

**SQAD/SQBD DIRECT DRIVE FANS**

HIGHER EFFICIENCY  
GREATER VERSATILITY



# SQAD/SQBD DIRECT DRIVE FANS



*Basic SQAD airfoil fan  
with open inlet.*

## For Industrial Air Handling

Direct Drive SQAD/SQBD fans combine the performance and efficiency of Chicago's versatile "Square" Fans with the advantages of a compact directly driven arrangement. With the fan wheel mounted directly onto the motor shaft maximum efficiency is constantly maintained. Belt noise, power loss, maintenance and troublesome adjustments are eliminated.

### IDEAL FOR MORE OEM APPLICATIONS

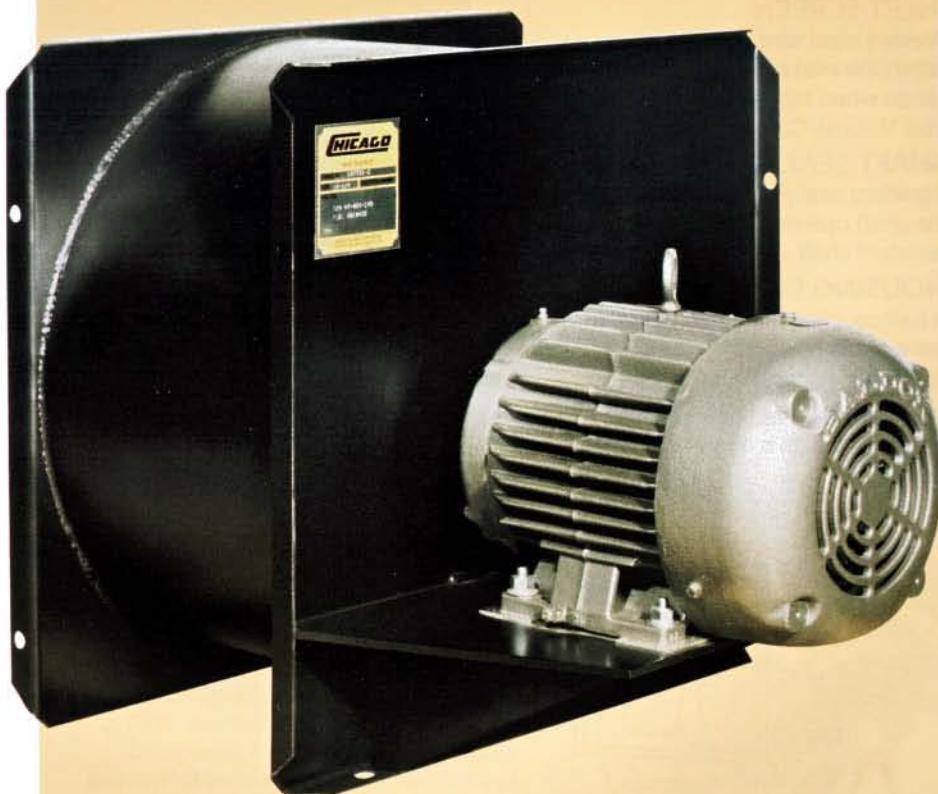
Chicago's Direct Drive Fan is now available as a SQBD with backwardly inclined blades in addition to the airfoil bladed SQAD. With the choice of two types of wheels application duty can be matched precisely. Also, the different performance characteristics of the two wheels allow for a wider performance range at standard synchronous motor speeds. The compact SQAD/SQBD fans are used in diverse OEM applications, from packaged forced air and dust collection systems to pressurizing and aeration installations.

### CHICAGO EXPERIENCE

The proficiency gained as a leading supplier of industrial and custom heavy-duty fans is reflected in the rugged construction of all Chicago built fans. It's called "Industrial Quality" and guarantees exceptional performance and reliability. If you are unsure of the suitability of a particular fan for a specific application, the experienced Chicago air moving professionals will evaluate your needs and provide recommendations. Chicago Blower offices are located throughout America and around the world.

**Q**  
*The building of all Chicago "SQ" Fans is monitored by stringent Quality Control and Quality Assurance Programs. Chicago's Stock*

*Fan program assures expediency without sacrificing quality and reliability. "Our fan's most important feature is the reliability we are able to add to your product."*



## RUGGED HOUSING

The heavy gauge steel housings have continuously welded air-tight seams. All edges are flanged for exceptional rigidity. The flanged outlet is pre-punched to simplify ductwork connection, and matches optional outlet damper flange.

## RIGID MOTOR BASE

Heavy gauge steel motor base is supported by gussets that extend to the foundation flange and assure solid structural stability.

## FOUR DISCHARGE POSITIONS

For versatility, the housing can be installed on the floor, wall or ceiling in any one of four discharge positions.

## STREAMLINED INLET

The precision spun steel inlet cone assures closer wheel tolerances. The result is a smoother air flow across the entire operating range.

## FACTORY RUN TESTED

To insure reliable, trouble-free performance every Chicago SQAD and SQBD fans are run tested for reliable performance.

## AIRFOIL or BACKWARDLY INCLINED WHEELS



### Airfoil Wheels

The SQAD with efficient airfoil wheel is recommended for clean air applications. Steel wheels are standard on Sizes 12-1/4 through 30. Cast aluminum airfoil wheels standard on Sizes 8-3/4 and 10, optional through Size 13-1/2.



### Backwardly Inclined Wheels

The SQBD with backwardly inclined wheels provide reliable operation in applications with dirty or dusty airstreams. The wheel is constructed of flat single surface steel blades continuously welded to the backplate and wheel cone.



*Chicago Blower Corporation certifies that the SQA and SQB Fans shown or 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.*

## OPTIONAL FEATURES

### COMPACT MOUNTED ACTUATOR



The Inlet Volume Control is available with a compact, mounted pneumatic or electric actuator. Other actuator accessories include positioners, limit switches and special enclosures. The actuator is connected to the IVC and factory tested, ready for automatic air control at partial or varying loads.

#### INLETS

Slip fit inlets and punched flanged inlets are available to meet installation requirements. The open inlet is standard.

#### INLET SCREEN

Welded steel wire screen mounts entirely within the inlet cone or outside the inlet vanes when the fan is furnished with an Inlet Volume Control.

#### SHAFT SEAL

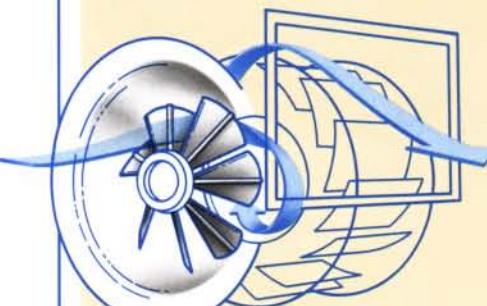
Standard seal reduces leakage through the shaft opening in the housing. Leak resistant shaft seals are also available.

#### HOUSING DRAIN

A half coupling is welded to the lowest point of the housing.

#### ACCESS DOOR

The flush mounted door features quick opening tension clamps and neoprene gasket.



#### INLET VOLUME CONTROL

Adjustable guide vanes pre-spin the incoming air in the same rotation as the wheel to produce the desired volume of air at the exact pressure. The vanes are mounted entirely within the inlet cone. Chicago's Inlet Volume Control (IVC) is available on Sizes 12-1/4 through 30. Control linkage can be set up for manual or automatic operation. When the fan is used for varying or partial load applications, the Inlet Volume Control provides precise air control and more efficient operation.

#### OUTLET DAMPERS

Dampers have punched flanges on both ends to simplify fan and duct connections. Parallel acting blade design is standard with opposed blades available. To mount the damper on the fan, a matching punched flanged outlet is needed. Although the outlet damper is often selected for its low initial cost and simple operation, it does require substantially more horsepower at reduced air volume than an Inlet Volume Control.

#### BASE RAILS (Type "T")

Channel rails are fitted with rubber-in-shear or spring isolators.

#### SPARK RESISTANT CONSTRUCTION

AMCA Type C spark resistant construction consists of steel wheel, aluminum inlet cone and buffer between wheel backplate and housing. AMCA Type B construction is also available.



*Fans can be furnished with a high gloss exterior finish to meet customer specifications.*

## FAN SELECTION

Pages 6 through 9 contain multi-rating tables for SQAD and SQBD fans. Each page provides data for a particular motor speed and fan wheel type. Fan sizes are listed with the maximum power (BHP) and the corresponding motor HP. Under each pressure (SP) rating, the volume (CFM) and outlet velocity (OV) for each fan size is listed. For pressures not provided in the tables, simply interpolate between two given pressures.

The separate SQAD and SQBD tables allow selection for type of application. If the application does not limit the requirements to either a SQAD or SQBD, a comparison of the two performances will help refine the selection.

AIR TEMP. °F	ALTITUDE (FEET)										
	0'	500'	1000'	1500'	2000'	2500'	3000'	3500'	4000'	4500'	5000'
0	.87	.88	.90	.92	.93	.95	.97	.99	1.00	1.02	1.04
40	.94	.96	.98	1.00	1.01	1.03	1.05	1.07	1.09	1.11	1.13
70	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20
80	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22
100	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22	1.25	1.27
120	1.09	1.11	1.13	1.16	1.18	1.20	1.22	1.24	1.27	1.29	1.31
140	1.13	1.15	1.17	1.20	1.22	1.24	1.26	1.29	1.31	1.34	1.36
160	1.17	1.19	1.21	1.24	1.26	1.28	1.31	1.33	1.35	1.38	1.41
180	1.21	1.23	1.25	1.28	1.30	1.32	1.35	1.37	1.40	1.42	1.45
200	1.25	1.27	1.29	1.32	1.34	1.36	1.39	1.42	1.44	1.47	1.50
250	1.34	1.36	1.39	1.41	1.44	1.47	1.49	1.52	1.55	1.58	1.61
300	1.43	1.46	1.49	1.51	1.54	1.57	1.60	1.63	1.66	1.69	1.72

### EXAMPLE 1:

**7100 CFM, 120°F, 2500' elevation, 10" SP, dust laden air**

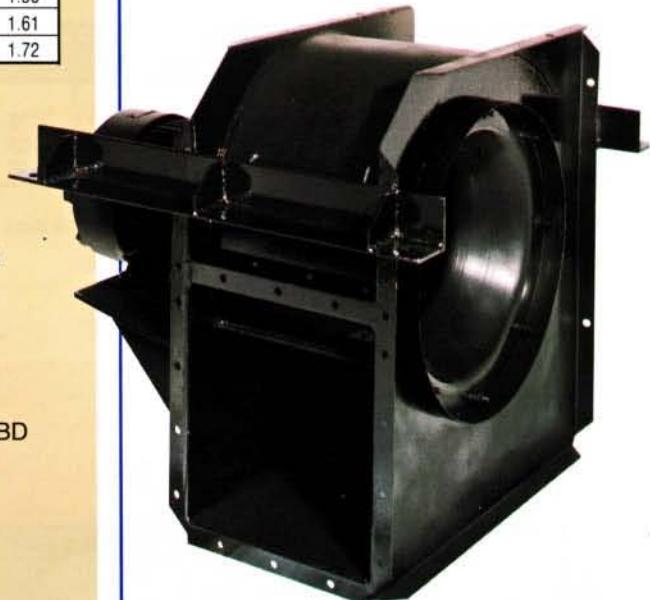
1. From the Correction Table above, the correction factor for 120° and 2500' elevation is 1.20.
2. The equivalent SP at 70°F and sea level equals  $10 \times 1.20 = 12$ "SP.
3. Since the application is dust laden air, enter the SQBD multi-rating table at 7100 CFM and 12" SP. You would select a Size 16-1/2 SQBD fan at 3500 RPM, requiring 19.8 BHP.
4. To correct the BHP to 120°F and 2500' elevation, use the same correction factor.  $19.8 \div 1.2 = 16.5$  BHP.

### EXAMPLE 2:

**8800 CFM, 70°F, sea level, 3"SP, clean air**

1. At 70°F and sea level, no correction factor is required.
2. The clean air application allows for comparison of both the SQAD and SQBD multi-rating tables. Entering the tables at 8800 CFM and 3"SP, you would select a Size 22-1/4 SQAD fan at 1750 RPM with a 7-1/2 HP motor.

*A custom engineered SQAD fan with anti-corrosion finish. Installation requirements included notching the housing corners and special oversize slip inlet. Customer supplied the special mounting brackets.*



**AIRFOIL WHEEL - Performance Data**

Fan Size	Motor HP	Max. BHP	1/2" SP		3/4" SP		1" SP		1 1/4" SP		1 1/2" SP		1 3/4" SP		2" SP		2 1/4" SP	
			CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV
8 1/4	1/4	.06	414	1038	341	855												
10	1/4	.15	811	1384	732	1249	648	1106	513	875	1296	1473	1192	1355	1054	1198		
12 1/4	1/2	.41	1579	1794	1491	1694	1396	1586	1261	1473								
13 1/2	3/4	.67	2153	2014	2060	1927	1960	1833	1852	1732	1743	1630	1631	1526	1499	1402	1294	1210
15	1 1/2	1.13	3000	2274	2900	2199	2794	2118	2681	2033	2562	1942	2441	1851	2318	1757	2189	1660
16 1/2	2	1.83	4038	2528	3930	2461	3818	2391	3700	2317	3575	2239	3445	2157	3312	2074	3178	1990
18 1/4	3	3.04	5516	2824	5398	2764	5277	2702	5152	2638	5022	2571	4885	2501	4743	2429	4598	2354
20	5	4.80	7310	3116	7183	3062	7053	3006	6919	2949	6782	2891	6640	2830	6492	2767	6338	2702
22 1/4	7 1/2	7.35	10502	3621	10388	3582	10266	3540	10132	3494	9985	3443	9813	3384	9616	3316	9403	3242
24 1/2	15	11.92	14073	4003	13950	3968	13821	3931	13685	3892	13539	3851	13378	3805	13198	3754	12994	3696
27	20	19.37	18892	4424	18759	4393	18621	4361	18478	4327	18327	4292	18168	4255	17997	4215	17810	4171
30	40	32.23	26283	4987	26112	4955	25940	4922	25766	4889	25990	4856	25411	4822	25230	4787	25047	4753

Fan Size	2 1/2" SP		2 3/4" SP		3" SP		3 1/4" SP		3 1/2" SP		4" SP		4 1/2" SP		5" SP		5 1/2" SP	
	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV
15	2035	1543	1807	1370														
16 1/2	3042	1905	2897	1814	2728	1708	2498	1564	2187	1369								
18 1/4	4450	2279	4302	2203	4152	2126	3996	2046	3824	1958	3350	1715						
20	6181	2635	6020	2566	5858	2497	5696	2428	5532	2358	5189	2212	4771	2034	4111	1752		
22 1/4	9187	3168	8987	3099	8800	3034	8620	2972	8441	2911	8070	2783	7658	2641	7197	2482	6678	2303
24 1/2	12770	3632	12532	3564	12294	3497	12071	3433	11861	3373	11461	3260	11065	3147	10643	3027	10182	2896
27	17603	4122	17376	4069	17129	4011	16869	3951	16606	3889	16106	3772	15653	3666	15217	3564	14778	3461
30	24861	4717	24671	4681	24479	4645	24283	4608	24085	4570	23673	4492	23241	4410	22784	4323	22295	4231

Fan Size	6" SP		6 1/2" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP		13" SP	
	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV	CFM	OV
22 1/4	6073	2094	5424	1870														
24 1/2	9675	2752	9118	2594	8490	2415	7076	2013										
27	14315	3352	13816	3236	13278	3110	12063	2825	10592	2481	8968	2100						
30	21762	4129	21178	4019	20527	3895	19148	3633	17906	3398	16777	3183	15651	2970	14309	2715	12066	2290

Performance shown is for Direct Drive SQA Fans with outlet duct.

## BASIC SOUND POWER LEVEL and dBA

Size	OCTAVE BAND & CENTER Hz								Approx. dBA @ 10 ft.
	1 63	2 125	3 250	4 500	5 1000	6 2000	7 4000	8 8000	
8 1/4	73	68	65	59	56	53	49	46	42
10	77	72	69	63	60	57	53	50	43
12 1/4	81	75	79	71	65	60	58	57	53
13 1/2	84	78	82	74	68	63	61	60	56
15	87	81	85	77	71	66	64	63	59
16 1/2	90	84	88	80	74	69	67	66	62
18 1/4	94	88	92	84	78	73	71	70	66
20	95	90	94	85	79	75	73	72	68
22 1/4	97	96	90	86	82	79	75	73	70
24 1/2	100	98	93	89	85	82	78	76	74
27	103	101	96	92	87	85	81	78	77
30	106	105	99	95	91	88	84	82	80

### NOTES ON SOUND RATINGS:

- Ratings are based on sound tests in accordance with AMCA sound code 300 setup 1.
- Values shown are for total internal sound power level re 10<sup>-12</sup> watt per AMCA Bul. 301 and 303, if necessary to obtain sound pressure level at 5 feet from fan, subtract 15 dB from octave band figure and make a further correction for end reflection based on data in the ASHRAE Handbook of Fundamentals.
- DBA value applies to 10 foot distance based on theoretical free field environment.
- Ratings apply to normal range of selection for high efficiency. Correction required for inlet Vane Control...contact factory.
- Octave band center frequency in cycles/sec., Hz, are per ANSI S1.6-1960 and AMCA series 2.
- The AMCA Certified Ratings Seal applies to air performance only.

**BACKWARD INCLINED WHEEL - Performance Data**

Fan Size	Motor HP	Max. BHP	1/2" SP CFM OV	3/4" SP CFM OV	1" SP CFM OV	1 1/4" SP CFM OV	1 1/2" SP CFM OV	1 3/4" SP CFM OV	2" SP CFM OV	2 1/4" SP CFM OV
12 1/4	3/4	.76	1722 1957	1654 1880	1579 1794	1490 1793	1391 1581	1290 1466	1139 1294	
13 1/2	1	.90	2335 2182	2263 2115	2186 2043	2100 1963	2002 1871	1894 1770	1784 1667	1660 1551
15	1 1/2	1.53	3239 2454	3161 2395	3080 2333	2993 2267	2899 2196	2793 2116	2677 2028	2554 1935
16 1/2	3	2.47	4346 2733	4262 2681	4175 2626	4085 2569	3989 2509	3887 2445	3774 2374	3651 2296
18 1/4	5	4.09	5921 3036	5830 2990	5736 2942	5640 2892	5540 2841	5435 2787	5325 2731	5207 2670
20	7 1/2	6.44	7833 3347	7734 3305	7632 3262	7529 3218	7423 3172	7314 3126	7201 3077	7083 3027
22 1/4	10	10.38	11403 3932	11289 3893	11176 .3854	11063 3815	10949 3776	10835 3736	10720 3697	10604 3657
24 1/2	20	16.83	15276 4340	15152 4305	15027 4269	14902 4234	14777 4198	14652 4163	14527 4127	14401 4091
27	30	27.35	20505 4802	20368 4770	20231 4738	20094 4706	19956 4674	19818 4641	19680 4609	19542 4577
30	50	45.09	27366 5193	27223 5166	27079 5138	26934 5111	26788 5083	26641 5055	26493 5027	26343 4999

Fan Size	2 1/2" SP CFM OV	2 3/4" SP CFM OV	3" SP CFM OV	3 1/4" SP CFM OV	3 1/2" SP CFM OV	4" SP CFM OV	4 1/2" SP CFM OV	5" SP CFM OV	5 1/2" SP CFM OV
13 1/2	1445 1350								
15	2432 1842	2295 1739	2089 1583						
16 1/2	3520 2214	3385 2129	3251 2045	3106 1953	2914 1833				
18 1/4	5079 2605	4942 2534	4798 2461	4649 2384	4500 2308	4187 2147	3683 1889		
20	6959 2974	6827 2918	6687 2858	6537 2794	6381 2727	6055 2588	5729 2448	5340 2282	4673 1997
22 1/4	10485 3616	10363 3573	10236 3530	10101 3483	9956 3433	9637 3323	9278 3199	8891 3066	8487 2927
24 1/2	14274 4055	14146 4019	14016 3982	13882 3944	13743 3904	13448 3820	13119 3727	12752 3623	12351 3509
27	19403 4544	19265 4512	19125 4479	18984 4446	18842 4413	18548 4344	18237 4271	17901 4192	17532 4106
30	26192 4970	26040 4941	25886 4912	25730 4882	25573 4853	25253 4792	24924 4729	24586 4665	24235 4599

Fan Size	6" SP CFM OV	6 1/2" SP CFM OV	7" SP CFM OV	8" SP CFM OV	9" SP CFM OV	10" SP CFM OV	11" SP CFM OV	12" SP CFM OV	13" SP CFM OV
22 1/4	8055 2778	7586 2616	7062 2435						
24 1/2	11925 3388	11484 3263	11022 3131	9999 2841					
27	17129 4011	16694 3910	16232 3801	15265 3575	14214 3329	13036 3053			
30	23874 4530	23497 4459	23106 4384	22286 4229	21426 4066	20497 3889	19406 3682	17856 3388	

Performance shown is for Direct Drive SQB Fans with outlet duct.

## BASIC SOUND POWER LEVEL and dBA

Size	OCTAVE BAND & CENTER Hz								Approx. dBA @ 10 ft.
	1 63	2 125	3 250	4 500	5 1000	6 2000	7 4000	8 8000	
12 1/4	82	82	76	72	68	64	60	56	56
13 1/2	84	83	78	74	70	67	63	60	58
15	87	86	81	78	73	70	66	64	61
16 1/2	91	90	85	81	76	73	69	66	65
18 1/4	94	93	87	84	79	76	72	70	68
20	96	95	90	87	82	78	75	72	70
22 1/4	99	99	94	89	85	82	78	76	74
24 1/2	104	102	96	93	89	85	81	78	78
27	106	104	99	96	92	88	84	81	80
30	109	108	103	99	95	91	87	84	84

### NOTES ON SOUND RATINGS:

- Ratings are based on sound tests in accordance with AMCA sound code 300 setup 1.
- Values shown are for total internal sound power level re 10<sup>-12</sup> watt per AMCA Bul. 301 and 303, if necessary to obtain sound pressure level at 5 feet from fan, subtract 15 dB from octave band figure and make a further correction for end reflection based on data in the ASHRAE Handbook of Fundamentals.
- DBA value applies to 10 foot distance based on theoretical free field environment.
- Ratings apply to normal range of selection for high efficiency. Correction required for inlet Vane Control...contact factory.
- Octave band center frequency in cycles/sec., Hz, are per ANSI S1.6-1960 and AMCA series 2.
- The AMCA Certified Ratings Seal applies to air performance only.

**AIRFOIL WHEEL - Performance Data**

Fan Size	Motor HP	Max. BHP	1/2" SP CFM OV	1" SP CFM OV	1 1/2" SP CFM OV	2" SP CFM OV	2 1/2" SP CFM OV	3" SP CFM OV	3 1/2" SP CFM OV	4" SP CFM OV
8 1/4	3/4	.62	1211 2697	1153 2568	1091 2430	1023 2278	952 2120	879 1958	786 1751	633 1410
10	1 1/2	1.20	1827 3118	1763 3009	1695 2892	1623 2770	1545 2637	1464 2498	1383 2360	1297 2213
12 1/4	5	3.31	3398 3861	3320 3773	3241 3683	3159 3590	3073 3492	2983 3390	2889 3283	2792 3173
13 1/2	7 1/2	5.38	4566 4271	4481 4192	4395 4111	4306 4028	4215 3943	4120 3854	4022 3762	3920 3667
15	10	9.12	6285 4765	6192 4694	6097 4622	6000 4549	5901 4474	5800 4397	5696 4318	5588 4237
16 1/2	15	14.69	8387 5252	8284 5187	8181 5123	8076 5057	7969 4990	7860 4922	7749 4852	7636 4781
18 1/4	25	24.30	11374 5824	11261 5766	11147 5708	11032 5649	10915 5589	10797 5528	10677 5467	10555 5405
20	40	38.43	14995 6392	14871 6339	14746 6286	14621 6232	14494 6178	14366 6124	14237 6069	14106 6013

Fan Size	4 1/2" SP CFM OV	5" SP CFM OV	6" SP CFM OV	7" SP CFM OV	8" SP CFM OV	9" SP CFM OV	10" SP CFM OV	11" SP CFM OV	12" SP CFM OV
10	1192 2034	1027 1753							
12 1/4	2692 3059	2593 2947	2385 2710	2109 2397					
13 1/2	3814 3568	3705 3466	3486 3261	3262 3051	2999 2805	2589 2422			
15	5477 4152	5363 4066	5125 3886	4882 3701	4637 3516	4378 3319	4071 3086	3615 2740	
16 1/2	7519 4708	7400 4634	7151 4478	6890 4314	6624 4148	6356 3980	6084 3810	5794 3628	5456 3416
18 1/4	10431 5341	10305 5276	10040 5143	9771 5003	9487 4858	9196 4709	8900 4557	8604 4406	8305 4252
20	13974 5957	13839 5899	13564 5782	13280 5661	12984 5535	12677 5404	12362 5269	12041 5133	11717 4994

Fan Size	13" SP CFM OV	14" SP CFM OV	15" SP CFM OV	16" SP CFM OV	17" SP CFM OV	18" SP CFM OV	19" SP CFM OV	20" SP CFM OV	21" SP CFM OV
16 1/2	4996 3128	4375 2740							
18 1/4	7992 4092	7649 3917	7244 3709	6700 3431	6004 3074				
20	11392 4856	11066 4717	10732 4575	10379 4424	9992 4259	9542 4067	8964 3821	8223 3505	7489 3192

Performance shown is for Direct Drive SQA Fans with outlet duct.

## BASIC SOUND POWER LEVEL and dBA

Size	OCTAVE BAND & CENTER Hz								Approx. dBA @ 10 ft.
	1 63	2 125	3 250	4 500	5 1000	6 2000	7 4000	8 8000	
8 1/4	85	88	83	80	74	71	67	64	61
10	89	92	87	84	78	75	71	68	65
12 1/4	101	95	90	94	85	79	75	73	73
13 1/2	104	98	93	97	88	82	78	76	76
15	107	101	96	100	91	85	81	79	79
16 1/2	110	104	99	103	94	88	84	82	82
18 1/4	114	108	103	107	98	92	88	86	86
20	116	110	105	109	100	94	90	88	88

### NOTES ON SOUND RATINGS:

1. Ratings are based on sound tests in accordance with AMCA sound code 300 setup 1.
2. Values shown are for total internal sound power level re 10<sup>-12</sup> watt per AMCA Bul. 301 and 303, if necessary to obtain sound pressure level at 5 feet from fan, subtract 15 dB from octave band figure and make a further correction for end reflection based on data in the ASHRAE Handbook of Fundamentals.

3. DBA value applies to 10 foot distance based on theoretical free field environment.
4. Ratings apply to normal range of selection for high efficiency. Correction required for inlet Vane Control...contact factory.
5. Octave band center frequency in cycles/sec., Hz, are per ANSI S1.6-1960 and AMCA series 2.
6. The AMCA Certified Ratings Seal applies to air performance only.

**Size 12-1/4 SQAD with optional cast aluminum wheel rated for 2385 CFM at 6" SP.**



## BACKWARD INCLINED WHEEL - Performance Data

Fan Size	Motor HP	Max. BHP	1/2" SP CFM	1/2" SP OV	1" SP CFM	1" SP OV	1 1/2" SP CFM	1 1/2" SP OV	2" SP CFM	2" SP OV	2 1/2" SP CFM	2 1/2" SP OV	3" SP CFM	3" SP OV	3 1/2" SP CFM	3 1/2" SP OV	4" SP CFM	4" SP OV
12 1/4	5	4.46	3630	4125	3569	4056	3507	3985	3444	3914	3378	3839	3309	3760	3236	3677	3158	3589
13 1/2	7 1/2	7.24	4872	4553	4806	4492	4739	4429	4670	4364	4599	4298	4527	4231	4451	4160	4373	4087
15	15	12.33	6701	5077	6629	5022	6556	4967	6483	4911	6408	4855	6332	4797	6255	4739	6176	4679
16 1/2	20	19.90	8935	5619	8856	5570	8777	5520	8697	5470	8617	5419	8535	5368	8453	5316	8369	5264
18 1/4	30	33.00	12110	6210	12023	6166	11936	6121	11849	6076	11761	6031	11672	5986	11583	5940	11493	5894
20	50	52.30	15956	6819	15862	6779	15768	6738	15673	6698	15578	6657	15482	6616	15386	6575	15289	6534

Fan Size	4 1/2" SP CFM	4 1/2" SP OV	5" SP CFM	5" SP OV	6" SP CFM	6" SP OV	7" SP CFM	7" SP OV	8" SP CFM	8" SP OV	9" SP CFM	9" SP OV	10" SP CFM	10" SP OV	11" SP CFM	11" SP OV	12" SP CFM	12" SP OV
12 1/4	3073	3492	2981	3388	2783	3163	2580	2932	2278	2589	3320	3103	2890	2701				
13 1/2	4290	4009	4201	3926	4005	3743	3789	3541	3568	3335	5160	3909	4922	3729	4661	3531	4277	3240
15	6094	4617	6009	4552	5828	4415	5625	4261	5399	4090								
16 1/2	8283	5209	8196	5155	8014	5040	7819	4918	7606	4784	7370	4635	7116	4475	6854	4311	6594	4147
18 1/4	11402	5847	11309	5799	11120	5703	10924	5602	10717	5496	10496	5383	10256	5259	9996	5126	9719	4984
20	15191	6492	15093	6450	14894	6365	14690	6278	14479	6188	14261	6094	14032	5997	13788	5892	13526	5780

Fan Size	13" SP CFM	13" SP OV	14" SP CFM	14" SP OV	15" SP CFM	15" SP OV	16" SP CFM	16" SP OV	17" SP CFM	17" SP OV	18" SP CFM	18" SP OV	19" SP CFM	19" SP OV	20" SP CFM	20" SP OV	21" SP CFM	21" SP OV
16 1/2	6319	3974	5965	3752	5429	3414												
18 1/4	9432	4837	9144	4689	8858	4543	8551	4385	8171	4190	7645	3921	6734	3453				
20	13246	5661	12949	5534	12641	5402	12327	5268	12015	5135	11704	5002	11376	4862	10998	4700	10505	4489

Performance shown is for Direct Drive SQB Fans with outlet duct.

## BASIC SOUND POWER LEVEL and dBA

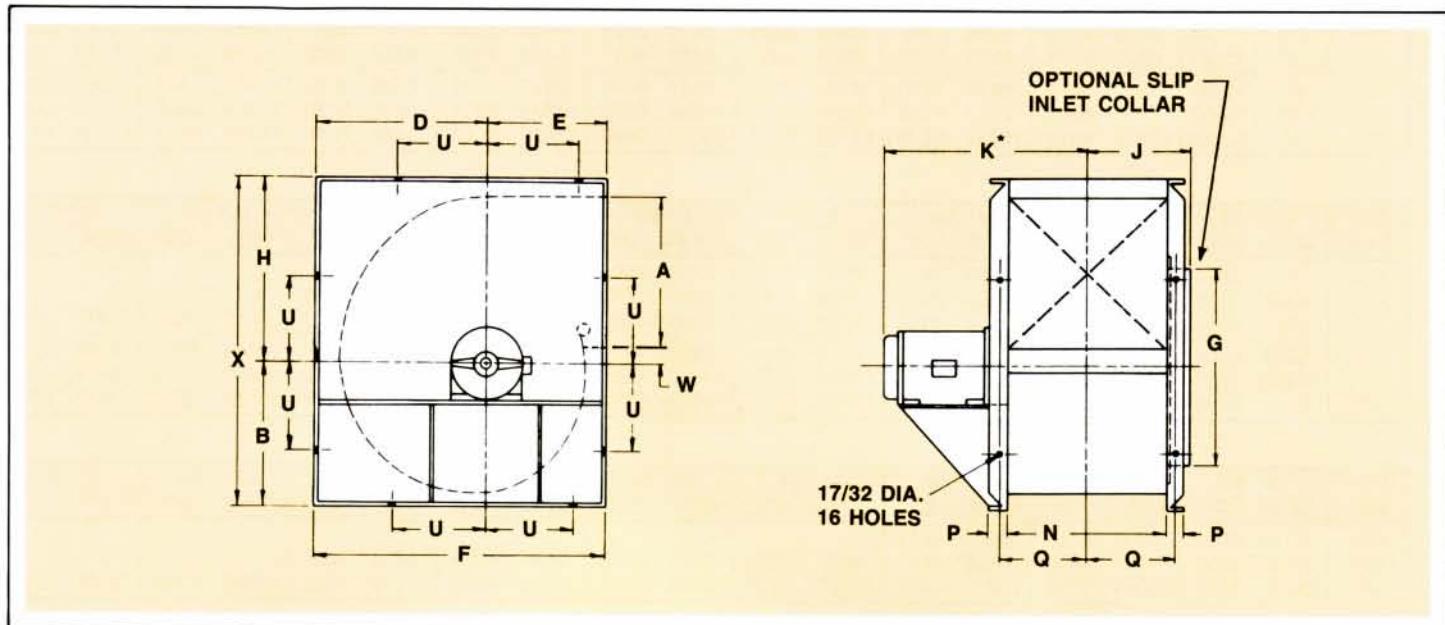
Size	OCTAVE BAND & CENTER Hz								Approx. dBA @ 10 ft.
	1 63	2 125	3 250	4 500	5 1000	6 2000	7 4000	8 8000	
12 1/4	94	97	96	91	87	81	79	75	74
13 1/2	96	100	98	94	89	84	82	78	77
15	99	103	102	97	93	88	85	81	81
16 1/2	103	106	105	100	95	91	88	84	83
18 1/4	106	109	107	103	98	94	91	88	86
20	108	111	110	106	102	97	94	90	90

### NOTES ON SOUND RATINGS:

1. Ratings are based on sound tests in accordance with AMCA sound code 300 setup 1.
2. Values shown are for total internal sound power level re 10<sup>-12</sup> watt per AMCA Bul. 301 and 303, if necessary to obtain sound pressure level at 5 feet from fan, subtract 15 dB from octave band figure and make further correction for end reflection based on data in the ASHRAE Handbook of Fundamentals.
3. DBA value applies to 10 foot distance based on theoretical free field environment.
4. Ratings apply to normal range of selection for high efficiency. Correction required for inlet Vane Control...contact factory.
5. Octave band center frequency in cycles/sec., Hz, are per ANSI S1.6-1960 and AMCA series 2.
6. The AMCA Certified Ratings Seal applies to air performance only.

Size 13-1/2 SQBD with spark resistant construction rated for 3320 CFM at 9" SP.



**DIMENSIONAL DATA**


Fan Size	Wheel Dia.	DIMENSIONS — INCHES														
		A	B	D	E	F	G	H	J	K	N	P	Q	U	W	X
8 $\frac{3}{4}$	97/16	8 $\frac{9}{16}$	7 $\frac{5}{8}$	9 $\frac{1}{16}$	7 $\frac{1}{2}$	16 $\frac{9}{16}$	9 $\frac{3}{8}$	10 $\frac{3}{8}$	5 $\frac{3}{8}$	13 $\frac{7}{16}$	7 $\frac{9}{16}$	1 $\frac{1}{8}$	41 $\frac{15}{32}$	5 $\frac{1}{16}$	11 $\frac{1}{16}$	18
10	10 $\frac{13}{16}$	9 $\frac{13}{16}$	8 $\frac{5}{8}$	10 $\frac{5}{16}$	8 $\frac{1}{2}$	18 $\frac{13}{16}$	10 $\frac{7}{8}$	11 $\frac{11}{16}$	5 $\frac{7}{8}$	16 $\frac{1}{2}$	8 $\frac{5}{8}$	1 $\frac{1}{8}$	5	5 $\frac{1}{16}$	11 $\frac{1}{16}$	20 $\frac{5}{16}$
12 $\frac{1}{4}$	13 $\frac{1}{4}$	12	10 $\frac{1}{2}$	12 $\frac{1}{2}$	10	22 $\frac{1}{2}$	13 $\frac{7}{16}$	14 $\frac{1}{16}$	6 $\frac{7}{8}$	18 $\frac{3}{8}$	10 $\frac{11}{16}$	1 $\frac{1}{8}$	6 $\frac{1}{32}$	7	1 $\frac{1}{16}$	24 $\frac{9}{16}$
13 $\frac{1}{2}$	14 $\frac{9}{16}$	13 $\frac{1}{4}$	11 $\frac{1}{2}$	13 $\frac{3}{4}$	11	24 $\frac{3}{4}$	15 $\frac{7}{16}$	15 $\frac{3}{8}$	7 $\frac{7}{16}$	22 $\frac{11}{16}$	11 $\frac{3}{4}$	1 $\frac{1}{8}$	6 $\frac{9}{16}$	7 $\frac{11}{16}$	1 $\frac{1}{16}$	26 $\frac{7}{8}$
15	16 $\frac{3}{16}$	14 $\frac{5}{8}$	12 $\frac{3}{4}$	15 $\frac{1}{4}$	12	27 $\frac{1}{4}$	16 $\frac{1}{16}$	17 $\frac{5}{16}$	8 $\frac{1}{16}$	26 $\frac{1}{4}$	13 $\frac{1}{16}$	1 $\frac{1}{2}$	7 $\frac{3}{8}$	8 $\frac{1}{16}$	1 $\frac{1}{4}$	30 $\frac{1}{16}$
16 $\frac{1}{2}$	17 $\frac{13}{16}$	16	14	16 $\frac{3}{4}$	13	29 $\frac{3}{4}$	18 $\frac{9}{16}$	18 $\frac{15}{16}$	8 $\frac{3}{4}$	28 $\frac{3}{8}$	14 $\frac{3}{8}$	1 $\frac{1}{2}$	8 $\frac{1}{16}$	9 $\frac{3}{8}$	1 $\frac{7}{16}$	32 $\frac{15}{16}$
18 $\frac{1}{4}$	19 $\frac{11}{16}$	17 $\frac{13}{16}$	15 $\frac{7}{16}$	18 $\frac{1}{2}$	14 $\frac{1}{4}$	32 $\frac{3}{4}$	20 $\frac{9}{16}$	20 $\frac{13}{16}$	10	32 $\frac{1}{2}$	15 $\frac{7}{8}$	1 $\frac{1}{2}$	8 $\frac{13}{16}$	10 $\frac{3}{8}$	1 $\frac{1}{2}$	36 $\frac{1}{4}$
20	21 $\frac{9}{16}$	19 $\frac{7}{16}$	17	20 $\frac{3}{8}$	15 $\frac{1}{2}$	35 $\frac{7}{8}$	22 $\frac{9}{16}$	22 $\frac{5}{8}$	10 $\frac{7}{8}$	34 $\frac{3}{16}$	17 $\frac{3}{8}$	1 $\frac{1}{2}$	9 $\frac{9}{16}$	11 $\frac{3}{4}$	1 $\frac{11}{16}$	39 $\frac{5}{8}$
22 $\frac{1}{4}$	24	21 $\frac{5}{8}$	18 $\frac{7}{8}$	22 $\frac{9}{16}$	17	39 $\frac{9}{16}$	24 $\frac{1}{16}$	25	11 $\frac{7}{8}$	31 $\frac{3}{4}$	19 $\frac{3}{8}$	1 $\frac{1}{2}$	10 $\frac{1}{16}$	13 $\frac{1}{4}$	1 $\frac{7}{8}$	43 $\frac{7}{8}$
24 $\frac{1}{2}$	26 $\frac{7}{16}$	23 $\frac{13}{16}$	20 $\frac{3}{4}$	24 $\frac{13}{16}$	18 $\frac{1}{2}$	43 $\frac{5}{16}$	27 $\frac{9}{16}$	27 $\frac{3}{8}$	12 $\frac{7}{8}$	32 $\frac{3}{4}$	21 $\frac{5}{16}$	1 $\frac{1}{2}$	11 $\frac{17}{32}$	14 $\frac{3}{4}$	2 $\frac{1}{16}$	48 $\frac{1}{8}$
27	29 $\frac{1}{8}$	26 $\frac{1}{4}$	22 $\frac{7}{8}$	27 $\frac{1}{4}$	20 $\frac{1}{4}$	47 $\frac{1}{2}$	30 $\frac{9}{16}$	30 $\frac{1}{2}$	14 $\frac{1}{2}$	34 $\frac{1}{4}$	23 $\frac{1}{2}$	2	12 $\frac{7}{8}$	16 $\frac{1}{2}$	2 $\frac{1}{4}$	53 $\frac{3}{8}$
30	32 $\frac{3}{8}$	29 $\frac{3}{16}$	25 $\frac{5}{16}$	30 $\frac{1}{4}$	22 $\frac{1}{4}$	52 $\frac{1}{2}$	33 $\frac{9}{16}$	33 $\frac{11}{16}$	15 $\frac{3}{4}$	38 $\frac{3}{8}$	26 $\frac{1}{8}$	2	14 $\frac{1}{16}$	18 $\frac{1}{2}$	2 $\frac{9}{16}$	59

Fan Size	Fan Weight Less Motor		Available Frame Sizes	Position of Discharge and Rotation (Viewed from drive [motor] side)							
	SQAD	SQBD		CW TH	CW DB	CW BH	CW UB	CCW TH	CCW DB	CCW BH	CCW UB
8 $\frac{3}{4}$	55	—	48, 56								
10	70	—	48, 56, 143T, 145T								
12 $\frac{1}{4}$	97	97	56, 143T, 145T, 182T, 184T								
13 $\frac{1}{2}$	118	120	56, 143T, 145T, 182T, 184T, 213T, 215T								
15	170	176	56, 143T, 145T, 184T, 213T, 215T, 254T								
16 $\frac{1}{2}$	184	188	145T, 182T, 184T, 215T, 254T, 256T, 284TS								
18 $\frac{1}{4}$	230	238	182T, 184T, 215T, 254T, 256T, 284TS, 286TS, 324TS								
20	286	297	184T, 213T, 284TS, 286TS, 324TS, 326TS								
22 $\frac{1}{4}$	353	366	182T, 184T, 213T, 215T, 254T, 256T**								
24 $\frac{1}{2}$	427	440	213T, 215T, 254T, 256T								
27	574	587	213T, 215T, 254T, 256T, 284T, 286T								
30	669	704	284T, 286T, 324T, 326T								

\* K Dimension Applies to Max. Motor Frame Size

\*\* Available for B Wheel Only

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## CHICAGO SQUARE FANS for EVERY APPLICATION

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The airfoil bladed fan is the most efficient wheel type and is recommended primarily for clean air applications. Like all Chicago Square Fans, the SQA has flanged edges on four sides for added strength and for mounting in any of the four discharge positions. Stock sizes from 8-3/4 to 44-1/2 with volumes to 55,600 CFM and pressures to 16" wg. Ask for Bulletin SQA.

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