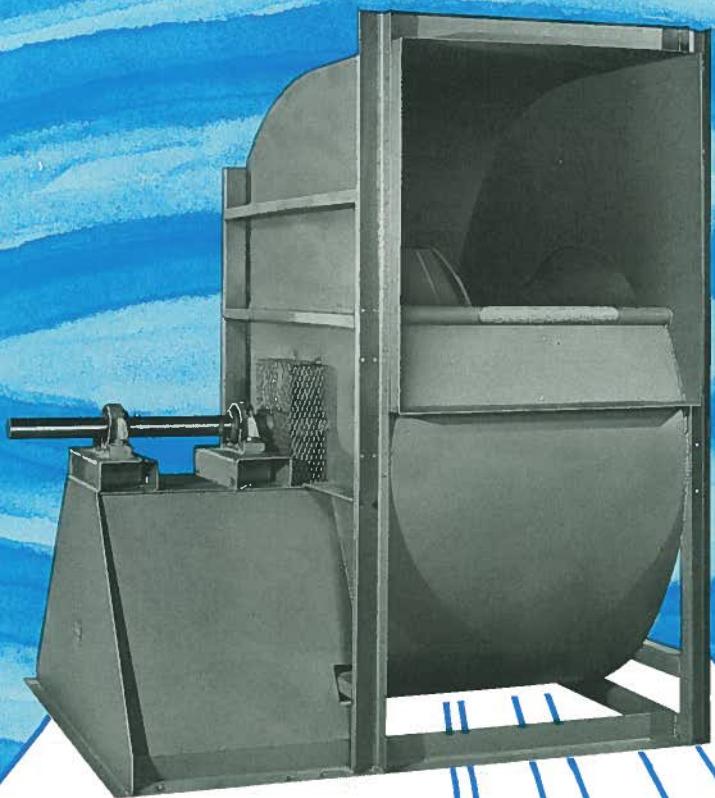


**CLASSES**  
**I - II - III**



**HITACHI**

**AIRFOIL CENTRIFUGAL FANS**

**INDEX**

Page	Item
2	AMCA Seal
3	Typical Fan Curves
4	General Description
5	Arrangements Available
6-7	Optional Accessories
8-9	Sound Calculations
10	High Temp Calculations
11	Application Data
12	Guide Specifications
13-23	SISW Fan Tables
24-30	DIDW Fan Tables
31-36	Roughing In Dimensions

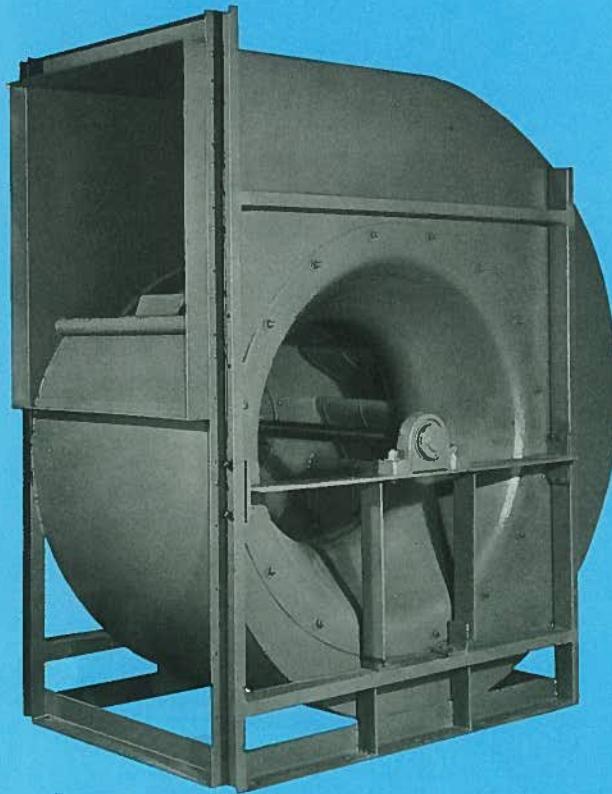
Class	Arrange- ment	Sizes	Type
31	II-III	1 and 9	SISW
32	II	1 and 9	40 $\frac{1}{4}$ -80%
33	III	1 and 9	22 $\frac{1}{4}$ -66
34	I-II	3	40 $\frac{1}{4}$ -80%
35	III	3	30 -60
36	II	3	27 -36 $\frac{1}{2}$



Chicago Blower Corporation certifies that the Airfoil Centrifugal D/10A SWSI and Airfoil Centrifugal SQA SWSI 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. Certified ratings for the licensed Airfoil Centrifugal D/10A SWSI and Airfoil Centrifugal SQA SWSI are shown on pages 13 through 23.

# CHICAGO

## airfoil fans...



...quietest...most efficient...  
for commercial and industrial  
air handling applications

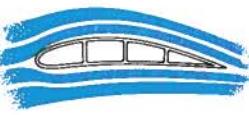
IMPROVED DESIGN now offers high pressures with low speed and horsepower

Class I-II-III — Sizes 8 $\frac{3}{4}$  thru 80 $\frac{3}{4}$  — Single Inlet Single Width

Class I and II — Sizes 27 thru 80 $\frac{3}{4}$  — Double Inlet Double Width

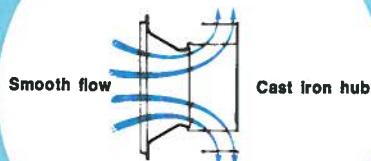
Class III — Sizes 30 thru 60 — Double Inlet Double Width

- 225 CFM to 284,000 CFM ● Temperatures to 800°F

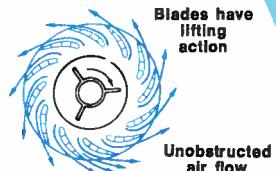


Airfoil blading  
showing smooth  
"lifting" air flow  
pattern

Streamline inlet  
and hyperbolic wheel cone



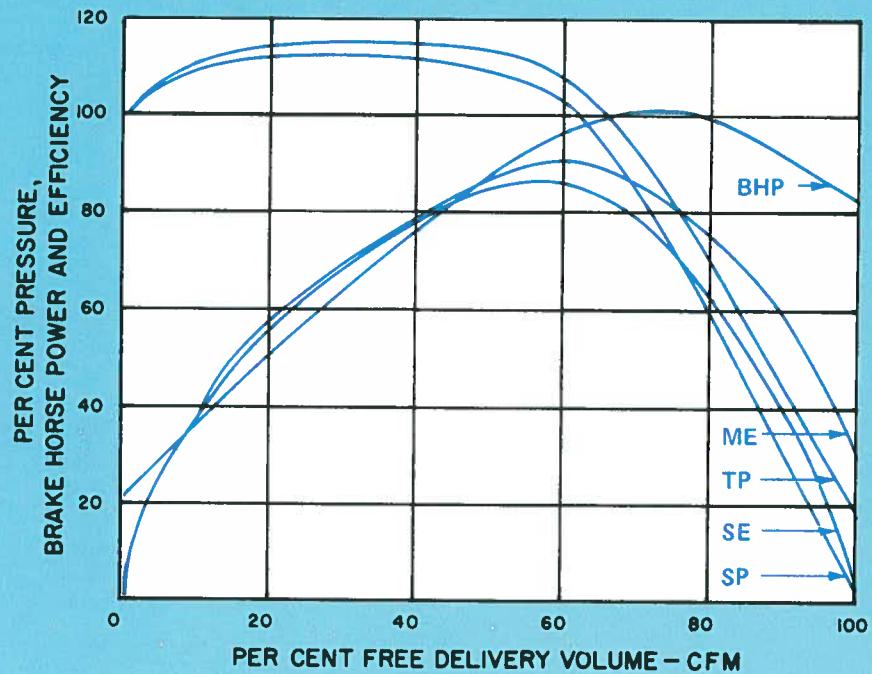
Smooth flow  
Conical wheel cone  
insures full blade loading



Blades have  
lifting  
action  
Unobstructed  
air flow  
pattern  
Non-overloading  
horsepower characteristics

## AIRFOIL PERFORMANCE CHARACTERISTICS

- Pressures to 13½ inches WG . . . static pressure from ½ to 13½ inches in volumes up to 406,000 CFM and temperatures to 800°F.
- Steep Pressure Characteristics . . . this is so steep that if the actual system resistance for a given volume is 50% higher than calculated, the Airfoil fan will still deliver 90% of the original design volume.
- Low Horsepower . . . comparative tests prove that Airfoil Fans use less horsepower than other designs. This permits smaller motor requirements and results in less power consumption. Non-overloading power characteristic allows motor sizing based on fan brake horsepower.
- 20% to 40% Quieter . . . smooth air flow over the entire surface of each airfoil blade minimizes noise levels and increases operating efficiencies. See pages 8 and 9 for sound data.
- Low Speed . . . the use of full diameter wheels and the maximum number of blades gives the lowest speed for a given duty.



# GENERAL DESCRIPTION

CHICAGO

## SQuare FANS

SQuare FANS, SISW in sizes 8  $\frac{3}{4}$  through 44  $\frac{1}{2}$ , Arrangement 1 and 9, Class I, II & III . . . Fans have heavy gauge steel, continuously welded, air tight, rugged square housings . . . offering four standard discharges: BH, TH, UB and DB. Each fan base has mounting holes for all four standard discharges.

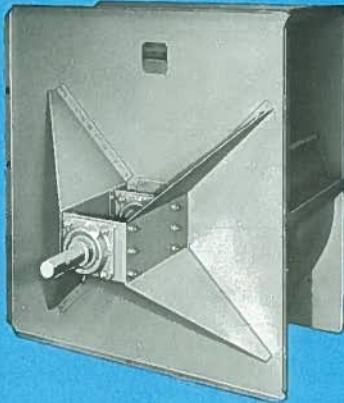
## Design 10-A FANS

Des. 10-A Class I and II FANS, sizes 40  $\frac{1}{4}$  through 54  $\frac{1}{4}$  are built in Arrangement 1 and Arrangement 3 with fixed housings. Arrangement 9 with fixed housing is available in sizes 40  $\frac{1}{4}$  through 49. The volute style heavy gauge housing has solid welded corner joint and channel bracing. Full bases are channel braced to provide additional strength.

Des. 10-A Class I and II FANS, sizes 60 through 80  $\frac{3}{4}$ , are built in Arrangement 1, and Arrangement 3 with fixed discharge. Septagonal housings are heavy gauge with continuously welded scroll — side sheet joint, heavily braced with channels and bars for rugged, vibration free service.

Arrangement 1 fans are furnished with full bases and Arrangement 3 fans are supplied with bearings mounted on the fan housing. For working conditions requiring more than 200 HP, consider direct drive or contact your Chicago Blower Sales Representative.

Des. 10-A Class III FANS are built as SISW in sizes 22  $\frac{1}{4}$  through 66 in Arrangement 1 and 22  $\frac{1}{4}$  through 49 in Arrangement 9, as well as DIDW in sizes 27 through 60, Arrangement 3. All Class III fans are constructed with the same housing configuration as described above but with heavier metal gauges, shafts and bearings. Wheels are fabricated from special alloy steel and blades are internally ribbed. For working conditions requiring more than 200 HP, consider direct drive or contact your Chicago Blower Sales Representative.



SQuare Fans — Arrangement 1  
Sizes 8  $\frac{3}{4}$  through 44  $\frac{1}{2}$



Des. 10-A Arrangement 3 SISW  
Sizes 40  $\frac{1}{4}$  through 54  $\frac{1}{4}$



Des. 10-A Arrangement 3 DIDW  
Sizes 60 through 80  $\frac{3}{4}$

# ARRANGEMENTS



**ARRANGEMENT 1, SISW**  
For belt drive, open inlet. Wheel overhung. For elevated temperatures, corrosive fumes or ventilation and air conditioning applications.



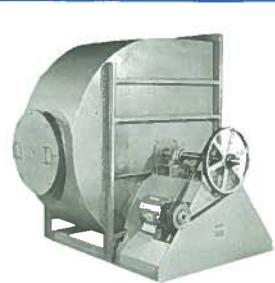
**ARRANGEMENT 9, SISW**  
For belt drive similar to Arrangement 1 except for provision to mount motor on top or side of fan.

**GENERAL NOTE:** All Arrangement 1 and 9 Centrifugal Fans offered by Chicago Blower in this catalogue, whether they be designed with a square or scroll type housing, are constructed to accept a shaft cooler and shaft cooler guard as well as a shaft seal.

**SQUARE HOUSING FAN BELT DRIVE NOMENCLATURE:** Both Arrangements 3 and 9 may use a top or side mounted motor. "T" for Top; "SR" for right side; "SL" for left side. Right or Left is determined by looking at the fan from the drive side. Examples: 9T, 9SR, 9SL, 3T, 3SR and 3SL.



**ARRANGEMENT 1, SISW**  
For belt drive, open inlet. Wheel overhung. For elevated temperatures, corrosive fumes or ventilation and air conditioning applications.



**ARRANGEMENT 9, SISW**  
For belt drive. Similar to Arrangement 1 except for provision to mount motor on side of bearing pedestal.



**ARRANGEMENT 3, SISW**  
For belt drive. Wheel centering between bearings. For industrial applications, ventilation and air conditioning.



**ARRANGEMENT 3, DIDW**  
For belt drive. Similar to Arrangement 3, single width construction and application. For large volumes of air.



## WHEELS & SHAFTS

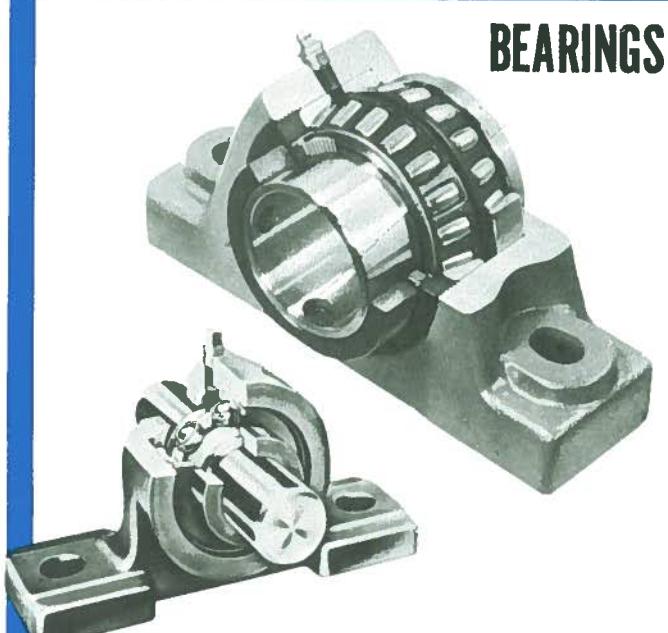
"Chicago" Airfoil wheels are supplied in all fan sizes: 12 $\frac{1}{2}$  to 80 $\frac{1}{2}$  in steel, continuously welded SISW and DIDW except sizes 27 to 36 $\frac{1}{2}$  Class II DIDW which are stitch welded and cast aluminum in sizes 8 $\frac{1}{2}$  - 10.

Structural strength of airfoil blading is so great that tie rods and intermediate bracing rings are unnecessary. This eliminates turbulence and permits a full flow of quiet air and increases efficiency.

The steel wheels have die-formed hollow airfoil blades welded to back and side plates making these wheels rugged for heavy service.

All wheels are balanced both statically and dynamically at factory.

Shafts are specially selected turned, ground and polished steel (SAE 1040-1045) to give tight, accurate bearing and hub fit. Shafts are sized to operate 20% or more below the first critical speed for each class of duty.



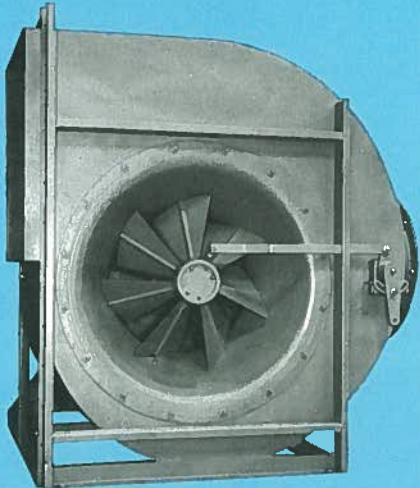
## BEARINGS

All classes of fans are furnished with grease-lubricated heavy-duty self-aligning ball bearing flange or pillow blocks with spherical roller bearings used on larger or higher class of duty fans.

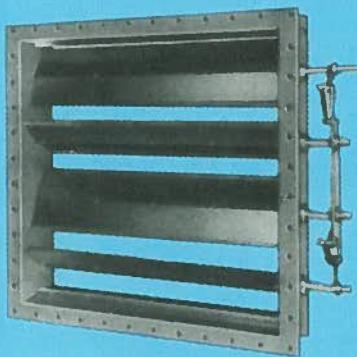
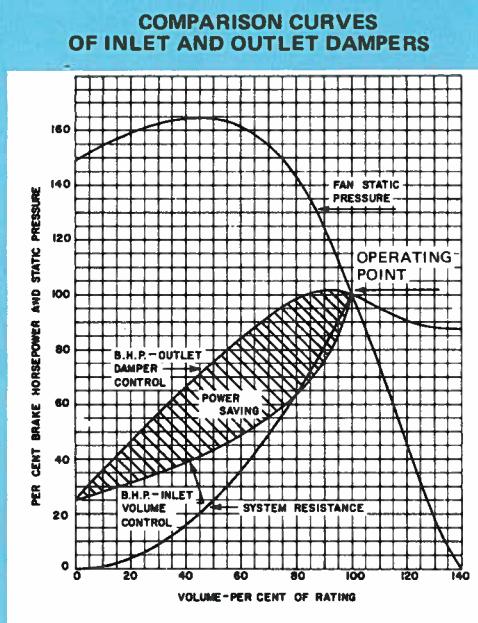
Bearings are selected for continuous operation and ample size for best possible operating results.

# OPTIONAL ACCESSORIES & CONSTRUCTION

**CHICAGO**



1. INLET VANE CONTROL

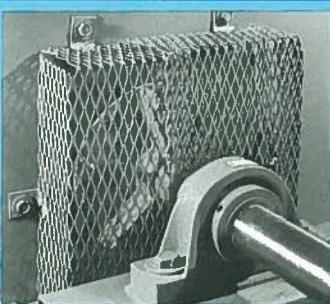


2. OUTLET DAMPER

1. **INLET VANE CONTROLS** provide more economical performance at reduced air volume than the outlet damper. The adjustable guide vanes pre-spin the entering air in the same rotation as the wheel to produce the desired volume of air at the exact pressure. Reduced operating costs at partial loads plus the use of the lowest cost constant speed drive are additional advantages. Inlet vanes mounted within inlet cone for reduced shaft span and space. On Arr. 3 fans bearings are located exterior to IVC for ease of service. Offered for manual or automatic control interconnecting linkage. Temperature limit 350°F. standard. Available for manual operation only to 650°F. Ideal for use in all variable volume HVAC systems.

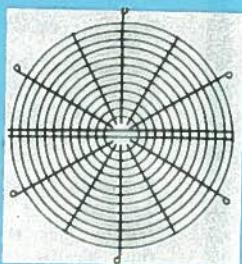
2. **OUTLET DAMPERS** are available for both SISW and DIDW fans. Dampers are 10" to 13" deep in airflow direction with punched flanges both ends, for manual or automatic control. Damper shafts are at right angles to fan shaft. Dampers for Class I fans have single sheet blades, Class II have double surface blades, and Class III are parafow type with opposed rotating louvres. Damper bearings have thrust washers and are bronze-oil sleeve to 250°F. and stainless steel sleeve to 600°F. Flanged outlet accessory is required to mount damper on fan. This type of damper control requires more horsepower at reduced air volume than the inlet vane control. Its advantage is low initial cost and simple operation.

3. **SHAFT COOLER AND GUARD:** Cast aluminum cooling wheel split for installation and an expanded metal cooler guard. The temperature limit for Arrangement 1 or 9 is 300°F.; with a shaft cooler this limit is raised to 650°F. Combining the shaft cooler with a shaft seal on Arrangement 1 (only) permits a maximum limit of 800°F. on selected sizes and classes. Refer to Page 10 for further details covering High Temperature selection and necessary RPM deration.



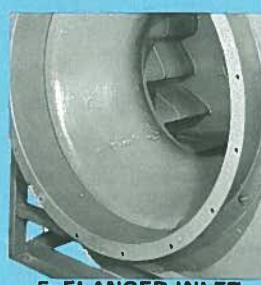
3. SHAFT COOLER

4. **INLET SCREEN:** Welded wire, mounted in spun inlet cone. Mounted outside blades when furnished with IVC. Horizontal split on Arr. 3.



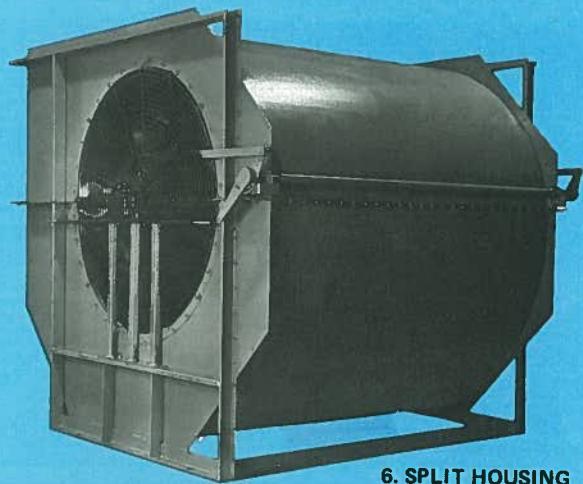
4. INLET SCREEN

5. **FLANGED INLET OR OUTLET:** Inlet is formed ring bolted to inlet for duct connection. Outlet is flat bar, welded to housing discharge. Check local CHICAGO office for DB or TAD discharge.

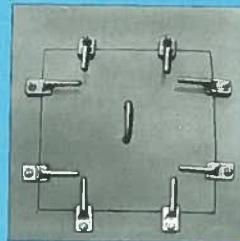


5. FLANGED INLET

6. **SPLIT HOUSINGS.** Standard Class I, II and III fan sizes 40% through 54½ can be furnished with horizontal split housings to facilitate wheel removal at additional cost. Sizes 60 and above are furnished as standard with horizontal split housing. Housing splits are caulked and bolted when fan is shipped assembled. Traffic routing may require knocked-down shipment. Consult local CHICAGO office.
  
7. **CLEAN-OUT DOOR (CLAMP):** Flush mounted, plate type with quick opening tension latches. Neoprene gasket to 300°F. Asbestos gasket to 800°F.
  
8. **CLEAN-OUT DOOR (PLUG):** Round and raised 4" for insulation, with bolted door insert. Gasket is asbestos.
  
9. **INLET COLLAR:** Slip joint connection sleeve for SISW fans only. Required where inlet duct is used or fan inlet must be extended out beyond inlet bearing. Standard on SISW Square fans.
  
10. **BELT GUARD:** For Arr. 9 only, enclosed on all sides with expanded metal at shaft openings to meet OSHA requirements. Removable for drive servicing.
  
11. **HOUSING DRAIN:** Half coupling, less plug. Welded in lowest point of scroll.
  
12. **SPARK RESISTANT CONSTRUCTION:** Type C with steel wheel aluminum inlet cone and drive side aluminum buffering tube between wheel backplate and housing. For all classes, sizes 12½ through 73, Arr. 1 and 9, 600°F. max. temperature, not available when IVC is required.
  
13. **EXTENDED GREASE TUBE FITTING:** Consists of nylon tube with grease fitting.
  
14. **SPECIAL PAINT & CORROSION RESISTANT COATINGS:** Consult your local CHICAGO office.
  
15. **VIBRATION ISOLATION BASES** are designed specifically for fan and blower applications. They are furnished with rubber in shear, or springs as an isolation media. Bases are supplied where both fan and motor base are built as an integral part. Type "C" base shown in picture.



6. SPLIT HOUSING



7. CLEAN-OUT DOOR (CLAMP)



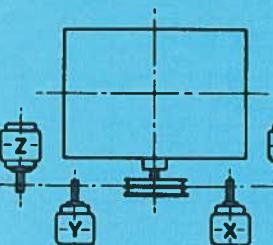
8. CLEAN-OUT DOOR (PLUG)



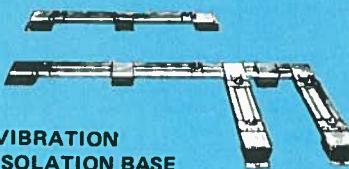
9. INLET COLLAR



10. BELT GUARD



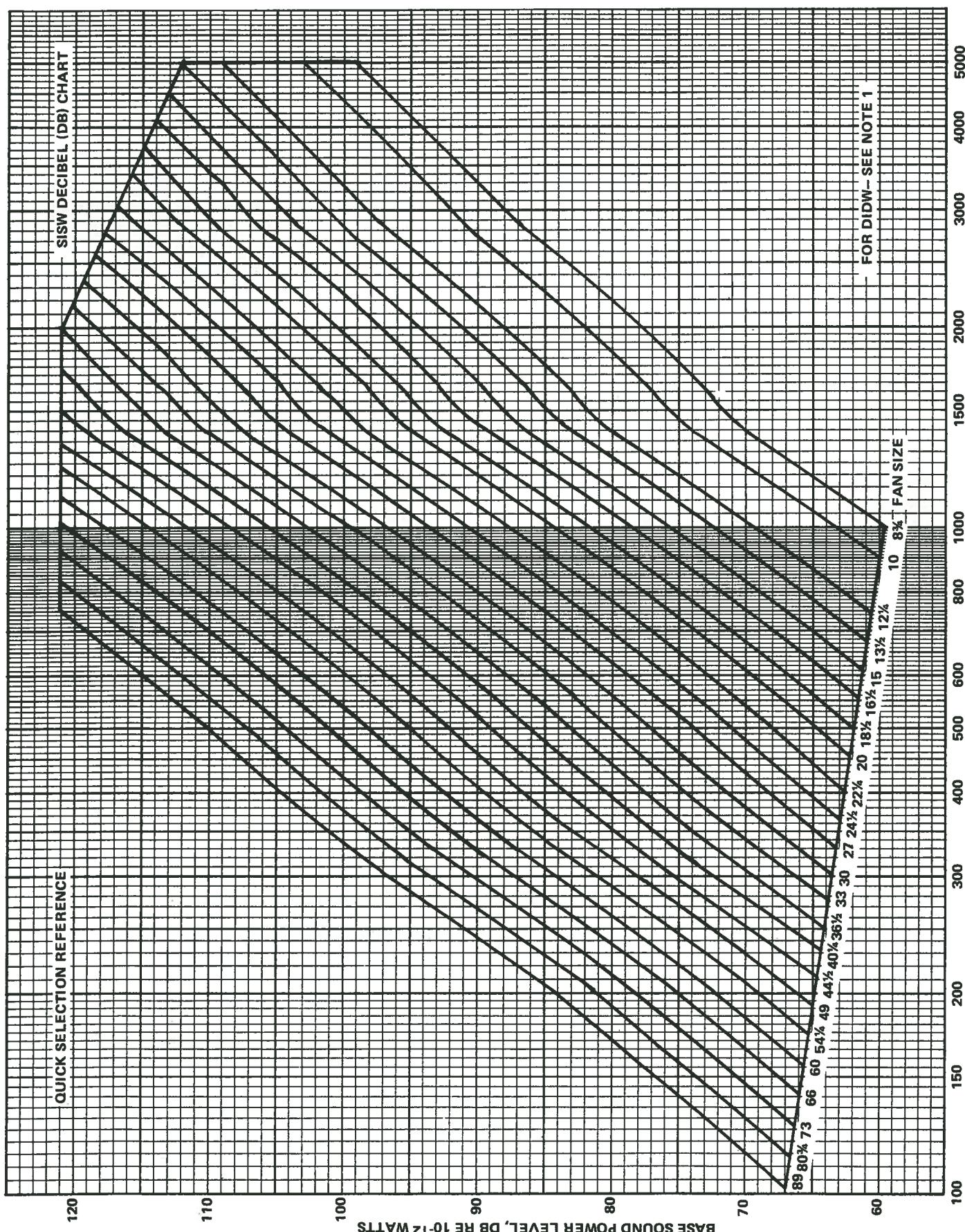
15a. MOTOR MOUNTING POSITIONS



15b. VIBRATION ISOLATION BASE

# SOUND LEVEL GRAPH

HICAGO



# SOUND LEVEL CALCULATION

OCTAVE BAND CONVERSION AT VARIOUS RPM's										
OCTAVE	1	2	3	4	5	6	7	8	Theoretical DBA Correction	
CENTER Hz	63	125	250	500	1000	2000	4000	8000		
RPM	100	-3	-6	-10	-12	-15	-17	-20	-22	-29
	150	-4	-5	-9	-12	-15	-17	-20	-22	-28
	200	-3	-5	-9	-12	-15	-17	-20	-22	-29
	300	-2	-3	-10	-14	-17	-19	-22	-24	-30
	400	-2	-9	-11	-14	-18	-20	-23	-25	-31
	500	-2	-7	-11	-14	-17	-20	-23	-25	-31
	600	-3	-5	-12	-13	-17	-20	-23	-25	-31
	800	-3	-5	-12	-14	-18	-21	-24	-26	-31
	1000	-2	-7	-11	-16	-18	-22	-25	-27	-32
	1200	-1	-8	-11	-17	-19	-23	-26	-28	-33
1400	-1	-9	-11	-19	-19	-24	-27	-29	-34	
	1600	-2	-8	-10	-17	-19	-23	-26	-29	-33
	1800	-2	-6	-10	-16	-19	-22	-26	-29	-33
2000	-3	-5	-10	-15	-19	-22	-26	-28	-32	
	2200	-3	-4	-10	-14	-20	-21	-25	-28	-32
	2400	-4	-4	-10	-13	-20	-21	-25	-28	-32
2600	-5	-3	-11	-12	-20	-21	-25	-28	-31	
	2800	-6	-3	-11	-12	-20	-21	-25	-29	-31
	3000	-6	-3	-10	-12	-19	-21	-25	-28	-31
3200	-6	-3	-9	-12	-19	-21	-24	-28	-30	
	3500	-6	-3	-8	-11	-17	-20	-24	-27	-30
	4000	-7	-4	-6	-11	-16	-20	-23	-27	-29
4500	-7	-4	-5	-11	-14	-20	-22	-26	-28	

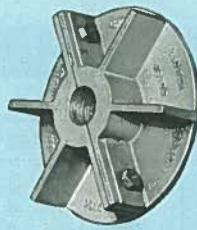
**PROCEDURE:** Enter DB chart at fan RPM and read vertically up to fan size. Resulting DB value is then used as a base from which octave band values may be obtained by applying corrections shown on the table above at this RPM. Similarly, apply DBA correction to this base sound power level to obtain DBA.

- NOTES:**
1. Add 3 DB for DIDW fan of same size and RPM.
  2. Values shown are for total internal sound power level re  $10^{-12}$  watt per AMCA Bul. 301 and 303. If necessary to obtain sound pressure level at 5 feet from fan, subtract 15 DB and make a further correction for end reflection based on data in the ASHRAE Guide.
  3. DBA value applies to 10 foot distance based on theoretical free field environment.
  4. The AMCA Certified Ratings Seal applies to air performance ratings only.
  5. Ratings apply to normal range of selection for high efficiency.
  6. Octave band center frequency in cycles/sec., Hz, are per ANSI SI.6-1960 and AMCA series 2.
  7. The SOUND POWER level readings from the graph may be used by the sound engineer to calculate the SOUND PRESSURE level (heard by the human ear) for the fan as installed. This would be based on considerations of room sound absorption, distance from the fan, end reflection, background noise, etc. — see notes 2 and 3 above.
  8. The data given on pages 8 and 9 has been expanded in a Chicago Blower Engineering Bulletin containing sound power and sound pressure detailed calculations. Such items as the effect of IVC position, duct work connected to fan, air density, point of fan operation, etc., are taken into consideration. Use of the above charts and table provide a quick solution and typically a more conservative sound level estimate.

# HIGH TEMPERATURE FAN SELECTION

"Chicago" Airfoil Centrifugal Fans are perfectly suited to handling hot gases for air at high temperatures common to induced draft, industrial ovens, etc. Available in various drive arrangements in accordance with the chart below. Shaft cooler with a screen guard is used at higher temperatures. (See table below.)

Class I through Class III fans can be used for temperatures ranging from -50°F. to +800°F. All fans must be operated within the maximum RPM limits listed for Class I through III and these limits must be derated per maximum allowable speed table shown below.



## HIGH TEMPERATURE OPERATING LIMITS

ARR.	SIZES	CLASS	MAXIMUM TEMPERATURE WITHOUT SHAFT COOLER	MAXIMUM TEMPERATURE WITH SHAFT COOLER
3 SISW	40% - 80% D/10A	I, II	150°F	Not Available
3 DIDW	27 - 80% SQA & D/10A	I, II	150°F	Not Available
3 DIDW	30 - 60 D/10A	III	150°F	Not Available
1 SISW	8% - 44% SQA (+)	I, II, III	300°F	650°F
1 SISW(*)	40% - 80% D/10A	I, II	300°F	650°F(*)
1 SISW(*)	22% - 66 D/10A	III	300°F	650°F(*)
9 SISW	8% - 44% SQA (+)	I, II, III	300°F	650°F
9 SISW	40% - 49 D/10A	I, II	300°F	650°F
9 SISW	22% - 49 D/10A	III	300°F	650°F

\*Maximum Temperature with shaft cooler AND shaft seal is 800°F.

(+) Maximum Temperature for 8% -- 10 is 200°F.

## HIGH TEMPERATURE & ALTITUDE FAN SELECTION

Fan capacity tables are based on standard air at 70°F. and sea level. For any other operating conditions it is necessary to correct the HP and SP of the fan and check the maximum allowable RPM for BOTH wheel and shaft using Charts below.

Example: Select a fan to handle 14500 CFM at 3" SP at 500°F. and 2500 ft. altitude.

- Refer to Chart at 2500 ft., 500°F. and select a correction factor of 1.99 — say 2.00.
- 3" SP x 2.00 = 6.00" SP at 70°F. and sea level.
- Select a Class II size 27 SISW fan to handle 14500 CFM at 6.00" SP operating at 1764 RPM requiring 19.63 BHP at 70°F. and sea level.
- correct the BHP by dividing 19.63 by 2.00 i.e. 9.8 BHP which is the corrected BHP for 500°F. at 2500 ft. altitude.

5. Both the wheel and shaft must be individually checked using the maximum RPM's for each and the individual temperature deration factors from Chart.

- Shaft maximum RPM at 70°F. from Chart is 2087. Shaft deration factor for 500°F. is .94. Maximum shaft RPM at 500°F. (.94) (2087) = 1962.
- Class II wheel maximum RPM at 70°F. from chart is 2219. Wheel deration factor for 500°F. is .82. Maximum wheel RPM at 500°F. (.82) (2219) = 1820.

Note: In this example, the 1820 wheel derated RPM is lower than the shaft at 1962 RPM, but above the 1764 required to meet the air performance. While the Class I fan could make the air performance at 70°F., a Class II fan is required for the 500°F. derated shaft RPM.

Altitude & temperature correction factors										
Air Temp. (F.)	ALTITUDE (Feet)									
	0	1000	1500	2000	2500	3000	3500	4000	4500	5000
0°	.87	.91	.92	.94	.96	.98	.99	1.01	1.03	1.05
70	1.00	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20
100	1.06	1.10	1.12	1.14	1.16	1.19	1.21	1.23	1.25	1.28
120	1.09	1.14	1.16	1.18	1.20	1.23	1.25	1.28	1.30	1.32
140	1.13	1.18	1.20	1.22	1.25	1.27	1.29	1.32	1.34	1.37
160	1.17	1.22	1.24	1.26	1.29	1.31	1.34	1.36	1.39	1.42
180	1.21	1.26	1.28	1.30	1.33	1.36	1.38	1.41	1.43	1.46
200	1.25	1.29	1.32	1.34	1.37	1.40	1.42	1.45	1.48	1.51
250	1.34	1.39	1.42	1.45	1.47	1.50	1.53	1.56	1.59	1.62
300	1.43	1.49	1.52	1.55	1.58	1.61	1.64	1.67	1.70	1.74
350	1.53	1.59	1.62	1.65	1.68	1.72	1.75	1.78	1.81	1.85
400	1.62	1.69	1.72	1.75	1.79	1.82	1.85	1.89	1.93	1.96
450	1.72	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.04	2.08
500	1.81	1.88	1.92	1.96	1.99	2.03	2.07	2.11	2.15	2.19
550	1.91	1.98	2.02	2.06	2.10	2.14	2.18	2.22	2.26	2.30
600	2.00	2.08	2.12	2.16	2.20	2.24	2.29	2.33	2.38	2.42
650	2.10	2.18	2.22	2.26	2.31	2.35	2.40	2.44	2.49	2.54
700	2.19	2.27	2.32	2.36	2.41	2.46	2.50	2.55	2.60	2.65
750	2.28	2.37	2.42	2.47	2.51	2.56	2.61	2.66	2.71	2.76
800	2.38	2.48	2.52	2.57	2.62	2.66	2.72	2.76	2.81	2.86

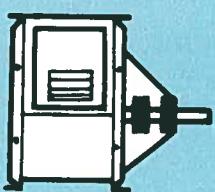
Correction factors for temperature (F.) and altitude (feet above sea level), standard air = .075 lbs. per cubic foot at sea level, 29.92" barometric pressure and 70°F.

Multiply maximum RPM at 70°F (Page 11) by deration factor to determine if within safe speed.

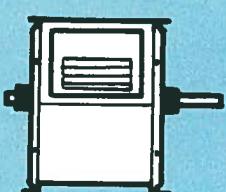
MAXIMUM ALLOWABLE RPM		
SAFE SPEED DERATION FOR TEMPERATURE		
TEMP. 0°F.	STANDARD STEEL WHEEL	STANDARD STEEL SHAFT
-50	1.00	1.00
70	1.00	1.00
100	1.00	1.00
200	.94	.99
300	.90	.98
350	.88	.97
400	.86	.97
450	.84	.95
500	.82	.94
550	.81	.94
600	.79	.94
650	.78	.93
700	.76	.92
800	.68	.90

# DRIVE ARRANGEMENTS FOR CENTRIFUGAL FAN

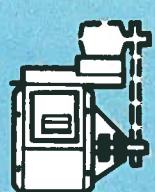
SQUARE HOUSING FANS CLASS I-II-III SIZES 8 $\frac{1}{4}$  - 44 $\frac{1}{2}$



ARR. 1 SISW For belt drive or direct connection. Impeller overhung. Two individual bearings on base.



ARR. 3 DIDW For belt drive or direct connection. One bearing on each side and supported by fan housing.

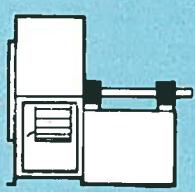


ARR. 9 SISW For belt drive. Impeller overhung, two individual bearings with prime mover on fan.

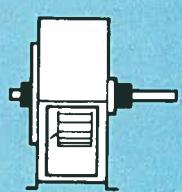
**SQUARE HOUSING FAN BELT DRIVE NOMENCLATURE:** Both Arrangements 3 and 9 may use a top or side mounted motor. "T" for Top; "SR" for right side; "SL" for left side. Right or Left is determined by looking at the fan from the drive side.

Examples: 9T, 9SR, 9SL, 3T, 3SR and 3SL.

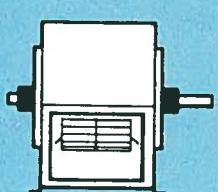
## SCROLL HOUSING FANS CLASS I - II SIZES 40 $\frac{1}{4}$ - 80 $\frac{3}{4}$ ; CLASS III SIZES 22 $\frac{1}{4}$ - 66



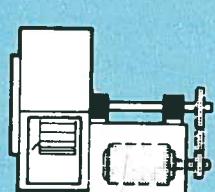
ARR. 1 SISW For belt drive or direct connection. Impeller overhung. Two bearings on base.



ARR. 3 SISW For belt drive or direct connection. One bearing on each side and supported by fan housing.



ARR. 3 DIDW For belt drive or direct connection. One bearing on each side and supported by fan housing.



ARR. 9 SISW For belt drive. Impeller overhung, two bearings, with prime mover outside base.

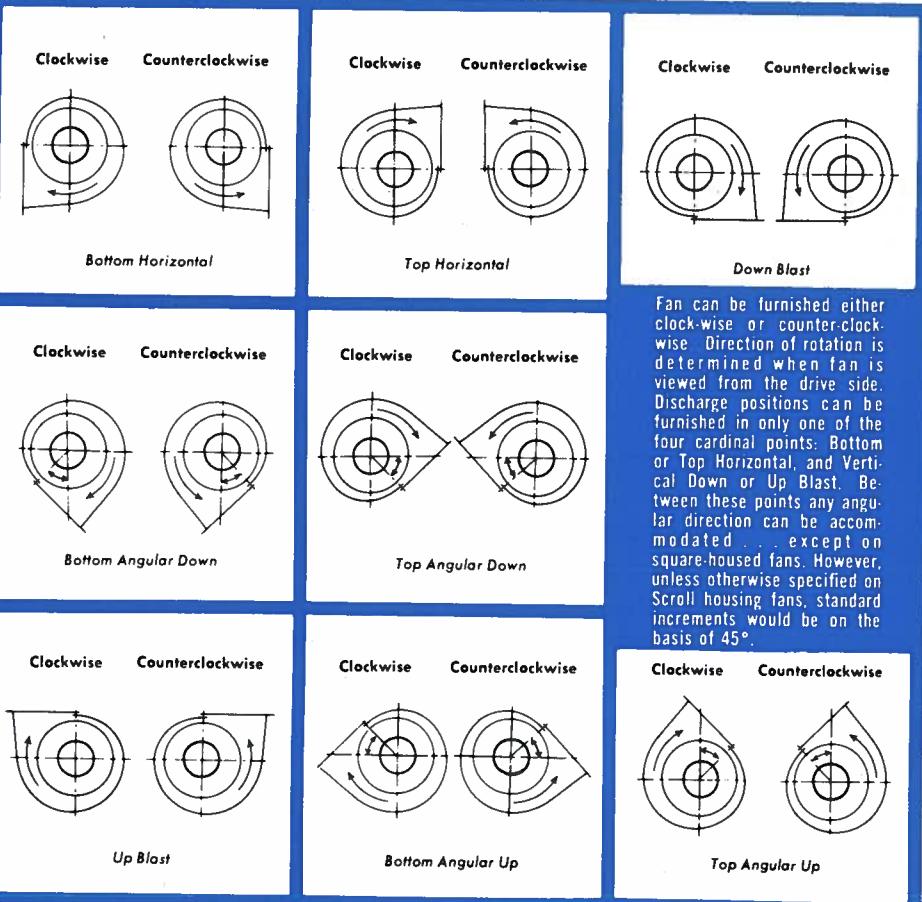
**NOTE:** All Arrangement 1 and 9 fans by Chicago Blower are built to accept a shaft cooler and/or shaft seal.

Reprinted from AMCA Publication 99-86, Standards Handbook, with the express written permission from the Air Movement and Control Association, Inc., 30 West University Drive, Arlington Heights, IL 60004-1893.

## MAXIMUM WHEEL AND SHAFT RPM @ 70°F (SISW ONLY)

SIZE	CLASS I		CLASS II		CLASS III	
	Shaft	Wheel	Shaft	Wheel	Shaft	Wheel
8 $\frac{1}{4}$	5000	5000	—	—	—	—
10	4962	4962	—	—	—	—
12 $\frac{1}{4}$	4046	4983	4280	4983	—	—
13 $\frac{1}{4}$	3675	4520	3884	4520	—	—
15	3302	4067	3586	4067	—	—
16 $\frac{1}{4}$	2992	3633	3509	3632	—	—
18 $\frac{1}{4}$	2706	3285	3173	3285	—	—
20	2469	2997	2895	2997	—	—
22 $\frac{1}{4}$	2155	2653	2483	2653	2910	3228
24 $\frac{1}{4}$	2015	2446	2300	2446	2643	3088
27	1829	2219	2087	2219	2398	2692
30	1647	1928	1807	1928	2115	2400
33	1413	1643	1552	1643	1923	2100
36 $\frac{1}{4}$	1344	1412	1497	1497	1639	1790
40 $\frac{1}{4}$	903	1043	1179	1334	1486	1549
44 $\frac{1}{4}$	817	899	1066	1147	1344	1344
49	742	869	968	1110	1221	1285
54 $\frac{1}{4}$	670	747	875	950	1103	1103
60	606	759	791	909	997	1129
66	551	658	719	826	906	—
73	498	565	650	721	—	—
80 $\frac{1}{4}$	450	486	588	620	—	—

## DIRECTION OF ROTATION & DISCHARGE



# LOW NOISE LEVEL SELECTION

## FAN SELECTION FOR LOWEST NOISE LEVELS-SISW FANS

The AIRFOIL fan is the quietest, most efficient fan. Its proper size selection is determined by factors important to the user such as: efficiency, speed requirements, space conditions and first cost. The several possible correct fan operating

points for a given job are based on the relationship between fan static pressure and outlet velocity, regardless of fan size, as shown in the following table: (Calculate DB level from pages 8 and 9.)

SISW FAN OUTLET VELOCITY VS STATIC PRESSURE

POSSIBLE FAN SELECTIONS	1" SP	1½" SP	2" SP	2½" SP	3" SP	3½" SP	4" SP	4½" SP	5" SP
	OV FPM								
Most Efficient (Quietest)	900-1000	1200-1400	1300-1500	1400-1600	1600-1800	1700-1900	1700-1900	1700-1900	1800-2000
Average Good Selection	1200-1400	1500-1700	1600-1800	1700-1900	1900-2100	2000-2200	2000-2200	2000-2200	2000-2200
Economical Selection	1500-1700	1800-2000	1900-2200	2000-2400	2400-2600	2400-2600	2400-2600	2400-2600	2400-2600
	5½" SP	6" SP	7" SP	8" SP	9" SP	10" SP	11" SP	12" SP	13" SP
POSSIBLE FAN SELECTIONS	OV FPM								
	1800-2000	2000-2400	2000-2400	2200-2600	2600-3000	3000-3400	3200-3600	3200-2600	3200-3600
Most Efficient (Quietest)	2200-2600	2600-3000	2600-3000	2600-3000	3000-3400	3600-4000	3600-4000	3400-3800	3400-3800
Average Good Selection	2800-3200	3000-3400	3000-3400	3200-3600	3600-4000	4000-4400	4000-4200	3800-4000	3600-3800
Economical Selection									

White Area = Class I

Light Shaded Area = Class II

Heavy Shaded Area = Class III

## SPECIFICATIONS GUIDE

The following specifications form is offered as a guide to architects, engineers and fan buyers for preparing complete specifications for fan requirements.

Furnish and install as shown on the plans \_\_\_\_\_ Centrifugal Ventilating Fans equal to fan size \_\_\_\_\_ Airfoil Centrifugal Fans as manufactured by the Chicago Blower Corporation. Wheel of not less than \_\_\_\_\_ inches diameter to be of backward curved non-overloading type utilizing an aerodynamically shaped airfoil blade.

Class \_\_\_\_\_ single inlet, single width (or double inlet, double width) Arrangement \_\_\_\_\_ full housed. \_\_\_\_\_

rotation, \_\_\_\_\_ discharge. The fan shall have a capacity of \_\_\_\_\_ cubic feet per minute against a static pressure of \_\_\_\_\_ inches water gauge measured at \_\_\_\_\_ ° F. and \_\_\_\_\_ inches Hg. barometer, when operating at a speed of not more than \_\_\_\_\_ RPM and requiring not more than \_\_\_\_\_ BHP and the outlet velocity not to be more than \_\_\_\_\_ FPM.

Fans are to be tested and rated in accordance with Bulletin 210 Plate I of the Standard Test Code published by the Air Moving and Conditioning Association and shall bear the AMCA seal.

























## FAN SELECTION FOR LOWEST NOISE LEVELS - DIDW FANS

DIDW FAN OUTLET VELOCITY vs STATIC PRESSURE

POSSIBLE FAN SELECTIONS	1" SP	1½" SP	2" SP	2½" SP	3" SP	3½" SP	4" SP.	4½" SP	5" SP
	OV FPM								
Most Efficient (Quietest)	900-1000	1200-1400	1400-1600	1600-1800	1700-1900	1800-2000	2000-2200	2200-2400	2400-2600
Average Good Selection	1200-1400	1500-1700	1700-1900	1900-2100	2000-2200	2200-2400	2400-2600	2600-2800	2800-3000
Economical Selection	1500-1700	1800-2000	2000-2400	2400-2600	2400-2800	2400-2800	2400-2800	3000-3400	3200-3600
POSSIBLE FAN SELECTIONS	5½" SP	6" SP	7" SP	8" SP	9" SP	10" SP	11" SP	12" SP	13" SP
	OV FPM								
Most Efficient (Quietest)	2400-2600	2400-2600	2600-3000	2800-3200	3000-2400	3200-3600	3200-3600	3400-3800	3600-3800
Average Good Selection	2800-3200	3000-3400	3200-3600	3400-3800	3600-4000	3800-4200	3800-4200	4000-4200	4000-4200
Economical Selection	3400-3800	3600-4000	3600-4000	3800-4200	4000-4400	4000-4400	4000-4400	4000-4400	4000-4400

White Area = Class I

Light Shaded Area = Class II

Heavy Shaded Area = Class III















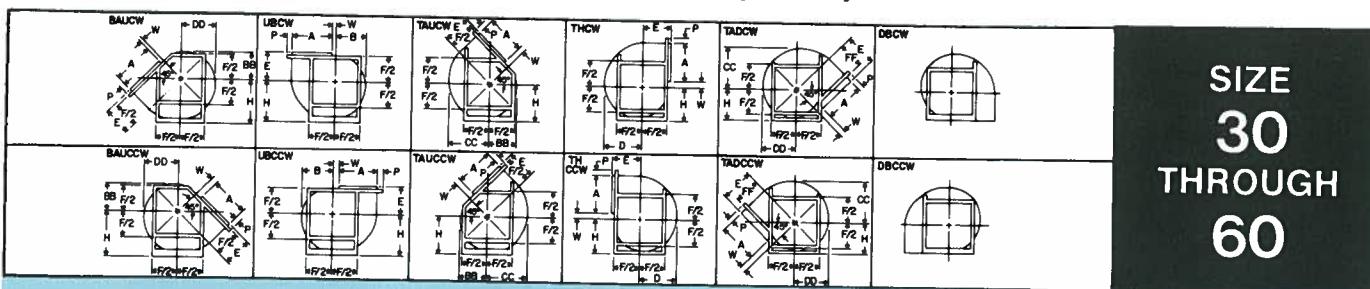






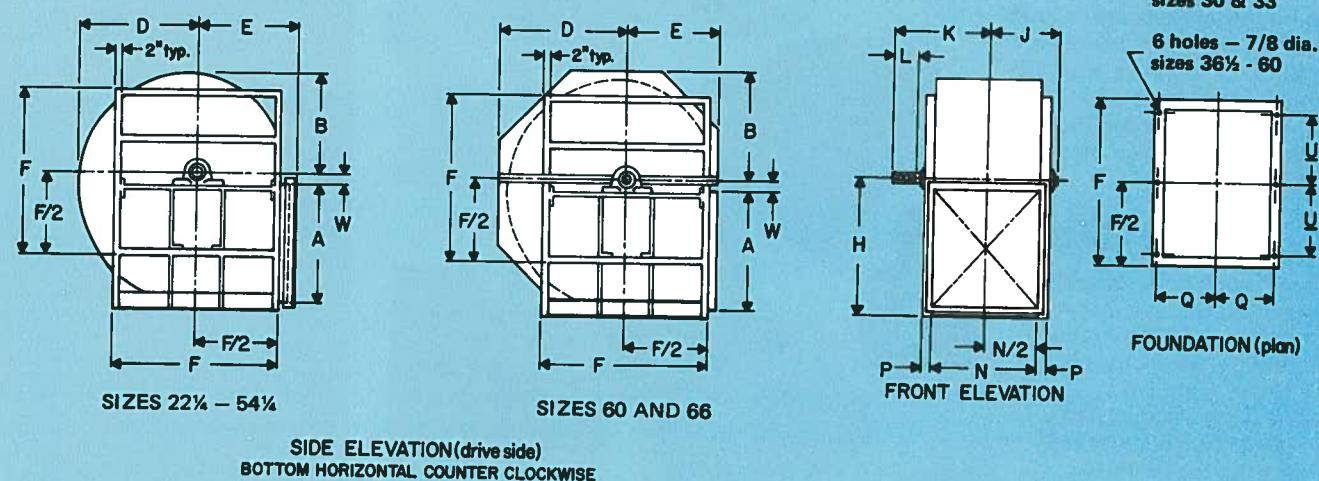
# Arrangement 3 • Fixed Housing DIMENSIONS

Class III—DIDW (D/10A)



**SIZE  
30  
THROUGH  
60**

POSITIONS OF DISCHARGE AND ROTATION AS VIEWED FROM DRIVE SIDE.



NOTES: 6 holes — 5/8 dia.  
sizes 30 & 33

6 holes — 7/8 dia.  
sizes 36 1/2 - 60

FOUNDATION (plan)

FRONT ELEVATION

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

FAN SIZE	WHEEL DIA.	DIMENSIONS — INCHES															
		SHAFT AT BEARINGS			KEYWAY	A	B	D	E		H						
		DIDW	DIDW	DIDW					BH-BAU UB-TAU	TAD ONLY	F	BH	BAU	UB	TAU	TH	TAD
30	32-3/8	2-7/16	5/8 x 5/16	28-5/32	24-15/16	29-7/8	24-1/4	32-1/8	42-5/8	34-13/16	33-1/2	31-1/4	28-1/2	26-3/8	25-5/16		
33	35-9/16	2-7/16	5/8 x 5/16	31	27-7/16	32-7/8	25-3/4	34	46	38	36-1/2	34-1/4	31	28-7/8	27		
36 1/2	39-3/8	2-15/16	3/4 x 3/8	34-1/4	30-1/4	36-1/4	28-1/4	36	50-1/4	42-5/8	40	37-15/16	34-1/2	31-9/16	29		
40 1/2	43-7/16	2-15/16	3/4 x 3/8	37-7/8	33-3/8	40	31	39-1/2	55-1/4	46-9/16	44	41-15/16	37-1/2	35	31-1/2		
44 1/2	48	3-7/16	7/8 x 7/16	41-15/16	36-7/8	44-3/16	33-3/4	43	61	51-1/16	48-1/2	45-15/16	41-1/2	38-7/16	35		
49	52-7/8	3-7/16	7/8 x 7/16	46-3/8	40-5/8	49-1/16	37	47-1/4	67-1/4	55-7/8	53-1/2	50-3/4	45-1/2	42-5/8	48		
54 1/2	58-1/2	3-15/16	1 x 1/2	51-1/4	44-15/16	53-7/8	40-3/4	52-1/8	74-1/4	61-3/8	59	55-3/8	50-1/2	46-1/2	42		
60	64-3/4	3-15/16	1 x 1/2	56-5/8	52-1/4	62	45	57-7/8	82	69-1/2	66-7/8	62-1/2	57	52-3/4	48		

FAN SIZE	J	K	L	N	Q	W	MIN. FAN SHEAVE DIA.					DIDW	
	DIDW	DIDW	DIDW	DIDW	P	DIDW	U	DIDW	BB	CC	DD	FF	
30	28-3/4	36-7/8	7	48-1/8	3	25-13/16	16-1/2	3-21/32	22-5/8	31-27/32	27-1/16	29-3/16	8.5
33	31-3/8	39-1/4	7	53-1/16	3	28-5/16	18	4-1/64	24-27/32	35	29-3/4	31-1/4	9.0
36 1/2	34-5/8	42-5/8	7	58-5/8	4	31-13/16	21-5/8	4-3/8	27-7/16	38-5/8	32-13/16	32-1/2	10.0
40 1/2	37-5/8	45-5/8	7	64-5/8	4	34-13/16	24-3/16	4-11/16	30-1/4	42-5/8	36-3/16	35-3/4	12.0
44 1/2	41-3/4	49-3/4	7	71-3/16	4	38-1/8	26-5/8	5-1/8	33-1/2	47-1/8	40	39-7/16	13.5
49	45-7/16	56-3/8	10	78-9/16	4	41-13/16	30-1/8	5-1/2	36-7/8	51-15/16	44-1/8	43-9/16	12.9
54 1/2	49-15/16	61	10	86-11/16	4	45-7/8	33-3/4	6-1/8	40-3/4	57-7/16	49-3/4	48-1/8	14.5
60	54-13/32	64-5/32	10	95-11/16	6	51-11/32	36-1/2	6-13/16	47-7/16	66-5/16	56-3/8	53-5/8	16.0

# Your Primary Source for Every Fan Requirement

## For General Duty

Fans designed primarily for clean exhaust or supply air applications are designated General Duty fans. Included are controllable pitch vane axial and airfoil centrifugal fans for HVAC systems. Chicago's exclusive Express Program offers many basic fans from stock in five days.

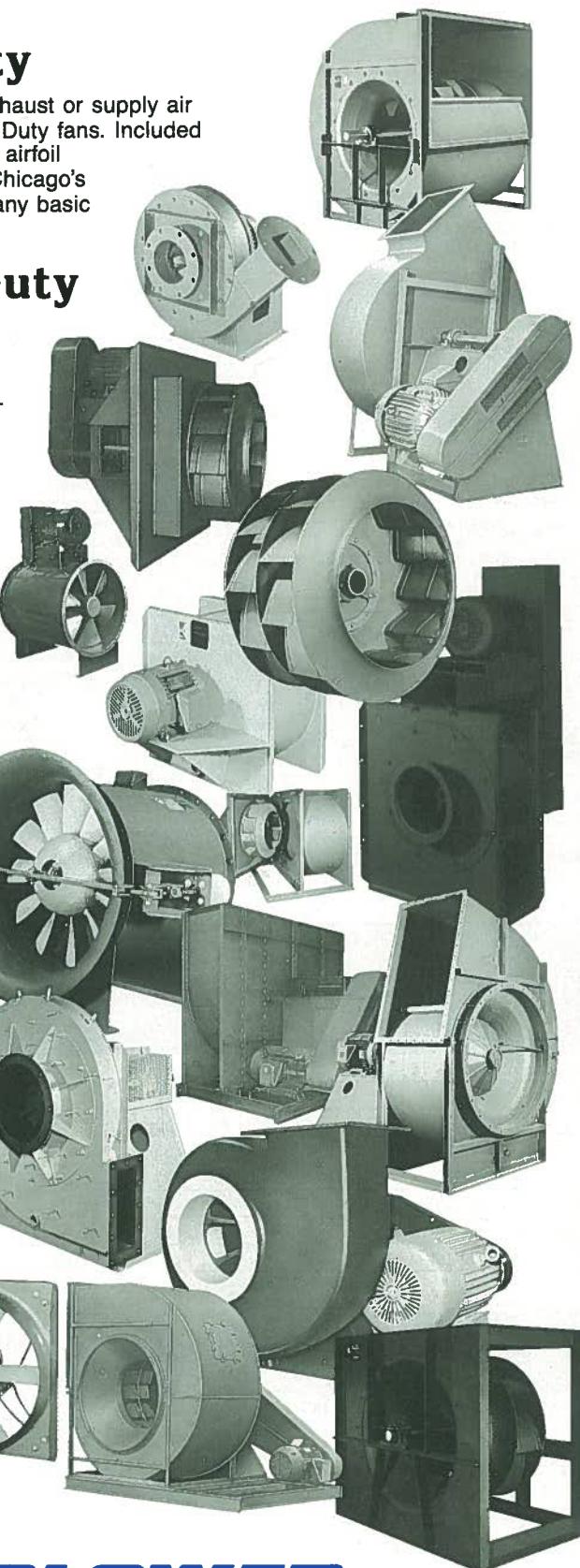
## For Industrial Duty

Chicago Industrial Fans are built to accommodate dirty and corrosive environments. Wheels are available to match the duty, class and application. Fiberglass Reinforced Plastic fans resist harsh chemical fumes, vapors and gases.

## For Heavy Duty

Larger fans modified for specific applications as well as custom engineered and built fans require the expertise synonymous with Chicago Heavy Duty Fans.

Application experience includes refining, cement plants, utilities, coal processing and diverse emission control systems.



## Chicago Blower Sales Engineers

ALABAMA	NEW JERSEY
Birmingham	Camden
Mobile	New Brunswick
ALASKA	Newark
Fairbanks	Trenton
ARIZONA	NEW MEXICO
Phoenix	Albuquerque
Tucson	NEW YORK
ARKANSAS	Albany
Little Rock	Buffalo
CALIFORNIA	Elmira
Fresno	New York
Los Angeles	Rochester
Oakland	Schenectady
Sacramento	Syracuse
San Diego	Utica
San Francisco	Watertown
San Jose	NORTH CAROLINA
COLORADO	Charlotte
Denver	Greensboro
CONNECTICUT	NORTH DAKOTA
Bridgeport	Fargo
Hartford	OHIO
FLORIDA	Akron
Jacksonville	Cincinnati
Miami	Cleveland
Tampa	Columbus
GEORGIA	Dayton
Atlanta	Toledo
Augusta	Youngstown
Macon	OKLAHOMA
Savannah	Oklahoma City
HAWAII	OREGON
Honolulu	Portland
IDAHO	PENNSYLVANIA
Boise	Erie
ILLINOIS	Harrisburg
Champaign	Philadelphia
Chicago	Pittsburgh
Peoria	RHODE ISLAND
Rockford	Providence
INDIANA	SOUTH CAROLINA
Evansville	Greenville
Fort Wayne	TENNESSEE
Indianapolis	Chattanooga
South Bend	Knoxville
IOWA	Memphis
Davenport	Nashville
Des Moines	TEXAS
KANSAS	Amarillo
Wichita	Dallas
KENTUCKY	El Paso
Lexington	Houston
Louisville	Lubbock
LOUISIANA	UTAH
Baton Rouge	Salt Lake City
New Orleans	VIRGINIA
Shreveport	Richmond
MAINE	WASHINGTON
Lewiston	Seattle
Portland	Spokane
MARYLAND	WEST VIRGINIA
Baltimore	Charleston
MASSACHUSETTS	WISCONSIN
Boston	Milwaukee
Springfield	Washington DC
MICHIGAN	CANADA
Benton Harbor	Calgary, Alta.
Detroit	Edmonton, Alta.
Grand Rapids	Vancouver, B.C.
Jackson	Winnipeg, Man.
Kalamazoo	Hamilton, Ont.
Lansing	Mississauga, Ont.
Muskegon	Ottawa, Ont.
MINNESOTA	Toronto, Ont.
Duluth	Windsor, Ont.
Minneapolis	Montreal, Que.
St. Paul	Quebec, Que.
MISSOURI	MEXICO
Jefferson City	Mexico City
Kansas City	PUERTO RICO
St. Louis	San Juan

You can also buy Chicago fans in:  
Argentina, Australia, Benelux, Brazil, Chile,  
Colombia, Denmark, France, Germany,  
Greece, Holland, Hong Kong, India, Indonesia,  
Israel, Italy, Japan, Korea, Malaysia,  
New Zealand, Norway, Philippines, Portugal,  
Saudi Arabia, Singapore, South Africa, Spain,  
Sweden, Taiwan, Turkey and Venezuela.

**CHICAGO BLOWER CORPORATION**

1675 GLEN ELLYN ROAD, GLENDALE HEIGHTS, ILLINOIS 60139

PHONE: (630) 858-2600 FAX: (630) 858-7172



Printed On Recycled Paper  
In The USA