BULLETIN DCP-102

CHICAGO

SYSTEM CERTIFICATION ISO 9001 SGS

DIRECT DRIVE
AIRFOIL
AXIAL
DESIGN 37

POWERMATE
DIRECT DRIVE PANEL FANS

CHICAGO

Chicago's Direct Drive Axial Fan Sized to Your Exact System Requirement

Featuring PowerMate's Most Efficient Airfoil Bladed Wheel,

Easily Variable to Meet Changing Application Conditions

POWER MATE

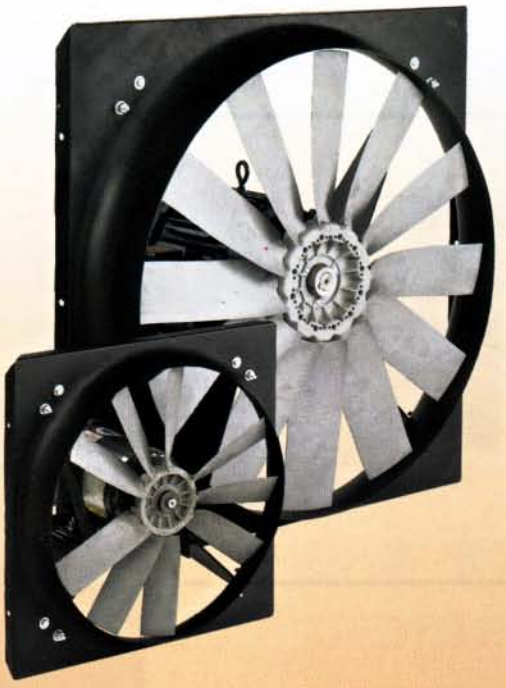
DIRECT DRIVE PANEL FANS

- POWERMATE Fans are available with propeller diameters from 13-7/8" through 49-3/32".
- Performance is cataloged for all popular direct connected operating speeds with capacities to 58,000 CFM and pressures to 2.0" SP WG.
- Optional equipment offered for PowerMate fans include automatic and motorized shutters, blade and motor guards and wall mounting sleeves.
- For application information contact your local Chicago Blower Sales Office.

Simplified Selections for Optimum Performance

Before the development of PowerMate, fan selection was often a compromise between too little and too much – "close enough" was good enough. Now, with hundreds of PowerMate propeller configurations readily available for each fan size, the optimum selection to meet system requirements can be assembled quickly using stock components. With PowerMate you can quickly and economically match your exact needs. It's like ordering a custom fan without the added expense or long lead time.

To furnish the most efficient fan for a given application, one must first determine the ideal combination of quantity of blades and blade pitch for each of the common motor speeds. To provide this optimum efficiency, Chicago's PowerMate propellers are available with either 3, 4, 6, 9 or 12 blades set to any of 50 predetermined pitch settings. Of the more than 70,000 possible ratings these combinations provide, only the most efficient selections are matched to available motor speeds and horsepowers for publication in the certified performance tables.



Airfoil Cross-Sections Gradually Increase From Tip to Root

PowerMate's Unique Blade Design Provides Efficiencies to 70%

PowerMate's greater efficiency is the result of superior blade design and advanced production technology. In a typical propeller, the tip of the blade travels three to four times faster than the root of the blade where it attaches to the hub. Since efficient design requires uniform air flow along the entire blade surface, the pitch angle of the blade must be increased to compensate for the slower speeds nearer the root. Also, the airfoil cross-section must be gradually enlarged to increase the "lift" characteristic.

Chicago's PowerMate airfoil propeller design is based on this precise combination of effective pitch angle and NACA airfoil sections, continuously changing shape from tip to root. As a result, uniform air flow is generated all along the blade, producing higher efficiencies up to 70%. These higher efficiencies mean more air for the same horsepower.

Precise Molding Techniques

High Strength Engineering Grade Resin

PowerMateblade designs have been reproduced by the precision injection molding process using engineering grade resins. Standard procedures for casting cannot be trusted with the accuracy needed to duplicate the intricate flowing shape along the full length of the blade. Injection molding allows closer blade tip clearance to further increase efficiency. With PowerMate the propeller fan has never been in better shape.

Certified Performance

Chicago Blower Corporation certifies that the PowerMate Design 37 Panel Fans, Model DCP, shown herein are licensed to bear the AMCA Seal. The ratings shown herein are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

Propeller Assembly

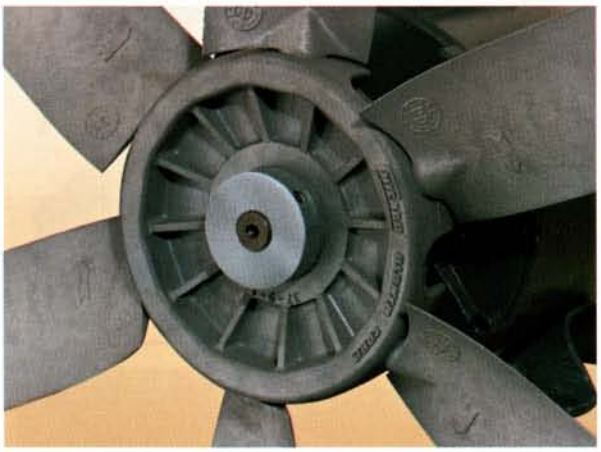
The method used for PowerMate's blade attachment and the type of metal hub insert used to attach the propeller to the motor shaft is optimized to fan size and operating speed.

Blade Attachment Sizes 20 thru 48 Adjustable Pitch

For larger PowerMate models, responsible design dictates that the blade shank be fully supported. For these models a two-piece hub grips the entire blade shank to provide the added strength for higher operating speeds.

Blade Attachment Sizes 14 thru 18 Fixed Pitch

Solvent bonding is used to attach the blade to the hub. Since centrifugal force holds the blade pitch at the correct setting during operation, the solvent bonding is only necessary to hold the correct setting during acceleration and deceleration.

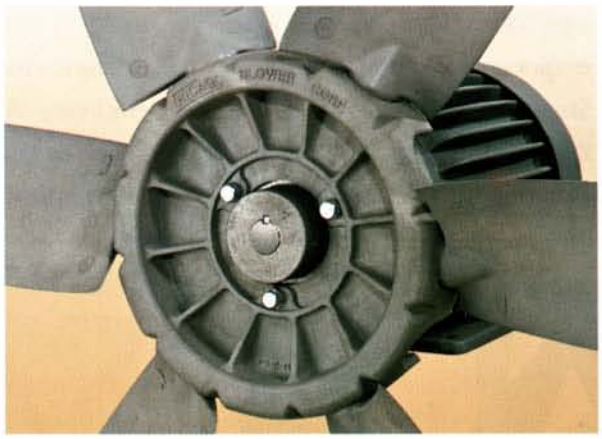


Molded Insert

Metal Hub Insert

A metal hub insert is used to transfer the motor torque to the propeller. This steel insert is molded integrally into the hub on smaller sizes. On larger sizes, an aluminium insert is bolted or riveted to the hub prior to balancing.

Bolted/Riveted Insert



Balancing

The completed propeller assembly is accurately balanced by adding weights to the hub. In the hub molding process, cavities are formed in the face of the hub to accommodate these balancing weights. After final assembly, a full speed run test assures smooth operation of the completed unit.

Strong Structural Integrity

With sturdy steel construction and rugged durable components, PowerMate is built for industrial duty applications from plant ventilation to process equipment and heat transfer. The heavy gauge panels are flanged all four sides for added rigidity and structural reinforcement. As a result, PowerMate fans are suitable for both horizontal and vertical airflows and can be mounted in any position.

Deep Spun Orifice

The streamlined ellipse shape was designed specifically for maximum airflow and minimum bypass loss. Close tolerances between the orifice and the molded blade tip add efficiency and increase peak pressure. PowerMate combines top performance with long, trouble-free service.

Economical Direct Drive

The directly connected PowerMate fan eliminates the cost of additional shafts, bearings and pulleys. Direct drive also greatly reduces overall fan maintenance. Set screws secure the propeller to the motor shaft.

Continuous Duty Motors

All motors used in PowerMate panel fans are supplied by reliable, nationally recognized manufacturers. The motors are standard efficiency, foot mounted, rigid frame with permanently lubricated and sealed ball beaings. The fan air stream provides additional continuous motor cooling.

POWER MATE

DIRECT DRIVE PANEL FANS

CHICAGO

The Simplicity and Versatility of Direct Drive

POWER MATE

DIRECT DRIVE PANEL FANS

In the past belt drive was considered the only economical method to provide the flexibility to change a fan's capacity after installation. PowerMate changes this concept with the adjustable pitch propeller and the supporting performance data that allows full use of this desirable feature.

Versatile

The adjustable pitch PowerMate propeller in a direct drive fan provides more precise capacity adjustment than belt drive. The user is not limited to the speeds available with standard pulley diameters. With the infinite adjustment available, a precise change of capacity can be achieved by simply increasing or decreasing the blade pitch setting.

You never need to purchase new pulleys and belts. All you need is a Allen wrench and the pitch setting card. Adjustable pitch is available for size 20 through 48 catalog ratings. Contact your local Chicago Blower Sales office for information.

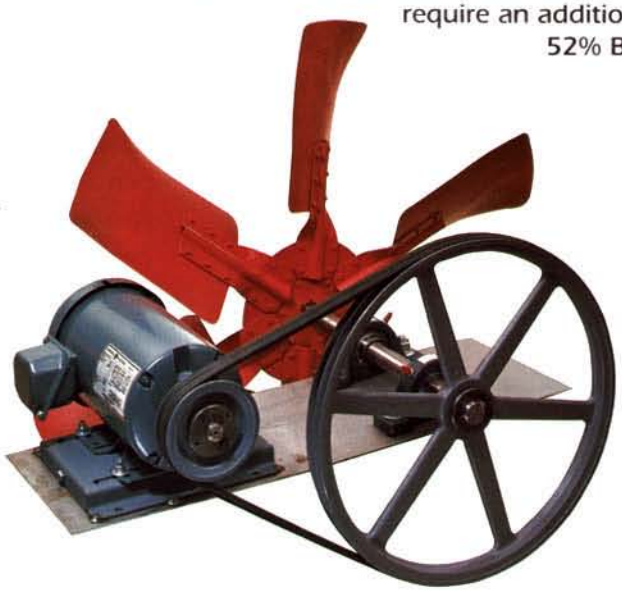
Reduced Cost

Direct drive eliminates the expense of extra bearing sets, the bearing mounting plate, a fan shaft plus the pulleys and belts. Lubrication, adjustment and replacement of these extra parts are also eliminated. The annoying "squeal" on start-up of a belt driven fan usually indicates loose belts. When they are not tight, the resulting slippage causes increased wear and reduces fan RPM. Any reduction in fan RPM has a corresponding reduction in fan capacity.

More Efficient Power Train

Tests show that low horse power belt drives routinely consume as much as 20% of the horsepower available from the motor. The typical drive loss for a 1-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. Not so with PowerMate.

Belt Drive
Capacity can be increased 15% with a 15% RPM increase. However, it will require an additional 52% BHP



More Efficient Capacity Adjustment

For a capacity increase on a routine installation with a belt driven fan, the power required to increase volume is the cube of the volume increase. It always takes 33% more horsepower to get 10% more air.

Using a pitch change on a PowerMate adjustable pitch propeller, the power increase can be as little as 20% more power for this same 10% increase in volume depending on the PowerMate model selected.

Nearly every capacity change comparison will favor adjustable pitch. When the wasted power for belt drive HP losses and the cost of maintenance and repair of extra parts over the life of the installation are taken into account in the evaluation, PowerMate adjustable pitch is the obvious choice.

Regardless of the method used, belt drive or adjustable pitch, it always takes an increase in horsepower to increase the capacity of a fan. When the need for a future higher capacity is anticipated, the following formula can be used to select the oversize motor required.

$$\sqrt[3]{\frac{\text{HP of Oversize Motor}}{\text{HP of Current Motor}}} = \text{Available Volume Increase \%}$$

Changing the pitch on a PowerMate fan is:
EASY – simply loosen the fastener and rotate the blade.
FAST – requires only a few minutes to change the pitch, about half the time needed to change pulleys.
INEXPENSIVE – no new pulleys or belts to buy, no trips to pick up parts, no downtime waiting for parts.

Direct Drive
Capacity can be increased 15% with a 4° pitch change.

Support Data

Certified performance ratings for 3, 4, 6, 9 and 12 blade propellers are available from your local Chicago Blower Sales Office. Ratings are available for every cataloged model and pitch change. Static pressure ratings are in 1/8" increments from Free Delivery thru peak usable pressure and cover the full range of pitch settings.

CHICAGO

Optimum Fan Selection

POWER MATE

DIRECT DRIVE PANEL FANS

Propeller fan performance has traditionally been cataloged 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 PowerMate redefines fan selection by 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 to quickly set the pitch of the blades, the best propeller is always available for maximum efficiency.

As a typical example we will use a size 32 fan at 1160 RPM to illustrate selecting for optimum performance. Any of the five PowerMate models listed below will deliver 10000 CFM at 1/4" SP.

RPM	Model	Blades	Pitch	CFM	SP	BHP	M.E.
1160	3EC	3	23.0	10097	1/4"	1.32	56%
1160	4DE	4	18.0	10041	1/4"	1.10	67%
1160	6CJ	6	14.5	10074	1/4"	1.12	66%
1160	9CH	9	13.5	10024	1/4"	1.16	63%
1160	12CH	12	13.5	10115	1/4"	1.18	62%

For this example we would select the Model 4DE. For a certain duty point and PowerMate fan size at a given RPM, one combination of number of blades and pitch setting is always more efficient than others. The selection tables show the most efficient configurations. Other less efficient ratings would only complicate the selection process for the user.

The table below, using a size 32 and 10000 CFM at 1/2" SP as the example, demonstrates the effect of changing the number of blades.

For 870 RPM our only choice is the 12-blade propeller. For 1160 RPM, select the 6-blade and for 1750 RPM the 3-blade propeller.

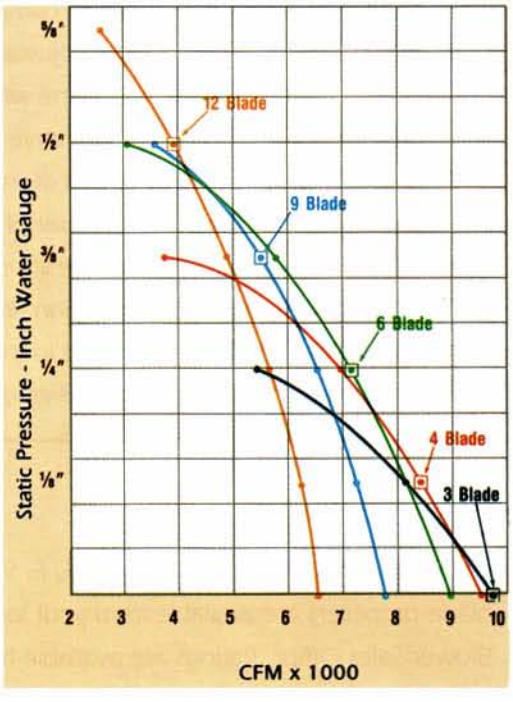
RPM	Model	Blades	Pitch	CFM	SP	BHP	M.E.
870	12EK	12	27.0	10085	1/2"	1.68	68%
1160	4EH	4	25.5	10005	1/2"	2.05	55%
1160	6DF	6	18.5	10125	1/2"	1.65	70%
1160	9DA	9	16.0	9991	1/2"	1.62	69%
1160	12CK	12	15.0	9989	1/2"	1.62	69%
1750	3CB	3	10.5	10033	1/2"	1.79	63%
1750	4BJ	4	8.5	10010	1/2"	1.82	62%
1750	6BF	6	6.5	10169	1/2"	1.98	58%
1750	9BF	9	6.5	10271	1/2"	2.19	

Important Considerations

Even for the very best propeller fan design, selecting the most suitable fan is sometimes a compromise. Economy dictates a direct drive fan at the highest available motor RPM. Noise considerations favor the lowest possible fan operating speed.

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 on the propeller. A 12-blade propeller will usually develop more than twice the pressure of a 3-blade propeller. The following performance curve illustrates this characteristic. The curve for a size 32 PowerMate fan at 870 RPM shows the characteristics of five models published for the 1/2 HP motor rating.

SP	CFM	Model	Pitch	M.E.
0	9717	3EG	25.0	55%
1/8"	8464	4DK	21.0	65%
1/4"	7102	6DA	16.0	70%
3/8"	5593	9CE	12.0	68%
1/2"	3891	12BK	9.0	58%



Certified Performance 870 RPM

How To Specify

DCP	48	4DF	3	870
(A)	(B)	(C)	(D)	(E)
Fan Type	Size	Propeller	Motor HP	Motor RPM

The catalog number above consists of the following segments.

(A) Fan Type – All fans listed in this catalog are Direct Connected Panel Fans (DCP).

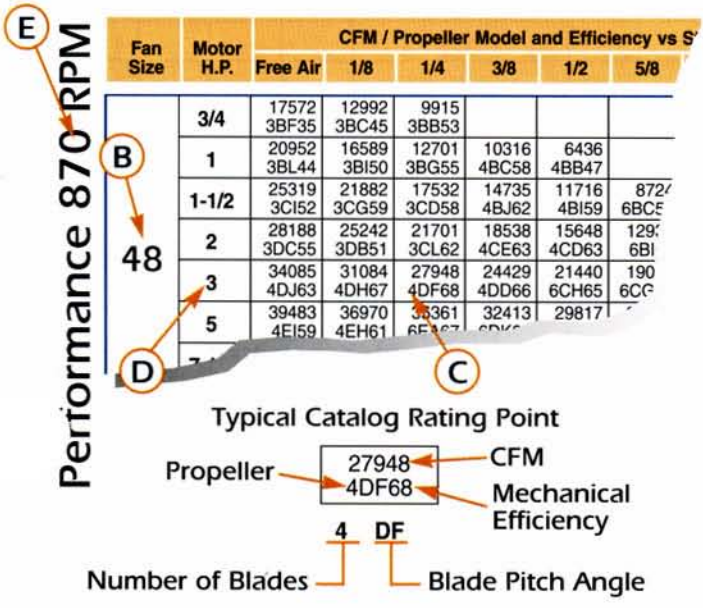
(B) Size – Stated in traditional propeller fan sizes.

(C) Propeller – The number defines the number of blades, either 3, 4, 6, 9 or 12. The letter code defines the pitch setting.

(D) Motor HP – It is common practice for propeller fan manufacturers to apply motors at loads greater than nameplate rating because of the large volume of cooling air provided by the fan. Motors for all PowerMate fans are loaded up to a maximum of 15% above nameplate horsepower and are designed for continuous duty.

(E) Motor RPM – The Nominal motor full load operating RPM is used for catalog rating. Full load RPM can vary with size and brand of motor.

To order this fan
Specify: DCP–48–4DF–3–870



Fan Size	Motor H.P.	CFM / Propeller Model and Efficiency vs S					
		Free Air	1/8	1/4	3/8	1/2	5/8
	3/4	17572 3BF35	12992 3BC45	9915 3BB53			
	1	20952 3BL44	16589 3BI50	12701 3BG55	10316 4BC58	6436 4BB47	
	1-1/2	25319 3CI52	21882 3CG59	17532 3CD58	14735 4BJ62	11716 4BI59	872 6BC
	2	28188 3DC55	25242 3DB51	21701 3CL62	18538 4CE63	15648 4CD63	129 6BI
	3	34085 4DJ63	31084 4DH67	27948 4DF68	24429 4DD66	21440 6CH65	190 6CC
	5	39483 4EI59	36970 4EH61	34361	32413	29817	

Performances shown are for installation type A: free inlet, free outlet.
Performance ratings do not include the effects of appurtenances in the airstream.
Actual brake horse power may exceed the listed motor HP up to a maximum of 15 %.

Fan Size	Motor H.P.	CFM / Propeller Model and Efficiency vs Static Presseure								
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1
28	1/6	5724 3CK52	3983 3CF59	2643 6BD59						
	1/4	6693 3DK55	5303 4DB64	3927 6CC65	2397 12BC52					
	1/3	7280 3EG54	6171 4DK64	4781 6CK66	3375 9CC58					
	1/2	8411 4FA56	7510 6ED65	6254 6EA66	5060 9DD66	2079 12BI43				
	3/4	9703 9FA59	8868 9EL63	7899 9EJ66	6770 9EH65	5240 12EA57				
	1	9703 9FA59	8981 9FA63	8543 12FA65	7862 12FA67	6503 12FA68				
32	1/8	5803 3BI46	3491 3BD59							
	1/6	6637 3CC52	4406 3BJ62							
	1/4	7805 3DA56	5884 3CI66	4126 6BF66						
	1/3	8627 3DH58	6803 3DE64	5202 4CI66	3500 9BF59					
	1/2	9717 3EG55	8464 4DK65	7102 6DA70	5593 9CE68	3891 12BK58				
	3/4	11300 4FA57	10226 6EC66	8918 6EA69	7575 9DF70	5950 12CK64				
	1	12434 6FA60	11393 6FA66	10081 6EK64	8978 9ED68	7671 12DI66				
	1-1/2	13519 12FA59	12857 12FA64	12175 12FA67	11428 12FA69	10254 12EL68	8013 12EJ56			
36	1/6	7040 3BI40	4270 3BE54							
	1/4	8713 3CF50	5855 3CA56	3955 6BB61						
	1/3	9895 3DA54	7399 3CI61	5238 4CA63	3150 9BA53					
	1/2	11555 3DJ56	9593 4DC66	7373 9CB65	5806 9BK67					
	3/4	13564 4ED62	11773 4EB67	9557 6DD66	7985 9CI69	6108 12CC62				
	1	15001 6EF61	13337 6EC67	11386 6DL67	9680 9DE68	8147 12CK66	5571 12CI51			
	1-1/2	16484 6FA62	15367 6FA66	13815 6EL64	12428 9EE67	11105 12DK67	8830 12DI60			
	2	17753 9FA64	16825 9FA67	15822 9FA68	14648 9FA67	13238 12EH67	11159 12EG61			
40	1/2	11831 3BH41	9096 3BE49	6627 3BC54						
	3/4	14547 3CF50	12053 3CC56	9551 3CA58	7366 4BG58					
	1	16406 3DB53	13997 3CK58	11876 3CJ61	9359 3CI58	7787 6BF60				
	1-1/2	19011 3EB55	16982 3DL60	15324 4DE65	13366 4DD65	11577 6CF66	9293 6CE60	7458 12BF55		
	2	20568 3EJ53	19345 4EC61	17630 4EB64	15664 4EA65	14179 6DC66	12168 6DB64	10178 9CF60	6557 12BI48	
	3	4456 6EJ58	22813 6EH62	21406 6EG65	19865 6EF66	18165 6EE66	16220 6ED63	14973 9DH66	12870 12DB61	
	5	26656 9FA59	25649 9FA61	24633 9FA64	23584 9FA65	23405 12FA65	22563 12FA67	21166 12EL67	19065 12EK62	16734 12EJ57
44	3/4	16721 3BK48	13542 3BH57	10360 3BF60	7934 4BB59					
	1	19227 3CF54	16360 3CC62	13175 3CA63	10356 3BL62	6908 4BF52				
	1-1/2	22403 3DD57	19778 3DB63	17022 3CL65	14578 4CE66	11918 4CD63	9604 6BG61	7156 9BB52		
	2	24577 3DK58	22239 3DJ62	19439 3DH62	17685 4DA67	15277 4CL65	13174 6CB67	11068 9BI62	8736 12BD56	
	3	28173 4EE57	26050 4EC61	24126 4EB64	22592 6DE68	20653 6DD70	18142 6DB69	16536 9CH69	14240 9CG65	11804 12CB60
	5	34119 6FA60	32352 6EL63	30618 6EK66	28854 6EJ66	26665 6EH66	24583 6EG65	23280 9EA68	22106 12DH70	19301 12DF65
	7-1/2	37094 12FA59	36164 12FA61	35241 12FA64	34307 12FA66	32854 12EL67	31368 12EK68	29850 12EJ69	28637 12EJ70	26410 12EI67
48	3/4	17572 3BF35	12992 3BC45	9915 3BB53						
	1	20952 3BL44	16589 3BI50	12701 3BG55	10316 4BC58	6436 4BB47				
	1-1/2	25319 3CI52	21882 3CG59	17532 3CD58	14735 4BJ62	11716 4BI59				
	2	28188 3DC55	25242 3DB51	21701 3CL62	18538 4CE63	15648 4CD63	12939 6BI62	9982 9BC56		
	3	34085 4DJ63	31084 4DH67	27948 4DF68	24429 4DD66	21440 6CH65	19019 6CG66	17032 9CA68	14443 9BL63	
	5	39483 4EI59	36970 4EH61	35361 6EA67	32413 6DK67	29817 6DJ67	27174 6DI66	25213 9DC68	22900 9DB67	20613 12CI65
	7-1/2	45220 6FA62	43664 6FA54	41564 6EL66	39291 6EK66	36194 6EI65	34881 9ED67	32530 9EC67	29828 9EB65	28166 12DH67
	10	48711 9FA64	47406 9FA66	46115 9FA67	44759 9FA68	43291 9FA68	40915 9EL68	38380 9EK67	36453 12EF68	34082 12EE67

Performances shown are for installation type A: free inlet, free outlet.
Performance ratings do not include the effects of appurtenances in the airstream.
Actual brake horse power may exceed the listed motor HP up to a maximum of 15 %.

Certified Performance 1160 RPM

Fan Size	Motor H.P.	CFM / Model and Efficiency vs SP				
		Free Air	1/8	1/4	3/8	1/2
20	1/6	3065 3EG45	2380 4DK53	1586 9CB50		
	1/6	3282 3EL42	2687 6DK61	2201 9BD58		
	1/4	3894 4EL46	3284 6EJ50	2712 12EB53		
	1/3	4133 9FA43	3713 9EL50	3310 12EJ55		
22	1/6	3750 3DG52	2597 4CH53	1842 9BH56		
	1/6	4073 3ED51	3006 3DL51	2344 9CC59		
	1/4	4529 3FA45	3712 6EA52	2979 6DL54	2140 12CF50	
	1/3	5162 6EK50	4420 6EI54	3635 9ED55	2753 12DK50	
	1/2	5557 9FA49	5171 9FA55	4640 9FA57	3905 12EJ56	
24	1/6	4068 3CF41	2671 3CB49	19213 6BE57		
	1/6	4592 3CL45	3342 4CD52	2506 6BJ60	1530 12BA50	
	1/4	5256 3EA45	4256 6CJ54	3466 6CH60	2565 9BL60	1618 12BF47
	1/3	5634 3EG42	4928 6DF53	4105 6DD58	3384 9CH62	2405 12CA54
	1/2	6878 6EI49	5881 6EE53	5089 6ED55	4341 9DJ58	3338 12DC52
	3/4	7765 9FA50	7157 9EL55	6453 9EK57	5811 12EF61	4807 12EE56

Fan Size	Motor H.P.	CFM / Propeller Model and Efficiency vs Static Pressure								
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1
28	1/4	6169 3BK44	4622 3BG51	3456 3BF56						
	1/3	7060 3CF50	5752 3CC56	4434 3CA58	3239 4BG56					
	1/2	8400 3DF54	7158 3DC60	5903 3DA61	4897 4CF62	3902 6BI60				
	3/4	9613 3EF54	8540 9ED58	7781 4DI65	6718 4DH64	5734 6CI66	4702 9CB61			
	1	10628 4EH56	9769 4EG61	8833 4EF63	8062 6DH66	7148 6DG66	6225 9CK65	5054 12CE59		
	1-1/2	12254 6FA68	11663 6FA62	10791 6EK65	9963 6EJ66	9012 6EI65	8339 9EA67	7547 12DH65		
	2	12937 9FA59	12398 9FA62	11852 9FA64	11283 9FA65	10669 9FA66	9940 9FA65	9137 12EG65	7891 12EF59	
32	1/4	6888 3BE40	5101 3BB52	3699 3BA57						
	1/3	8125 3BK48	6461 3BH58	4808 3BF61	3448 4BB57					
	1/2	9816 3CI55	8330 3CF64	6698 3CD64	5137 3CC61	4087 6BB61				
	3/4	11350 3DG58	9971 3DE63	8494 3DC64	7367 4CH67	6278 6BK68	4896 12BC61	3810 12BA54		
	1	12482 3EC57	11124 3EA61	10214 4DF66	8823 4DD66	7938 6CG69	6767 6CF67	5420 12BH62		
	1-1/2	14199 4EH57	13188 4EG60	12115 4EF62	11371 6DH69	10325 6DG69	9158 6DF68	8254 9CK69	6902 12CF63	
	2	15913 6EI60	15024 6EH64	14137 6EG66	13042 6EE67	11997 6ED67	11275 9DK69	10162 9DI68	8743 9DG64	7658 12DB60
	3	17309 9FA59	16762 9FA63	16226 9FA66	15632 9FA67	14925 9FA67	14308 12EH69	13271 12EF70	12210 12EE68	10762 12ED62

Fan Size	Motor H.P.	CFM / Propeller Model and Efficiency vs Static Pressure																
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	1-5/8	1-3/4	1-7/8	2
36	1/3	8539 3BF36	6185 3BC47	4550 3BB54														
	1/2	10682 3CB46	8470 3BK52	6438 3BI56	4966 4BD58	2929 4BC44												
	3/4	12971 3CL53	11208 3CJ61	8965 3CG60	7392 4BL63	5831 9BB60	4536 9BA55											
	1	14445 3DF56	12645 3DD61	11207 4CJ64	9372 4CH64	8033 9BI65	6734 9BG65	4921 9BE55										
	1-1/2	17105 4DL63	15805 4DK67	14174 4DI69	12320 4DG66	10877 6CK66	9545 6CJ66	8652 9CD67	6896 12BK59									
	2	18754 4EG60	17241 4EE64	15880 4ED65	14165 4EB64	13194 6DG66	11813 6DF66	10928 9CL68	9114 9CJ63	7666 12CE57								
	3	21698 6EL62	20333 6EJ64	19260 6EI67	13033 6EH66	16345 6EF65	15558 9EA68	14289 9DL67	13305 12DF67	11763 12DE64								
	5	23670 9FA64	22971 9FA66	22277 9FA67	22247 12FA66	21645 12FA67	20640 12EL68	19573 12EK68	18384 12EJ67	16902 12EI65	15289 12EI61							
40	1-1/2	18050 3CB47	16070 3BL51	13858 3BJ53	12028 3BI55	10161 3BH56	8627 4BC56	6937 4BC51										
	2	20360 3CI52	18766 3CH55	16776 3CF58	14972 3CE59	13105 3CD59	11393 3CD58	10290 6BC60	8792 6BB57									
	3	23953 3DI55	22442 3DH58	20865 3DG60	19174 3DF62	17397 3DE61	16144 4CJ64	14773 4CJ63	13544 6CA64	11804 6BL62	10071 9BF57	8104 9BE50						
	5	27914 3EL53	27209 4EE59	26196 4EE61	24786 4ED63	23569 4ED64	21941 4EC64	20257 4EB63	19810 6DE66	18297 6DD66	16912 6DD64	16010 9CI65	14417 12CD61	12378 12CC56				
	7-1/2	32960 6EK58	32129 6EK60	30952 6EJ62	29755 6EI64	28861 6EI65	27546 6EH66	26526 6EH66	25065 6EG66	23510 6EF65	22891 9DK67	21912 9DK67	20362 9DJ65	19155 12DE64	17043 12DD59			
	10	35541 9FA59	34787 9FA60	34031 9FA62	33271 9FA63	32500 9FA64	31311 9EL65	30509 9EL66	29296 9EK66	28425 9EK66	27109 9EJ66	25697 9EI66	25260 12EE67	23661 12ED65	21714 12EC61	19928 12EC57		
44	1-1/2	19394 4BE38	16449 4BC44	14270 4BA49														
	2	23119 4BK48	20782 4BI52	17001 4BE53	15679 4BE59	14176 4BE59	12277 4BD61	10571 4BD59										
	3	27667 4CG55	25927 4CF60	23651 4CD62	21768 4CC63	19636 4CB64	17297 4CA65	15478 4BL63	14412 6BE65	12319 6BD62								
	5	33561 4DH58	31637 4DF62	29686 4DD64	27641 4DC66	26453 4DC66	24989 4DC66	23089 4BD67	21075 4DA66	20518 6CE69	18612 6CD68	16193 6CC63	14982 9BJ62	13368 12BF60				
	7-1/2	38029 4EF57	36441 4EE59	35330 4EE61	33719 4ED63	31939 4EC64	30339 4EC63	29948 6DF69	28241 6DE70	27034 6DE70	25161 6DD69							
	10	42694 6EG60	41237 6EF62	40269 6EF64	38852 6EE65	37368 6ED66	35836 6EC67	34713 6EC68	33052 6EB68	31793 6EB68	29979 6EA68	29184 9DH70	27684 9DG69	26136 9DF68	24330 9DE67			
	15	47495 9FA59	46723 9FA61	45964 9FA63	45212 9FA64	44461 9FA66	43087 9EL67	42210 9EL67	40673 9EK68	39058 9EJ67	37919 9EJ67							
48	2	23431 3BF35	20201 3BE42	16972 3BC46	14728 3BC51	12485 3BB53												
	3	29311 3CB46	26277 3CA51	23242 3BK52	20454 3BK54	17666 4BE56	15646 4BE59	13627 4BD58										
	5	35592 3CL53	33174 3CK59	30755 3CJ61	27677 3CI62	24600 4CB60	22442 4CA62	20284 4BL63	18142 6BG63	16000 6BF62	14224 9BB58	12447 9BB55						
	7-1/2	39637 4DC57	37168 4DA60	34698 4CL61	32725 4CK63	30752 4CK63	28234 4CJ64	25717 4CI64	23880 6CB65	22043 6CA65	20260 9BH66	18478 9BH64	15991 9BF61	13503 9BF54				
	10	46936 4DL64	45153 4DL67	43369 4DK68	41131 4DJ70	38894 4DI69	36350 4DH68	33806 4DH66	31826 9CH67	29847 9CG68	28019 9CF68	26192 9CE69	24966 9CE69	23741 9CE67	21332 9CD64			
	15	51461 4EG61	49385 4EF63	47309 4EE65	45442 4EE66	43575 6DJ66	41222 6DH67	38869 6DG66	37537 9DC67	36204 9DC68	34310 9DB68	32415 9DA68	31201 9DA68					
	20	58850 6EK62	57667 6EK64	55794 6EJ65	54322 6EJ66	52849 6EI67	51166 6EI67	49483 6EH67	47167 9EC67	44851 9EA67	43771 9EB67							

Performances shown are for installation type A: free inlet, free outlet. Performance ratings do not include the effects of appurtenances in the airstream. Actual brake horse power may exceed the listed motor HP up to a maximum of 15%.

Certified Performance 1750 RPM

CHICAGO

Fan Size	Motor H.P.	CFM / Model and Efficiency vs SP					
		Free Air	1/8	1/4	3/8	1/2	5/8
16	1/6	2345 3EH48	1856 4EB49	1504 6CL55			
	1/6	2490 3FA45	2173 6EC51	1816 6EB54	1425 9DE53		
	1/4	2961 6FA53	2734 6FA58	2315 9EH55	1985 12ED57		
	1/3	3055 9FA49	2873 9FA55	2650 9FA57	2439 12EK59		
18	1/6	2923 3EB45	2418 4DD50	2052 6CI59	1745 9CC64	1276 12BI57	
	1/4	3386 4EG46	2987 6DK52	2585 6DI56	2273 9DB61	1864 12CH60	1370 12CE51
	1/3	3836 6EJ50	3387 6EG52	3057 12DJ57	2725 12DH60	2322 12DF60	1667 12DC47
	1/2	4269 9FA50	4042 9FA55	3854 12EJ60	3471 12EH61	3103 12EG60	1788 12DI45
20	1/6	2689 3BH30	2035 3BF41	1590 3BF50			
	1/6	3127 3CB36	2406 3BK42	1939 3BK50			
	1/4	3977 3DD48	3161 3CJ46	2611 4CB50	2117 4CA52	1695 6BG51	
	1/3	4346 3EB49	3882 3EA54	3157 3DI51	2747 4CJ55	2230 6CB54	
	1/2	4814 3EJ43	4332 3EI47	3915 4EC50	3586 6DE55	3194 6DD57	2521 12CB49
	3/4	5421 4EL42	5160 6EH47	4738 6EG49	4259 6EF50	3951 9EB53	3499 12DJ51
	1	5982 6FA47	5703 6FA50	5408 6FA52	5013 6FA51	4662 9EI51	4350 12EF54
	1-1/2	6468 12FA43	6219 12FA45	5967 12FA47	5723 12FA50	5483 12FA53	5236 12FA57

Fan Size	Motor H.P.	CFM / Propeller Model and Efficiency vs Static Pressure							
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	7/8
22	1/6	3328 3BI28	2583 3BG39	2044 4BA49					
	1/4	4143 3CD35	3326 3CB42	2813 4BI51	2267 4BH54	1546 6BA46			
	1/3	4799 3CI42	3990 3CG45	3483 4CC51	2892 4CB55	2130 6BG48			
	1/2	5943 3EA52	5136 3DI52	4407 3DF51	3869 4CK55	3477 9CA59	2783 9BJ54	2182 12BD48	
	3/4	6589 3EJ47	5860 3EH47	5458 6DI51	4948 6DG54	4454 6DF56	3997 9CJ57		
	1	7210 4EK47	6832 6EG50	6332 6EF52	5744 6EE53	5359 9EA56	4856 9DL56	4378 12DD55	
	1-1/2	8125 6FA53	7806 6FA55	7488 6FA58	7067 6FA57	6665 9EJ56	6189 9EJ56	5873 12EG57	4993 12EG51
	2	8383 9FA49	8124 9FA52	8131 12FA52	7906 12FA55	7656 12FA57	7373 12FA59	7062 12FA60	6563 12FA59
24	1/4	4843 4BG34	3723 4BD41	2831 4BB47	2112 4BA46				
	1/3	5383 3CA37	4403 3BK43	3604 3BJ48	2900 4BE51	2361 6BA53			
	1/2	6555 3CI44	5684 4CD48	4908 4CB51	4230 6BI57	3673 6BH59	3021 6BG57		
	3/4	7663 3DI46	6754 3DF47	6261 6CH53	5603 6CF58	5072 6CE61	4486 6CD61		
	1	8297 3EE43	7565 4DH47	7168 6DC53	6508 6DA56				
	1-1/2	9631 4EJ46	8973 4EI47	8573 6EB52	8011 6EA54	7433 6DL56	6909 6DL56		
	2	10303 6EH49	9697 6EG50	9146 6EF52	8576 6EE53	7974 6ED55			
	2	10974 6FA51	10421 6EL52	9718 6EJ53	9128 6EI53	8515 6EH54			

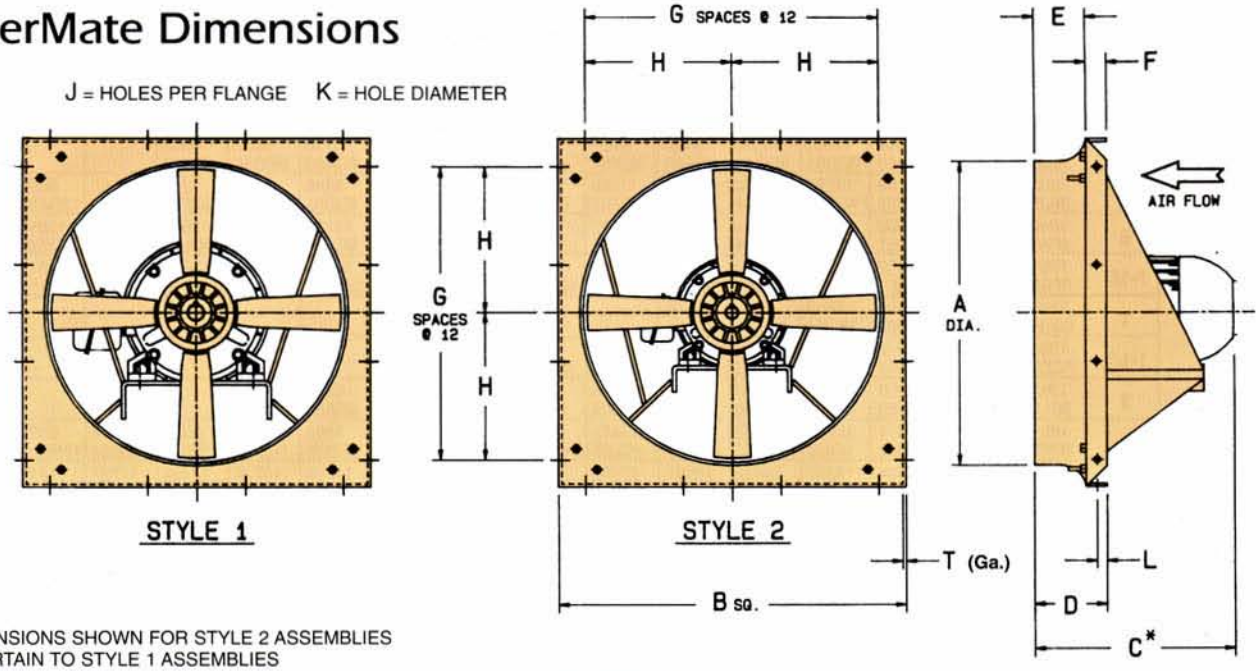
Fan Size	Motor H.P.	CFM / Propeller Model and Efficiency vs Static Pressure																
		Free Air	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	1-5/8	1-3/4	1-7/8	2
28	3/4	8662 3BH41	7584 3BF45	6465 3BD48	5592 3BC51	4937 3BC54	4147 3BC53											
	1	10099 3CC48	9134 3CA52	8056 3BK53	7132 3BJ54	6255 3BI56	5519 3BI57	4830 4BD57	4018 4BD52									
	1-1/2	12012 3DB53	11234 3DA56	10288 3CK58	9476 3CJ60	8608 3CI60	7848 3CI60	7028 3CI59	6593 6BG62	5842 6BF61	4939 6BE56							
	2	13308 3DJ55	12580 3DI58	11992 3DI60	11184 3DH61	10330 3DG61	9446 3DF60	8934 4CK64	8282 4CK63	7727 6CB65	7142 6CB64	6136 6CA59	5453 9BG56	4632 12BB51				
	3	15059 3EJ53	14840 4ED58	14194 4EC61	13525 4EB63	12980 4EB64	12381 4EB64	11588 4EA65	10933 4EA64	10509 6DC66	9774 6DB66	9148 6DB65	8608 9CG65	7746 9CF62	7255 12CB60	6094 12CA53		
	5	18487 4FA58	17900 6EL60	17509 6EL61	16923 6EK63	16514 6EK64	15886 6EJ65	15429 6EJ66	14747 6EI66	14226 6EI66	13465 6EH65	13201 9EA68	12761 9EA67	12047 9DL66	11252 9DK65	10515 9DK62	9961 12DF60	
	7-1/2	19517 9FA59	19160 9FA60	18802 9FA61	18444 9FA62	18082 9FA63	17714 9FA64	17340 9FA65	17516 12FA64	17212 12FA65	16917 12FA66	16613 12FA67	16286 12FA67	15680 12EL67	14970 12EK66	14319 12EK64	13347 12EJ61	12460 12EJ59
32	1	11352 3BH45	10375 3BG51	8966 3BE54	7819 3BD56	7058 3BD59	5840 3BC58											
	1-1/2	13857 3CE54	12965 3CD59	12042 3CC62	10907 3CB62	9763 3CA63	8664 3CL63	7781 3BL63	6837 4BG61	5374 4BF54	4257 4BF45							
	2	15477 3CL56	145786 3CK60	13890 3CK63	12926 3CJ65	11876 3CI66	10727 3CH65	9886 4CB65	8808 4CA64	8350 6BF66	7369 6BE64	6275 9BA59						
	3	18017 3DK58	17079 3DJ60	16351 3DJ62	15378 3DI62	14356 3DH62	13763 4DA66	12819 4CL66	12131 4CL67	11661 6CD69	10831 6CC69	9894 6CB68	9099 6CB65	8363 9BI63	7444 12BE61	6625 12BD57	6138 12BD55	
	5	21164 4EG57	20605 4EG59	19824 4EF60	19262 4EF62	18441 4EE63	18083 6DH67	17586 6DH68	16755 6DG69	16208 6DG69	15335 6DF70	14730 6DF69	13778 6DE68	13102 6DE67	12787 9CK69	11917 9CJ68	10694 9CI64	10030 12CE63
	7-1/2	24760 6EL60	24256 6EL62	23749 6EL63	23241 6EL65	22511 6EK66	21784 6EJ66	21050 6EI66	20503 6EI66	19700 6EH66	18871 6EG66	18592 9EB69	18074 9EB69	17264 9EA69	16472 9DL68	16439 12DH70	15538 12DG68	14513 12DF66
	10	26113 9FA59	25747 9FA61	25386 9FA62	25029 9FA64	24679 9FA65	24312 9FA66	23926 9FA67	23508 9FA67	23054 9FA67	22253 9EL67	21415 9EK67	20847 9EK66	20679 12EF70	20297 12EF70	19527 12EE70	19008 12EE69	18024 12ED68
36	1-1/2	14960 3BK43	13620 3BJ47	12226 3BI50	10370 3BG52	9429 3BG55	8518 3BG57	7229 4BB58	6134 4BB54	4985 4BB49	4060 4BB43							
	2	17525 3CF50	16293 3CE54	15011 3CD57	13255 3CB56	18255 3CA56	10431 3BL57	9487 3BL58	8834 4BG61									
	3	20664 3DC55	19422 3DB58	18560 3DB61	17302 3DA62	16038 3CL62	14599 4CE62	13757 4CE63	12522 4CD63	11690 4CD63	10373 4CC61							
	5	25805 4DL63	24711 4DK65	24033 4CK67	22941 4DJ68	21810 4DI69	20617 4DH68	19358 4DG67	17994 4DF65									
	7-1/2	28944 4EI59	27881 4EH60	26836 4EG62	26097 4EG62													

Performances shown are for installation type A: free inlet, free outlet. Performance ratings do not include the effects of appurtenances in the airstream. . Actual brake horse power may exceed the listed motor HP up to a maximum of 15%.

Fan Size	Motor H.P.	Free Air	CFM / Propeller Model and Efficiency vs Static Presseure 1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2	1-5/8	1-3/4
14	1/3	2686 3CK44	2401 3CI44	2173 3CH45	1951 3CG47	1721 3CF48	1614 4BL52	1447 6BG53	1289 6BF53	1082 6BE48						
	1/2	3156 3EC48	3014 3EC51	2821 3EB53	2515 3DL50	2311 3DK50	2197 4CL54	2044 4CL55	1907 6CE56	1641 6CC53	1382 6CB48					
	3/4	3504 3EK42	3303 3EJ45	3151 3EJ46	3051 4EE49	2849 4ED50	2764 6DH52	2616 6DG54	2486 6DG56	2330 6DG55	2238 9CJ58	1886 12CE50	1682 12CB48			
	1	3833 4EK42	3617 4EJ43	3460 4EJ44	3448 6EF48	3254 6EE49	3123 6EE50	2980 6EE50	2909 9EA53	2735 9DL54	2574 9DL53	2295 9DL49	2053 12DH45			
	1-1/2	4292 6FA47	4190 6FA48	4090 6FA50	3989 6FA51	3876 6FA52	3743 6FA52	3695 9EJ51	3570 9EJ51	3428 9EJ51	3417 12EH55	3288 12EH55	3012 12EG53			
16	1/3	2879 3CC34	2597 3CB38	2366 4BI44	2123 4BH47	1945 4BH51	1789 4BH54	1539 4BG53	1236 6BA48							
	1/2	3538 3CJ43	3257 3CI45	2955 3CH46	2633 3CG45	2430 3CG47	2316 4CC54	2154 4CC55	1952 4CC54	1689 12BA51						
	3/4	4318 3EB52	4032 3EA51	3774 3DL51	3492 3DJ51	3267 3DI51	3103 4DB54	2912 4DA56	2735 4DA57	2564 9CB59	2406 9CA60	2170 9BL57				
	1	4676 3EI48	4417 3EH48	4144 3EG48	3851 3EF47	3749 6DE51	3610 6DE53	3427 6DD54	3236 6DC55	3035 6DB55	2934 9CI57	2744 9CH57	2442 9CG53			
	1-1/2	5303 4EL48	5127 4EL48	4831 4EK48	4651 4EK48	4651 6EG53	4393 6EF53	4224 6EF53	4041 6EF53	3851 6EF53	3773 9EB56	3521 9EA56	3475 12DH57	3256 12DG56	2955 12DF52	2663 12DD49
	2	5838 6FA53	5721 6FA54	5607 6FA56	5495 6FA57	5376 6FA58	5237 6FA58	5068 6FA57	4731 6EL55	4641 9EI56	4477 9EI56	4289 9EI55	4067 9EI54A	3942 12EE57	3673 12EE54	3394 12EF50

Performances shown are for installation type A: free inlet, free outlet. Performance ratings do not include the effects of appurtenances in the airstream. Actual brake horse power may exceed the listed motor HP up to a maximum of 15%.

PowerMate Dimensions



NOTE:
ALL DIMENSIONS SHOWN FOR STYLE 2 ASSEMBLIES
ALSO PERTAIN TO STYLE 1 ASSEMBLIES

Nom. Fan Size	Square Foot Orifice Area	Panel Dimensions A	B	D	E	F	G	H	J	K	L	T	*Approximate "C" Dimension For Standard TEFC Motor Frames 48	St.	56	St.	145T	St.	184T	St.	215T	256T	286T
14	1.079	14-1/16	16-3/4	3-9/16	2-9/16	1	1	6	2	3/8	7/16	18	15	1	17-5/8	1	16-1/4	1	NA	–	NA	NA	NA
16	1.353	15-3/4	18-1/4	3-9/16	2-9/16	1	1	6	2	3/8	7/16	18	15	1	17-5/8	1	16-1/4	1	NA	–	NA	NA	NA
18	1.712	17-23/32	20-1/4	3-9/16	2-9/16	1	1	6	2	3/8	7/16	18	15	1	17-5/8	1	16-1/4	1	NA	–	NA	NA	NA
20	2.114	19-11/16	23	5	3-5/8	1-3/8	1	6	2	3/8	5/8	16	15-1/8	2	17-3/4	2	16-1/2	1	19-1/4	1	NA	NA	NA
22	2.655	22-1/16	25-1/2	5	3-5/8	1-3/8	1	6	2	3/8	5/8	16	15-1/8	2	17-3/4	2	16-1/2	1	19-1/4	1	NA	NA	NA
24	3.358	24-13/16	28	5	3-5/8	1-3/8	1	6	2	3/8	5/8	16	15-1/8	2	17-3/4	2	16-1/2	1	19-1/4	1	NA	NA	NA
28	4.314	28-1/8	32-3/4	6-15/16	5-3/16	1-3/4	2	12	3	9/16	3/4	16	NA	–	18	2	16-5/8	2	19-3/8	2	20-5/8	NA	NA
32	5.412	31-1/2	36	6-15/16	5-3/16	1-3/4	2	12	3	9/16	3/4	16	NA	–	18	2	16-5/8	2	19-3/8	2	20-5/8	NA	NA
36	6.849	35-7/16	40	6-15/16	5-3/16	1-3/4	2	12	3	9/16	3/4	16	NA	–	18	2	16-5/8	2	19-3/8	2	20-5/8	NA	NA
40	8.456	39-3/8	45-1/2	9-9/16	7-5/16	2-1/4	3	18	4	9/16	1	14	NA	–	NA	–	17	2	19-3/4	2	20-7/8	26-5/8	29-5/8
44	10.604	44-3/32	50-1/4	9-9/16	7-5/16	2-1/4	3	18	4	9/16	1	14	NA	–	NA	–	17	2	19-3/4	2	20-7/8	26-5/8	29-5/8
48	13.430	49-5/8	56	9-9/16	7-5/16	2-1/4	3	18	4	9/16	1	14	NA	–	NA	–	17	2	19-3/4	2	20-7/8	26-5/8	29-5/8

NOTES: NA = Not applicable
Motor frames 215T, 256T and 286T all require Style 2 fans.

Dimensions and specifications subject to change without notice. Do not use for construction.
Certified dimension prints available on request.

Blade and Motor Side Guards

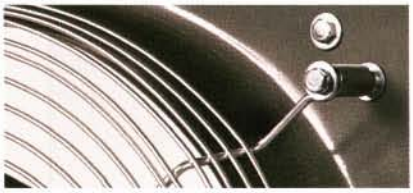
Rugged one-piece blade and motor side guards completely enclose the running components of the fan. They are required for fans installed within seven (7) feet of the floor or a work platform. PowerMate guards are shipped mounted with zinc plated hardware. The guard finish is baked polyester powder.

Motor Side Guard

One-piece motor side guards are constructed of heavy gauge wire welded to vertical support struts. Guards are secured with four (4) bolts independent of the flange mounting bolts. They are easily removed or replaced by one person. The side wires are recessed to clear the panel mounting bolt heads.

Blade Guard

Blade guards are constructed of heavy gauge concentric wire rings welded to radial support struts. They are bolted to sturdy stand-offs at each corner of the panel and are easily removed for inspection or service. Wire size and spacing is consistent with rigidity, safety and free area requirements.

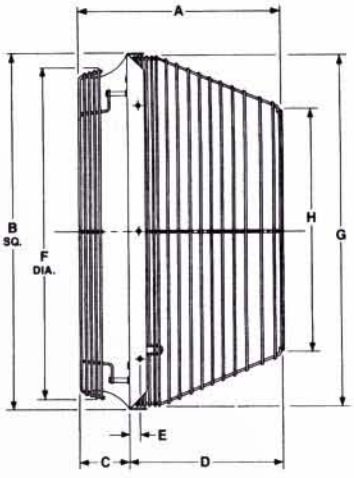


Sizes thru 36

Sizes 40 thru 48

Dimensions - with Guards Mounted

Fan Size	A	B	C	D	E	F	G	H
14 16 18	17-9/16	16-3/4 18-1/4 20-1/4	3-13/16	13-3/4	9/16	15-9/16 17-1/4 19-3/16	16-7/16 17-15/16 19-15/16	9-7/8 10-3/4 11-15/16
20 22 24	19	23 25-1/2 28	5-1/4	13-3/4	3/4	21-1/4 23-5/8 26-1/4	22-5/8 25-1/8 27-5/8	13-9/16 15-1/8 16-9/16
28 32 36	24-1/2	32-3/4 36 40	6-7/8	17-5/8	1	29-5/8 32-7/8 36-13/16	32-3/8 35-5/8 39-5/8	19-3/8 21-3/8 23-3/4
40 44 48	34-1/16	45-1/2 50-1/4 56	10-9/16	23-1/2	1-1/4	41 45-3/4 50	45-1/8 49-7/8 55-5/8	27 29-7/8 33-3/8



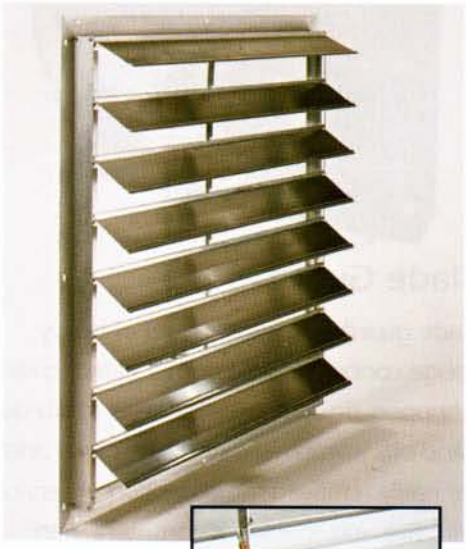
POWER MATE

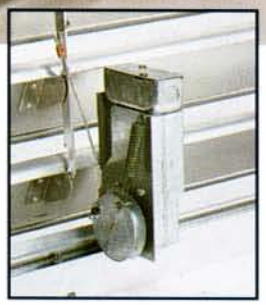
DIRECT DRIVE PANEL FANS

CHICAGO

Shutters– Gravity Operated and Motorized

Sturdy aluminum shutters are offered in either gravity or motor operated models. Shutters are pre-engineered to match each fan's capacity near free delivery as shown in the selection table.





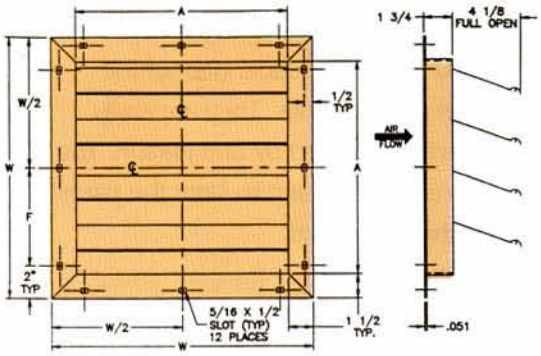
Gravity operated shutters are opened by the fan air stream upon start-up of the fan and closed by gravity when the fan is shut down. Motorized shutters are opened by their own self-contained 24V, 115V, 230V or 440V motor mounted on the shutter frame. When power is supplied to the shutter motor, the control arm rotates to open the shutter. On power-off the shutter is closed securely by spring return. This positive closing action reduces heat loss and eliminates wind chatter.

Standard construction consists of .051" extruded aluminum frame with full length blade support and roll-formed 0.20" aluminum blades with silicon felt edges. Heavy duty construction utilizes the same frame. Blades however are .050 extruded aluminum with vinyl gaskets.

Shutter Selection

For fan velocities less than 1000 FPM, motorized shutters are required to reduce blade flutter associated with low velocities. For velocities from 1000 to 2400 FPM, gravity operated standard construction shutters are usually appropriate. For 2401 to 4000 FPM velocity fans, heavy duty construction is necessary.

Fan Size	CFM RANGE		
	Velocity Less Than 1000 FPM Standard Construction Motor	Velocity 1000 to 2400 FPM Standard Construction Gravity Operated	Velocity 2401 to 4000 FPM Heavy Duty Construction Gravity Operated
14	0 – 1077	1078 – 2589	2590 – 4315
16	0 – 1351	1352 – 3247	3248 – 5411
18	0 – 1710	1711 – 4108	4109 – 6847
20	0 – 2112	2113 – 5073	5074 – 8455
22	0 – 2653	2654 – 6371	6372 – 10619
24	0 – 3356	3357 – 8059	8060 – 13431
28	0 – 4312	4313 – 10353	10354 – 17255
32	0 – 5410	5411 – 12988	12989 – 21647
36	0 – 6847	6848 – 16437	16438 – 27395
40	0 – 8454	8455 – 20294	20295 – 33823
44	0 – 10602	10603 – 25449	25450 – 42415
48	0 – 13428	13429 – 32231	32232 – 53719



Dimensions

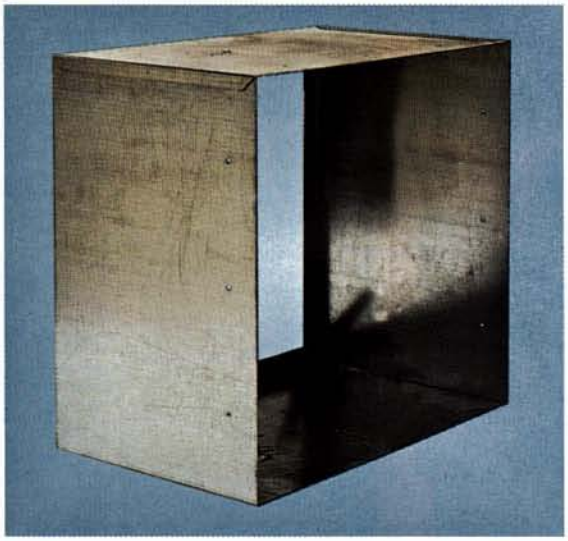
Fan Size	A	W	W/2	F
14	14-5/16	17-5/16	8-21/32	6-21/32
16	16	19	9-1/2	7-1/2
18	17-31/32	20-31/32	10-31/64	8-31/64
20	19-15/16	22-15/16	11-15/32	9-15/32
22	22-5/16	25-5/16	12-21/32	10-21/32
24	25-1/16	28-1/16	14-1/32	12-1/32
28	28-3/8	31-3/8	15-11/16	13-11/16
32	31-3/4	34-3/4	17-3/8	15-3/8
36	35-11/16	38-11/16	19-11/32	17-11/32
40	39-5/8	42-5/8	21-5/16	19-5/16
44	44-11/32	47-11/32	23-43/64	21-43/64
48	49-7/8	52-7/8	26-7/16	24-7/16

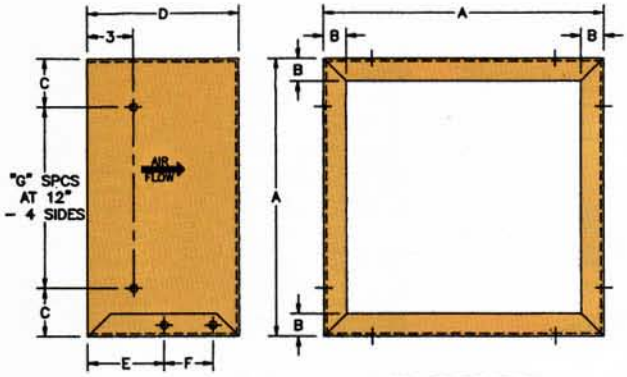
POWER MATE

DIRECT DRIVE PANEL FANS

Wall Mounting Sleeves

Galvanized metal sleeves attach to panel fan flanges to support shutters remote from fans. Sleeves are not designed to support the full weight of the fan. The sleeves are prepunched to match fan flange mounting holes.





Dimensions

Fan Size	A	B	C	D	E	F	G
14 16 18	16-7/8 18-3/8 20-3/8	1-1/4	2-7/16 3-3/16 4-3/16	14	7	5-1/2	1
20 22 24	23-1/8 25-5/8 28-1/8	1-1/2	5-9/16 6-13/16 8-1/16	18	9	7-1/2	1
28 32 36	32-7/8 36-1/8 40-1/8	2-1/4	4-7/16 6-1/16 8-1/16	24	12	10-1/2	2
40 44 48	45-5/8 50-3/8 56-1/8	3	4-13/16 7-3/16 8-1/16	30	15	13-1/2	3

Engineering Specifications: Airfoil Axial DCP Fans

General:

Provide high efficiency, low maintenance, direct drive axial airfoil panel fans. Fan shall be licensed to bear the AMCA Certified Ratings Seal for Air Performance based on tests and procedures in accordance with AMCA standard 211. Fans must be manufactured and assembled in the U.S.A.
Acceptable manufacturers: Chicago Blower Corporation

Performance:

Performance characteristics shall include non-overloading horsepower characteristics over the entire selection range. Wheel design shall provide multiple blade combinations and adjustable blade angles to allow for maximizing efficiency.

Panels and Motor Supports:

Orifice panels shall be heavy gauge steel, flanged on all four sides for rigidity, structural reinforcement and mounting. Panel construction shall include a deeply spun, streamlined orifice designed for maximum flow and minimum bypass loss. Motor supports shall be heavy, welded steel plate for optimum structural stability. Bolted motor support construction is not acceptable

Wheels:

Hubs and blades shall be injection molded, engineering grade, glass reinforced modified polyphenylene oxide. Blades shall be attached to hubs such that blade pitch angles can be adjusted with wheels at rest without removing wheels from motor shafts. Hubs shall include integrally molded steel inserts or bolted or riveted machined aluminum inserts for attaching wheels to motor shafts. All inserts shall have straight bores and be complete with set screws. Inserts with 5/8" and larger bore diameters shall be complete with keyways.

Blades shall consist of NACA airfoil sections of increasing pitch and section thickness from tips to roots to adjust for the lower rotational speeds away from the tips and provide uniform airflow along entire blade surfaces.

Mounting:

Panel flanges shall be integral to orifice panels, complete with punched holes for rigid mounting.

Factory Motors:

Motors shall be factory mounted. Units to be tested at running speeds for vibration and balance. Filtered vibration readings, taken at motor bearings, shall not exceed 0.15 inches per second through the entire frequency spectrum.

Accessories:

- Blade Guards
- Motor Guards
- Shutters
- Wall Sleeves

Setting the Standard For Quality

CHICAGO

Innovative Engineering Through Application Analysis

Quality Fans Shaped With Skill and Pride

Global Service Only a Click Away

Sales Offices Throughout North America

Chicago Blower Fans are also manufactured worldwide:

Argentina, Australia, Brazil, Chile, China, Colombia, Denmark, Germany, Greece, Holland, Hong Kong, India, Indonesia, Israel, Italy, Japan, Korea, Malaysia, New Zealand, Norway, Philippines, Portugal, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Thailand, Taiwan, Turkey, Venezuela.

Your Primary Source For Every Fan Requirement

General Duty -

Airfoil and vane axial fans for clean exhaust or supply air

Industrial Duty -

Fans to handle dirty and corrosive environments

Heavy Duty -

Custom engineered fans for specific applications

CHICAGO BLOWER CORPORATION

1675 Glen Ellyn Road, Glendale Heights, Illinois 60139
Phone: 630-858-2600 • Fax: 630-858-7172
www.chicagoblower.com e-mail: fans@chicagoblower.com