

**NEW  
Larger  
Sizes &  
Higher  
Capacity!**

Details on Page 4

# **PFD**

*Packaged Forced Draft*

# **FANS**

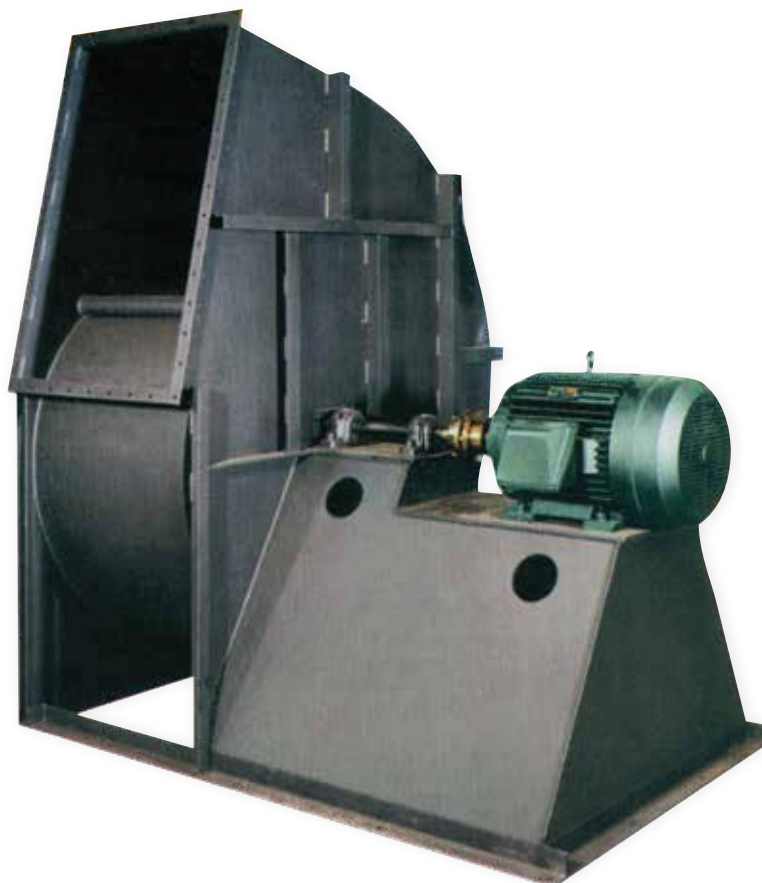
*& Components*



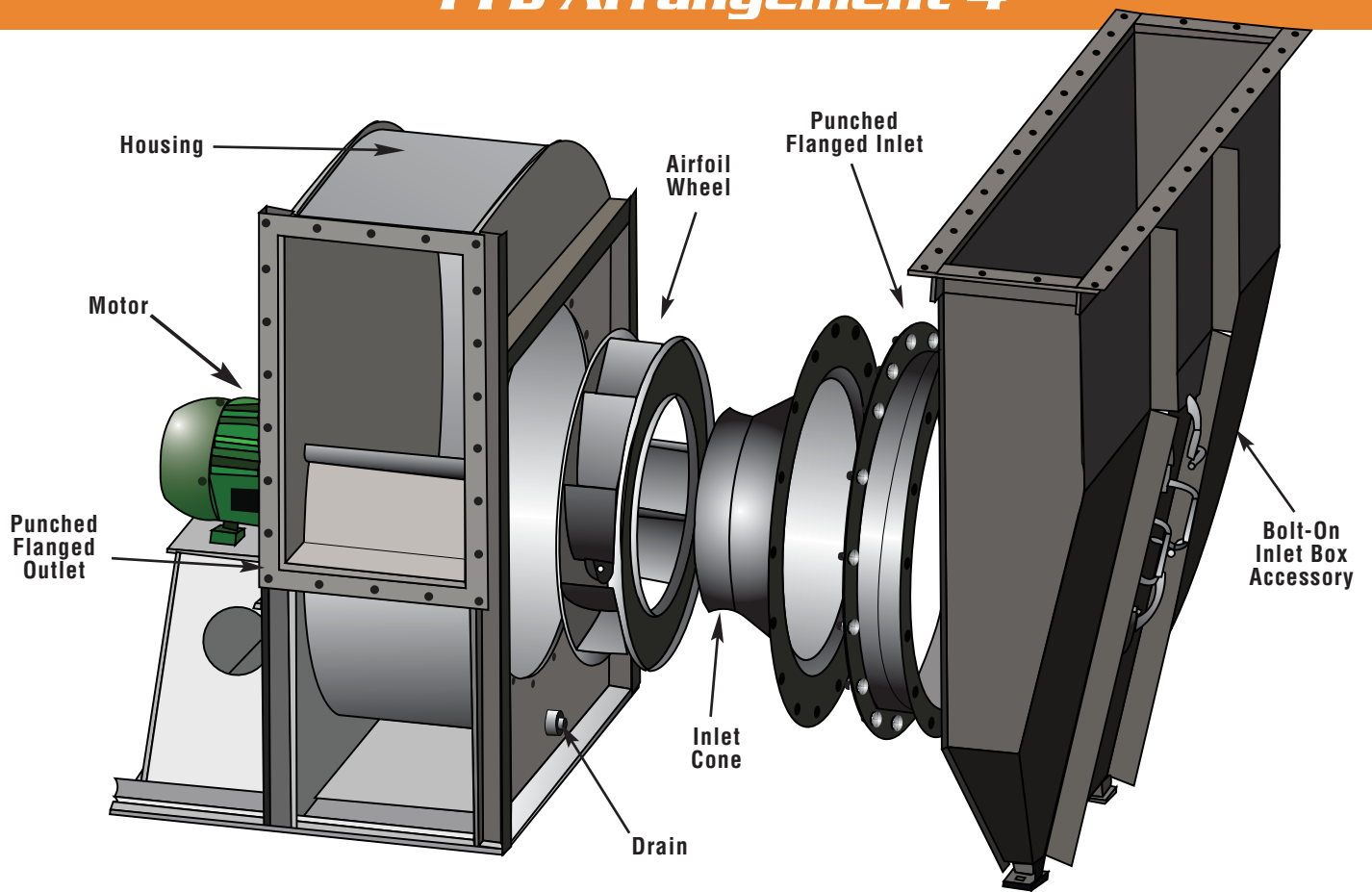
# ***High-Efficiency Packaged Airfoil Fans***

*Chicago Blower PFD fans with airfoil wheels are compact and direct connected. They have a well earned reputation for exceptional efficiency and long-term reliability. Since Chicago's PFD fans are pre-engineered, completely assembled and factory tested, they are ready to run. Customer installation time and labor costs are substantially less than custom fans.*

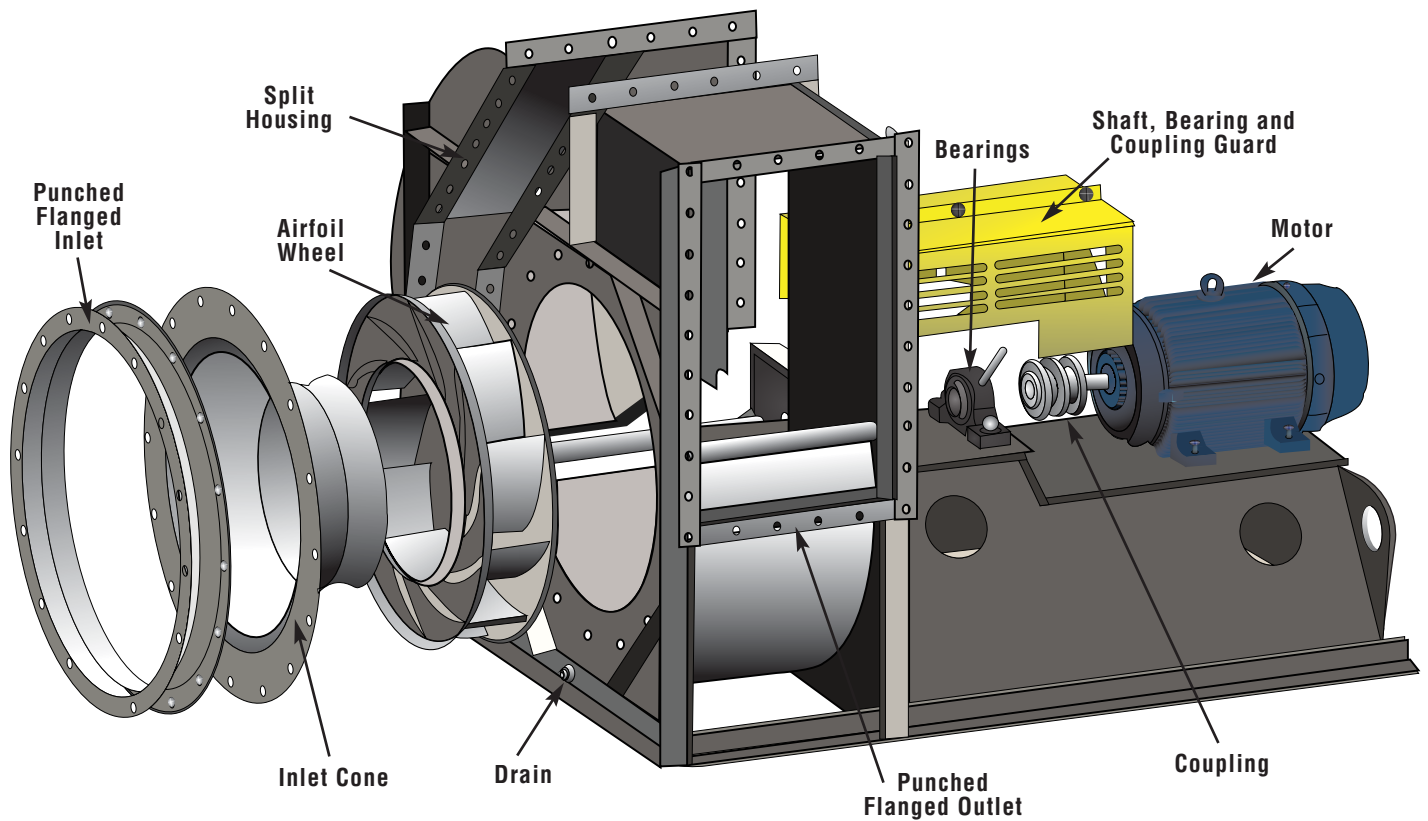
*Chicago's PFD fans are available as Arrangement 4 or 8, depending on the airstream temperature and application. For system design versatility, seven standard discharge positions can be specified for each rotation. It's direct drive design is more cost effective than a belt driven fan, as it eliminates the sheaves, belts, belt guard and belt loss. For an A/8 PFD the shaft and bearings do not require to be sized for the belt pull, thus reducing your cost.*



## PFD Arrangement 4



## PFD Arrangement 8







***New  
Larger  
Sizes &  
Higher  
Capacity!***

## ***PFD FANS*** **NOW AVAILABLE IN**

**SIZE 3000 @ 3600 RPM**  
**SIZE 4900 @ 1800 RPM**  
**SIZE 5414 @ 1800 RPM**

- CB** The new larger sizes 4900 & 5414 increase the capacity to 120,000 CFM
- CB** Larger size fans offer our customers an inexpensive larger pre-engineered industrial fan without the cost & lead-time of a custom fan
- CB** The new higher capacity allows the size 3000 PFD to reach static pressures up to 58"
- CB** As pressure requirements continue to increase for the same flows, a CBC pre-engineered fan is readily available
- CB** Same top of the line CBC quality fan as provided with the existing PFD fans

# Features

## Wider Performance Range

- Efficiencies to 82%
- Fan sizes from 2000 to 5414
- Volumes from 3,000 to 120,000 CFM
- Static Pressures to 58"
- Arrangement 4 Temperatures to 200°F
- Arrangement 8 Temperatures to 800°F

## Highest Efficiencies

To provide the highest efficiencies throughout the performance range, there are three wheel diameters available for each fan size. Fan housing and wheel width can also be varied to obtain maximum performance, increase efficiency and reduce energy costs.

## Quality Construction

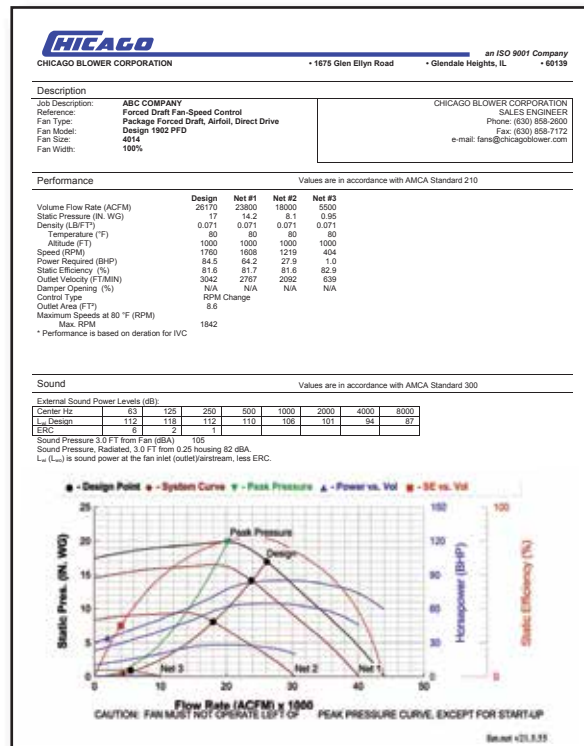
Chicago's PFD is ruggedly constructed with heavy gauge steel housings, rigidly braced for high pressure applications. The entire airstream section is continuously welded, as is the wheel. Lifting lugs ease installation. The wheel is connected to the shaft by a taper-lock bushing or set-screws. The A/8 fan uses ball or spherical roller bearings specifically selected for each fan to achieve min. L10 life at 40,000 hours.

## Complete Ready to Run

Most PFD fans are delivered as a complete assembly requiring only bolting in place, connecting actuator lines and motor wiring. Fans are dynamically balanced and run-tested for smooth, trouble-free operation. Fans are furnished standard with punched flanged outlets. Your needs for the pre-engineered Chicago PFD fan can be fulfilled much faster than most custom engineered fans.

## OEM Components

Numerous customer systems use individual PFD components built directly into their equipment. Wheels, inlet volume controls, inlet cones and housings are standard component parts available for customer installation. Only genuine PFD components within your system assure you of Chicago quality, performance and reliability.



Airfoil Wheel



Inlet Volume Control



# Applications

- **Burner/Boiler Industry**
- **Combustion Air**
- **Supply Air**
- **Primary Air**
- **Product Cooling/Drying**
- **Wave Pools**

PFD fans were initially developed by Chicago Blower to fill the need for a wind-box mounted fan for the packaged boiler industry. Today, they are specified by most manufacturers for this application. As requirements have changed, turn-down capabilities were improved using low-leakage IVCs. Increased use of flue gas recirculation (FGR) required wheel designs for higher airstream temperatures and the addition of inlet boxes that include FGR connections. All are now standard accessories available with little effect on lead-time.

Among the growing list of other applications, Chicago's PFD fans are used on grain silos to control the moisture content within the silo until the grain is ready for market. Fans are also used to supply air for many burner applications and flares, product cooling/drying and creating waves at your favorite amusement parks' wave pools.

PFD fans are designed for use with variable frequency drives when the motor is suitably equipped with insulated bearings or a shaft grounding ring. No design changes to the fan are required.



Chicago PFD fans help evaporate grain moisture, keeping the grain from rotting or being consumed by bacteria.



This Packaged Boiler application features a Size 4014 Down-Blast Arrangement 4 fan mounted to a wind-box.



Burner installation utilizing three Size 2700 A/4 PFD fans.



Two PFD fans in a cartridge style collector application used by a boat manufacturer.

# Options

## • **Inlet Volume Control**

For both varying or partial load applications, Chicago Blower's Inlet Volume Control (IVC) provides precise air control and greater efficiency than an outlet damper. The inlet vanes are nested within the inlet cone. Air volume is controlled manually or automatically by an electric or pneumatic actuator. For manual operation, a locking quadrant can be provided. An optional low-leakage IVC has tighter clearances resulting in additional turn-down capabilities.



## • **Dampers**

All dampers have double surface 12 gauge blades, plug and stitch welded to full-length shaft, which are mounted in a heavy channel frame. Available with or without stuffing boxes. Standard design has flanged ball bearings mounted to the frame. Those with stuffing boxes have pillow-block ball bearings mounted on a bridge remote from frame. Manual control with operating handle and quadrant are standard. Automatic operation is available with linkage for actuators.

### **Pre-Spin Inlet Box Damper**

Similar operating characteristics as the IVC. Parallel blade damper pre-spins air in the same direction as the wheel rotation to improve efficiency. Designed to match bolt-on inlet box flange. Mostly used for higher temperature applications when an IVC cannot be used.

### **Fresh Air Inlet Damper**

Typically used on boiler applications that include flue gas recirculation (FGR) and a mixing box. Slight closure helps to induce flow of flue gas into the fan inlet. Blades are designed to have opposed action to keep air from pre-spinning. Located upstream of the FGR connection. Matches inlet box, mixing box or silencer.

### **Outlet Damper**

Standard damper blades run parallel to the fan or motor shaft and are parallel action. Opposed bladed dampers are available. Damper has punched flanges on both ends to match fan discharge and connect to ducting.

## • **Actuators**

When automatic operation is required, either pneumatic or electric actuators are available to be provided and mounted by Chicago Blower. Many features including positioners for modulating service or on-off operation can be specified.



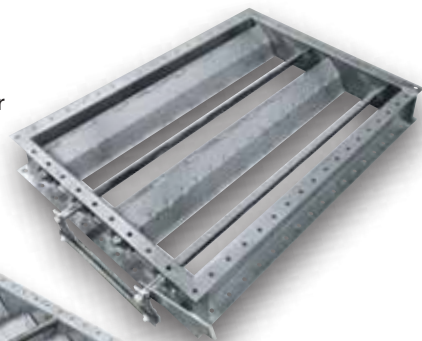
## • **Inlet Screen**

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

## • **Shaft Seals**

An Arrangement 4 shaft seal is a welded plate inside the housing to reduce the motor shaft hole opening. An Arrangement 8 shaft seal is comprised of a compressible fiber gasket and a split steel or aluminum plate bolted to the fan housing. It is designed to reduce leakage and noise through the drive side shaft opening. Shaft seals are not gas tight. A leak-resistant contact shaft seal is available for Arrangement 8.

Outlet Damper



Pre-Spin  
Inlet Box Damper





# Options

- **Inlet**

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

- **Inlet Box**

The bolt-on inlet box simplifies a duct connection when a horizontal connection is impractical. It assures fan performance when a sharp turn is required at the fan inlet. An FGR connection is available by extending the box height.

- **Shaft/Bearing/Coupling Guard**

The metal guard encloses the shaft, bearings and coupling on Arrangement 8 fans. For easier lubrication, extended grease fittings are standard.

- **Shaft Cooler**

For Arrangement 8 fan applications up to 800°F, an aluminum cooling wheel is required for airstreams above 300°F to remove heat from transmitting along the shaft to the bearings.

- **Access Door**

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

- **Drains**

A 1-1/2" diameter cast iron half coupling at the bottom of the fan scroll or inlet box. A drain plug is also available.

- **Spark Resistance**

AMCA Type C spark resistant construction. Maximum temperature is 650°F.

- **Special Coatings**

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



Extended Inlet Box can accommodate an FGR connection.

Arrangement 8 Shaft, Bearing and Coupling Guard option includes Extended Grease Fittings.



Typical Options include Manual Inlet Volume Control, Inlet Screen and Access Door.



Size 4014 Arrangement 8 Fan with Inlet Box, Shaft/Bearing/Coupling Guard with Extended Grease Fittings, Access Door and Drain.





# Fan Selection

Each of the eleven Chicago PFD fan sizes is available with three distinct wheel designs in the same size housing. The D1902 has the smallest wheel diameter, followed by the D1903 and then D1904 with the largest diameter wheel. Curves show flow vs. pressure and flow vs. power and are provided for the two most common 60 hertz direct drive speeds. If your location requires a slower speed or a speed at 50 hertz, values can be adjusted by the Fan Laws or contact your local Chicago Blower Sales office. The curves depict performance for 100% width at 70°F and at sea level (.075 lbs/cu. ft. = density). If the selected point falls within the selected design, it means the fan will be less than 100% width. The example at right selects a fan for an alternate temperature and altitude.

## Temperature/Altitude Correction

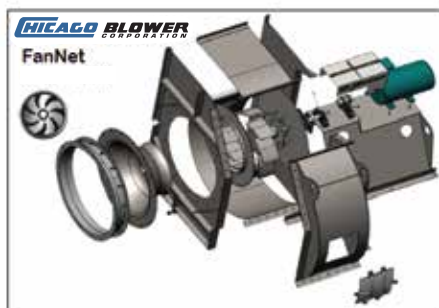
AIR TEMP (°F)	ALTITUDE (feet)										
	0'	500'	1000'	1500'	2000'	2500'	3000'	3500'	4000'	4500'	5000'
0	.87	.88	.90	.92	.93	.95	.97	.99	1.00	1.02	1.04
40	.94	.96	.98	1.00	1.01	1.03	1.05	1.07	1.09	1.11	1.13
70	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20
80	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22
100	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22	1.25	1.27
120	1.09	1.11	1.13	1.16	1.18	1.20	1.22	1.24	1.27	1.29	1.31
140	1.13	1.15	1.17	1.20	1.22	1.24	1.26	1.29	1.31	1.34	1.36
160	1.17	1.19	1.21	1.24	1.26	1.28	1.31	1.33	1.35	1.38	1.41
180	1.21	1.23	1.25	1.28	1.30	1.32	1.35	1.37	1.40	1.42	1.45
200	1.25	1.27	1.29	1.32	1.34	1.36	1.39	1.42	1.44	1.47	1.50
250	1.34	1.36	1.39	1.41	1.44	1.47	1.49	1.52	1.55	1.58	1.61
300	1.43	1.46	1.49	1.51	1.54	1.57	1.60	1.63	1.66	1.69	1.72
350	1.53	1.56	1.59	1.62	1.65	1.68	1.72	1.75	1.78	1.81	1.85
400	1.62	1.65	1.69	1.72	1.75	1.79	1.82	1.85	1.89	1.93	1.96
450	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.04	2.08
500	1.81	1.84	1.88	1.92	1.96	1.99	2.03	2.07	2.11	2.15	2.19
550	1.91	1.84	1.98	2.02	2.06	2.10	2.14	2.18	2.22	2.26	2.30
600	2.00	2.04	2.08	2.12	2.16	2.20	2.24	2.29	2.33	2.38	2.42
650	2.10	2.13	2.18	2.22	2.26	2.31	2.35	2.40	2.44	2.49	2.54
700	2.19	2.23	2.27	2.32	2.36	2.41	2.46	2.50	2.55	2.60	2.65
750	2.28	2.32	2.37	2.42	2.47	2.51	2.56	2.61	2.66	2.71	2.76
800	2.38	2.42	2.48	2.52	2.57	2.62	2.66	2.72	2.76	2.81	2.86

Arrangement 4 applications are limited to 200°F operation.

Arrangement 8 and Component Parts may be operated at temperatures to 800°F.

## FanNet

Refer to Chicago Blower's FanNet software for performance, fan curves and sound data. For further assistance, contact your local Chicago Blower sales engineer.



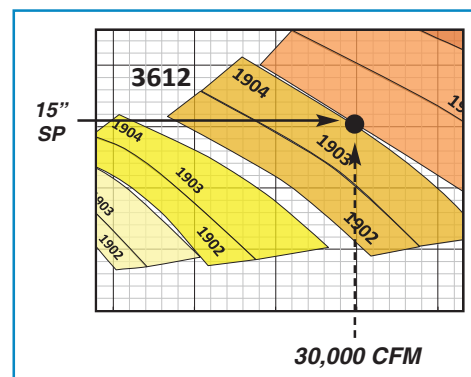
## Example:

**Application Requirement:** 30,000 CFM, 12.5" Static Pressure, 140°F temperature at 1500 ft. elevation.

1. Using the table at left, the correction factor for a temperature of 140°F at an elevation of 1500 ft. is 1.20.

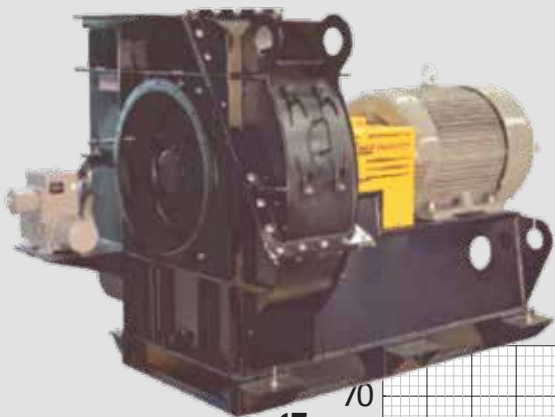
2. Multiplying the application static pressure of 12.5" by the correction factor of 1.20 gives us the equivalent static pressure (SP) of 15" wg. Note: If the flow is provided as SCFM the same correction factor would be used on its value.

3. Select from the Performance curves using the above parameters of 30,000 CFM at 15" wg. The ideal PFD fan is a Size 3612. The selection point falls within the range of the 1904 wheel design.



4. To find the BHP, follow a vertical line straight down the 30,000 CFM point to intersect the corresponding Size 3612 1904 BHP curve. Reading the BHP value to the left provides 99 BHP. This is the BHP at .075 density. To obtain the horsepower at our operating conditions, divide 99 BHP by the correction factor of 1.20 to get 82.5 BHP.

**Summary:** PFD fan selection is a Size 3612, wheel Design 1904, to deliver 30,000 CFM and 12.5" wg static pressure at 140°F and 1500' elevation and requiring 82.5 BHP.

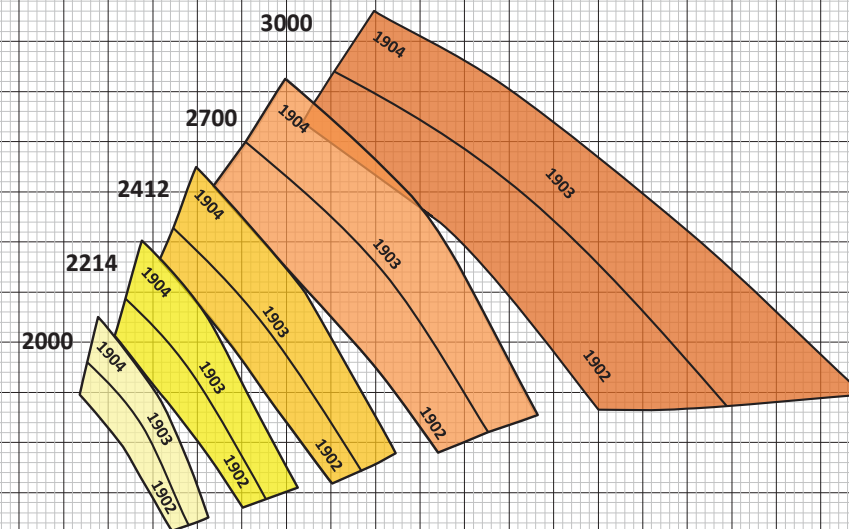


# Performance

SIZES 2000 - 3000 @ 3600 RPM

STATIC PRESSURE-INCHES WG

70  
65  
60  
55  
50  
45  
40  
35  
30  
25  
20  
15  
10  
5  
0



CFM x 1000

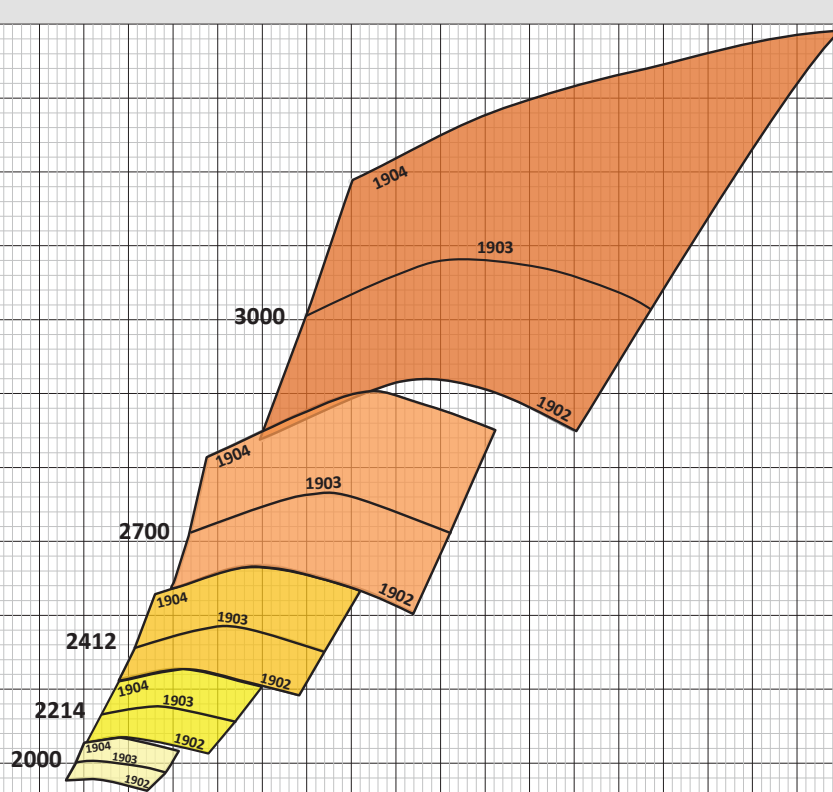
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52

Frame Sizes/Outlet Area

FAN SIZE	MAX FRAME SIZES	OUTLET AREA
2000	326TS	2.12 sq. ft.
2214	365TS	2.63 sq. ft.
2412	444TS	3.19 sq. ft.
2700	447TS	3.88 sq. ft.
3000	449TS	4.86 sq. ft.

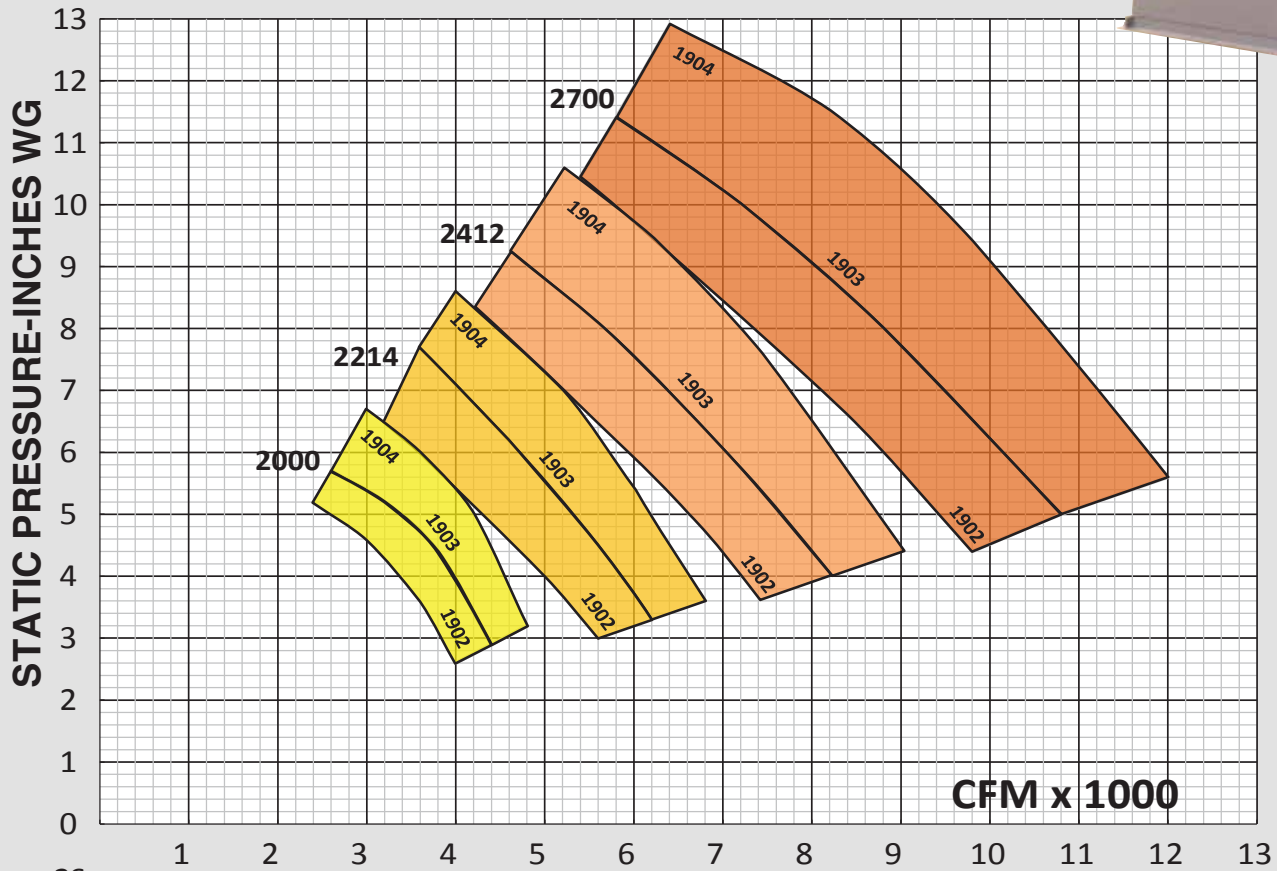
BRAKE HORSEPOWER

275  
250  
225  
200  
175  
150  
125  
100  
75  
50  
25  
0



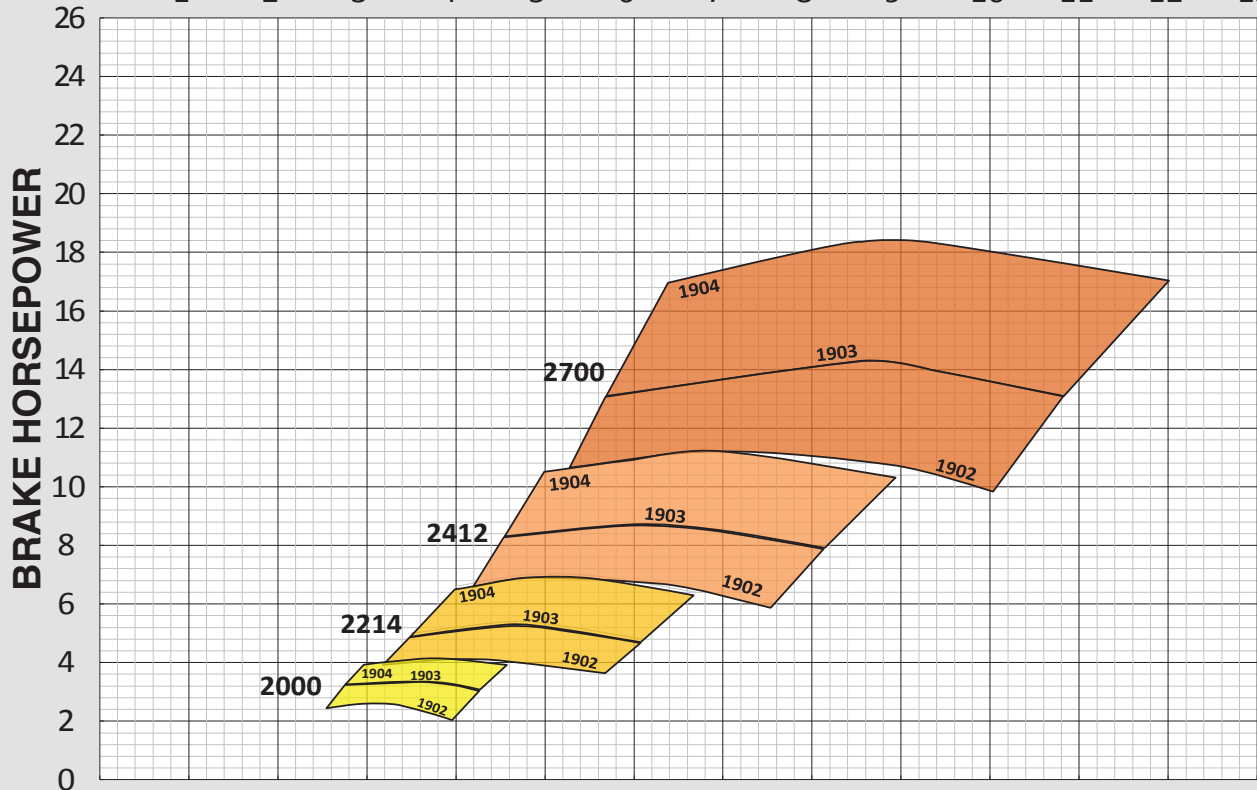
# Performance

SIZES 2000 - 2700 @ 1800 RPM



Frame Sizes/Outlet Area

FAN SIZE	MAX FRAME SIZES	OUTLET AREA
2000	184T	2.12 sq. ft.
2214	215T	2.63 sq. ft.
2412	256T	3.19 sq. ft.
2700	286T	3.88 sq. ft.



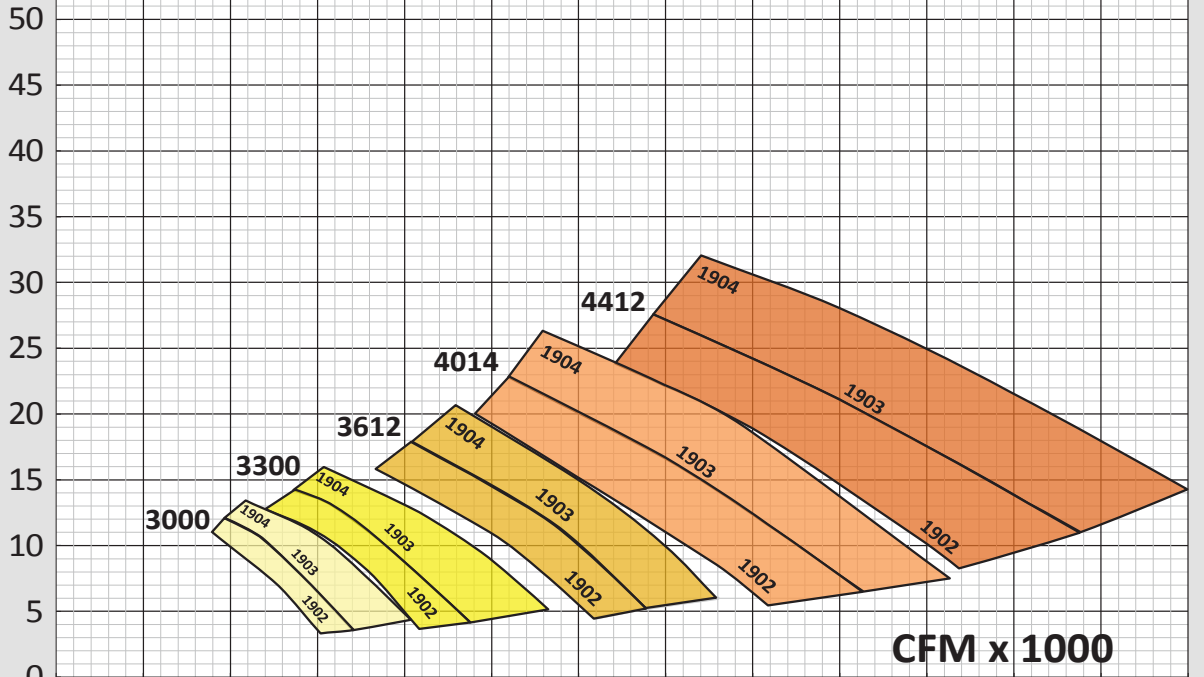




# Performance

SIZES 3000 - 4412 @ 1800 RPM

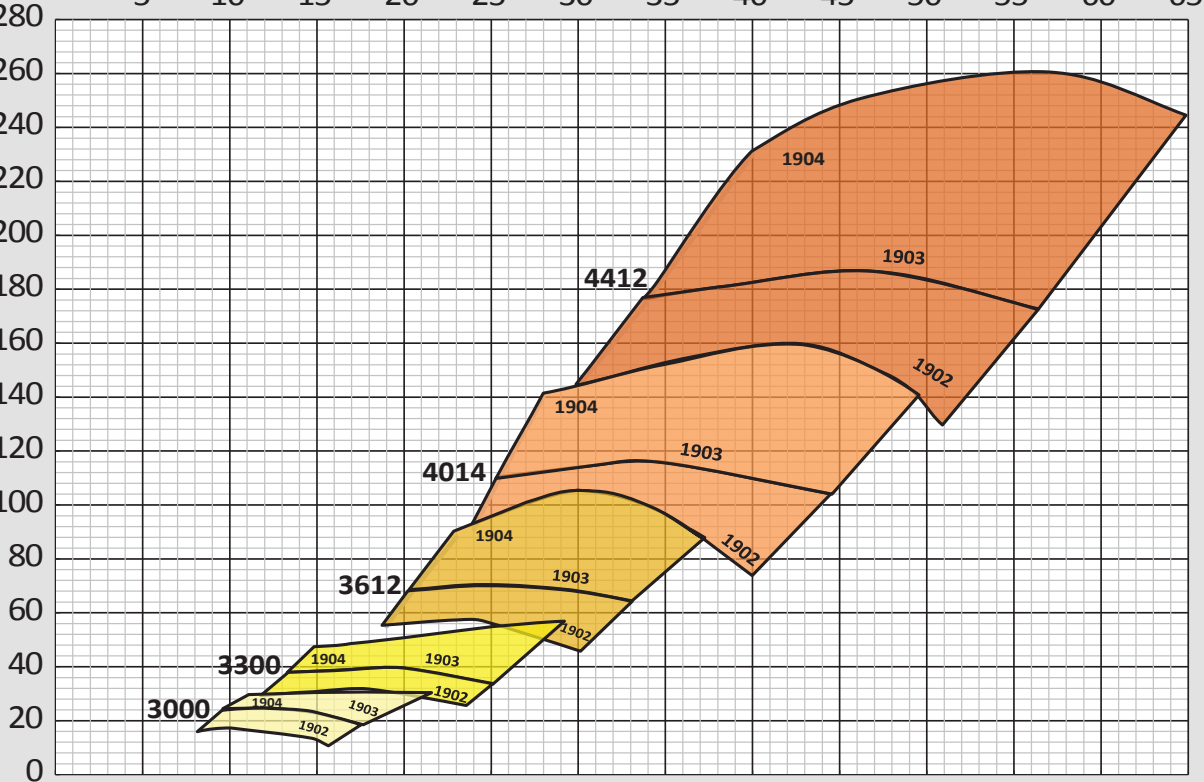
STATIC PRESSURE-INCHES WG



Frame Sizes/Outlet Area

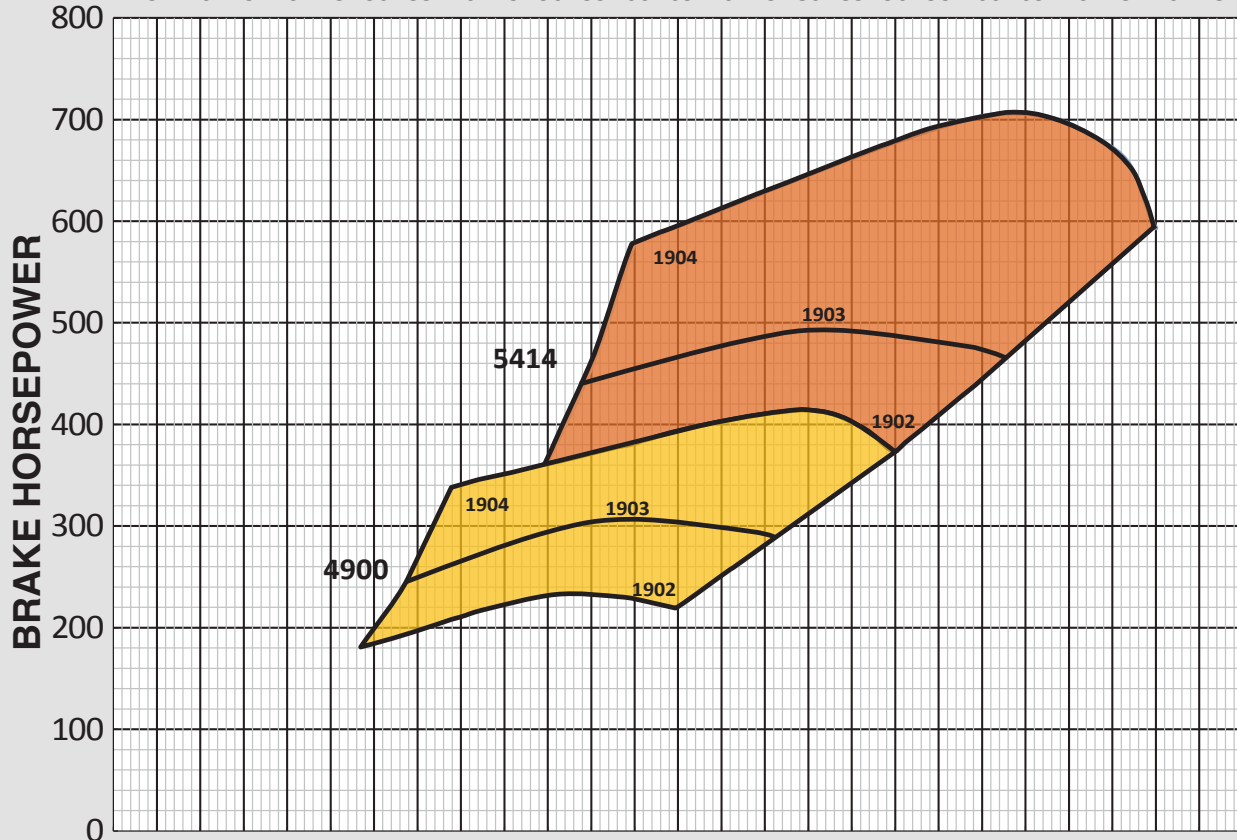
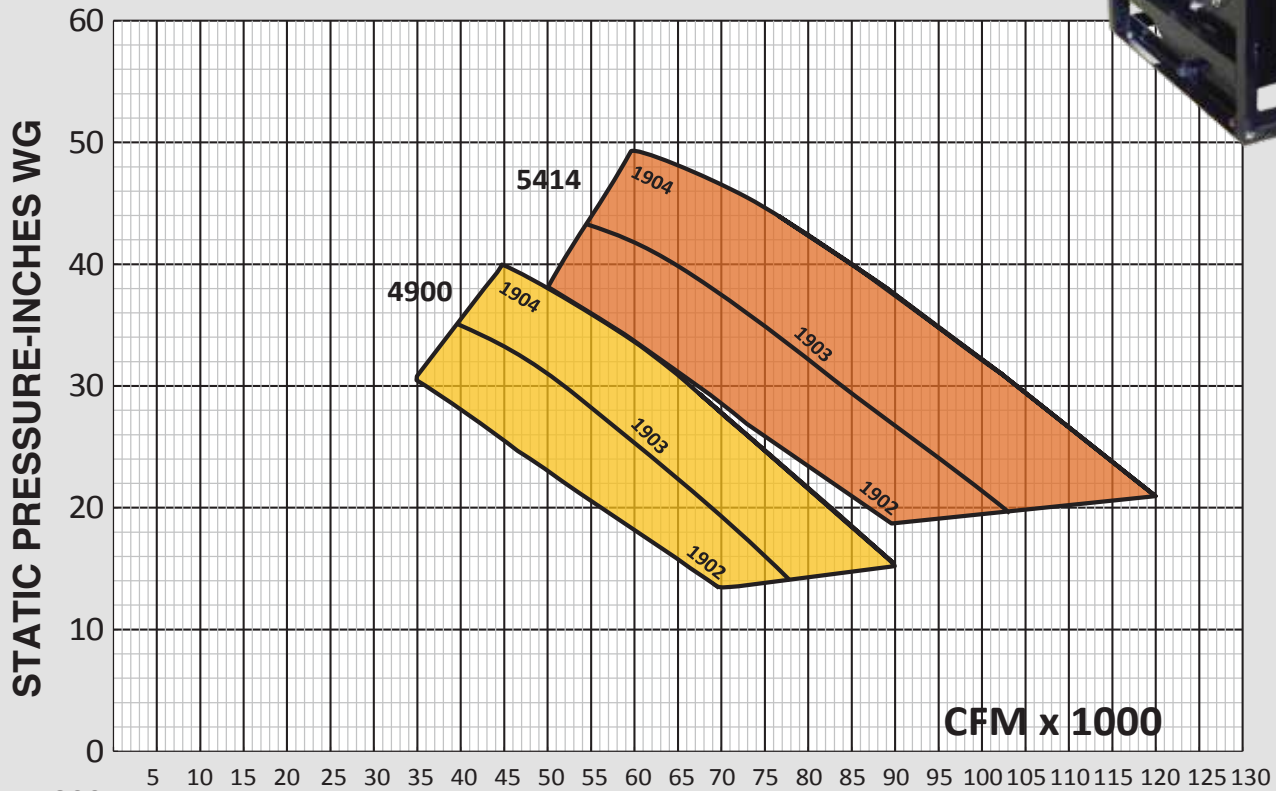
FAN SIZE	MAX FRAME SIZES	OUTLET AREA
3000	326T	4.78 sq. ft.
3300	364T	5.79 sq. ft.
3612	405T	7.09 sq. ft.
4014	447T	8.60 sq. ft.
4412	449T	10.52 sq. ft.

BRAKE HORSEPOWER



# Performance

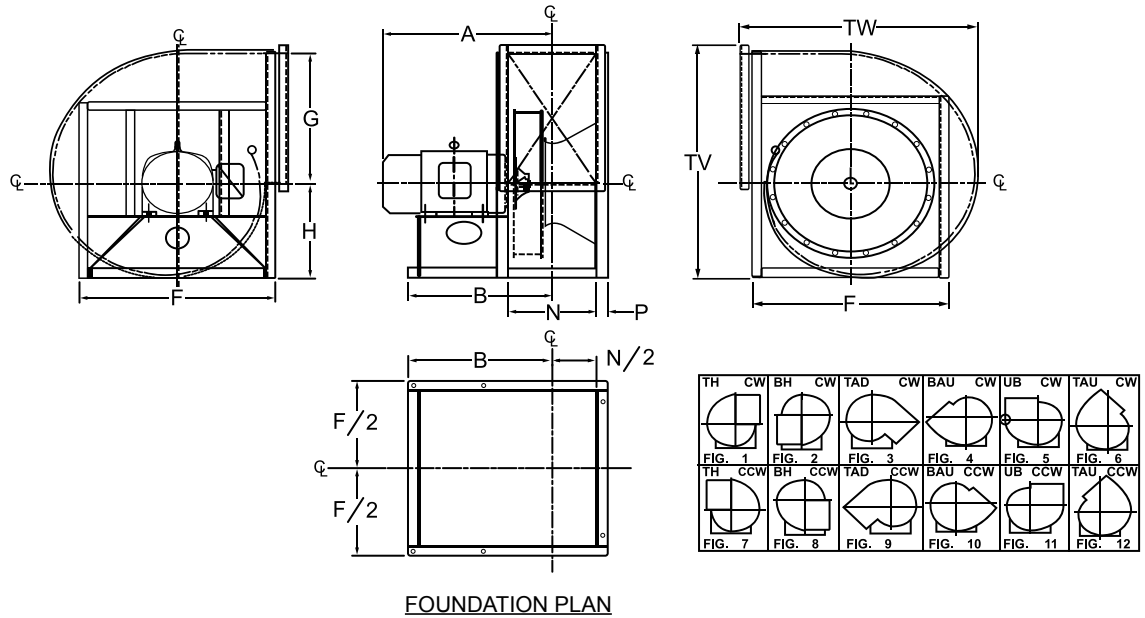
SIZES 4900 - 5414 @ 1800 RPM



Frame Sizes/Outlet Area

FAN SIZE	MAX FRAME SIZES	OUTLET AREA
4900	NON-NEMA	13.03 sq. ft.
5414	NON-NEMA	15.92 sq. ft.

# PFD Arrangement 4



Arrangement 4, Discharges other than Downblast

\*Values are for 100% width

FAN SIZE	A MAX	B MAX	F	G	H						N*	P
					TH	BH	TAD	BAU	UB	TAU		
2000	33-13/16	27-5/16	31	22-3/4	16-3/4	26-1/4	21-7/8	22	20	18-1/4	13-3/4	2
2214	36-3/16	29	34	25-5/16	18-1/2	28-3/4	22-7/8	24	22-1/8	20-3/8	15-3/8	2
2412	46-3/4	36-7/16	37-3/4	27-7/8	20-1/4	31-7/8	26	26-3/8	24-3/8	22-1/4	16-7/8	2-1/2
2700	50-1/4	40-3/4	40-3/4	30-11/16	22-1/4	34-3/4	27	29	26-3/4	24-1/2	18-1/2	2-1/2
3000	57-3/16	49-1/16	44-1/2	34-1/8	24-3/4	38-1/8	29-1/4	32-1/8	29-3/4	27-1/4	20-1/2	2-1/2
3300	39-7/8	33-3/16	47-3/4	37-9/16	27-1/8	41-1/2	31	35-3/8	32-5/8	29-7/8	22-3/4	2-1/2
3612	46-13/16	37-3/8	51	41-1/2	29-7/8	45-1/2	32-3/8	38-15/16	35-15/16	32-7/8	25	3
4014	54-7/8	45-7/8	55	45-13/16	32-7/8	49-3/4	34-1/4	43	39-3/4	36-1/4	27-3/4	3
4412	61-9/16	52-3/4	60-1/2	50-5/8	37-5/16	55-5/8	41-3/4	48-7/16	44-11/16	41	30-5/8	3
4900	63-1/16	54-1/4	66-1/4	55-13/16	44-1/4	60-13/16	44-5/8	53-1/4	49-1/8	45-1/16	33-5/8	3
5414	64-13/16	56	72-1/2	61-3/4	51-7/8	72-1/2	45-1/4	63-13/16	59-3/16	54-11/16	37-1/8	3

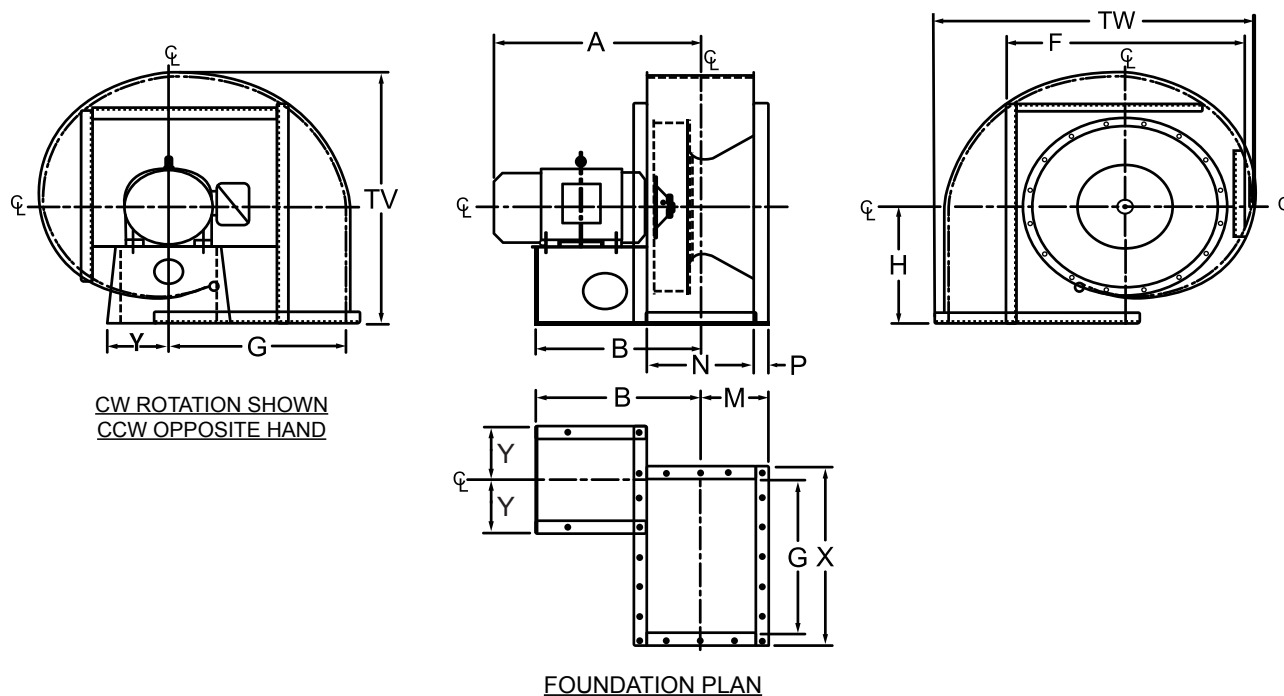
FAN SIZE	TOTAL WIDTH (REF)						TOTAL VERTICAL (REF)						BARE FAN WT.
	TH	BH	TAD	BAU	UB	TAU	TH	BH	TAD	BAU	UB	TAU	
2000	38-3/16	38-3/16	54-3/16	48-3/8	40-7/8	36-9/16	41	42-7/8	43-1/2	36-5/8	38-1/4	48-5/16	495
2214	41-3/8	41-3/8	59-1/16	52-7/8	45-1/4	40-9/16	45-5/16	47-3/16	46-7/8	40-5/8	41-3/8	52-15/16	595
2412	45-7/16	45-7/16	66	58-5/16	50-1/8	45-5/8	50-1/8	52-1/8	52-3/8	45-11/16	45-1/2	58-5/16	844
2700	49-3/8	49-3/8	71-5/16	63-5/8	54-15/16	49-1/2	54-15/16	57	56	49-1/2	49-3/8	63-5/8	1284
3000	54	54	78-1/2	69-15/16	60-3/4	54-1/4	60-7/8	62-3/4	61-3/8	54-1/4	54-1/8	70-1/16	1605
3300	58-5/8	58-5/8	85-1/4	76-1/8	66-7/16	59-3/8	66-11/16	68-3/8	66-5/16	59-1/2	58-3/4	76-3/8	1315
3612	63-11/16	63-11/16	92-11/16	83-5/16	73-3/8	65-13/16	73-3/8	75-3/8	71-3/8	65-3/4	63-11/16	83-1/4	1830
4014	70-5/16	70-5/16	101-1/8	91-3/4	80-9/16	71-15/16	80-11/16	82-1/2	77-3/16	72	70-1/2	91-13/16	2738
4412	76-13/16	76-13/16	114-1/2	100-5/8	88-7/8	79-15/16	89-15/16	91-13/16	89-3/16	80-15/16	77-13/16	101-11/16	3636
4900	84-5/8	84-5/8	120-7/8	110-3/4	97-3/4	88-3/16	98-13/16	100-3/4	96-7/8	89-1/16	85-1/2	111-3/4	4507
5414	93-9/16	93-9/16	132-15/16	122-5/16	107-7/8	97-5/16	114	116-5/8	111-1/4	103-3/8	99-7/16	128-5/16	4647

Dimensions shown above are not to be used for general construction unless certified by the CBC Engineering Dept.



# PFD Arrangement 4 - Downblast

## Dimensions



Arrangement 4 Downblast Only

\*Values are for 100% width

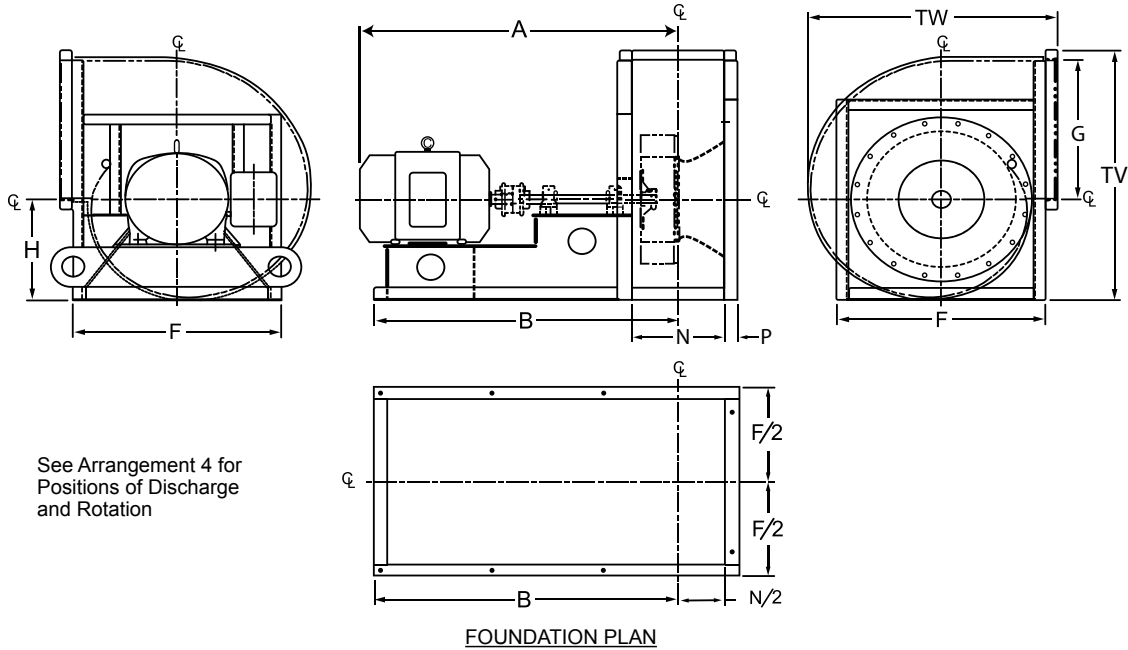
TW = TOTAL WIDTH (REF)

TV = TOTAL VERTICAL (REF)

FAN SIZE	A MAX	B MAX	F	G	H	M	N*	P	X	Y MAX	TW	TV
2000	33-13/16	25-9/16	31	22-3/4	18-1/4	8-7/8	13-3/4	2	26-3/4	9-7/8	41-3/8	38-1/4
2214	36-3/16	27-1/4	34	25-5/16	19-1/4	9-11/16	15-3/8	2	29-5/16	10-3/8	45-3/4	41-7/16
2412	46-3/4	34-5/16	37-3/4	27-7/8	21-1/8	10-15/16	16-7/8	2-1/2	32-7/8	13-1/8	50-5/8	45-7/16
2700	50-1/4	38-3/4	40-3/4	30-11/16	22-5/8	11-3/4	18-1/2	2-1/2	35-11/16	13-1/8	55-7/16	49-3/8
3000	57-3/16	47-1/16	44-1/2	34-1/8	24-3/8	12-3/4	20-1/2	2-1/2	39-1/8	14-1/2	61-1/4	54
3300	39-7/8	30-15/16	47-3/4	37-9/16	26-1/8	13-7/8	22-3/4	2-1/2	42-9/16	10-7/8	66-15/16	58-5/8
3612	46-13/16	34-3/4	51	41-1/2	27-3/4	15-1/2	25	3	47-1/2	12-7/16	74-3/8	63-3/4
4014	54-7/8	43-3/8	55	45-13/16	30-3/4	16-7/8	27-3/4	3	51-13/16	14-1/2	81-5/8	70-5/16
4412	61-9/16	49-13/16	60-1/2	50-5/8	33-1/8	18-5/16	30-5/8	3	56-5/8	14-1/2	89-7/8	76-13/16
4900	63-1/16	51-5/16	66-1/4	55-13/16	36-7/16	19-13/16	33-5/8	3	61-13/16	14-1/2	98-3/4	84-9/16
5414	64-13/16	53-1/16	72-1/2	61-3/4	41-15/16	21-9/16	37-1/8	3	67-3/4	14-1/2	108-7/8	95-1/8

Dimensions shown above are not to be used for general construction unless certified by the CBC Engineering Dept.

# PFD Arrangement 8



Arrangement 8, Discharges other than Downblast

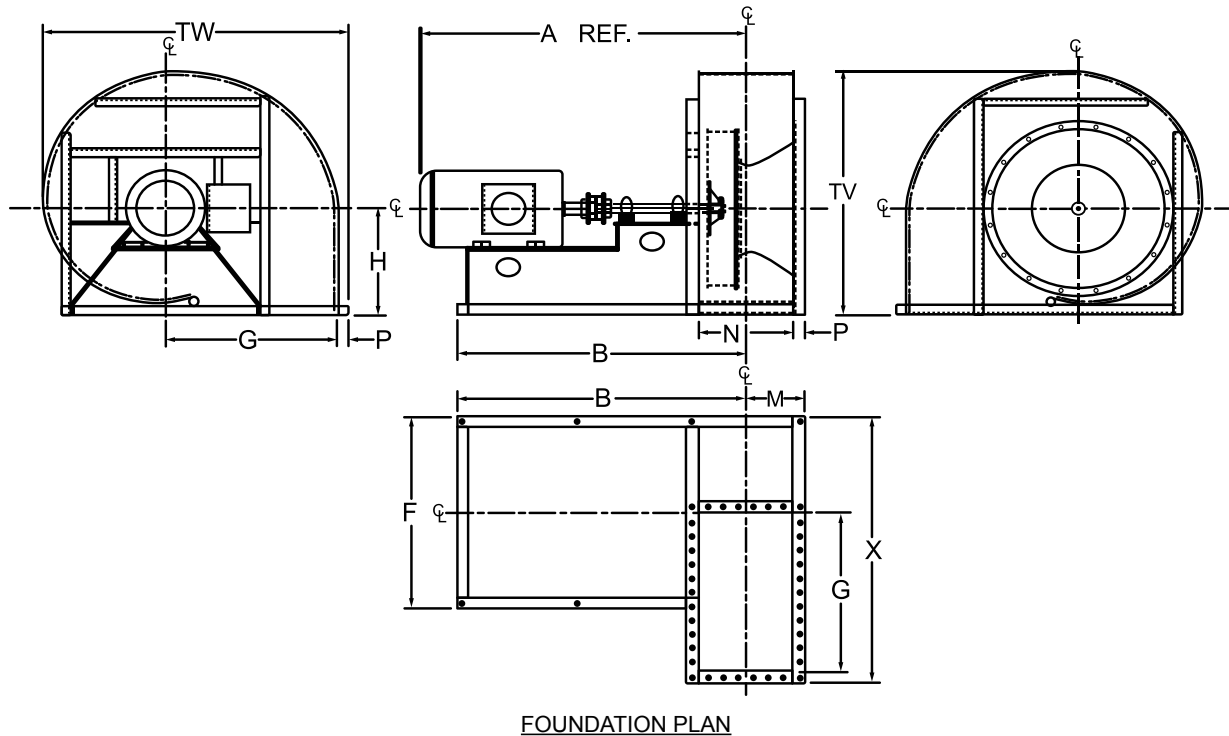
\*Values are for 100% width

FAN SIZE	A MAX	B MAX	F	G	H						N*	P
					TH	BH	TAD	BAU	UB	TAU		
2000	56-3/8	54-11/16	31	22-3/4	16-3/4	26-1/4	21-7/8	21-5/8	20	18-1/4	13-3/4	2
2214	59-13/16	59	34	25-5/16	18-1/2	28-3/4	22-7/8	24	22-1/8	20-3/8	15-3/8	2
2412	64-9/16	62-15/16	37-3/4	27-7/8	20-1/4	31-7/8	26	26-3/8	24-3/8	22-1/4	16-7/8	2-1/2
2700	72-11/16	69-3/4	40-3/4	30-11/16	22-1/4	34-3/4	27	29	26-3/4	24-1/2	18-1/2	2-1/2
3000	88-1/8	81-1/8	44-1/2	34-1/8	24-3/4	38-1/8	29-1/4	32-1/8	29-3/4	27-1/4	20-1/2	2-1/2
3300	70-1/8	64-15/16	47-3/4	37-9/16	27-1/8	41-1/2	31	35-3/8	32-5/8	29-7/8	22-3/4	2-1/2
3612	79-5/16	71	51	41-1/2	29-7/8	45-1/2	32-3/8	38-15/16	35-15/16	32-7/8	25	3
4014	92-1/8	85-1/4	55	45-13/16	32-7/8	49-3/4	34-1/4	43	39-3/4	36-1/4	27-3/4	3
4412	100-3/4	92-9/16	60-1/2	50-5/8	37-5/16	55-5/8	41-3/4	48-7/16	44-11/16	41	30-5/8	3
4900	115-7/8	108-5/8	66-1/4	55-13/16	56-7/16	74-9/16	54-1/8	68-11/16	64-5/8	60-9/16	33-5/8	3
5414	140-5/8	122-1/4	72-1/2	61-3/4	60-11/16	80-1/2	57-1/4	74-1/4	69-11/16	65-3/16	37-1/8	3

FAN SIZE	TOTAL WIDTH (REF)						TOTAL VERTICAL (REF)						BARE FAN WT.
	TH	BH	TAD	BAU	UB	TAU	TH	BH	TAD	BAU	UB	TAU	
2000	38-3/16	38-3/16	54-3/16	48-3/8	40-7/8	37-1/8	41	42-7/8	43-1/2	36-5/8	38-1/4	48-5/16	797
2214	41-3/8	41-3/8	59-1/16	52-7/8	45-1/4	41	45-5/16	47-3/16	46-7/8	40-5/8	41-3/8	52-15/16	955
2412	45-7/16	45-7/16	66	58-5/16	50-1/8	45-5/8	50-1/8	52-1/8	52-3/8	45-11/16	45-1/2	58-5/16	1343
2700	49-3/8	49-3/8	71-5/16	63-5/8	54-15/16	49-1/2	54-15/16	57	56	49-1/2	49-3/8	63-5/8	2122
3000	54	54	78-1/2	69-15/16	60-3/4	54-3/8	60-7/8	62-3/4	61-3/8	54-1/4	54-1/8	70-1/16	2756
3300	58-5/8	58-5/8	85-1/4	76-1/8	66-7/16	59-3/8	66-11/16	68-3/8	66-5/16	59-1/2	58-3/4	76-3/8	1731
3612	63-11/16	63-11/16	92-11/16	83-5/16	73-3/8	65-7/8	73-3/8	75-3/8	71-3/8	65-3/4	63-11/16	83-1/4	2432
4014	70-5/16	70-5/16	101-1/8	91-3/4	80-9/16	71-15/16	80-11/16	82-1/2	77-3/16	72	70-1/2	91-13/16	3631
4412	76-13/16	76-13/16	114-1/2	100-5/8	88-7/8	79-15/16	89-15/16	91-13/16	89-3/16	80-15/16	77-13/16	101-11/16	4715
4900	84-5/8	84-5/8	120-7/8	110-3/4	97-3/4	88-1/16	114-1/4	114-1/2	106-5/16	104-9/16	101-1/8	127-1/4	8386
5414	93-9/16	93-9/16	132-15/16	122-5/16	107-7/8	97-5/16	122-1/4	124-5/8	114-15/16	113-7/8	110-1/16	138-13/16	8972

Dimensions shown above are not to be used for general construction unless certified by the CBC Engineering Dept.

# PFD Arrangement 8 - Downblast



Arrangement 8 Downblast Only

\*Values are for 100% width

TW = TOTAL WIDTH (REF)  
TV = TOTAL VERTICAL (REF)

FAN SIZE	A MAX	B MAX	F	G	H	M	N*	P	X	TW	TV
2000	56-3/8	54-11/16	31	22-3/4	18-1/4	8-7/8	13-3/4	2	56-5/8	41-3/8	38-1/4
2214	59-13/16	58-5/8	34	25-5/16	19-1/4	9-11/16	15-3/8	2	62-3/8	45-3/4	41-7/16
2412	64-9/16	62-15/16	37-3/4	27-7/8	21-1/8	10-15/16	16-7/8	2-1/2	75-3/16	50-5/8	45-7/16
2700	72-11/16	69-3/4	40-3/4	30-11/16	22-5/8	11-3/4	18-1/2	2-1/2	83-13/16	55-7/16	49-3/8
3000	88-1/8	80-1/8	44-1/2	34-1/8	24-3/8	12-3/4	20-1/2	2-1/2	60	61-1/4	54
3300	70-1/8	64-15/16	47-3/4	37-9/16	26-1/8	13-7/8	22-3/4	2-1/2	65	66-15/16	58-5/8
3612	79-5/16	71	51	41-1/2	27-3/4	15-1/2	25	3	76-5/8	74-3/8	63-3/4
4014	92-1/8	85-1/4	55	45-13/16	30-3/4	16-7/8	27-3/4	3	79-5/16	81-5/8	70-5/16
4412	100-3/4	92-9/16	60-1/2	50-5/8	33-1/8	18-5/16	30-5/8	3	86-7/8	89-7/8	76-13/16
4900	104-1/4	96-1/16	66-1/4	55-13/16	36-7/16	19-13/16	33-5/8	3	94-15/16	98-3/4	84-9/16
5414	112-1/4	104-1/16	72-1/2	61-3/4	41-15/16	21-9/16	37-1/8	3	104	108-7/8	99-3/16

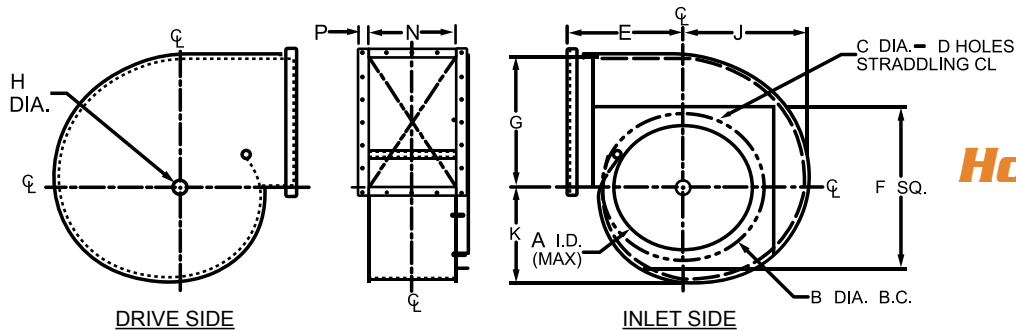
Dimensions shown above are not to be used for general construction unless certified by the CBC Engineering Dept.

Dimensions

CHICAGO BLOWER CORPORATION

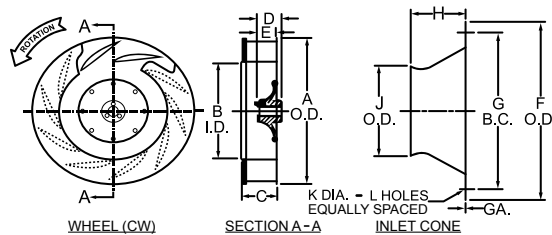


## Components



### Housing

FAN SIZE	HOUSING DIMENSION- INCHES											
	A MAX	B	C	D	E	F	G	H	J	K	N	P
2000	24-1/2	25-1/2	3/8	8	18-1/4	28	22-3/4	2-1/4	19-15/16	16-9/16	13-3/4	1-1/2
2214	26-1/2	27-1/2	3/8	16	19-1/4	30	25-5/16	2-1/4	22-1/8	18-3/8	15-3/8	1-1/2
2412	29-1/2	31	1/2	16	21-1/8	33-3/4	27-7/8	2-3/4	24-5/16	20-3/16	16-7/8	2
2700	32-1/2	34	1/2	16	22-5/8	36-3/4	30-11/16	2-3/4	26-11/16	22-3/16	18-1/2	2
3000	35-1/2	37	1/2	16	24-3/8	40-1/4	34-1/8	3	29-5/8	24-5/8	20-1/2	2
3300	39	40-1/2	1/2	16	26-1/8	43-3/4	37-9/16	2-3/4	32-9/16	27-1/16	22-3/4	2
3612	42-1/4	43-3/4	1/2	16	27-3/4	47	41-1/2	3-1/4	35-15/16	29-13/16	25	2
4014	46-1/2	48	1/2	16	30-3/4	51	45-13/16	3-1/4	39-5/8	32-7/8	27-3/4	2
4412	51-3/4	53-1/4	1/2	24	33-1/8	56-1/2	50-5/8	4-1/4	43-11/16	36-5/16	30-5/8	2
4900	55-1/4	58-3/4	3/4	24	36-1/2	62-1/4	55-13/16	5-1/4	48-1/8	40-3/16	33-5/8	2
5414	61-1/2	65	3/4	24	40-3/8	68-15/16	61-3/4	5-3/4	53-3/16	44-1/2	37-1/8	2



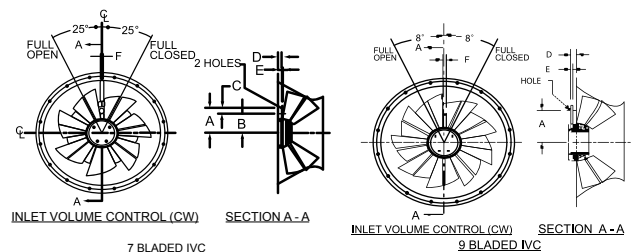
### Wheel & Inlet Cone

FAN SIZE	WHEEL DIMENSIONS - INCHES					CONE DIMENSIONS - INCHES						
	A MAX	B	C	D	E	F	G	H	J	K	L	GA.
2000	22-3/4	13-15/16	5-11/16	3-1/2	3	27	25-1/2	7-5/8	13-13/16	5/8	8	12
2214	25-1/8	15-1/8	6-5/16	3-1/2	3	29	27-1/2	8-1/4	14-15/16	5/8	16	12
2412	27-7/8	16-15/16	7-1/16	3-1/2	2-1/2	32-3/4	31	9-3/16	16-11/16	13/16	16	12
2700	31	18-11/16	8-1/8	3-1/2	2-1/2	35-3/4	34	10-1/16	18-1/4	15/16	16	12
3000	34	20-9/16	8-1/2	3-1/2	2-1/2	39-1/4	37	11-1/8	20-3/16	15/16	16	10
3300	37-3/4	22-15/16	9-7/16	3-1/2	2-1/4	42-3/4	40-1/2	12-7/16	22-5/8	15/16	16	10
3612	41-1/2	25-1/16	10-3/8	3-1/2	2-1/4	46	43-3/4	13-3/4	24-7/8	15/16	16	10
4014	45-3/4	28-1/8	11-7/16	3-1/2	2-1/4	50	48	15-5/16	27-13/16	15/16	16	10
4412	50-1/8	30-11/16	12-3/4	5-1/2	4-3/8	55-1/2	53-1/4	16-3/4	30-7/16	15/16	24	10
4900	55-7/8	33-7/8	14-1/16	5-1/2	4-3/8	61-1/4	58-3/4	18-1/2	33-9/16	1-1/8	24	10
5414	61-3/8	37-9/32	15-13/16	5-1/2	4-3/8	67-1/2	65	20-1/4	36-23/32	1-1/8	24	3/16

## Inlet Volume Control

FAN SIZE	7 BLADED IVC DIMENSIONS- INCHES					
	A	B	C	D	E	F
2000-2412	6-9/16	5-1/16	1	0	1/4	3/4
2700-4014	9-1/4	6-3/4	2	1-3/16	3/8	1

FAN SIZE	9 BLADED IVC DIMENSIONS- INCHES				
	A	B*	D	E	F
4412	5-17/32	26°	1-3/8	5/8	1-1/4
4900	5-17/32	26°	1-3/8	5/8	1-1/4
5414	6-9/16	21°	1-5/8	1/4	1-1/4



Dimensions shown above are not to be used for general construction unless certified by the CBC Engineering Dept.



## **Packaged Forced Draft Fans**

## **Engineering Specifications**

### **GENERAL**

To provide the highest efficiencies throughout the performance range, three wheel diameters are available for each fan size. These centrifugal fans are low maintenance with airfoil wheel and spun radial sideplate. Air performance and sound ratings shall be based on tests and procedures in accordance with AMCA Publication 210 and AMCA Publication 300. Fans must be manufactured and assembled in the U.S.A. Acceptable suppliers: Chicago Blower Corporation. Available as A/4 or A/8.

### **PERFORMANCE**

Performance shall include a steep pressure curve with non-overloading horsepower characteristics. Peak mechanical efficiency shall be no less than 82%. Wheel inlet to be designed to ensure smooth, stable air flow across the fan's entire operating range. System static pressure changes of 30% shall result in an approximate 10% volume reduction.

### **HOUSING**

Fan housing shall be of welded, heavy gauge construction with seven common discharge positions. Scroll is to be continuously welded. Housing stiffeners and base to be welded construction only. Bolted stiffeners and construction of structural members is strictly prohibited.

### **ROTOR**

Wheel shall be welded steel construction. Steel wheel shall have cast iron hub or steel hub that is fastened to heavy gauge backplate using Huck lock bolts and collars. Threaded fasteners are not allowed. Steel airfoil blades must be single sheet, die formed, high strength low alloys, or equivalent steel and continuously welded to backplate and wheel sideplate. Wheels to be statically and dynamically balanced to G6.3 standards in accordance with ISO 1940 and ANSI S2.19 specifications. For A/8 fan, shaft shall be turned, ground, and polished 1045 SAE cold rolled steel and straightened to a maximum T.I.R. of 0.002 inches. Shaft critical speed shall not be less than 120% times the maximum safe speed.

### **MOUNTING**

Housing and base assembly complete with integral mounting angles for connection to foundation. For A/8 fan, an integral bearing and motor pedestal shall be welded to the housing.

### **FACTORY MOUNTED MOTORS AND COUPLING (As Required)**

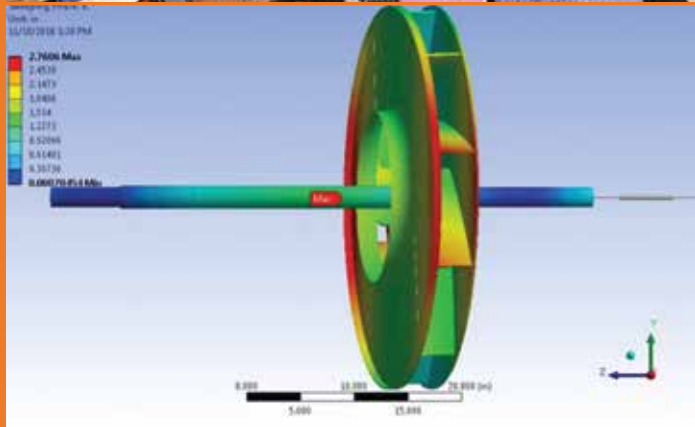
Motors and coupling shall be factory mounted. Fan to be tested at running speed for vibration and balance. Filtered vibration readings, taken at the motor bearings and fan bearings, not to exceed 0.15 inches per second, in accordance with AMCA Publication 204 "Balance Quality and Vibration Levels for Fans."

### **INLET VOLUME CONTROL (As Required)**

Inlet volume control (IVC) device shall be totally enclosed within the inlet cone. IVC device shall be 7-bladed, for sizes 4014 and below, and 9-bladed for larger sizes and pre-spin the incoming air to control volume and pressure. Operation of IVC shall be smooth without fluttering of blades. Performance control shall be repeatable and consistent without slip or hunting for required duty. Standard IVC temperature limits are 350°F for 7-bladed and 200°F for 9 bladed. All Low-Leak IVCs are limited to 200°F max temperature.

### **ACCESSORIES**

- Slip-fit Inlet/Outlet
- Punched, Flanged Inlet/Outlet
- Type C AMCA Spark Resistant Construction (Max Temperature is 650°F)
- 1-1/2" NPT Housing Drain
- Shaft Seal
- Access Door - Quick Clamp, Flush Bolted, or Insulated Plug Type
- Shaft Cooler (Required from 301°F and above)
- Inlet Screen
- Shaft and Bearing Guard - painted OSHA yellow
- Extended Grease Fittings
- Flexible Steel Couplings
- Bolt-on Inlet Box
- Extended Inlet Box(Bolt-on) with FGR Port
- Inlet or Outlet Dampers - Parallel or Opposed Bladed, Manual or Automatic Operation
- Split Housing
- Vibration or Unitary Base
- Special Coatings



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