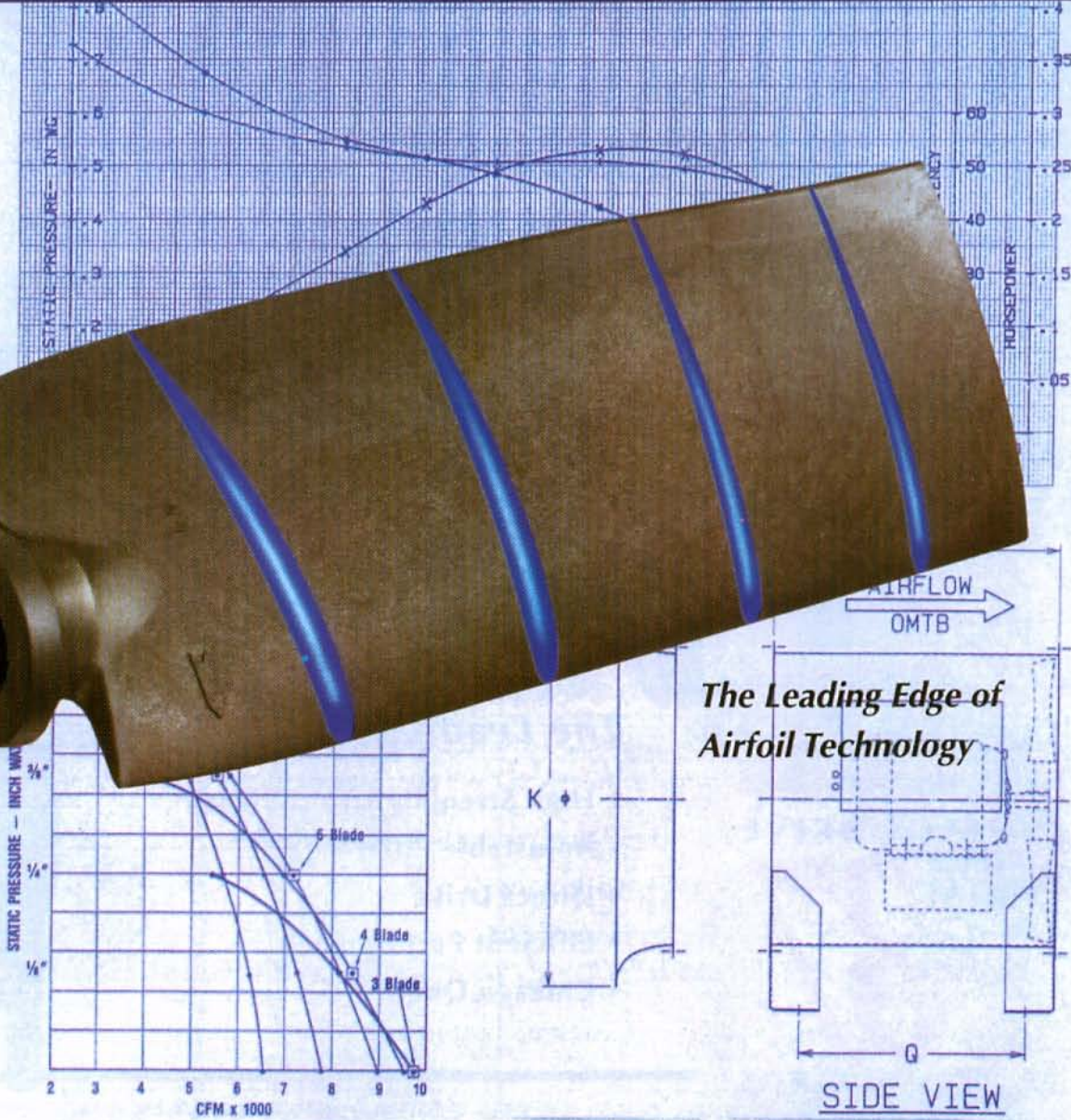
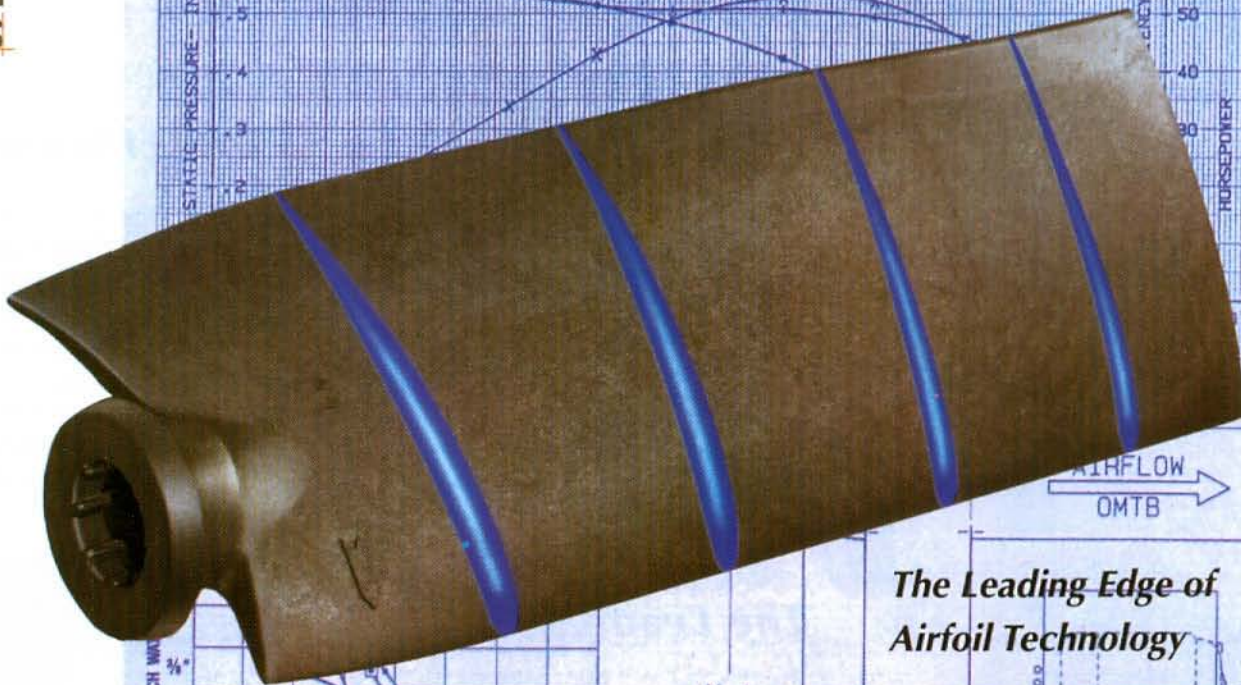


# CHICAGO

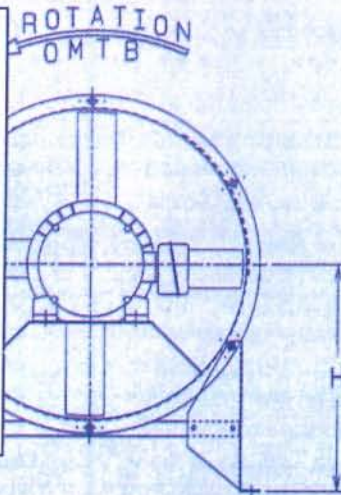
- \* TEST STATIC PRESSURE
- \* TEST HORSEPOWER
- X %STATIC EFFICIENCY

AIR MOVEMENT AND CONTROL ASSOCIATION, INC  
 CHICAGO BLOWER CORPORATION  
 0/37 DUCT FAN  
 SIZE 20  
 OUTLET AREA, SQ FT= 2.1 IMPELLER DIAM. INS= 19.5  
 TEST METHOD PER AMCA STANDARD 210-85, FIGURE 12  
 RESULTS AT STANDARD AIR DENSITY AND RPM 1750

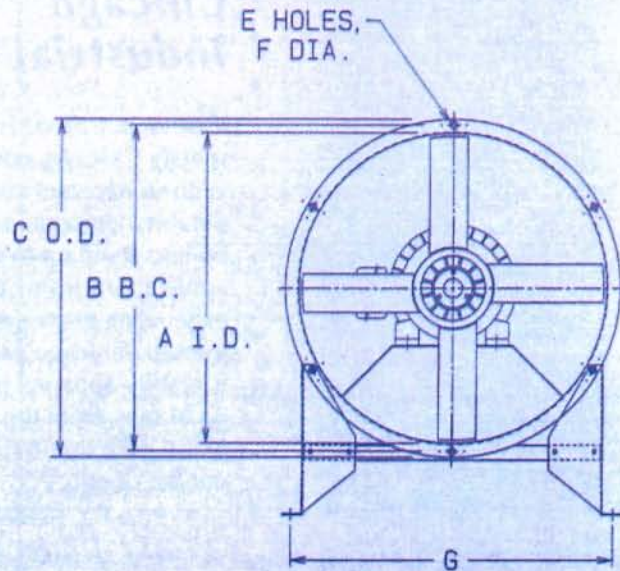
BULLETIN DCT-101



DESIGN  
 DIRECT DRIVE  
 TUBE  
 AXIAL  
**37**



END VIEW  
 (DRIVE END, FAN ONLY)



END VIEW  
 (WHEEL END, FAN ONLY)

STATIC P  
HORSEPO  
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# CHICAGO

RESUL  
APPL. NO.

## EXCEPTIONAL AIRFOIL PERFORMANCE TYPICAL CHICAGO RELIABILITY



### Most Efficient Fans

Chicago's Direct Drive Design 37 fans with adjustable pitch blades are capable of more air delivery for the same horsepower. Efficiencies exceeding 70% are common. How? The primary reason for increased efficiency is Chicago's unique blade design. The entire length of the blade surface generates air flow, not just the tip alone. The air flow is uniform all along the blade.

### The Leading Edge

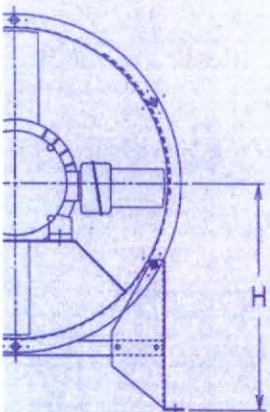
- High Strength Airfoil Blades
- Adjustable Pitch
- Direct Drive
- Efficient Performance
- Chicago Quality



DIRECT DRIVE  
TUBE  
AXIAL  
DESIGN **37**

6 7 8 9 10  
CFM x 1000

ATION  
TB



### Chicago Industrial Quality

If efficiency alone isn't reason enough to specify Chicago, compare construction. With sturdy steel construction and rugged durable components, the tube axial fan is built to stand up to severe industrial duty applications from continuous inline exhausting to process equipment to heat transfer. Chicago's famous industrial quality is readily apparent in their Design 37 Tube Axial fans, from the grade of steel coming in the door to full run testing before going out the door.

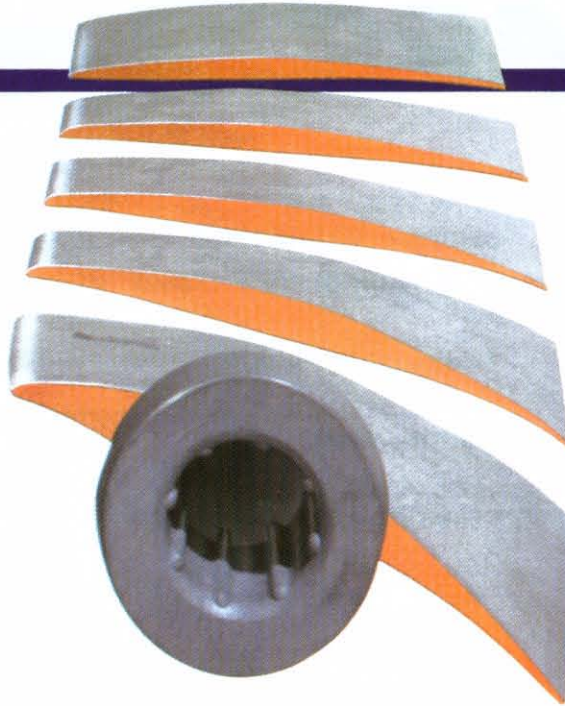
### Computer Selections

From the five blade configurations and 49 pitch angles available, the most efficient combinations are computer matched to available motor speeds and horsepowers. Up to now, fan availability often made selection a compromise between too little or too much. "Close enough" was good enough. With a multitude of propeller configurations readily available for each fan size, the optimum selection to meet system requirements can be assembled quickly using stock components. It's like ordering a custom fan without the added expense or long lead time.



Airfoil cross-sections gradually increase from tip to root.

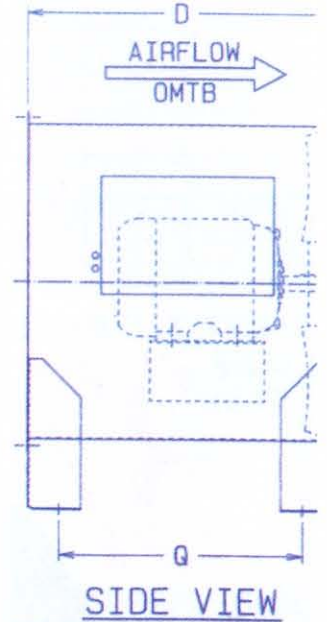
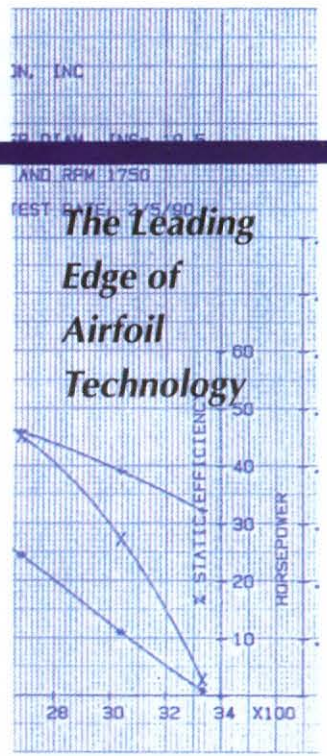
## UNIQUE AIRFOIL BLADES



Close tip tolerances increase fan efficiency. Long, low profile motor supports minimize air resistance.



The Design 37 Tube Axial's exceptional performance is the result of superior airfoil blade technology combined with advanced production technology. Efficient design requires a uniform air flow along the entire blade surface from tip to root even though the blade tip travels faster than the root. To compensate for these lower root speeds, not only must the pitch angle of the blade be increased, the "lift" characteristic must be increased by enlarging the airfoil cross-section. Chicago's axial airfoil propeller is based on this precise combination of effective pitch angle and NACA airfoil sections, continuously changing shape from tip to root.

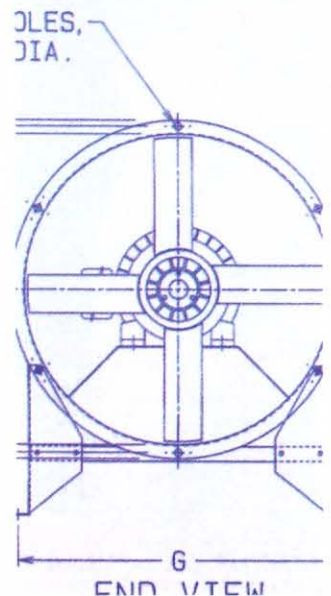


Exceptionally strong engineering grade resins.

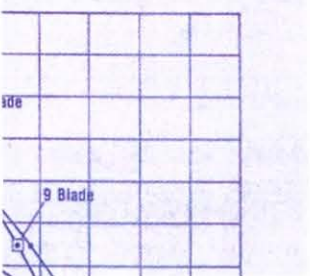
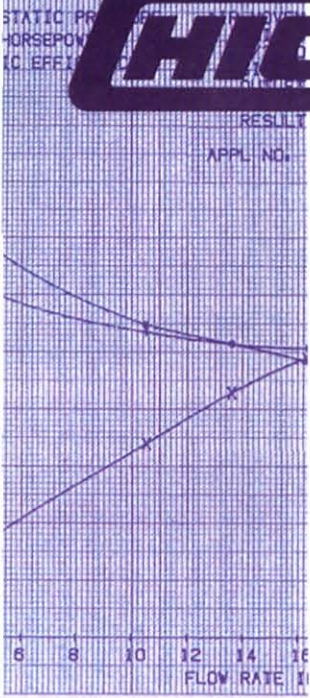


## Precise, High Strength Molding

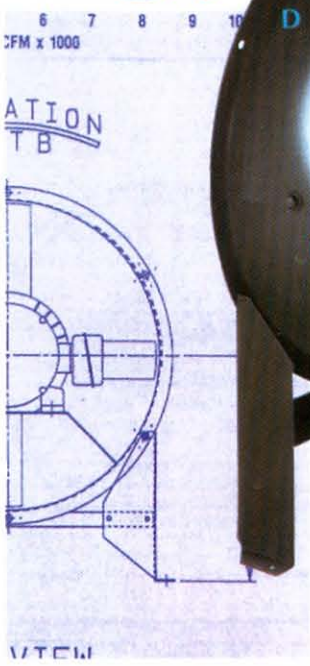
Chicago's advanced airfoil blades are faithfully produced by injection molding using engineering grade resins. Even the latest methods for casting aluminum or metal die forming cannot be trusted with the accuracy needed to duplicate the intricate flowing shape along the full length of the blade. Precision molding also allows closer blade tip clearances to further increase efficiency. The molded blade is extremely strong and not affected by adverse installations. With Chicago, the axial fan has never been in better shape.



# CHICAGO



## DIRECT DRIVE TUBE AXIAL DESIGN 37



### FEATURES

- Unique Airfoil Blade**
- Precision Blade Molding**
- Adjustable Pitch**
- Direct Drive**
- Continuous Duty Motors**
- Industrial Quality**
- Run Tested**
- Many Sizes, Blade Configurations, Pitches**
- High pressures, Volumes**
- Accessories Available**
- Chicago Blower Engineering**
- Chicago Sales Offices**

### BENEFITS

- More air flow for the same horsepower.
- Extremely close blade tip clearance increases efficiency.
- Higher efficiencies can be maintained even if duty changes.
- Eliminates initial expense and maintenance costs of belts, pulleys, fan shafts and bearings.
- Proven motors are supplied by reliable, nationally recognized manufacturers.
- Typically rugged Chicago construction and stringent quality control.
- Full speed run test of the completed fan assures smooth, balanced operation.
- Choice of efficient computer selections for every application requirement.
- Suited to diverse installations with pressures to 5" SP, volumes over 65,000 CFM.
- Single source availability for fan options.
- Experienced fan designers turn air moving problems into sound reliable solutions.
- Worldwide professional application assistance from qualified fan engineers.



## TAKE A CLOSE LOOK AT CHICAGO

### Standard Features

- A** TEFC Motor
- B** Low Profile Motor Support
- C** Easily Adjustable Blade Pitch
- D** Rugged Steel Housing
- E** Convenient Access Door

### Optional Features

- F** Mounting Feet
- G** Inlet Bell
- H** External Grease Leads

**Also available** • external conduit box

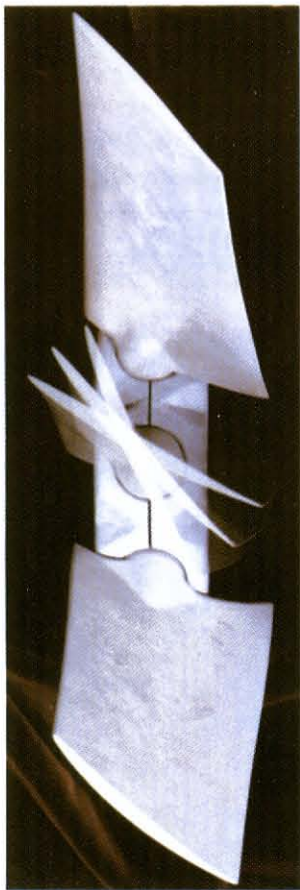
- disconnect switch
- vibration isolators
- bolt-on guide vanes
- companion flanges
- inlet/discharge guards
- horizontal/vertical mounting lugs

# DIRECT DRIVEN ADJUSTABLE PROPELLERS MEET EXACT DUTY REQUIREMENTS

## Versatile

The adjustable pitch propeller in the direct drive tube axial fan provides more precise capacity adjustment than changing the speed of belt drive fans.

With the infinite adjustment available, a precise change of capacity can be attained by simply increasing or decreasing the blade pitch setting.



## Easy Blade Adjustment

A two-piece hub firmly grips the entire blade shank. By loosening the hub fasteners, the hub releases its hold on the blade and allows the blade to be rotated as needed to change the pitch. A convenient pitch setting card included with every fan assures accurate settings. All the blades can be adjusted in a matter of minutes, about half the time needed to change pulleys.



Belt drive was once considered the only economical method that would provide the flexibility to alter a fan's capacity. Chicago's Design 37 updates this concept by combining the adjustable pitch propeller with direct drive.

## No Wasted Horsepower

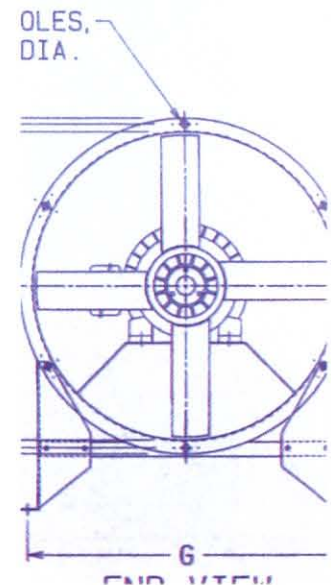
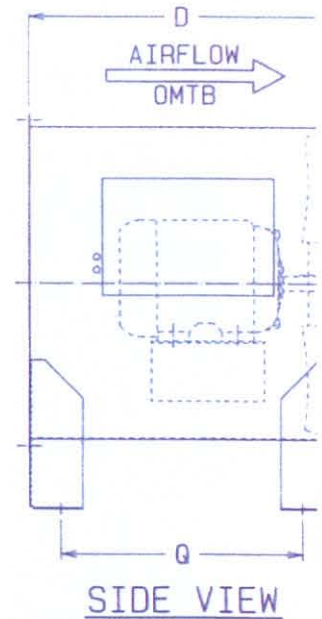
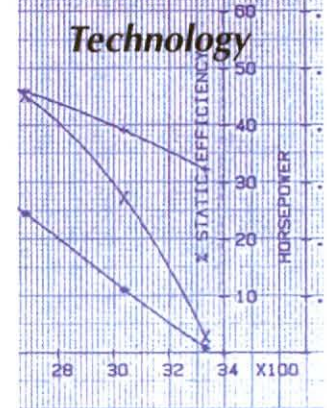
Tests show that low horsepower belt drives routinely consume as much as 20% of the horsepower available from the motor. The typical drive loss for a one-horsepower belt drive fan is around 9%. This wasted horsepower is part of the belt driven fan's operating expense for the entire life of the installation.

## More Efficient Capacity Adjustment

For a capacity increase with a belt driven fan, the power required to increase volume is the cube of the increase. It always takes 33% more horsepower to achieve 10% more air. With Chicago's adjustable pitch propeller, that same 10% volume increase may only require 20% more power. Nearly every capacity change comparison will favor the adjustable pitch.

After a thorough evaluation of belt drive's wasted power and high cost of repair parts and maintenance, the direct drive Design 37 Tube Axial with adjustable pitch will be the obvious choice.

## The Leading Edge of Airfoil Technology



DIRECT DRIVE  
TUBE  
AXIAL  
DESIGN **37**

## FAN SELECTION

Propeller fan performance has traditionally been catalogued at a constant speed from free air delivery to peak pressure using a set number of blades at a fixed pitch setting. With the limited selections offered by designs having only a few fixed propellers, this method made sense.

Chicago's Tubeaxial has redefined fan selection by computer matching the best propeller

combinations to available motors. With the flexibility to easily assemble a propeller having 3, 4, 6, 9 or 12 blades and quickly set the pitch of the blade in increments from 4 thru 28 degrees, the best propeller is always available for maximum efficiency.

Chicago's tubeaxial adjustable blades will allow the fan's capabilities to change if the system requirements change. Simply adjusting the blade pitch angle will increase or decrease the flow by up to 8 times based on the initial blade pitch angle and motor HP capacity. Refer to Curve 2, page 8 for effective blade pitch change.

For a certain duty point and fan size at a given RPM, one combination of blades and pitch setting is always more efficient than others. The computer has selected the rating of this single most efficient configuration for publication here.

A fan's ability to develop static pressure is primarily a function of its operating speed. The higher the RPM the more pressure a given propeller can develop. Ability to develop pressure is also a function of the number of blades. Any 12-blade propeller will usually develop more than twice the pressure of a 3-blade propeller. This is illustrated on Curve 1, Page 8.

**870 RPM**

### Performance Tables

Fan Size	Motor H.P.	CFM / Model vs Static Pressure					
		Free Air	1/8	1/4	3/8	1/2	5/8
28	1/6	5979 3DA	4338 3CI	2519 6BE			
	1/4	6675 4DG	5288 6CH	3527 9BK	2148 12BD	1367 12BA	
	1/3	7451 6DI	6197 6DD	4539 12CE	3246 12CA	1952 12BK	
	1/2	8669 6EI	7491 6EE	6203 12DE	4988 12DA	2297 12CI	
	3/4	9707 12FA	8939 12EK	7884 12EG	6778 12ED	3052 12EA	
	1		9177 12FA	8561 12FA	7748 12FA	3061 12FA	
32	1/6	7086 3CI	4391 3CA	2110 6BA			
	1/4	8564 4DE	6024 4CG	4358 6CA	2144 9BD	1720 12BA	
	1/3	9089 4DG	7211 6CK	5616 6CH	3189 9BJ	2054 12BD	
	1/2	10441 6DL	8610 6DG	7059 6DD	5349 12CF	3172 12CB	
	3/4	11906 6EH	10348 6EE	8974 6EC	7559 12DF	4352 12DA	
	1	13276 12EL	11790 12EH	10529 12EE	9099 12EB	7477 12DK	
1-1/2	13488 12FA	12811 12FA	12112 12FA	11244 12FA	10100 12FA		
36	1/6	8188 3CA	4663 3BF				
	1/4	9680 3CI	6491 4BL	3959 6BD			
	1/3	10398 3DA	7925 4CF	5691 6BK	2939 9BB		
	1/2	12284 6DE	9869 6CK	8066 6CI	5368 9BK	3411 12BE	2252 12BC
	3/4	13908 6DL	11940 6DH	9928 6DE	8127 9CJ	5504 12CA	3836 12BL
	1	15232 9EC	13550 9DL	11849 9DI	10165 12DC	8155 12CK	4849 12CG
	1-1/2	17978 12EL	16127 12EH	14575 12EE	13012 12EB	11532 12DL	6812 12DI
	2	18251 12FA	17452 12FA	16639 12FA	15296 12EK	14055 12EJ	12044 12EG
	3				15799 12FA	14796 12FA	13540 12FA

**870 RPM**

### Performance Tables

Fan Size	Motor H.P.	CFM / Model vs Static Pressure									
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4
40	1/2	12818 3BL	10124 3BI	7378 3BF	3948 BE						
	3/4	15360 3CI	12889 3CF	10220 3CC	7868 4BI	4184 4BG					
	1	16896 3DC	14650 3CL	12396 4CG	10454 6BK	7588 6BG	5680 9BB	4124 9BA			
	1-1/2	19566 6DF	17508 6DB	15890 6CL	13824 6CI	11288 6CF	9652 9CB	7104 12BH	5708 12BG		
	2	21584 6EA	20122 6DK	18252 6DH	17138 6DF	14816 6DE	12675 9CI	10636 12CE	7075 12CB		
	3	24584 6EL	23580 6EL	22172 6EK	20508 6EI	18758 6EH	17267 12DH	15494 12DF	13484 12DE		
5	26640 12FA	26056 12FA	25382 12FA	24556 12FA	23496 12FA	22636 12FA	21384 12FA	19860 12FA			
44	3/4	17104 3CC	14003 3BL	10420 3BI	6250 3BG						
	1	20216 3CK	17213 3CH	13672 4BJ	10276 6BF						
	1-1/2	23504 4DE	21245 4DB	17976 6CG	15228 6CD	12450 6CB	9964 6CA	7284 9BG	5828 12BB	4720 12BA	
	2	25610 4DJ	23680 4DI	21398 6DB	18664 6CK	15912 6CI	13589 9CD	11014 9CB	8030 12BH	5944 12BE	
	3	29848 4EH	27515 6DL	25722 6DK	23452 6DI	21310 6DH	18563 9DB	16782 12CI	14580 12CG	9302 12CD	
	5	35820 9EL	34344 9EK	32144 9EI	30472 9EH	27982 9EF	26390 12EB	24616 12EA	22320 12DK	17828 12DH	
7.5	37016 12FA	36320 12FA	35146 12FA	34492 12FA	33240 12FA	32360 12FA	30800 12FA	29664 12FA	26708 12EK		
48	1-1/2	26568 3CI	23134 3CI	17964 4CA	15976 6BI	11568 6BE					
	2	30560 3DE	25246 4CI	22872 6CE	20123 6CC	16952 6CA	12930 9BF	9936 9BE			
	3	34984 6DF	32096 6DE	29204 6DC	26308 6DA	23412 6CK	19242 9CE	16022 12BK	13168 12BI	10604 12BG	
	5	41336 6EE	38428 6EC	36165 6EB	34104 6EA	31032 6DK	27874 9DE	26112 12DA	24242 12CL	21008 12CI	14464 12CD
	7-1/2	47424 9EJ	45364 9EI	43316 9EI	41280 9EH	39268 9EE	36656 12EB	34032 12DK	32840 12DK	30224 12DJ	20539 12DF
	10	50088 12FA	48982 12FA	47876 12FA	46902 12FA	44537 12EL	42306 12EJ	40372 12EI	38440 12EH	36520 12EG	25336 12ED
	15					45664 12FA	44400 12FA	43136 12FA	41872 12FA	40608 12FA	28636 12FA

Performance shown is for direct connected tubeaxial fans with outlet ducts. Actual brakehorse power may exceed the listed motor HP to a maximum of 15 percent.

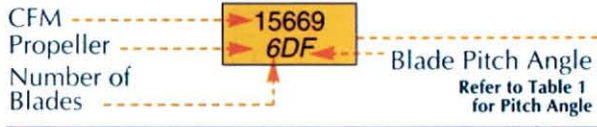
The Performance Tables show the most common rating points. Chicago Tubeaxial fans are capable of pressures over 5" and volumes over 65,000. Contact your local Chicago Blower representative for full performance and sound tables and for assistance.

**Typical Fan Description**



Chicago's **D**irect **C**onected **T**ubeaxial Size **36** fan, with a **6** bladed propeller **DF** Blade Pitch Angle, and a **1-1/2** HP **1160** RPM TEFC motor.

**Typical Catalog Rating Point**



Fan Size	Motor H.P.	CFM / Model vs Static Pressure							
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	
20	1/6	3737 6ED	3112 6DK	2421 6DJ					
	1/4	4257 9EL	3809 12EF	3208 12EA	2482 12DH				
	1/3	4440 12FA	4163 12FA	3732 12EK	3105 12EH				
	1/2			3833 12FA	3341 12FA				
22	1/6	4485 4EA	3568 6DC	2649 6CK	1518 12BJ	1004 12BH			
	1/4	5185 4EK	4312 9DJ	3521 9DF	2716 12CK	1483 12CG			
	1/3	5743 6EL	5011 9EF	4209 9EB	3433 12DH	1793 12DC			
	1/2	6169 12FA	5828 12FA	5358 12EL	4606 12EI	2262 12EG			
24	3/4			5449 12FA	4958 12FA	2343 12FA			
	1/6	5259 3DJ	3933 4CJ	3211 6CB					
	1/4	5947 4DJ	4879 6DC	3851 6CL	2782 9CD				
	1/3	6660 4EG	5701 6DK	4634 9DC	3703 9CL	2263 12CC			
	1/2	7728 6FA	6718 9EE	5864 9EB	5085 12DH	4138 12DE			
	3/4	8348 12FA	7937 12FA	7282 12EK	6487 12EG	5700 12EF			
28	1			7516 12FA	7059 12FA	6491 12FA			
	1/4	6932 3CE	5093 3BK	3583 3BH	2401 4BB				
	1/3	7330 3CH	5915 3CE	4480 6BE	3408 6BB	2131 6BA			
	1/2	8665 3DF	7296 4DA	6430 6CE	4915 6CB	4227 6CA	2742 12BB	2227 12BA	
	3/4	9681 4EA	8858 6DD	7833 6DB	6643 6CK	5486 9CE	4419 12BL	3043 12BI	
	1	10895 6ED	9676 6EA	8943 9DG	7904 9DD	6989 12CK	5701 12CH	4470 12CG	
	1-1/2	12557 9FA	11489 12EG	11025 12EE	9759 12EB	9351 12EA	7915 12DJ	7401 12DI	
	2	12943 12FA	12480 12FA	12135 12FA	11597 12EL	11026 12EJ	9991 12EJ	9194 12EI	
	3					11173 12FA	10406 12FA	9739 12FA	

Fan Size	Motor H.P.	CFM / Model vs Static Pressure											
		Free Air	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	1 3/4		
40	1-1/2	19024 3CE	17003 3CD	14982 3CB	13046 3BL	11110 4BF	7473 3BD						
	2	20768 4CI	19177 4CH	17585 6CA	15837 6BL	14088 6BI	10316 6BE	6756 6BD	4185 6BC				
	3	24082 3DH	22546 4DE	21009 6CJ	19548 6CH	18086 6CF	14661 6CC	12054 6CB	8499 9BI	6388 12BF			
	5	29156 6EB	27558 6DL	25960 6DK	24884 6DI	23808 6DH	21068 6DF	18195 6DD	15289 9CK	10458 12CD			
	7-1/2	33252 9EJ	32099 9EI	30947 9EH	30045 9EF	29142 9EF	26293 9ED	24356 12DJ	20634 12DG	18939 12DF			
	10	35520 12FA	34888 12FA	34255 12FA	33780 12FA	33304 12FA	29110 12EH	28632 12EH	25795 12EG	23244 12ED			
	15						31831 12FA	30664 12FA	28563 12FA	26728 12FA			
	20												
44	2	23872 4CA	21290 4BK	18707 4BJ	16510 4BH	14312 6BE	10042 6BB	6384 6BA	3953 6BA				
	3	28758 4CL	26616 4CJ	24473 4CH	22309 4CF	20144 6CB	16078 6BK	11244 6BH	8217 9BD				
	5	34724 4DK	32704 6DE	30683 6DD	29296 6DC	27908 6DB	24622 6CL	20114 9CF	14364 9CA				
	7-1/2	40200 6EC	38040 6EA	35879 6DL	34752 6DK	33624 6DK	29737 6DI	26794 9DD	20511 9CJ				
	10	44924 6EJ	42772 6EI	40619 6EG	39242 6EF	38064 6EF	34968 9EB	32984 9EA	26658 9DG	23997 9DH			
	15	47017 9EK	45609 9EJ	44200 9EJ	42876 9EI	41551 9EH	39061 9EG	37076 9EG	32805 9ED	30116 9ED			
	20					45037 9FA	43154 9FA	41167 9FA	38952 9FA	36235 9FA			
	2	28468 3BK	24653 3BI	20838 3BF	17975 3BE	15112 3BE	7454 3BB						
48	3	34760 3CH	30871 3CF	26982 4CA	24984 4CA	22985 4BJ	15005 6CK	11142 6BB	6588 6BA				
	5	40744 3DE	38295 4DA	35846 4DC	32842 4CJ	29838 4CH	24673 6DL	20414 6BL	15599 9BE				
	7-1/2	46838 6DG	44003 6DE	41168 6DC	39650 6DB	38132 6DB	34255 6DA	29112 6CJ	24938 9EH				
	10	51744 6EA	49079 6DK	46414 6DJ	45199 6DI	43984 6DI	38859 9DC	36172 9DB	32937 9DA	26618 9CI			
	15	60148 6EK	57653 6EJ	55157 6EI	53580 6EG	52002 6EG	46735 9DE	45130 9DL	40507 9DD	35973 9DG	32718 9DH		
	20						47455 9ED	45053 9ED	42235 9ED	38615 9ED			

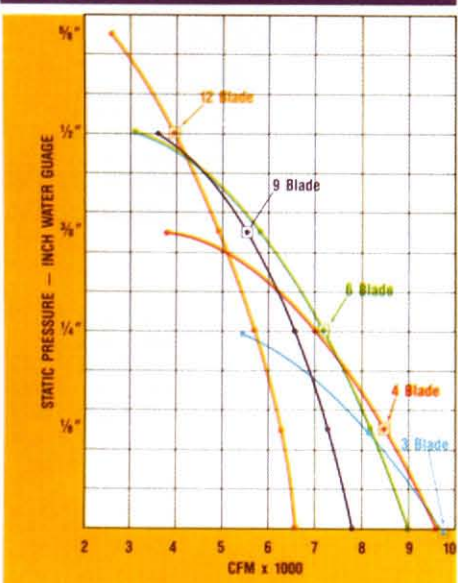
Performance shown is for direct connected tubeaxial fans with outlet ducts. Actual brakehorse power may exceed the listed motor HP to a maximum of 15 percent.

STATIC P  
HORSEPO  
IC EFF

# CHICAGO

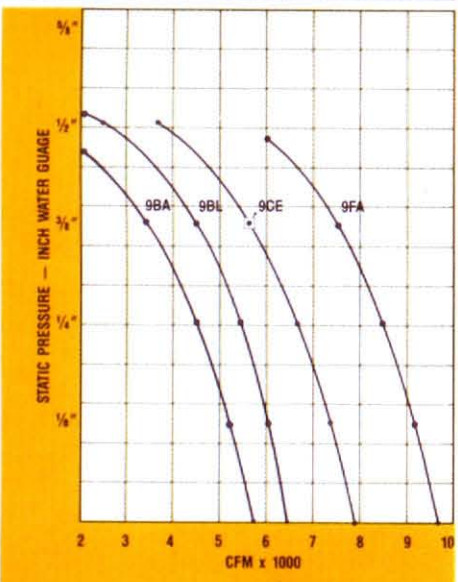
DIRECT DRIVE  
TUBE  
AXIAL  
DESIGN **37**

## Curve #1



Blade combination /performance comparison of 3, 4, 6, 9 and 12 blades showing effect of varying number of blades.

## Curve #2



Pitch angle/performance comparison showing effect of changing the blade pitch angle.

1750 RPM

## Performance Tables

Fan Size	Motor H.P.	CFM / Model vs Static Pressure									
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	7/8		
16	1/6	2889 4EL	2475 6EB	2096 9DH	1715 12DB	1016 12CI					
	1/4	3334 9FA	2978 9EJ	2664 9EH	2292 12EB	1899 12DK					
	1/3	3392 12FA	3227 12FA	3051 12FA	2734 12EK	2370 12EI					
18	1/6	3372 4EA	2834 6DE	2329 6DB	1796 9CF	1254 12BK	841 12BI				
	1/4	3845 6EF	3410 9DL	2924 9DH	2538 9DF	2064 12CK	1220 12CG				
	1/3	4281 9EJ	3853 9EG	3419 9ED	3015 12DJ	2651 12DH	1569 12DE				
	1/2	4590 12FA	4391 12FA	4125 12EL	3786 12EJ	3485 12EI	2967 12EF				
20	1/6	3655 3CF	2912 3CB	2327 3BL	1686 4BE						
	1/4	4186 3DB	3592 3CK	3027 4CF	2471 4CD	1927 6BG	1420 9BB	1031 9BA			
	1/3	4652 3DJ	4154 3DH	3566 6CK	3124 6CE	2601 6CC	2071 9BJ	1482 12BD	1174 12BB		
	1/2	5356 6DL	4961 6DJ	4492 6DG	4073 6DE	3542 6DC	3076 9CI	2554 12CD	1769 12CB		
	3/4	6248 6FA	5831 6EK	5422 6EI	5018 9EB	4633 12DI	4231 12DG	3790 12DE	3259 12DD		
	1	6699 12FA	6429 12EL	6168 12EK	5821 12EI	5450 12EG	5048 12EE	4598 12EC	4151 12EB		
	1-1/2		6514 12FA	6332 12FA	6139 12FA	5920 12FA	5659 12FA	5346 12FA	4965 12FA		
22	1/6	4104 3CA	3075 3BH	2142 3BE							
	1/4	4987 3CJ	4106 3CF	3335 3CD	2446 6BE	1891 6BD	1210 6BC				
	1/3	5503 4DA	4870 4CJ	4163 4CG	3435 6CA	2779 6BK	2024 9BE	1385 9BC	1018 9BB		
	1/2	6439 4DJ	5817 4DH	5229 6DA	4666 6CK	3897 6CH	3275 9CC	2629 9CA	1912 12BG		
	3/4	7399 4EG	6756 6DK	6310 6DJ	5744 6DH	5257 6DG	4574 12CK	4069 12CI	3502 12CG		
	1	8215 6EH	7724 6EG	7103 6EE	6701 9EA	6187 12DI	5647 12DG	5093 12DE	4552 12DC		
	1-1/2	9307 12FA	9080 12FA	8712 12EL	8345 12EK	7823 12EI	7276 12EG	6827 12EF	6232 12ED		
	2			8854 12FA	8623 12FA	8371 12FA	8090 12FA	7771 12FA	7416 12FA		
	24	1/6	4788 3BG	3320 3BB							
		1/4	5782 3CB	4512 3BJ	3365 3BG	2383 4BD					
1/3		6554 3CH	5485 3CE	4236 3CA	3380 4BI	2577 6BC	1834 6BB				
1/2		7556 3DD	6652 3DB	5787 4CH	4886 4CF	3948 6BK	3262 6BJ				
3/4		8692 4DI	7971 6DD	7141 6DA	6383 6CK	5747 6CJ	4500 6CF				
1		9520 4ED	8918 6DJ	8244 6DH	7519 6DF	6875 6DE	5738 6DA	5073 6DA			
1-1/2		11027 6EI	10318 6EG	9770 6EF	9057 6ED	7891 6DL	6976 6DI	6418 6DI			
2		11660 6FA	11064 6EL	10477 6EK	9712 6EI	8907 6EG	8214 6EE	7966 6EG			
3					10366 6FA	9923 6FA	9452 6FA	8955 6FA			

Performance shown is for direct connected tubeaxial fans with outlet ducts. Actual brakehorse power may exceed the listed motor Hp to a maximum of 15 percent. Note: Sizes 16 and 18 are not licensed to bear the AMCA seal.



**1750 RPM**

**Performance Tables**

Fan Size	Motor H.P.	CFM / Model vs Static Pressure											
		Free Air	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	
28	3/4	9395 3CA	8274 3BK	7153 3BH	6145 3BF	5136 3BE	2877 3BE						
	1	10657 3CF	9573 3CD	8488 3CB	7636 3CA	6783 4BE	4915 4BE	2792 4BE					
	1-1/2	12202 3DB	11442 3DA	10681 3CL	9857 4CI	9033 4CG	7413 4CE	5865 6BH	4139 9BB	3005 9BA	2291 9BA		
	2	13716 3DK	12898 3DI	12079 4DE	11357 4DD	10635 6CH	9107 6CE	7830 6CD	6037 9BJ	4320 12BD	3569 12BC		
	3	15823 6EA	15142 6DL	14460 6DJ	13777 6DI	13094 6DG	11873 6DE	10470 6DC	8967 9CI	7445 12CD	5155 12CB		
	5	18502 9EK	18089 9EK	17676 9EJ	17156 9EI	16636 9EH	15531 9EF	14470 12EA	13306 12DK	12021 12DI	10639 12DH		
	7-1/2	19528 12FA	19258 12FA	18988 12FA	18723 12FA	18458 12FA	17895 12FA	17257 12FA	16496 12FA	15584 12FA	14267 12EL		
32	1	11963 3CA	10464 3BK	8964 3BH	7605 3BG	6244 3BE							
	1-1/2	14537 3CJ	13397 3CI	12257 3CG	10990 3CF	9722 3CD	7290 4BH	5512 6BD	3528 6BC				
	2	16338 4DB	15385 4DA	14432 4CK	13284 4CI	12135 4CG	10106 4CE	8100 6BK	6110 6BJ	4320 9BD	3195 9BC		
	3	18770 4DJ	17864 4DI	16958 4DH	16100 4DI	15242 6DA	13601 6CK	11724 6CJ	9548 9CB	7838 12BJ	5573 12BG	4635 12BF	
	5	22466 6ED	21616 6EC	20766 6EB	20105 6EB	19443 6EA	17780 6DK	16376 6DJ	14653 9DE	12967 12CL	11414 12CJ	7884 12CH	
	7-1/2	25841 9EL	25232 9EK	24623 9EJ	23829 9EI	23034 9EH	21906 12EE	20414 12EC	19231 12EB	17550 12DL	16265 12DK	14415 12DI	
	10	27130 12FA	26799 12FA	26468 12FA	26139 12FA	25809 12FA	25136 12FA	24002 12EL	22397 12EJ	21081 12EI	19698 12EH	18207 12EG	
36	1-1/2	16854 3CB	15003 3BL	13152 3BJ	11481 3BI	9809 3BG	6948 4BD						
	2	19475 3CI	17732 3CG	15988 3CE	14527 3CD	13065 4BL	9852 4BI	7628 4BI					
	3	22026 3DD	20652 3DC	19288 3DB	18079 4CI	16869 4CH	14224 4CF	11013 4CC					
	5	26153 4DK	25233 4DI	24313 4DJ	22480 4DH	20647 4DE	17409 4DA	15479 4DA					
	7-1/2	28757 4EF	27910 4EF	27063 4EF	25745 4ED	24426 4EC	21955 4EA	19047 4DJ					
	10	31361 4FA	30587 4FA	29813 4FA	29022 4FA	28231 4FA	26500 4FA	24615 4FA					

**3450 RPM**

**Performance Tables**

Fan Size	Motor H.P.	CFM / Model vs Static Pressure											
		Free Air	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	
16	1/3	3513 3CI	2880 3CE	2245 3CC	1670 6BD	1260 6BC	746 6BA						
	1/2	4077 3DE	3557 4CK	3051 4CH	2557 6CB	1997 6BK	1600 6BK	1129 12BA	995 9BC				
	3/4	4704 4DK	4253 4DI	3843 6DB	3440 6CL	2979 6CJ	2516 6CI	2026 12BH	1442 12BH	1198 12BG			
	1	5240 4EF	4774 4ED	4362 6DH	4041 6DG	3646 6DF	3152 9CL	2745 12CG	2311 12CE	1596 12CB			
	1-1/2	5994 6EI	5577 9EE	5294 9ED	4908 9EB	4357 9EA	4155 12DH	3754 12DF	3453 12DE	2666 12DC			
	2	6687 12FA	6572 9FA	5967 9EK	5663 9EJ	5326 12EF	5033 12EE	4615 12EC	4290 12EB	3936 12EA			
	3		6524 12FA	6361 12FA	6195 12FA	6040 12FA	5812 12FA	5583 12FA	5328 12FA	5036 12FA			

**TABLE 1**

**Pitch Codes**

4	BA	16-1/2	DB
4-1/2	BB	17	DC
5	BC	17-1/2	DD
5-1/2	BD	18	DE
6	BE	18-1/2	DF
6-1/2	BF	19	DG
7	BG	19-1/2	DH
7-1/2	BH	20	DI
8	BI	20-1/2	DJ
8-1/2	BJ	21	DK
9	BK	21-1/2	DL
9-1/2	BL	22	EA
10	CA	22-1/2	EB
10-1/2	CB	23	EC
11	CC	23-1/2	ED
11-1/2	CD	24	EE
12	CE	24-1/2	EF
12-1/2	CF	25	EG
13	CG	25-1/2	EH
13-1/2	CH	26	EI
14	CI	26-1/2	EJ
14-1/2	CJ	27	EK
15	CK	27-1/2	EL
15-1/2	CL	28	FA
16	DA		

**TABLE 2**

**Motor Loads**

Rated H.P.	Catalog Load
1/6	.192
1/4	.288
1/3	.383
1/2	.575
3/4	.863
1	1.150
1-1/2	1.725
2	2.300
3	3.450
5	5.750
7-1/2	8.825
10	11.500
15	17.250
20	23.000
25	28.750
30	34.500

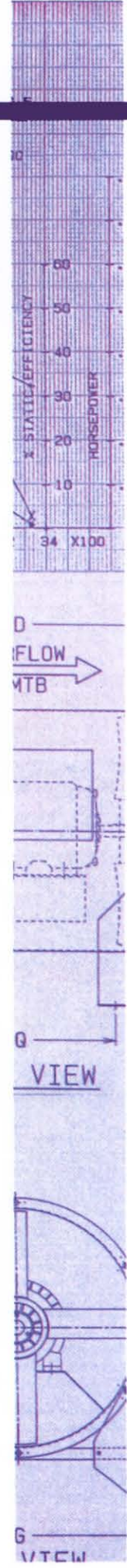
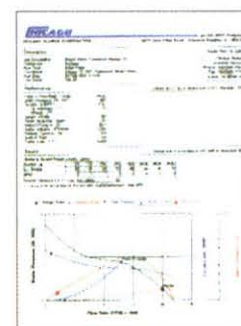
Performance shown is for direct connected tubaxial fans with outlet ducts.

Actual brakehorse power may exceed the listed motor HP to a maximum of 15 percent.

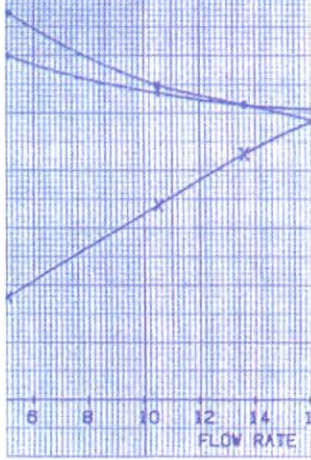


Contact your local Chicago Blower sales engineer for software and assistance.

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

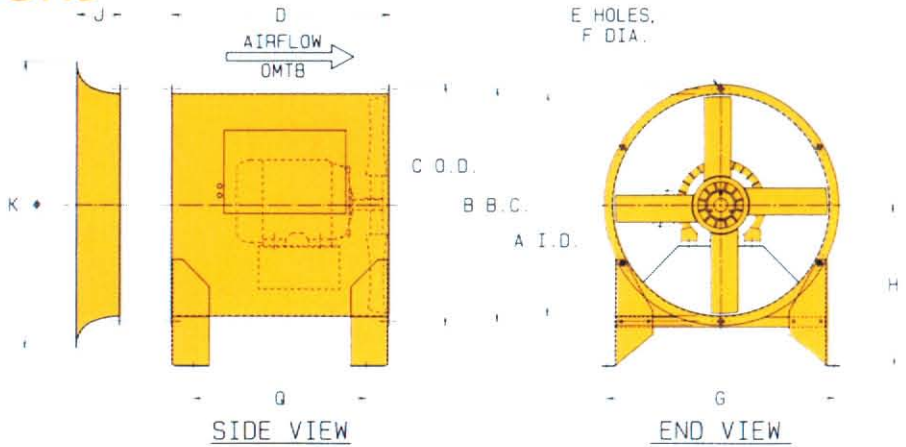


RESUL...  
APPL. NO.:



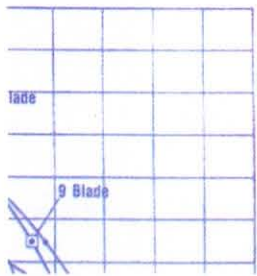
## DIMENSIONS

TEFC MOTORS	
Frame	Weight
48	52
56	52
143	65
145	65
182	95
184	95
213	170
215	170
254	270
256	270
284	330
286	420
324	520
326	575



Fan Size	Sq. Ft. Casing Area	DIMENSIONS (INCHES)										Wt*	
		A	B	C	D	E	F	G	H	J	K		Q
16	1.353	15-3/4	16-3/4	18	16	6	1/4	18-5/16	12-1/4	3-5/32	20-3/8	8-27/32	29
18	1.712	17-23/32	18-23/32	19-31/32	16	6	1/4	20	12-3/4	3-9/16	22-15/16	8-27/32	31
20	2.114	19-11/16	20-13/16	21-15/16	16	6	1/4	22-3/16	16-11/32	3-31/32	25-1/2	9-19/32	38
22	2.655	22-1/16	23-3/16	24-7/16	16	6	1/4	24-1/4	16-15/16	4-7/16	28-9/16	9-19/32	42
24	3.358	24-13/16	26-3/16	27-7/16	17	6	3/8	26-7/8	17-11/16	5	32-1/8	10-19/32	48
28	4.314	28-1/8	29-1/2	30-3/4	21	6	3/8	29-7/8	22-1/4	5-21/32	36-13/32	14-19/32	69
32	5.412	31-1/2	33	34-3/8	22	6	3/8	32-15/16	23-1/8	6-11/32	40-25/32	15-19/32	99
36	6.849	35-7/16	37-3/16	38-9/16	22	6	3/8	36-9/16	24-3/16	7-1/8	45-7/8	15-19/32	111
40	8.456	39-3/8	41-1/4	42-5/8	29	6	3/8	40-1/8	31-7/16	7-29/32	50-31/32	22-7/32	165
44	10.619	44-1/8	46	47-3/8	30	6	3/8	44-1/4	32-5/8	8-7/8	57-1/8	23-7/32	218
48	13.432	49-5/8	51-1/2	52-7/8	32	6	3/8	49	34	9-31/32	64-1/4	25-7/32	254

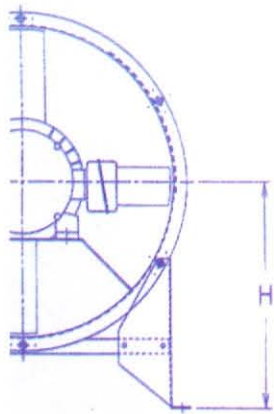
\* Bare fan less motor.



## DIRECT DRIVE TUBE AXIAL DESIGN 37

CFM x 1000

ATION  
ITB



VTCW

## ENGINEERING SPECIFICATION

### A. GENERAL:

Provide Adjustable Pitch Direct Drive Tubeaxial Fans as shown on the drawings of the capacities and type shown on the fan schedule. Fans shall be rated in conformance with AMCA Standards 211 and 311 for Air Performance and Sound Power Level. All fans shall be manufactured and assembled in the U.S.A. Acceptable vendors are: Chicago Blower Corporation.

### B. HOUSING:

Fan housings are to be precisely formed with integral rolled flanges on inlet and outlet. Fans 28" diameter and smaller shall be made from not less than 14 ga. metal. Fans 32" diameter and larger shall be made from not less than 12 ga. thick metal. Motor support plate shall be made from not less 10 ga. thick metal. Housing shall include access door.

### C. ROTORS:

The blades and hub are to be injection molded using an engineering grade glass

reinforced modified polyphenylene oxide. Efficient design is required for a uniform air flow along the entire blade surface from tip to root. The pitch angle of the blade increases from tip to root to compensate for lower rotational speeds and the lift characteristic is increased by enlarging the cross section in a NACA airfoil configuration.

Blades shall be attached to the hub and be adjustable when the fan is at rest, and without removing the wheel from the shaft. The fans shall be individually adjustable over a range of not less than 20 degrees.

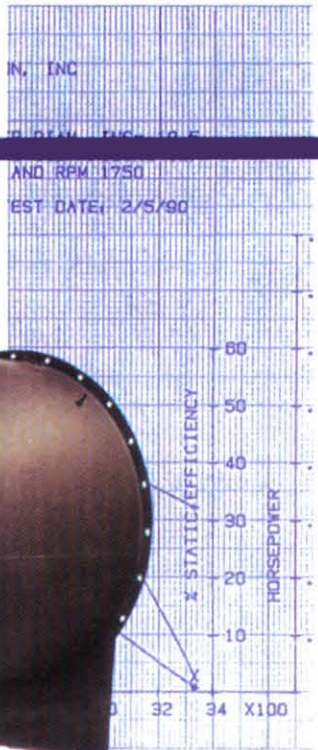
### D. ASSEMBLY:

All hubs shall have either a plated steel integrally molded hub insert or a bolted, machined, aluminum insert. All inserts shall have straight bores. 5/8" and larger bores shall have key and set screw (s). All fan rotor assemblies shall be statically balanced, and fans shall be fully assembled and factory run tested to insure smooth, vibration-free operation.

# A SELECTION OF AXIAL FANS FOR EVERY APPLICATION NEED

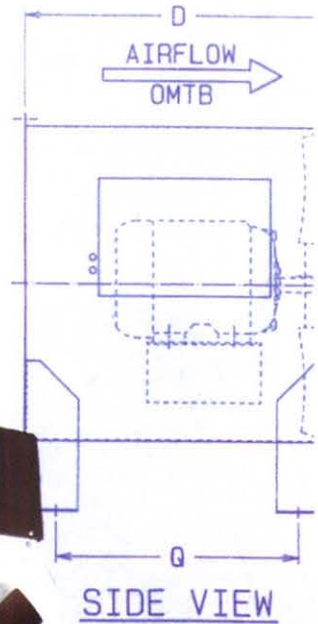
## ADJUSTABLE PITCH Design 47

The adjustable pitch fan is designed for applications where air demands may change but continuous automatic control of air volume or pressure is not needed. Blade pitch is easily reset externally at the hub to increase or decrease volume and pressure. One-piece airfoil blades and hub are cast from strong aluminum alloy. Expanded heavy gauge steel housings assure minimum blade tip clearance. Two arrangements are available, direct drive and belt driven.



## Design 47 CONTROLLABLE PITCH

The Chicago automatically controlled pitch fan responds by way of various sensing devices to changes in temperature, humidity, air flow, gas concentration or air quality. Economies in initial cost, installation and operation recommend the fan for Variable Air Volume systems. It is also used for industrial applications requiring constant environmental conditions regardless of air demand. A mechanical linkage from the actuator to the hub changes the pitch of the fan blades to increase or decrease air volume or pressure.



## DIRECT DRIVE PANEL FANS Design 37

Chicago's axial panel fans are for general ventilation and industrial applications where higher efficiencies to 70% are desired. Propellers can be supplied with 3, 4, 6, 9 or 12 advanced design airfoil blades set to any pitch between 4° and 28°. Selection has been simplified by computer matching the propeller to readily available motors for maximum air delivery.

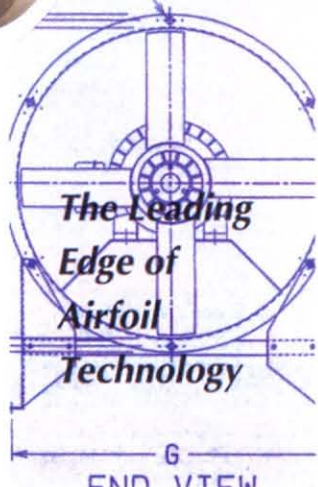
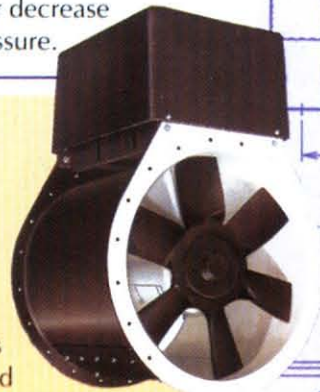


## FIXED PITCH Design 34

Compact fixed pitch vaneaxial fans are designed for non-VAV duty. Welded steel wheels and heavy gauge housings add to the suitability of the fan for industrial environments. Variations in volume and pressure are accomplished through speed adjustment of the V-belt drive.

## FRP VANE-AXIAL FANS

Chicago Fiberglass Reinforced Plastic (FRP) fans have an aerodynamic inner housing to protect fan shafts, bearings and drive components from hazardous corrosives. Direct drive models have the motor mounted inside a protective enclosure. Belt drive models are designed for either horizontal or vertical installation.



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