	1926	0.86	1981	0.95	2038	1.04	2092	1.13	2195	1.32	2291	1.51
2354	2200	1830	0.65	1891	0.75	1947	0.85	2004	0.94	2059	1.04	2115	1.14	2167	1.24	2218	1.34	2316	1.54	2410	1.75
2568	2400	1985	0.82	2043	0.93	2099	1.04	2145	1.14	2198	1.25	2249	1.36	2300	1.47	2348	1.57	2441	1.79	2531	2.01
2782	2600	2141	1.03	2194	1.15	2244	1.26	2292	1.38	2340	1.49	2386	1.61	2434	1.72	2481	1.85	2570	2.07	2656	2.31
2996	2800	2301	1.28	2350	1.4	2396	1.52	2439	1.64	2484	1.77	2528	1.89	2572	2.02	2616	2.14	2702	2.4	2783	2.64
CFM	OV FPM	3-1/2" SP		4" SP		4-1/2" SP		5" SP		5-1/2" SP		6" SP		7" SP		8" SP		9" SP		10" SP	
1605	1500	2299	1.45																		
1712	1600	2215	1.33	2328	1.53	2441	1.73														
1819	1700	2250	1.41	2364	1.61	2472	1.82	2576	2.04												
1926	1800	2292	1.5	2399	1.7	2506	1.92	2607	2.14	2708	2.37										
2033	1900	2337	1.6	2440	1.81	2542															

**CHICAGO BLOWER CORPORATION**

**Size 15**

Outlet Area: 1.32 sq. ft. • Maximum BHP = .212 (rpm ÷ 1000)<sup>3</sup> • Tip Speed (fpm) = 4.24 x rpm  
 Maximum Safe Speed **RPM** Class I **3302** Class II **3586**

**FEG 85**

CFM	OV FPM	1/4" SP		1/2" SP		3/4" SP		1" SP		1-1/2" SP		2" SP		2-1/2" SP		3" SP		3-1/2" SP		4" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
660	500	559	0.03																		
792	600	607	0.04																		
924	700	662	0.06																		
1056	800	719	0.07																		
1188	900	778	0.09																		
1320	1000	839	0.11																		
1452	1100	902	0.14																		
1584	1200	966	0.17																		
1716	1300	1031	0.21																		
1848	1400	1098	0.25																		
1980	1500	1165	0.30																		
2112	1600	1234	0.35																		
2244	1700	1302	0.41																		
2376	1800	1370	0.47																		
2508	1900	1439	0.54																		
2640	2000	1508	0.62																		
2904	2200	1647	0.81																		
3168	2400	1787	1.02																		
3432	2600	1927	1.28																		
3696	2800	2071	1.58																		
1980	1500	2467	2.03																		
2112	1600	2199	2.13																		
2244	1700	2225	2.25	2319	2.52																
2376	1800	2256	2.37	2346	2.64	2435	2.92														
2508	1900	2288	2.50	2378	2.78	2469	3.07	2543	3.36	2712	3.98										
2640	2000	2324	2.64	2410	2.92	2497	3.22	2578	3.52	2737	4.13	2889	4.81								
2904	2200	2406	2.96	2484	3.25	2564	3.55	2644	3.86	2799	4.51	2945	5.18	3085	5.9						
3168	2400	2502	3.32	2671	3.62	2645	3.93	2718	4.25	2863	4.91	3007	5.62	3143	6.35	3273	7.1	3405	7.89		
3432	2600	2605	3.75	2571	4.05	2738	4.37	2805	4.69	2938	5.37	3072	6.08	3207	6.85	3335	7.63	3335	8.42	3581	9.25
3696	2800	2715	4.22	2778	4.54	2840	4.86	2908	5.19	3026	5.89	3150	6.62	3275	7.39	3399	8.19	3522	9.03		
3960	3000	2825	4.72	2887	5.07	2949	5.42	3007	5.76	3122	6.47	3237	7.22	3353	7.99	3471	8.82	3586	9.65		
4224	3200	2937	5.29	2998	5.65	3059	6.01	3116	6.39	3226	7.12	3335	7.88	3442	8.66	3550	9.5				
4488	3400	3052	5.90	3111	6.28	3163	6.66	3225	7.05	3335	7.84	3437	8.62	3540	9.43						
4752	3600	3170	6.58	3225	6.97	3282	7.37	3338	7.78	3444	8.63	3546	9.43								
5016	3800	3291	7.32	3344	7.73	3397	8.14	3451	8.56	3555	9.42										
5280	4000	3412	8.11	3464	8.55	3518	8.99	3567	9.41												

**Size 16 1/2**

Outlet Area: 1.59 sq. ft. • Maximum BHP = .341 (rpm ÷ 1000)<sup>3</sup> • Tip Speed (fpm) = 4.66 x rpm  
 Maximum Safe Speed **RPM** Class I **2992** Class II **3509**

**FEG 80**

CFM	OV FPM	1/4" SP		1/2" SP		3/4" SP		1" SP		1-1/2" SP		2" SP		2-1/2" SP		3" SP		3-1/2" SP		4" SP	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
795	500	508	0.04																		
954	600	552	0.05																		
1113	700	601	0.07																		
1272	800	653	0.09																		
1431	900	708	0.11																		
1590	1000	762	0.14																		
1749	1100	820	0.17																		
1908	1200	878	0.21																		
2067	1300	938	0.25																		
2226	1400	998	0.30																		
2385	1500	1059	0.36																		
2544	1600	1122	0.42																		
2703	1700	1183	0.49																		
2862	1800	1246	0.57																		
3021	1900	1308	0.66																		
3180	2000	1370	0.76																		
3498	2200	1497	0.98																		
3816	2400	1624	1.24																		
4134	2600	1751	1.55																		
4452	2800	1883	1.91																		
2385	1500	1999	2.57																		
2544	1600	2022	2.72																		
2703	1700	2051	2.87	2107	3.05																
2852	1800	2079	3.02	2133	3.2	2213	3.54														
3021	1900	2079	3.02	2162	3.37	2244	3.72	2317	4.06	2465	4.83										
3180	2000	2112	3.20	2191	3.54	2270	3.9	2344	4.27	2488	5.02	2626	5.83								
3498	2200	2187	3.58	2258	3.93	2331	4.3	2403	4.67	2544	5.47	2676	6.29	2804	7.16						
3816	2400	2274	4.02	2339	4.39	2405	4.76	2471	5.15	2602	5.95	2734	6.81	2858	7.7	2976	8.61	3095	9.58		
4134	2600	2368	4.54	2428	4.91	2489	5.29	2549	5.69	2671	6.51	2793	7.37	2915	8.3	3031	9.24	3143	10.21	3255	11.21
4452	2800	2468	5.11	2526	5.5	2582	5.89	2638	6.29	2751	7.14	2863	8.02	2977	8.95	3090	9.92	3201	10.93	3307	11.97
4470	3000	2568	5.72	2624	6.14	2681	6.56	2734	6.98	2838	7.84	2943	8.75	3048	9.68	3155	10.68	3260	11.69	3365	12.77
5088	3200	2670	6.40	2725	6.84	2780	7.28	2832	7.74	2932	8.63	3031	9.55	3129	10.52	3227	11.5	3328	12.56	3426	13.62
5406	3400	2774	7.14	2828	7.61	2881	8.07	2932	8.54	3031	9.5	3125	10.44	3218	11.42	3310	12.45	3402	13.5	3497	14.59
5724	3600	2882	7.97	2932	8.44	2984	8.93	3034	9.42	3131	10.41	3224	11.42	3311	12.43	3399	13.46	3487	14.54		
6042	3800	2992	8.87	3040	9.36	3088	9.85	3137	10.36	3232	11.4	3322	12.47	3411	13.53	3493	14.59				
6360	4000	3102	9.82	3149	10.35	3198	10.88	3242	11.39	3334	12.48	3423	13.57	3509	14.7						

• Performance certified is for installation type B - Free inlet, Ducted outlet.  
 • Power ratings (BHP) do not include transmission losses.

• Performance ratings do not include the effects of appurtenances (accessories).  
 • Performance ratings at 0.075 lbs/ft<sup>3</sup> Density, 70°F, Sea Level Elevation.













# Sound Levels

Table lists estimated sound levels (dBA) for each size at various speeds within the fan's normal operating range. To determine dBA for a selected fan, locate the intersection of the fan size and the closest RPM.

**NOTES:**

1. Sound levels are based on tests conducted in accordance with AMCA Standard 300.
2. Sound level computations are based on a distance of 3' from the fan's open Inlet in a free field environment.
3. Specific octave band sound power levels and sound pressure levels available on request.
4. Sound levels of installed fans can vary greatly from laboratory tests. The dBA ratings are only to be used as estimates. Any comparisons and any detailed calculations should be based on sound power levels, which are independent of the installation.
5. AMCA Certified Ratings Seal applies to air performance only.

FAN SIZE	FAN SPEED - RPM												
	700	800	900	1000	1200	1400	1600	1800	2000	2400	2800	3200	3600
8-3/4	-	-	-	36	41	45	49	52	55	60	64	67	71
10	-	-	-	40	45	49	53	56	59	64	68	72	75
12-1/4	-	-	44	47	52	56	59	63	66	71	75	78	82
13-1/2	-	44	47	50	55	59	63	66	69	74	78	82	85
15	-	47	51	53	58	62	66	69	72	77	81	85	-
16-1/2	-	50	54	56	61	65	69	72	75	80	84	88	-
18-1/4	50	54	57	60	64	69	72	75	78	83	88	-	-
20	53	57	60	62	67	71	75	78	81	86	90	-	-
22-1/4	56	60	63	66	71	75	78	82	85	90	94	-	-
24-1/2	59	63	66	69	74	78	82	85	88	93	-	-	-
27	62	66	69	72	77	81	85	88	91	96	-	-	-
30	66	69	72	75	80	84	88	91	94	-	-	-	-
33	69	72	75	78	83	87	91	94	-	-	-	-	-
36-1/2	72	75	78	81	86	90	94	-	-	-	-	-	-
40-1/4	75	78	81	84	89	93	-	-	-	-	-	-	-
44-1/2	78	81	85	87	92	-	-	-	-	-	-	-	-

# Bearing Life

Minimum average bearing life is 75,000 hours. Bearing life may be substantially increased or decreased by variations in the operating speed or changes in the V-belt drive. The table at right lists the design class maximum speeds (RPM) and fan sheave pitch diameters. The graph below plots the increase or decrease in bearing life when the RPM or fan sheave diameter is changed from the values in the table.

**EXAMPLE:**

Determine the increased bearing life of a Size 22-1/4 Class I fan operating at 1510 RPM. Assume the actual fan sheave pitch diameter of 7.8".

1. Calculate operating RPM as a percent of the design RPM.

$$1510 \text{ RPM} \div 2155 \text{ RPM} = .701 \times 100 = 70.1\%. \text{ (Use 70\%)}$$

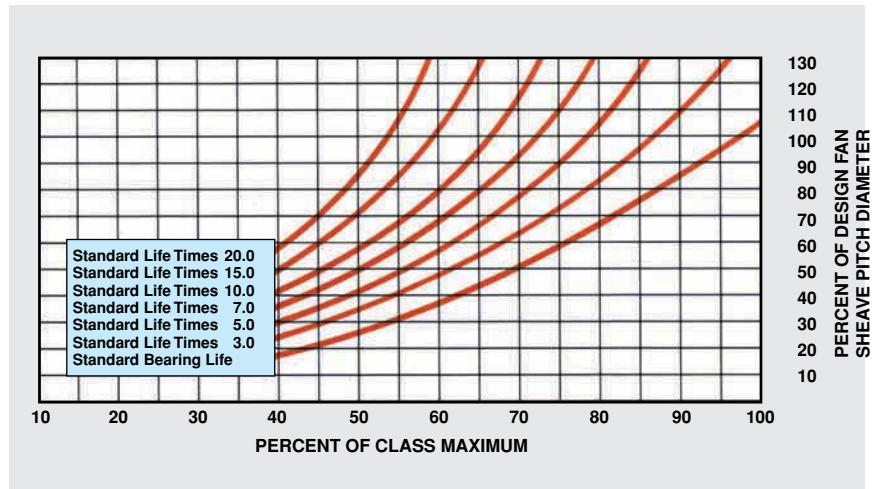
2. Calculate actual fan sheave pitch diameter as a percent of the design fan sheave pitch diameter in the table.

$$7.8" \div 7.1" = 1.1 \times 100 = 110\%$$

3. Locate the intersection of 70% of design RPM and 110% of design fan sheave pitch diameter in the graph. Increased bearing life is 10 times the design minimum bearing life or 750,000 hours minimum average life.

FAN SIZE	CLASS I		CLASS II		CLASS III	
	RPM	Pitch Dia.*	RPM	Pitch Dia.*	RPM	Pitch Dia.*
8-3/4	5000	3.1	NA	NA	NA	NA
10	4962	3.1	NA	NA	NA	NA
12-1/4	4046	3.8	4280	3.7	NA	NA
13-1/2	3675	4.2	3884	4.0	NA	NA
15	3302	4.6	3586	4.3	NA	NA
16-1/2	2992	5.1	3509	4.4	NA	NA
18-1/4	2706	5.6	3173	4.8	NA	NA
20	2469	6.2	2895	5.3	3559	4.8
22-1/4	2155	7.1	2483	6.2	2943	5.2
24-1/2	2215	7.6	2306	6.6	2674	5.7
27	1829	8.4	2087	7.3	2425	6.3
30	1647	9.3	1807	8.5	2166	7.1
33	1413	10.8	1552	9.9	1970	7.8
36-1/2	1344	11.4	1497	11.4	1700	9.0
40-1/4	903	9.9	1179	9.9	1541	9.9
44-1/2	817	11.0	1066	11.0	1394	11.0

\* Design Fan Sheave Pitch Diameter (inches)



# Belt Centers

## Arrangement 9T and 9S, SISW

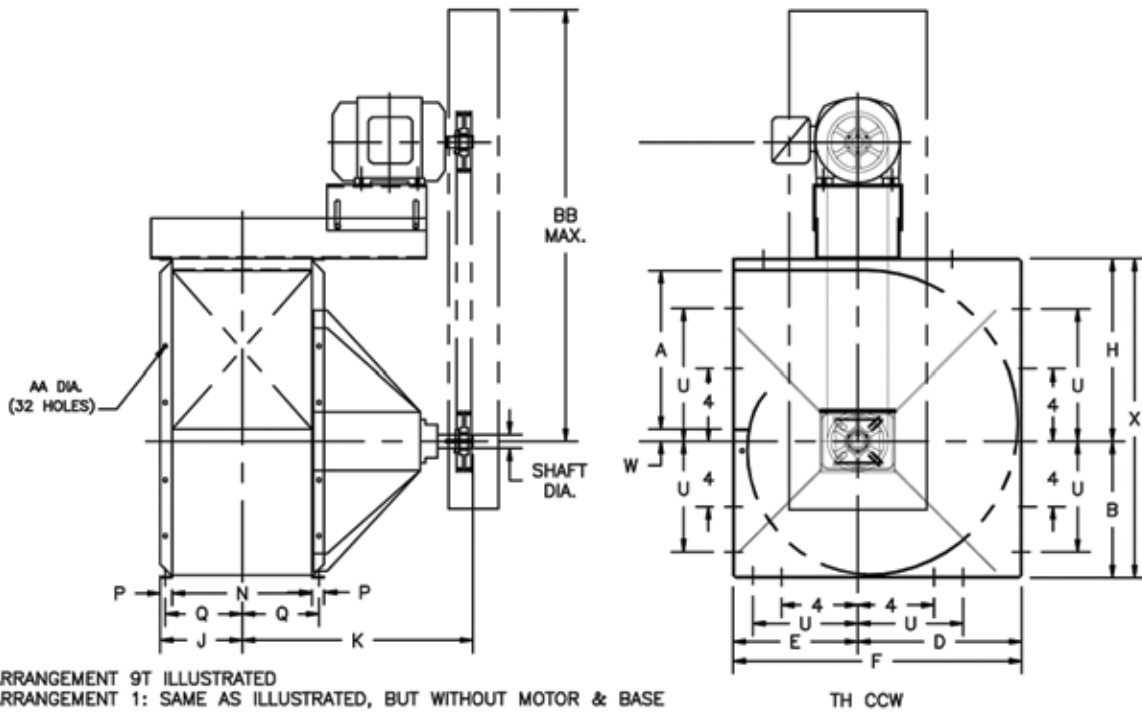
Fan Size	Motor Frame	Discharge Position/Rotation			
		Group A	Group B	Group C	Group D
8-3/4	48	20-7/8	18-1/8	19-9/16	NA
	56, 143-145	21-3/8	18-5/8	20-1/16	
	182-184	22-3/8	19-5/8	21-1/16	
10	48	22-3/16	19-1/8	20-13/16	NA
	56, 143-145	22-9/16	19-5/8	21-5/16	
	182-184	23-9/16	20-5/8	22-5/16	
12-1/4	56, 143-145	25-1/16	21-1/2	23-1/2	24-1/4
	182-184	26-1/16	22-1/2	24-1/2	24-1/4
	213-215	26-13/16	23-1/4	25-1/4	NA
	254-256	27-13/16	24-1/4	26-1/4	NA
13-1/2	56, 143-145	26-1/8	22-1/2	24-3/4	24-1/2
	182-184	27-1/8	23-1/2	25-3/4	25-7/16
	213-215	28-1/8	24 1/4	26-1/2	26-3/16
	254-256	29-1/8	25-1/4	27-1/2	27-1/8
15	56, 143-145	28-5/16	23-3/4	26-1/4	25-7/16
	182-184	29-5/16	24-3/4	27-1/4	26-3/8
	213-215	30-1/16	25-1/2	28	27-1/8
	254-256	31-1/16	26-1/2	29	28-1/8
16-1/2	56, 143-145	29-15/16	25	27-3/4	25-1/4
	182-184	30-15/16	26	28-3/4	26-1/16
	213-215	31-11/16	26-3/4	29-1/2	26-3/4
	254-256	32-11/16	27-3/4	30-1/2	27-3/4
18-1/4	56, 143-145	31-13/16	26-7/16	29-1/2	26-13/16
	182-184	32-13/16	27-7/16	30-1/2	27-13/16
	213-215	33-9/16	28-3/16	31-3/4	28-9/16
	254-256	34-9/16	29-3/16	32-1/4	29-9/16
20	56, 143-145	33-5/8	28	31-3/8	28-7/16
	182-184	34-5/8	29	32-3/8	28-13/16
	213-215	35-3/8	29-3/4	33-1/8	29-9/16
	254-256	36-3/8	30-3/4	34-1/8	30-1/2
284-286	37-1/8	31-1/2	35	31-1/2	

Fan Size	Motor Frame	Discharge Position/Rotation			
		Group A	Group B	Group C	Group D
22-1/4	56, 143-145	36	29-7/8	33-9/16	29-5/16
	182-184	37	30-7/8	34-9/16	30-5/16
	213-215	37-3/4	31-5/8	35-5/16	31-1/16
	254-256	38-3/4	32-5/8	36-5/16	32-1/16
	284-286	39-1/2	33-3/8	37-1/16	33-3/16
24-1/2	56, 143-145	38-3/8	31-3/4	35-13/16	30-13/16
	182-184	39-3/8	32-3/4	36-13/16	31-3/4
	213-215	40-1/8	33-1/2	37-9/16	32-7/16
	254-256	41-1/8	34-1/2	38-9/16	33-7/16
	284-286	41-7/8	35-1/4	39-5/16	34-5/8
27	56, 143-145	41-1/2	33-7/8	38-1/4	32-1/2
	182-184	42-1/2	34-7/8	39-1/4	33-7/16
	213-215	43-1/4	35-5/8	40	34-3/16
	254-256	44-1/4	36-5/8	41	35-3/16
	284-286	45	37-3/8	41-3/4	38
30	56, 143-145	44-11/16	36-5/16	42-3/4	34-7/16
	182-184	45-11/16	37-5/16	43-3/4	35-7/16
	213-215	46-7/16	38-1/16	44-1/2	36-3/16
	254-256	47-7/16	39-1/16	45-1/2	37-1/8
	284-286	48 3/16	39-13/16	46-1/4	40-1/16
33	182-184	48-7/8	39-5/8	45-3/16	37-9/16
	213-215	49-5/8	40-3/8	45-15/16	38-5/16
	254-256	50-5/8	41-3/8	46-15/16	39-5/16
	284-286	51-3/8	42-1/8	47-11/16	42-9/16
36-1/2	182-184	52-9/16	42-11/16	48-11/16	40-9/16
	213-215	53-5/16	43-7/16	49-7/16	41-5/16
	254-256	54-5/16	44-7/16	50-7/16	42-5/16
	284-286	55 1/16	45-3/16	51-3/16	45-3/4
40-1/4	182-184	57	46-1/8	52-7/8	43-1/4
	213-215	57-3/4	46-7/8	53-5/8	44
	254-256	58-3/4	47-7/8	54-5/8	45-3/16
	284-286	59-1/2	48-5/8	55-3/8	48-11/16
44-1/2	182-184	61-1/2	49-3/4	57	45-15/16
	213-215	62-1/4	50-1/2	57-3/4	46-11/16
	254-256	63-1/4	51-1/2	58-3/4	47-5/8
	284-286	64	52-1/2	59-1/2	51-5/8

Belt centers include allowances for belt mounting and tensioning.  
 Motor Frames can be either "U" or "T" frame.  
 "T" Base (56-256) is available on sizes 12-1/4 - 44-1/2 SISW.  
 "T" Base (284-286) is available on sizes 20 - 44-1/2 SISW.  
 Refer to factory for Arrangement 9H.

	Group A	Group B	Group C	Group D
<b>Discharge Position/Rotation and Motor Position</b>	TH CW, CCW - TOP	BH CW, CCW - TOP	DB CW, CCW - TOP	UB CW, CCW - TOP
	DB CCW - SL	DB CCW - SR	TH CCW - SR	OFFSET MOTOR
	DB CW - SR	DB CW - SL	TH CW - SL	BASE
	UB CCW - SR	UB CCW - SL	BH CCW - SL	
	UB CW - SL	UB CW - SR	UB CW - SR	

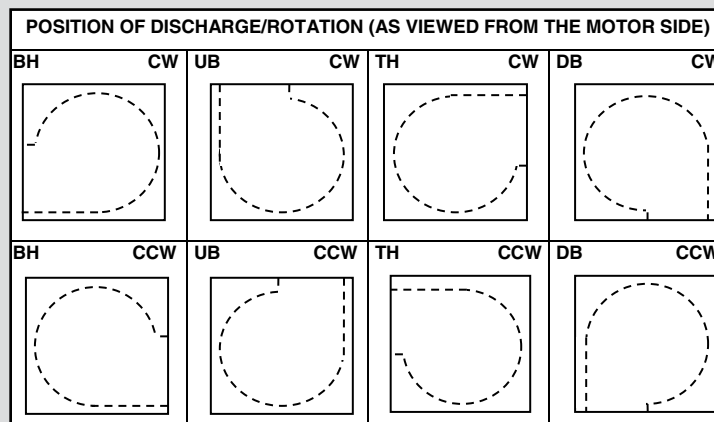
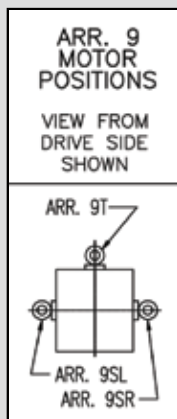
# SQA Dimensions



DIMENSIONS - INCHES																		*EST. WEIGHT (LBS.)		
FAN SIZE	SHAFT DIA.			A	B	D	E	F	H	J	K (MAX)	N	P	Q	U	W	X		AA	BB
	CL. I	CL. II	CL. III																	
8-3/4	3/4	N/A	N/A	8-9/16	7-5/8	9-1/16	7-1/2	16-9/16	10-3/8	4-7/8	13-1/8	7-9/16	1-1/8	4-1/2	5-1/16	11/16	18	9/16	29-13/16	63
10	3/4	N/A	N/A	9-13/16	8-5/8	10-5/16	8-1/2	18-13/16	11-11/16	5-7/16	13-11/16	8-5/8	1-1/8	5	5-11/16	3/4	20-5/16	9/16	32-13/16	73
12-1/4	1-3/16	1-3/16	N/A	12	10-1/2	12-1/2	10	22-1/2	14-1/16	6-1/2	22-1/2	10-11/16	1-1/8	6	7	15/16	24-9/16	9/16	37-15/16	148
13-1/2	1-3/16	1-3/16	N/A	13-1/4	11-1/2	13-3/4	11	24-3/4	15-3/8	7	23	11-3/4	1-1/8	6-9/16	7-11/16	1	26-7/8	9/16	37-15/16	163
15	1-3/16	1-3/16	N/A	14-5/8	12-3/4	15-1/4	12	27-1/4	17-5/16	8	24-1/8	13-1/16	1-1/2	7-3/8	8-9/16	1-3/16	30-1/16	9/16	40-15/16	196
16-1/2	1-3/16	1-7/16	N/A	16	14	16-3/4	13	29-3/4	18-15/16	8-11/16	24-3/4	14-3/8	1-1/2	8-1/16	9-3/8	1-7/16	33	9/16	43-15/16	232
18-1/4	1-7/16	1-11/16	N/A	17-13/16	15-7/16	18-1/2	14-1/4	32-3/4	20-13/16	9-7/16	27-13/16	15-7/8	1-1/2	8-13/16	10-3/8	1-1/2	36-1/4	9/16	43-15/16	296
20	1-7/16	1-11/16	1-15/16	19-7/16	17	20-3/8	15-1/2	35-7/8	22-5/8	10-3/16	29-13/16	17-3/8	1-1/2	9-9/16	11-3/4	1-11/16	39-5/8	9/16	49-1/16	417
22-1/4	1-7/16	1-11/16	2-3/16	21-5/8	18-7/8	22-9/16	17	39-9/16	25	11-3/16	32-7/8	19-3/8	1-1/2	10-9/16	13-1/4	1-7/8	43-7/8	9/16	52-1/16	484
24-1/2	1-11/16	1-15/16	2-7/16	23-13/16	20-3/4	24-13/16	18-1/2	43-5/16	27-3/8	12-1/8	33-7/8	21-5/16	1-1/2	11-1/2	14-3/4	2-1/16	48-1/8	9/16	55-1/16	574
27	1-15/16	2-3/16	2-7/16	26-1/4	22-7/8	27-1/4	20-1/4	47-1/2	30-1/2	13-3/4	37-5/16	23-1/2	2	12-7/8	16-1/2	2-1/4	53-3/8	9/16	58-1/16	743
30	1-15/16	2-3/16	2-7/16	29-1/8	25-5/16	30-1/4	22-1/4	52-1/2	33-11/16	15-1/16	38-5/8	26-1/8	2	14-3/16	18-1/2	2-9/16	59	9/16	61-1/16	854
33	1-15/16	2-3/16	2-7/16	32-1/16	27-5/8	33-3/16	24-1/2	57-11/16	36-7/8	16-3/8	41-15/16	28-3/4	2	15-1/2	20-3/4	2-13/16	64-1/2	9/16	64-1/16	990
36-1/2	2-3/16	2-3/16	2-7/16	35-3/8	30-11/16	36-11/16	27-1/2	64-3/16	40-9/16	17-7/8	43-7/16	31-3/4	2	17	23-1/4	3-3/16	71-1/4	9/16	67-1/16	1168
40-1/4	2-3/16	2-7/16	2-15/16	38-7/8	34-1/8	40-7/8	30-1/4	71-1/8	45	20	49-5/16	35	2-1/2	18-7/8	24	3-5/8	79-1/8	3/4	73-1/16	1897
44-1/2	2-7/16	2-11/16	3-3/16	43	37-3/4	45	33	78	49-1/2	21-7/8	51-9/16	38-11/16	2-1/2	20-3/4	26	4	87-3/16	3/4	76-1/16	2231

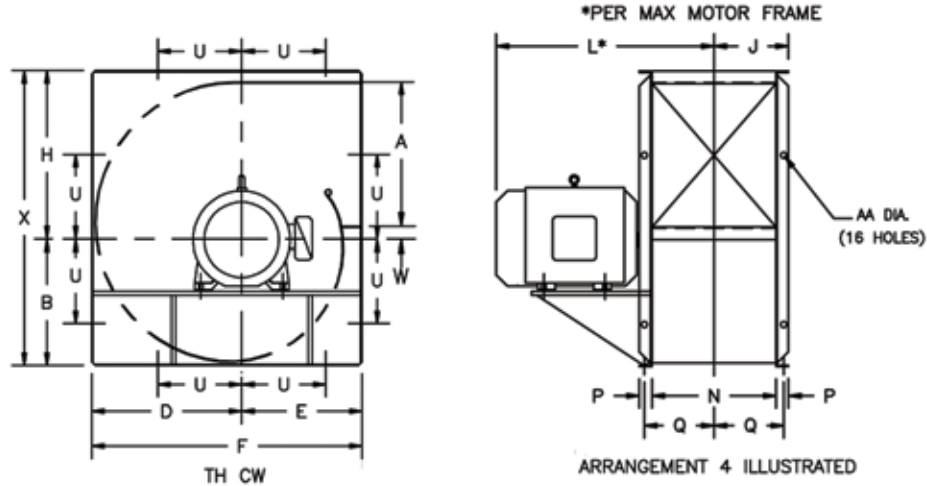
\*Estimated fan weight does not include motors or drives.

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED





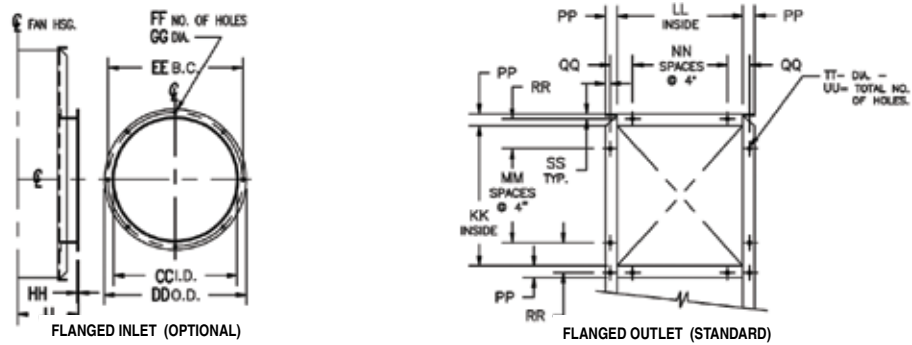
# SQAD Dimensions



DIMENSIONS - INCHES																*EST. WEIGHT (LBS.)
FAN SIZE	A	B	D	E	F	H	J	L (MAX)	N	P	Q	U	W	X	AA	
8-3/4	8-9/16	7-5/8	9-1/16	7-1/2	16-9/16	10-3/8	4-7/8	13-7/16	7-9/16	1-1/8	4-1/2	5-1/16	11/16	18	9/16	55
10	9-13/16	8-5/8	10-5/16	8-1/2	18-13/16	11-11/16	5-7/16	16-1/2	8-5/8	1-1/8	5	5-11/16	3/4	20-5/16	9/16	70
12-1/4	12	10-1/2	12-1/2	10	22-1/2	14-1/16	6-1/2	18-3/8	10-11/16	1-1/8	6	7	15/16	24-9/16	9/16	97
13-1/2	13-1/4	11-1/2	13-3/4	11	24-3/4	15-3/8	7	21-3/16	11-3/4	1-1/8	6-9/16	7-11/16	1	26-7/8	9/16	118
15	14-5/8	12-3/4	15-1/4	12	27-1/4	17-5/16	8	22-1/2	13-1/16	1-1/2	7-3/8	8-9/16	1-3/16	30-1/16	9/16	170
16-1/2	16	14	16-3/4	13	29-3/4	18-15/16	8-11/16	26-3/8	14-3/8	1-1/2	8-1/16	9-3/8	1-7/16	33	9/16	184
18-1/4	17-13/16	15-7/16	18-1/2	14-1/4	32-3/4	20-13/16	9-7/16	29-1/2	15-7/8	1-1/2	8-13/16	10-3/8	1-1/2	36-1/4	9/16	230
20	19-7/16	17	20-3/8	15-1/2	35-7/8	22-5/8	10-3/16	32-1/2	17-3/8	1-1/2	9-9/16	11-3/4	1-11/16	39-5/8	9/16	286
22-1/4	21-5/8	18-7/8	22-9/16	17	39-9/16	25	11-3/16	28-3/4	19-3/8	1-1/2	10-9/16	13-1/4	1-7/8	43-7/8	9/16	353
24-1/2	23-13/16	20-3/4	24-13/16	18-1/2	43-5/16	27-3/8	12-1/8	31-3/4	21-5/16	1-1/2	11-1/2	14-3/4	2-1/16	48-1/8	9/16	427
27	26-1/4	22-7/8	27-1/4	20-1/4	47-1/2	30-1/2	13-3/4	32-3/4	23-1/2	2	12-7/8	16-1/2	2-1/4	53-3/8	9/16	574
30	29-1/8	25-5/16	30-1/4	22-1/4	52-1/2	33-11/16	15-1/16	38-3/4	26-1/8	2	14-3/16	18-1/2	2-9/16	59	9/16	669

\*Estimated fan weight does not include motors or drives.

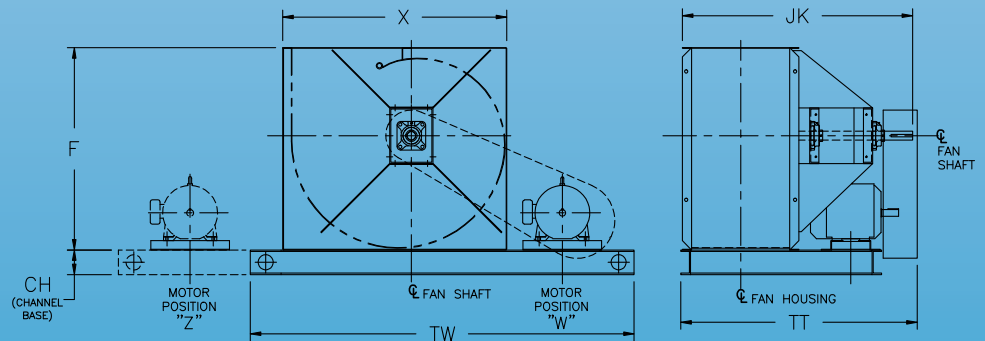
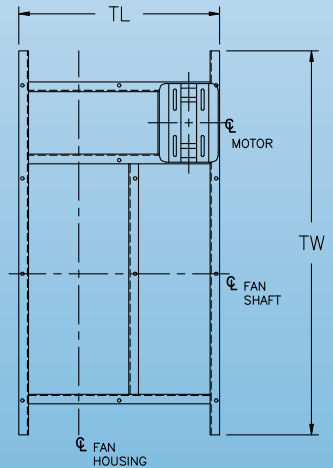
# SQA/SQAD Inlet/Outlet Flange Dimensions



FAN SIZE	INLET FLANGE - INCHES							OUTLET FLANGE - INCHES									
	CC I.D.	DD O.D.	EE B.C.	FF	GG	HH	JJ	KK	LL	MM	NN	PP	QQ	RR	SS	TT	UU
8-3/4	9-1/8	11-5/8	10-3/4	8	1/2	1/8	6-7/16	8-9/16	7-9/16	1	1	1-1/8	2-1/2	3	7/16	1/2	10
10	10-1/8	13-1/8	12	8	1/2	1/8	7	9-13/16	8-5/8	1	1	1-1/8	3	2-5/8	7/16	1/2	10
12-1/4	13-3/16	16-3/16	15	8	1/2	1/8	8-1/2	12	10-11/16	2	2	1-1/8	2	2-11/16	7/16	1/2	14
13-1/2	15-3/16	18-3/16	16-1/2	8	1/2	1/8	9-1/16	13-1/4	11-3/4	2	2	1-1/8	2-9/16	3-5/16	7/16	1/2	14
15	16-3/16	19-3/16	18-1/8	8	1/2	3/16	9-3/4	14-5/8	13-1/16	3	2	1-1/2	2-3/8	2-3/16	5/8	5/8	16
16-1/2	18-3/16	21-3/16	20-1/8	8	1/2	3/16	10-3/8	16	14-3/8	3	3	1-1/2	2-1/16	2-7/8	5/8	5/8	18
18-1/4	20-3/16	23-3/16	22-1/4	8	1/2	3/16	11-1/8	17-13/16	15-7/8	3	3	1-1/2	2-13/16	3-3/4	5/8	5/8	18
20	22-3/16	25-3/16	24-1/16	16	1/2	3/16	11-7/8	19-7/16	17-3/8	4	3	1-1/2	3-9/16	2-5/8	5/8	5/8	20
22-1/4	24-3/16	27-3/16	26-1/8	16	1/2	3/16	12-7/8	21-5/8	19-3/8	4	4	1-1/2	2-9/16	3-11/16	5/8	5/8	22
24-1/2	27-3/16	31-3/16	29	16	1/2	3/16	14-7/8	23-13/16	21-5/16	5	4	1-1/2	3-1/2	2-3/4	5/8	5/8	24
27	30-3/16	34-3/16	32-3/16	16	1/2	3/16	16	26-1/4	23-1/2	6	5	2	2-7/8	2-1/4	7/8	3/4	26
30	33-3/16	37-3/16	35-3/8	16	1/2	3/16	17-1/4	29-1/8	26-1/8	6	6	2	2-3/16	3-11/16	7/8	3/4	30
33	36-3/16	40-3/16	38-3/4	16	1/2	3/16	18-5/8	32-1/16	28-3/4	7	6	2	3-1/2	3-1/8	7/8	3/4	32
36-1/2	41-3/16	45-3/16	43	16	5/8	3/16	20-1/8	35-3/8	31-3/4	8	7	2	3	2-13/16	7/8	3/4	36
40-1/4	44-3/16	48-3/16	46-1/2	16	5/8	3/16	21-3/4	38-7/8	35	9	8	2-1/2	2-7/8	2-13/16	1-1/8	7/8	40
44-1/2	49-3/16	53-3/16	51-1/2	24	5/8	3/16	23-5/8	43	38-11/16	10	9	2-1/2	2-3/4	2-7/8	1-1/8	7/8	44

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED.

# Unitary Base



## NOTES:

Dimensions shown (in inches) are for clockwise rotation, upblast discharge fans with maximum motor frame in position "W".

Dimensions for counter-clockwise rotation, other discharge positions or other motor frames will vary.

Dimensions are not for construction unless certified.

Approximate weights include fan, base, motor, v-belt drive, and belt guard.

SIZE	F	X	JK	TL	TT	TW	CH	WGT-lbs.
8-3/4	16-9/16	18	18	14-3/8	20	43-5/16	6	227
10	18-13/16	20-5/16	19-1/8	15-7/16	21-1/8	45-5/8	6	248
12-1/4	22-1/2	24-9/16	29	24-1/2	31	51-13/15	6	394
13-1/2	24-3/4	26-7/8	30	25-1/16	32	58-5/16	6	522
15	27-1/4	30-1/16	32-1/8	27-3/16	34-1/8	61-7/8	6	595
16-1/2	29-3/4	32-15/16	33-7/16	28-7/16	35-7/16	67-3/16	6	769
18-1/4	32-3/4	36-1/4	37-1/4	32-3/16	39-1/4	70-1/2	6	845
20	35-7/8	39-5/8	40	34-15/16	42	79-13/16	6	1350
22-1/4	39-9/16	43-7/8	44-1/16	39	46-1/16	84-1/16	6	1444
24-1/2	43-5/16	48-1/8	46-1/16	40-15/16	48-1/16	88-5/16	6	1625
27	47-1/2	53-3/8	51-1/16	45-9/16	53-1/16	98-9/16	6	2127
30	52-1/2	59	53-11/16	48-3/16	55-11/16	104-3/16	6	2362
33	57-11/16	64-1/2	58-5/16	52-13/16	60-5/16	109-11/16	6	2533
36-1/2	64-3/16	71-1/4	61-5/16	55-1/2	63-5/16	118-11/16	6	3194
40-1/4	71-1/8	79-1/8	69-5/16	62-11/16	71-5/16	133-7/16	8	4517
44-1/2	78	87-3/16	73-3/8	66-3/4	75-3/8	141-1/2	8	5278



## **Centrifugal SQA Fans**

## **Engineering Specifications**

### **a. General**

Provide a high performance, low maintenance, centrifugal fan with airfoil impeller. Fan shall be licensed to bear the AMCA Certified Ratings Seal for Air Performance and Fan Efficiency Grade (FEG) based on tests and procedures in accordance with AMCA Publication 211. Fans must be manufactured and assembled in the U.S.A. Acceptable vendors: Chicago Blower Corporation.

### **b. Performance**

Performance shall include steep pressure and non-overloading horsepower characteristics. Mechanical Efficiency shall not be less than 80%. Wheel inlet cone to be designed to ensure smooth, stable air flow across the fan's entire operating range. System static pressure changes of 30% shall result in an approximate 10% volume reduction.

### **c. Housing**

Fan housing shall be rectangular and of welded, heavy gauge construction with four common discharge positions. Scroll is to be continuously welded by welders certified to AWS code. Housing sides shall be flanged to allow the fan to be mounted on any side and for added stiffness. Fan drive train and motor base shall be entirely supported by the housing to minimize the foundation plan. Housing outlet shall be flanged and punched for bolted connection.

### **d. Bearings**

Bearings shall be 4-bolt flange-mount, grease lubricated, ball or spherical roller type. Flange bearings are to mount to steel brackets which are bolted to the fan housing for easy bearing service without removing the rotor. Steel bearing brackets shall have slotted holes to allow for easy alignment of the bearings without shimming. Pillow block bearings are acceptable, provided the bearing pedestal top plate is machined to within 0.005 inches to eliminate shimming.

### **e. Rotor**

Wheel shall be cast aluminum or welded steel. Steel wheel shall have cast iron hub or cast steel hub that is permanently fastened to heavy gauge backplate using Huck lock bolts and collars. Threaded fasteners are not allowed. Steel airfoil blades must be single sheet, die formed, high strength low alloy, ASTM A1008 steel continuously welded to backplate and hyperbolic wheel cone. Wheels to be statically and dynamically balanced to G6.3 standards in accordance with ISO 1940 and ANSI S2.19 specifications. Shaft shall be turned, ground, and polished 1045 SAE cold rolled steel and straightened to a maximum T.I.R. of 0.002 inches. Shaft critical speed shall not be less than 120% times the class maximum safe speed.

### **f. Mounting**

Housing sides shall be flanged for mounting the fan to the foundation. Fan to be capable of mounting on any side using the housing side flanges. When the optional unitary base is required, the housing and adjustable motor base shall be welded to the unitary base.

### **g. Factory Mounted Motors and Drives**

Motors and drives shall be factory mounted. Unit to be tested at running speed for vibration and balance. Filtered vibration readings shall not exceed 0.15 inches per second in accordance with AMCA Publication 204 "Balance Quality and Vibration Levels for Fans." Readings for arrangements 1, 8, and 9 shall be taken at the fan bearings and motor bearings. Readings for arrangement 4 shall be taken at the motor bearings only.

### **h. Inlet Volume Control**

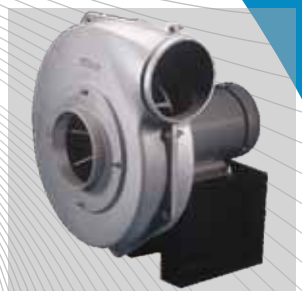
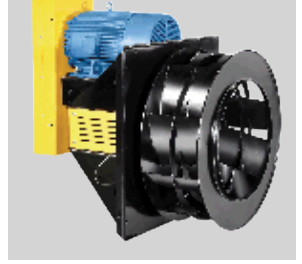
Inlet volume control (IVC) device shall be entirely nested within the inlet cone. IVC device shall be 7- bladed, and pre-spin the incoming air in the direction of wheel rotation to control the volume and pressure.

### **i. Accessories** (Choose from the following accessories)

- Slip-fit Inlet
- Flanged Inlet – Punched Holes
- Inlet/Outlet Companion Flanges
- Type B or C AMCA Spark Resistant Construction
- 1-1/2" NPT Housing Drain
- Shaft Seal
- Access Door – Quick Clamp, Flush Bolted, or Insulated Plug Type
- Shaft Cooler  
(Required from 301°F and above)
- Inlet Screen
- Shaft and Bearing Guard
- Adjustable Motor Base - compatible with motor frames 56 through 286T
- Extended Grease Fittings
- Totally Enclosed Belt Guards - with Ventilation Panels
- Constant or Adjustable Speed V-Belt Drives, minimum 1.3 S.F.
- Outlet Damper – Parallel or Opposed Blades Manual or Automatic Operation

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