

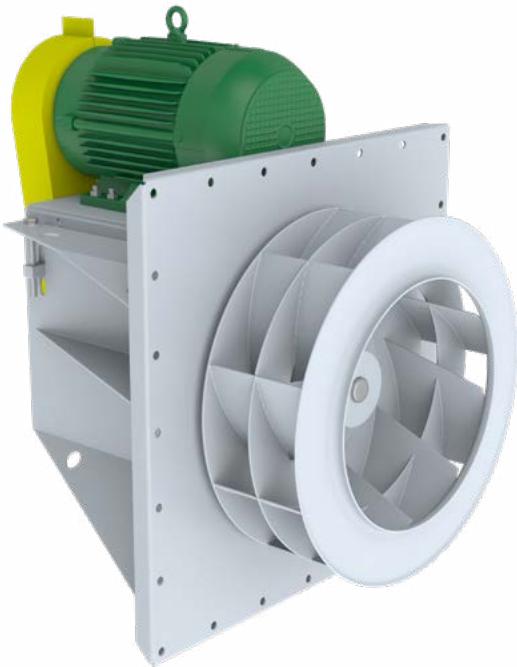
**HIGH EFFICIENCY PLUG FANS**



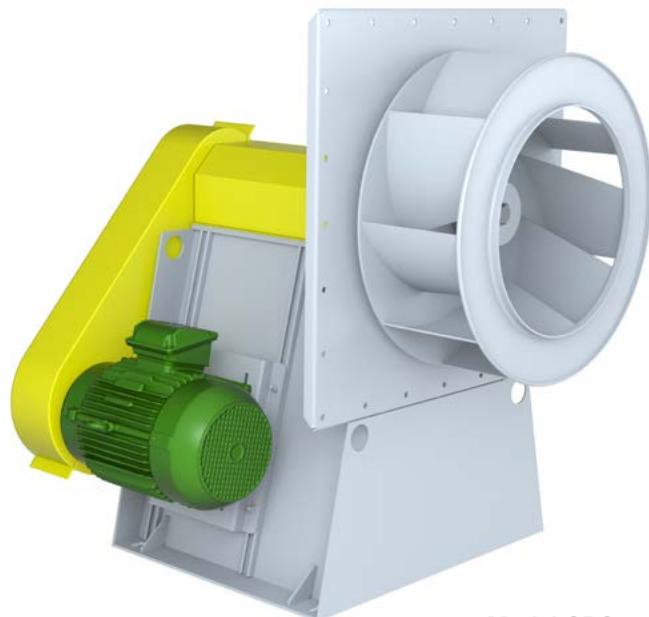
**MODEL: CPG**



CATALOG 755  
JUNE 2020



Model CPG,  
Arrangement 9



Model CPG,  
Arrangement 9P

## Overview

### High Efficiency Plug Fans

Plug fans offer great versatility for complex system configurations. Equipped with a gusseted mounting panel, they are mounted directly to the plenum wall separating the motor and drive components from the process air. Plug fans provide high efficiency recirculation air with the benefit of easy installation and removal.

#### Typical Applications Include

Air Curtains, Dyers, Freezers, High Temperature, Kilns, Ovens, Process Applications, Product Cooling, Re-Circulation, Air Heaters, Ceiling, Wall and Floor Panel Plenums, Degreasers, Dryers, Dust Collectors, Evaporators, Packaged Air Handlers, Parts Washers, Penthouses, Smoke Houses, Space Heaters, Spray Booths and other High Temperature Applications

#### Impeller Types

Backward Curved

#### Arrangements

Available in Arrangement 1P, 9 and 9P (Belt Driven) and Arrangement 4, 4P and 8P (Direct Drive) configurations

#### Optional Construction

High-Temperature Construction to 1000° F, Insulated Plug, Pedestal Design for Floor Mounting, Spark Resistant Construction, Special Materials, All Welded Housing, Variable Inlet Vanes, Integral Inlet Cone Assembly, Shallow Depth Inlet Cone, Special Impeller Width and Diameter

#### Certifications

ATEX Construction

**AEROVENT**   
INDUSTRIAL VENTILATION SYSTEMS



For complete product performance, drawings and available accessories, download our Fan Selector program at [aerovent.com](http://aerovent.com).

## Overview

### Model CPG

CPG plug fans from Aerovent are compact, versatile and offer the highest efficiency in the industry. Their versatility allows them to be used for air circulation in a variety of commercial and industrial applications including air curtains, air heaters, ceiling, wall, and floor panel plenums, degreasers, dryers, dust collectors, evaporators, freezers, kilns, ovens, packaged air handlers, parts washers, penthouses, smoke houses, space heaters, spray booths and other high temperature applications.

Plug fans are housed in the customer's enclosure in applications where the system plenum acts as the fan housing. This configuration saves space since connecting ductwork and motor support pedestals are generally not needed. More space savings can be obtained by utilizing the impeller compartment as a pressurized chamber in lieu of a fan scroll. The use of multiple discharges from the pressurized chamber allows for additional savings by reducing ducting requirements.

CPG plug fans feature SWSI backward curved, non-overloading, single thickness airfoil type impellers. The unique impeller offers increased efficiency over competitor's airfoil blade designs yet can handle airstreams not conducive to traditional hollow airfoil shapes.

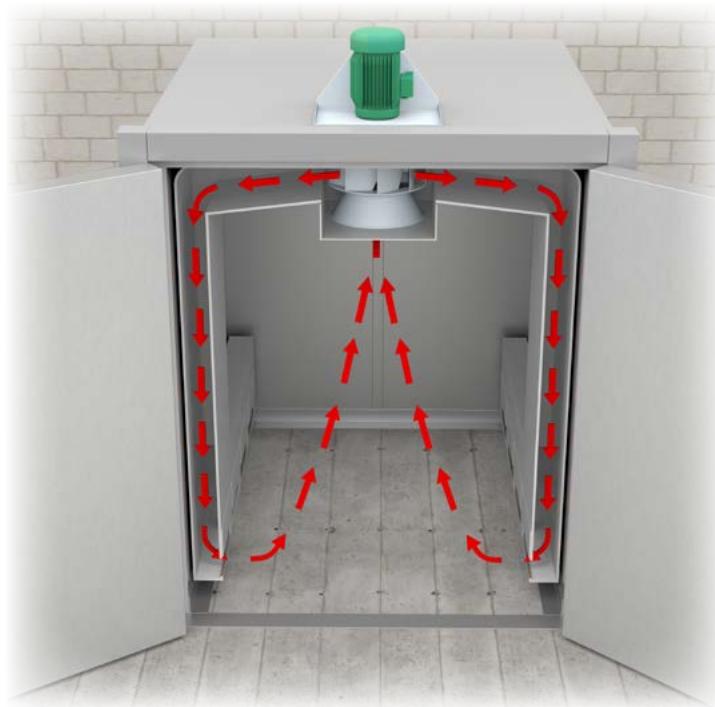
The plug fan's motor and drive are protected from high temperatures by the customer's chamber wall or the optional 4" or 6" insulated plug. The motor and drive are mounted to the plug panel which may be bolted or welded in place. The plug assembly may be mounted with the shaft in either the vertical or horizontal position for maximum flexibility. Horizontal construction is standard. Vertical mounting can be provided when specified. An all welded housing and an integral inlet cone are available as options.

#### Sizes and Performance

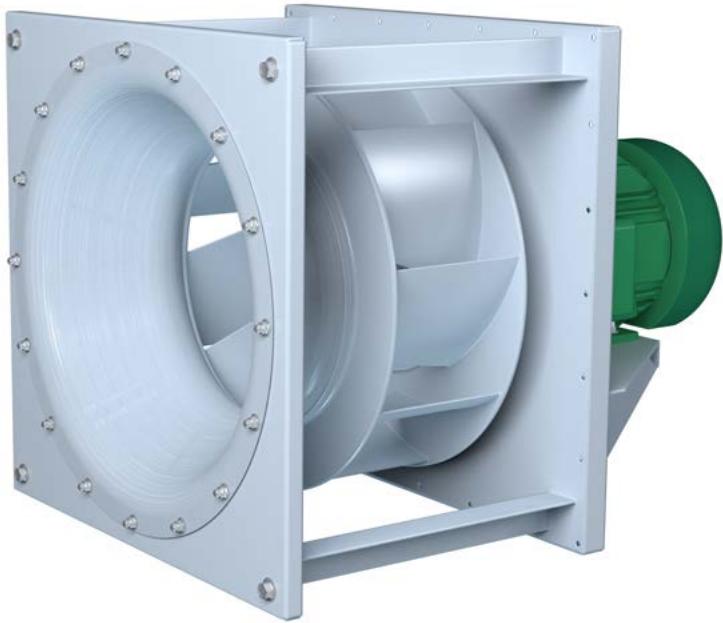
12" to 49" impeller diameters (305 mm to 1,245 mm)  
Airflow to 76,000 CFM (129,100 m<sup>3</sup>/hour)  
Static pressure to 12" w.g. (2,980 Pa)



Paint Booth Ventilation



Oven Airflow



Non-Insulated,  
Arrangement 4 CPG

## Plug Panel

Constructed of minimum 7-gauge steel with formed flanges to maintain flatness and rigidity. Panel is prepunched for bolt mounting. Panel assembly may also be welded in place. The "cross frame" bearing support is designed for maximum stability and load spreading. Bearings are serviceable without disassembly of panel or frame.

## Plug Assembly

Available for both horizontal and vertical applications. Horizontal construction is standard. Vertical construction will be provided when specified.

## Adjustable Motor Base

The motor base is standard with leveling and tension adjustment to ensure proper drive belt alignment. The motor base is heavy-gauge steel and prepunched to accept the standard motor frame specified.

## Impellers

Impellers are assembled of die-formed, matched components, welded to both back plate and rim. Impellers are statically and dynamically balanced.

## Inlet Cones

Heavy-gauge and spun to match the impeller intake rim to ensure smooth airflow. Inlet cone flange is prepunched for mounting. Inlet cones are shipped loose as standard. An integral inlet cone is optional.

## Shafts

Standard shaft diameters are sized for plug thicknesses to 6 inches and 1000°F operation.

## Bearings

Either ball or spherical roller, heavy duty, self-aligning, pillow block type bearings are provided. Bearing selection is based on L-10 minimum life of 40,000 hours or average life of 200,000 hours. Split roller bearings are not recommended.

## High Temperature Construction

- 301-500°F: Includes high temperature grease, expansion and non-expansion bearings, shaft seal and shaft cooler.
- 501-800°F: Includes the modifications above with the addition of high temperature aluminum paint. Minimum 4" insulation is required and is available as an optional item from Aerovent. Be sure to apply derating factors for high temperature construction. See Table 8 on page 11.
- 801-1000°F: Includes the modifications above with the addition of 316 stainless steel impeller and shaft. Also includes shaft extension for the required 6" insulation. 6" insulated plug is available as an optional item. Be sure to apply stainless steel derating factors for temperature. See Table 7 on page 11.

## Insulated Plug

Protects motor and drive components from heat. An insulated plug is recommended for temperatures above 300°F. Available in 2", 4" and 6" thicknesses. Special thicknesses to match customer's insulated wall are available. Plug is assembled to mounting panel when ordered. See Table 1 on page 10 for maximum RPMs.

## Spark Resistant Construction

Fan applications may involve the handling of potentially explosive or flammable particles, fumes or vapors. Such applications require careful consideration by the system designer to ensure the safe handling of such gases. Aerovent offers the following classifications of spark resistant construction per AMCA Standard 99-0401-86. It is the specifier or the user's responsibility to specify the type of spark resistant construction with full recognition of the potential hazards and the degree of protection required.

**Type C** - The fan shall be so constructed that a shift of the impeller or shaft will not permit two ferrous parts of the fan to rub or strike.

## All Welded Housing

Heavy-gauge steel housing is provided with impeller opening on each side and weld studs on the inlet side for cone mounting. Specify rotation and discharge as viewed from drive side to ensure proper stud placement. Housing supports and attachments for wall mounting to be provided by others. See page 19 for dimensions.



High Temperature,  
Arrangement 9 CPG

## Variable Inlet Vanes

Vane blades are cantilever design or center supported, equipped with permanently lubricated bearings and ball joints for smooth and easy operation. Vane assemblies are external type for sizes 121 through 161 and nested for sizes 181 through 491. Standard inlet vanes are applicable to 300°F. Consult factory for higher temperatures.

## Integral Inlet Cone Assembly

Includes four pieces of angle, welded to the insulated plug or mounting panel, which serve to pre-align the inlet funnel within the impeller. The entire unit can be installed or removed through the same hole in the customer's enclosure, without the need for additional mounting or alignment of the inlet cone.

## Shallow Depth Inlet Cone

The shallow inlet cone can shorten the overall length of the plug fan, providing extra space where needed. See dimensional data on page 19 for comparison between standard inlet cone and the shallow depth cone. Fan performance in smaller sizes must be derated for the modification. See Table 7 on page 11 for performance derates.

## Arrangement 1P

Belt drive arrangement where the fan is mounted to grade and the motor is mounted separate from the fan. Typically used on larger fans and/or larger HP motors where the customer's wall may not be sufficient by itself. Mounting to the foundation also makes it better for meeting lower vibration requirements. Mounting panel is optional on arrangement 1P.



## Arrangement 4

Direct drive arrangement where the impeller is mounted to the motor shaft. The design is more compact and requires less maintenance due to not having fan shaft, bearings or belts. High airstream temperatures may limit the use of this arrangement.



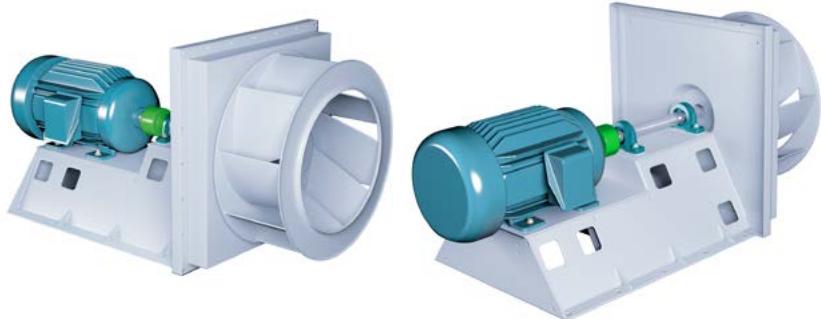
## Arrangement 4P

Same as the arrangement 4 fan except the fan is mounted to grade. Typically used where the customer's wall may not be sufficient by itself. Mounting to the foundation also makes it better for meeting lower vibration requirements. Mounting panel is optional.



## Arrangement 8P

Direct drive arrangement where the motor shaft is coupled to the fan shaft. The entire assembly is mounted to grade. Typically used on larger fans and/or larger HP motors where the customer's wall may not be sufficient by itself. Mounting to the foundation also makes it better for meeting lower vibration requirements. Mounting panel is optional.



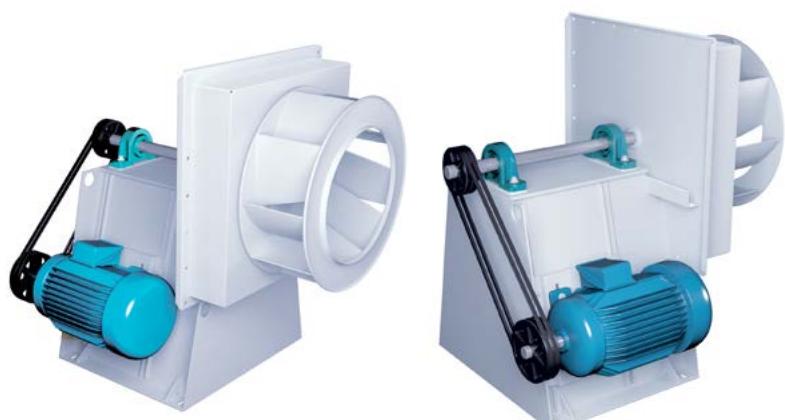
## Arrangement 9

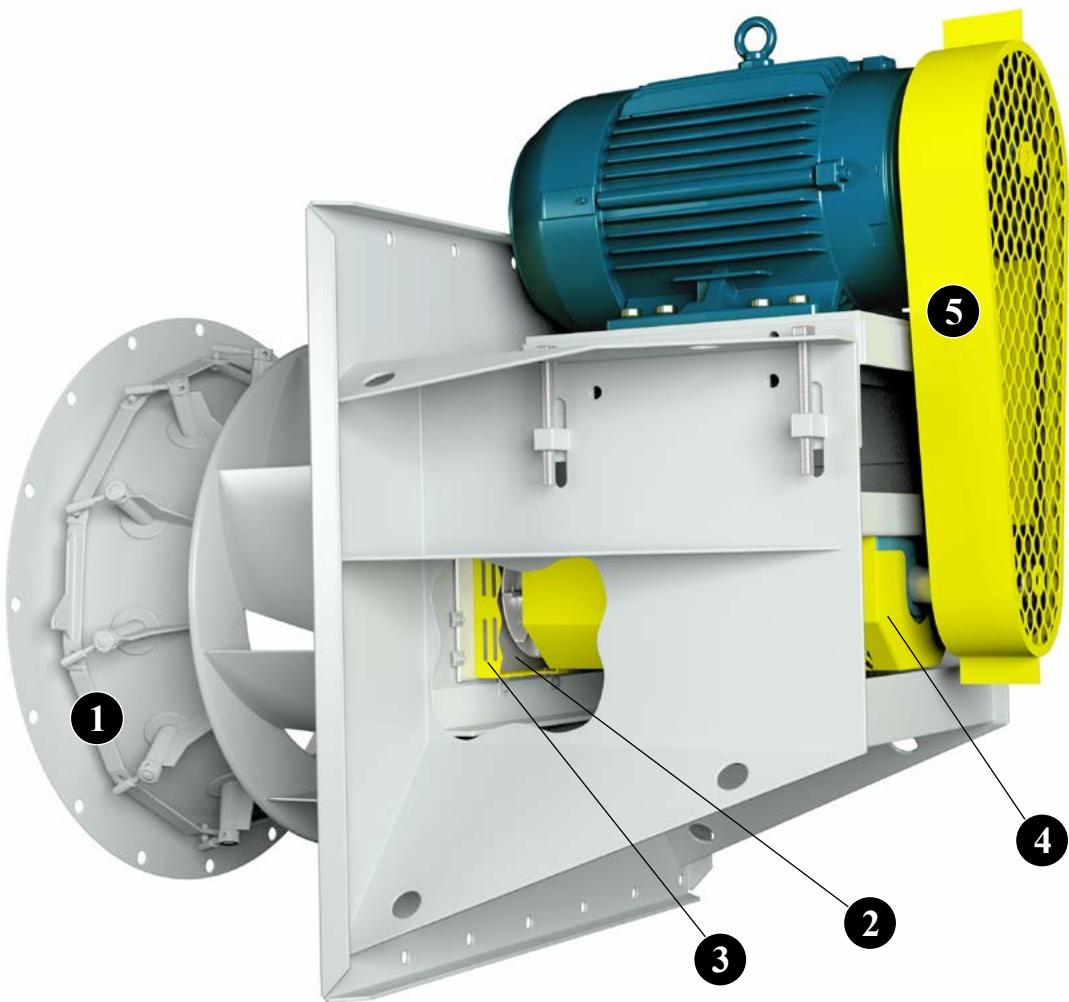
Arrangement 9 is the most common plug fan arrangement. It is fully supported by the customer's wall. Plug fans are housed in the customer's enclosure in applications where the system plenum acts as the fan housing. Unlike the plenum fan, motor, shaft and bearings are outside of the process airstream.



## Arrangement 9P

Same as the arrangement 9 fan except the fan is mounted to grade. Typically used on larger fans and/or larger HP motors where the customer's wall may not be sufficient by itself. Mounting to the foundation also makes it better for meeting lower vibration requirements. Mounting panel is optional.





**1 Inlet Vanes** For reduced flow situations with relatively clean air, inlet vane type dampers are available to maintain fan efficiency. The inlet vanes are external type attached to the inlet of the fan. Standard construction inlet vanes are suitable in applications up to 300°F. High temperature inlet vanes are also available for temperatures up to 600°F.

**2 Shaft Coolers** Cast aluminum shaft cooler dissipates the heat transferred to the shaft from the airstream protecting the fan bearings. Recommended for applications over 300°F.

**3 Shaft Seals** reduce leakage and protect the bearings from a contaminated airstream. Standard seals are constructed of Tetraglas compressed between an aluminum cover plate and the fan housing. The standard shaft seal is not gas tight. Special seals are available for low leakage applications requiring more protection.

**4 Shaft and Bearing Guards** Sheet metal guards cover shaft and bearings and come with extended lube lines to a common point outside of the guard. A guard spanning the shaft between the bearings is available to provide open access to bearings for lubrication and vibration monitoring.

**5 Belt Guards** Belt guard protects personnel from the moving drive parts. OSHA and quick access guards are available.

## Other Accessories Include:

- Piezometer Ring
- Inlet Screens
- Special Impeller Widths

Mounting is accomplished by providing a hole larger than the impeller diameter through the chamber wall. The impeller, shaft, motor and drive assembly is then positioned to the inlet cone (mounted in opposite wall) and secured in place. See Figure A.

Another method is to provide a hole sized only for the impeller drive shaft. The impeller is then positioned through the opening for the inlet cone after the drive and panel assembly has been securely mounted. See Figure B.

Plug fans may be applied with open impeller (unhoused) or with a housing as shown in Figure C. Performance data in this catalog is for unhoused impeller application.

Walls must be designed by the users to support the dynamic loads of the fan without resonance to eliminate vibration and bearing failure.

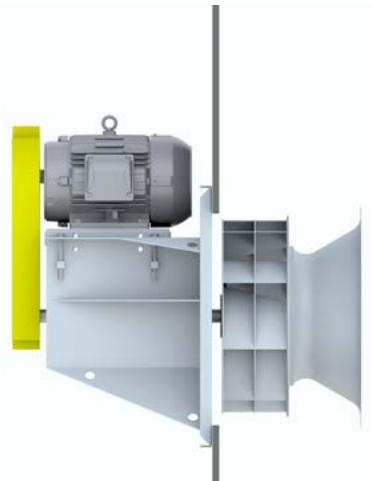


Figure A

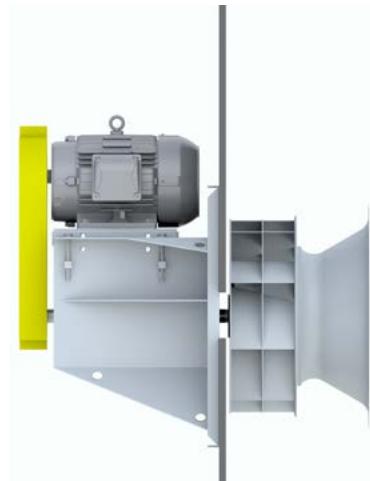


Figure B



Figure C  
(shown with optional housing)

## Mounting Arrangements



Horizontal



Vertical Down



Vertical Up

To ensure proper motor selection, consideration must be given to starting torque requirements (fan impeller inertia  $WR^2$ ) along with the operating BHP. Table 1 lists the  $WR^2$  factors for different impeller sizes to be used in evaluating

the capability of a selected motor. In some cases it may be necessary to provide a larger horsepower motor, even though it may not be dictated by the operating BHP, to bring the fan to speed.

*Table 1. Maximum Fan RPMs, Impeller Weights and  $WR^2$*

FAN SIZE	CLASS II				CLASS III				IMPELLER WT. (LBS)	$WR^2$ (LBS-FT <sup>2</sup> )		
	MAXIMUM RPM			IMPELLER WT. (LBS)	$WR^2$ (LBS-FT <sup>2</sup> )	MAXIMUM RPM						
	NO PLUG	4" PLUG	6" PLUG			NO PLUG	4" PLUG	6" PLUG				
121	3778	3000	3000	21	3	-	-	-	-	-		
141	3352	3000	2875	24	4	-	-	-	-	-		
161	2975	2975	2425	32	7	-	-	-	-	-		
181	2644	2644	2275	52	13	3557	3000	3000	62	14		
201	2380	2380	2200	58	18	3202	3000	2900	70	20		
221	2125	2125	1850	75	31	2859	2859	2650	84	33		
251	1889	1889	1700	96	50	2541	2541	2303	111	51		
281	1676	1676	1676	140	94	2255	2255	1936	156	104		
321	1487	1487	1487	173	152	2001	2001	1729	195	167		
351	1322	1322	1322	211	241	1779	1779	1483	236	266		
391	1190	1190	1190	254	376	1601	1601	1578	283	413		
441	1062	1062	1062	361	613	1429	1429	1429	482	880		
491	952	952	952	465	1025	1281	1281	1281	613	1450		

*Table 2. Bare Fan and Accessory Weights*

FAN SIZE	APPROXIMATE WEIGHTS (LBS.)				
	BARE FAN		INSULATED PLUG	HOUSING	INLET VANES
	CLASS II	CLASS III			
121	140	-	25	24	45
141	145	-	25	30	52
161	185	-	32	44	58
181	208	444	32	65	29
201	221	470	32	79	33
221	235	513	35	97	38
251	240	594	35	117	40
281	323	756	40	143	45
321	388	990	55	287	50
351	430	1118	55	350	50
391	575	1467	75	428	55
441	639	1745	75	522	60
491	950	1900	95	634	65

*Table 4. High Temperature Applications*

TEMP. RANGE	BEARING TYPE	LUBRICATION	OTHER REQUIREMENTS
TO 300°F	BALL OR ROLLER	GREASE	STANDARD CONSTRUCTION
301 TO 500°F	EXPANSION AND NON-EXPANSION	HIGH TEMPERATURE GREASE	CERAMIC SHAFT SEAL, SHAFT COOLER
501 TO 800°F	EXPANSION AND NON-EXPANSION	HIGH TEMPERATURE GREASE	HIGH TEMPERATURE ALUMINUM PAINT 4" MINIMUM INSULATION REQUIRED BY TCF OR CUSTOMER CERAMIC SHAFT SEAL, SHAFT COOLER
801 TO 1000°F	EXPANSION AND NON-EXPANSION	HIGH TEMPERATURE GREASE	316 STAINLESS STEEL IMPELLER AND SHAFT 6" MINIMUM INSULATION REQUIRED BY TCF OR CUSTOMER HIGH TEMPERATURE ALUMINUM PAINT CERAMIC SHAFT SEAL, SHAFT COOLER

*Table 3. Shallow Inlet Cone Derates*

FAN SIZE	INCREASE DESIGN SPEED BY	INCREASE DESIGN BHP BY
121 - 141	Not Available	Not Available
161 - 201	2%	4%
221 - 491	0%	0%

NOTE: Maximum RPMs in Table 1 cannot be exceeded.

Figure 1. Impeller and Plenum Arrangement

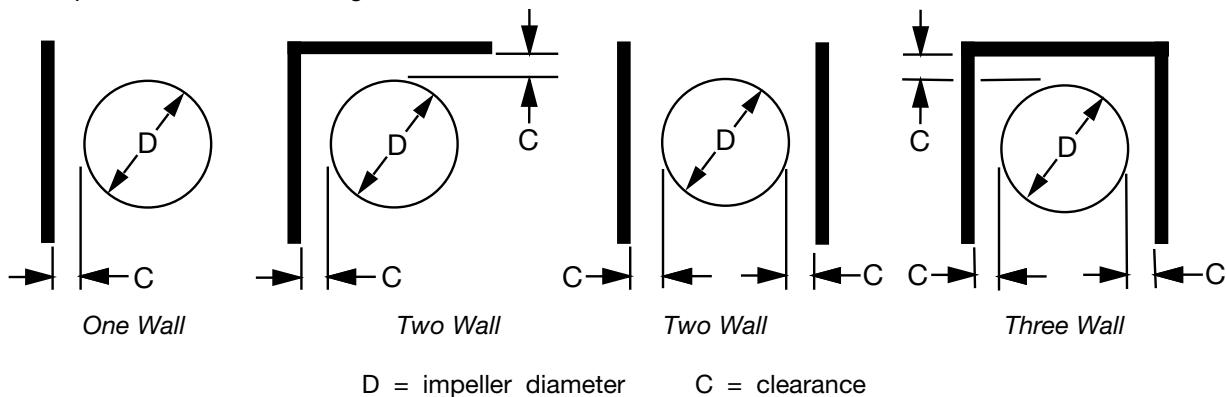


Table 5. Wall Proximity Factors

% WOV	FACTOR	C = D/8			C = D/4			C = D/2		
		ONE WALL	TWO WALL	THREE WALL	ONE WALL	TWO WALL	THREE WALL	ONE WALL	TWO WALL	THREE WALL
95	RPM	1.02	1.03	1.09	1.01	1.02	1.06	1.01	1.01	1.03
	BHP	1.06	1.08	1.29	1.04	1.06	1.20	1.02	1.02	1.08
85	RPM	1.02	1.02	1.08	1.01	1.02	1.06	1.01	1.01	1.03
	BHP	1.05	1.07	1.26	1.03	1.05	1.18	1.02	1.02	1.08
75	RPM	1.01	1.02	1.07	1.01	1.02	1.05	1.00	1.01	1.02
	BHP	1.04	1.06	1.23	1.03	1.05	1.16	1.01	1.02	1.07
65	RPM	1.01	1.02	1.06	1.01	1.01	1.04	1.00	1.01	1.02
	BHP	1.04	1.06	1.19	1.03	1.04	1.14	1.01	1.02	1.06
55	RPM	1.01	1.02	1.05	1.01	1.01	1.04	1.00	1.01	1.02
	BHP	1.03	1.05	1.16	1.02	1.03	1.12	1.01	1.02	1.05
45	RPM	1.01	1.01	1.04	1.01	1.01	1.03	1.00	1.00	1.01
	BHP	1.02	1.04	1.13	1.02	1.03	1.09	1.01	1.01	1.04

Table 6. WOV Factors

FAN SIZE	WOV FACTOR	D
121	1.08	12.40
141	1.55	13.98
161	2.22	15.75
181	3.42	17.72
201	4.68	19.68
221	6.58	22.05
251	9.37	24.80
281	14.31	27.95
321	20.47	31.50
351	31.51	35.43
391	43.24	39.37
441	60.73	44.09
491	84.44	49.21

Table 7. Temperature and Altitude Correction Factors

AIR TEMP °F	ALTITUDE IN FEET ABOVE SEA LEVEL											
	BAROMETRIC PRESSURE IN INCHES OF MERCURY											
	29.92	28.86	27.82	26.82	25.84	24.90	23.98	23.09	22.22	21.39	20.58	16.89
70	1.000	0.964	0.930	0.896	0.864	0.832	0.801	0.772	0.743	0.714	0.688	0.564
100	0.946	0.912	0.880	0.848	0.818	0.787	0.758	0.730	0.703	0.676	0.651	0.534
150	0.869	0.838	0.808	0.770	0.751	0.723	0.696	0.671	0.646	0.620	0.598	0.490
200	0.803	0.774	0.747	0.720	0.694	0.668	0.643	0.620	0.596	0.573	0.552	0.453
250	0.747	0.720	0.694	0.669	0.645	0.622	0.598	0.576	0.555	0.533	0.514	0.421
300	0.697	0.672	0.648	0.624	0.604	0.580	0.558	0.538	0.518	0.498	0.480	0.393
400	0.616	0.594	0.573	0.552	0.532	0.513	0.493	0.476	0.458	0.440	0.424	0.347
500	0.552	0.532	0.513	0.495	0.477	0.459	0.442	0.426	0.410	0.394	0.380	0.311
600	0.500	0.482	0.469	0.448	0.432	0.416	0.400	0.386	0.372	0.352	0.344	0.282
700	0.457	0.441	0.425	0.410	0.395	0.380	0.366	0.353	0.340	0.326	0.315	0.258
800	0.420	0.404	0.389	0.375	0.362	0.350	0.336	0.323	0.311	0.300	0.290	0.237
900	0.389	0.376	0.363	0.349	0.336	0.324	0.312	0.300	0.289	0.279	0.268	0.220
1000	0.363	0.350	0.338	0.325	0.314	0.302	0.291	0.280	0.270	0.259	0.250	0.205

Table 8. Derating Factors For High Temperature

TEMP. (°F)	STEEL		STAINLESS STEEL		
	CLASS II		CLASS III	CLASS II	CLASS III
	121-281	321-491			
70	1.00	1.00	1.00	1.00	1.00
200	0.99	0.97	0.97	1.00	0.98
250	0.98	0.96	0.96	1.00	0.96
300	0.97	0.95	0.95	1.00	0.94
400	0.96	0.93	0.93	1.00	0.91
500	0.93	0.90	0.90	0.97	0.87
600	0.90	0.87	0.87	0.94	0.84
700	0.88	0.84	0.84	0.90	0.80
800	0.83	0.81	0.81	0.87	0.78
1000	N/A	N/A	N/A	0.81	0.75

When operating fans at elevated temperatures, the maximum RPMs of the fan from Table 1 on page 10 must be corrected to the safe operating RPM limit for the application using the factors listed in the Table 8.

# Plug Fan Selection

The performance tables in this catalog are based on fans handling standard air at a density of 0.075 pounds per cubic foot. This is equivalent to air at 70°F at sea level (29.92 Hg barometric pressure). When specified performance is at a density different than standard, it must be converted to the equivalent standard conditions before the fan can be selected from the performance tables. The performance data and examples in this catalog are for unhooded CPG plug fans.

## Example 1. Standard Density

**Given:** 17000 CFM at 3" TSP (system). Installation is a two-wall arrangement with a impeller-to-wall clearance of 7".

**Step 1.** Entering the performance tables we find that a 281 CPG plug fan will deliver 17000 CFM at 3" SP operating at 1478 RPM with 11.33 BHP.

**Step 2.** Catalog performance must be corrected for impeller-to-wall arrangement. Determine the impeller and plenum type from the arrangements shown in Figure 1 on 11. Determine the clearance "C" based upon the closest wall. Performance will not be affected by any additional walls spaced greater than C x 3 from the impeller.

The selected 281 CPG fan has a impeller diameter of 27.95" ("D"). Application is two walls with 7" clearance ("C"). Therefore,  $C \div D = 7 \div 27.95 = 0.25$  or  $\frac{1}{4}$ " which is equivalent to  $D \div 4$ .

**Step 3.** Next, determine the Percent of Wide Open Volume (% WOV) at which the fan is to operate. From Table 6 on page 11 find that the WOV factor is 15.19 for a 281 CPG fan.

$$\% \text{ WOV} = \frac{17000 \times 100}{1478 \times 15.19} = 75.7$$

**Step 4.** By interpolation from Table 5 on page 11, for the two wall column of  $D \div 4$  at 75.7% WOV, we find the RPM factor of 1.02 and the BHP factor of 1.05.

Corrected unhooded performance for 17000 CFM at 3" SP standard air is:

$$\begin{aligned} \text{RPM} &= 1478 \times 1.02 = 1508 \\ \text{BHP} &= 11.33 \times 1.05 = 11.90 \end{aligned}$$

## Example 2. Nonstandard Density

**Given:** 17000 CFM at 3" TSP (system), 300°F, 4000 ft. altitude. Installation is a two-wall arrangement with a impeller-to-wall clearance of 7".

**Step 1.** To enter the performance tables the operating SP must be corrected to equivalent standard conditions. From Table 7 on page 11 find the correction factor of 0.604 for 300°F and 4000 feet altitude. The corrected equivalent static pressure is equal to:

$$\text{SP (Catalog)} = \frac{3" \text{ TSP (system)}}{0.604} = 5.0$$

Fan selection is then made for 17000 CFM at 5" SP. Entering the performance tables, we find that a 281 BFPL fan will deliver 17000 CFM at 1638 RPM with 17.29 BHP. It must be remembered that this BHP is catalogued at standard 70°F air at sea level.

**Steps 2, 3 and 4.** Continue the correction procedure with Steps 2, 3 and 4 as shown in Example 1. Wall arrangement =  $D \div 4$ , % WOV = 60.0, RPM = 1654 and BHP = 17.90.

## Performance Comparison

Model CPG Plug Fans are designed to maximize efficiency. This is illustrated by the following chart, which compares the CPG Plug Fan and other manufacturers' airfoil (AF) and backward inclined (BI) fans.

CFM	SP	MANUFACTURER	RPM	BHP	SE%
23000	3.5"	Aerovent CPG	1057	16.39	77.3
		Manufacturer "A" AF	1107	16.60	76.3
		Manufacturer "A" BI	1005	17.50	72.4
		Manufacturer "B" AF	971	17.94	70.6
33000	5"	Aerovent CPG	1409	35.28	73.6
		Manufacturer "A" AF	1475	36.50	71.1
		Manufacturer "A" BI	1324	38.30	67.8
		Manufacturer "B" AF	1295	40.81	63.6

Nominal 36" Impeller Diameter

CFM	SP	MANUFACTURER	RPM	BHP	SE%
30000	2.5"	Aerovent CPG	717	15.28	77.2
		Manufacturer "A" AF	783	15.60	75.6
		Manufacturer "A" BI	713	16.50	71.5
		Manufacturer "B" AF	725	17.46	67.6
47000	4"	Aerovent CPG	1032	40.64	72.8
		Manufacturer "A" AF	1132	43.30	68.3
		Manufacturer "A" BI	1015	45.20	65.4
		Manufacturer "B" AF	1054	50.00	59.2

Nominal 44" Impeller Diameter

## CPG | Size 121

Impeller Dia.: 12.40"

Max. BHP = 0.07 x (RPM ÷ 1000)<sup>3</sup>

CFM	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP		5" SP		5.5" SP		6" SP		
	RPM	BHP	RPM	BHP																					
700	1155	0.09	1522	0.21																					
800	1201	0.10	1563	0.23	1842	0.36																			
900	1261	0.11	1602	0.24	1881	0.39	2119	0.55																	
1000	1327	0.13	1637	0.26	1923	0.42	2156	0.59	2367	0.77															
1200	1473	0.17	1738	0.30	1996	0.47	2239	0.66	2444	0.86	2631	1.07	2807	1.29	2972	1.51									
1400	1627	0.22	1868	0.35	2087	0.52	2309	0.72	2525	0.95	2713	1.18	2884	1.42	3044	1.66	3196	1.91	3343	2.16	3482	2.42			
1600	1784	0.29	2010	0.43	2211	0.60	2401	0.79	2595	1.02	2789	1.28	2966	1.54	3126	1.81	3275	2.08	3417	2.35	3553	2.63	3685	2.92	
1800	1945	0.38	2161	0.53	2346	0.70	2522	0.89	2691	1.11	2862	1.36	3037	1.64	3205	1.94	3358	2.24	3500	2.54	3634	2.84	3762	3.14	
2000	2109	0.48	2316	0.64	2492	0.82	2655	1.02	2812	1.24	2964	1.48	3116	1.75	3273	2.05	3430	2.37	3578	2.70			3716	3.03	
2200	2276	0.60	2473	0.78	2643	0.97	2796	1.17	2944	1.39	3086	1.64	3224	1.90	3362	2.19	3503	2.50	3647	2.84					
2400	2444	0.74	2633	0.93	2798	1.14	2945	1.35	3083	1.57	3218	1.82	3348	2.08	3476	2.37	3602	2.68	3729	3.00					
2600	2615	0.91	2795	1.12	2954	1.33	3098	1.55	3230	1.78	3356	2.03	3481	2.30	3602	2.59	3720	2.89							
2800	2787	1.09	2959	1.32	3113	1.55	3253	1.78	3382	2.03	3502	2.28	3619	2.55	3735	2.84									
3000	2960	1.31	3125	1.55	3273	1.79	3410	2.04	3536	2.30	3653	2.56	3765	2.84											
3200	3134	1.55	3293	1.81	3436	2.07	3568	2.33	3692	2.60															
3400	3310	1.83	3462	2.11	3600	2.38	3728	2.65																	
3600	3486	2.13	3632	2.43	3766	2.72																			
3800	3663	2.47																							
4000																									

Maximum RPM @ 70°F:

Class II — 3778

Must derate for temperature and plug wall thickness.

## CPG | Size 141

Impeller Dia.: 13.98"

Max. BHP = 0.12 x (RPM ÷ 1000)<sup>3</sup>

CFM	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP		5" SP		5.5" SP		6" SP		
	RPM	BHP	RPM	BHP																					
900	1027	0.12	1353	0.27																					
1000	1058	0.12	1381	0.28	1630	0.46																			
1200	1144	0.15	1434	0.32	1685	0.52	1894	0.72	2083	0.94															
1400	1241	0.19	1492	0.35	1740	0.57	1950	0.80	2132	1.04	2302	1.29													
1600	1346	0.23	1574	0.40	1790	0.61	2005	0.87	2190	1.13	2355	1.40	2508	1.68	2654	1.97									
1800	1454	0.29	1666	0.46	1860	0.67	2054	0.92	2245	1.22	2413	1.51	2564	1.81	2705	2.12	2840	2.44	2970	2.77	3094	3.10			
2000	1564	0.36	1765	0.53	1946	0.75	2117	0.99	2293	1.28	2466	1.61	2622	1.94	2763	2.27	2895	2.61	3021	2.95	3143	3.31	3260	3.67	
2200	1675	0.44	1870	0.63	2039	0.84	2198	1.09	2354	1.37	2514	1.69	2673	2.05	2820	2.41	2953	2.77	3079	3.14	3198	3.52	3312	3.89	
2400	1789	0.53	1977	0.73	2137	0.95	2288	1.20	2432	1.48	2575	1.79	2722	2.14	2869	2.53	3008	2.93	3136	3.32	3256	3.72			
2600	1904	0.64	2086	0.85	2240	1.08	2383	1.33	2520	1.62	2652	1.93	2784	2.27	2919	2.64	3056	3.05	3188	3.48	3312	3.91			
2800	2021	0.76	2196	0.99	2347	1.23	2482	1.49	2613	1.77	2739	2.08	2861	2.42	2983	2.78	3108	3.18	3235	3.61					
3000	2138	0.90	2307	1.15	2455	1.40	2586	1.66	2709	1.95	2831	2.26	2947	2.60	3062	2.97	3175	3.35	3291	3.77					
3200	2257	1.06	2420	1.32	2563	1.58	2692	1.86	2811	2.15	2926	2.47	3039	2.81	3148	3.17	3255	3.56							
3400	2376	1.24	2534	1.51	2673	1.79	2808	2.00	2915	2.38	3025	2.70	3133	3.04	3239	3.40	3341	3.79							
3600	2617	1.65	2764	1.96	2896	2.26	3017	2.58	3129	2.90	3233	3.24	3333	3.59											
4000	2861	2.15	2999	2.49	3123	2.83	3239	3.17	3347	3.52															
4600	3107	2.75	3236	3.13																					
5000																									
5400																									
5800	2741	3.42	2856	3.90	2962	4.38																			
6200	2914	4.11																							
6600																									

Maximum RPM @ 70°F:

Class II — 3352

Must derate for temperature and plug wall thickness.

## CPG | Size 161

Impeller Dia.: 15.75"

Max. BHP = 0.23 x (RPM ÷ 1000)<sup>3</sup>

CFM	0.5" SP		1" SP		1.5" SP		2" SP		2.5" SP		3" SP		3.5" SP		4" SP		4.5" SP		5" SP		5.5" SP		6" SP		
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	
1200	923	0.15	1212	0.35	1435	0.56																			
1400	977	0.17	1252	0.38	1471	0.62																			
1600	1041	0.20	1286	0.41	1511	0.67	1695	0.95	1861	1.23															

# Performance Data

## CPG | Size 181

Impeller Dia.: 17.72"

Max. BHP = 0.41 x (RPM ÷ 1000)<sup>3</sup>

CFM	1" SP		2" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2000	1045	0.46																						
2500	1121	0.57																						
3000	1219	0.70	1498	1.36																				
3500	1327	0.84	1578	1.58	1814	2.42																		
4000	1441	1.03	1674	1.84	1883	2.70	2091	3.70																
4500	1561	1.26	1778	2.11	1973	3.07	2155	4.05	2340	5.19														
5000	1684	1.54	1888	2.42	2071	3.46	2241	4.52	2405	5.63	2572	6.89	2738	8.26										
5500	1811	1.86	2002	2.78	2175	3.87	2337	5.04	2489	6.20	2638	7.43	2789	8.79	2941	10.27								
6000	1941	2.22	2120	3.21	2284	4.32	2437	5.57	2583	6.84	2722	8.11	2859	9.45	2997	10.91	3136	12.48	3275	14.15				
6500	2074	2.62	2240	3.71	2398	4.84	2543	6.13	2682	7.51	2816	8.88	2944	10.26	3070	11.70	3197	13.24	3325	14.89	3454	16.65		
7000	2209	3.08	2364	4.27	2514	5.43	2654	6.75	2786	8.19	2914	9.68	3037	11.15	3156	12.63	3273	14.16	3391	15.79	3509	17.51		
7500	2345	3.59	2490	4.89	2632	6.12	2767	7.43	2894	8.91	3017	10.49	3135	12.08	3250	13.66	3362	15.25	3471	16.87				
8000	2482	4.17	2619	5.56	2753	6.88	2883	8.22	3006	9.71	3123	11.33	3237	13.02	3348	14.72	3456	16.41						
8500	2620	4.80	2749	6.29	2877	7.72	3001	9.11	3120	10.60	3234	12.26	3343	14.00	3450	15.80	3554	17.60						
9000	2759	5.51	2882	7.09	3002	8.62	3121	10.09	3236	11.60	3347	13.26	3453	15.05	3555	16.90								
9500	2899	6.29	3016	7.96	3130	9.60	3243	11.16	3354	12.72	3462	14.38												
10000	3040	7.15	3151	8.91	3260	10.65	3368	12.32	3474	13.94														
10500	3181	8.09	3287	9.93	3391	11.76	3494	13.55																
11000	3322	9.11	3423	11.04	3523	12.96																		

Maximum RPM @ 70°F:

Class II — 2644

Class III — 3557

Must derate for temperature and plug wall thickness.

## CPG | Size 201

Impeller Dia.: 19.68"

Max. BHP = 0.68 x (RPM ÷ 1000)<sup>3</sup>

CFM	1" SP		2" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP																
2500	944	0.58																						
3000	998	0.68																						
3500	1068	0.81	1332	1.62																				
4000	1144	0.94	1381	1.80	1612	2.85																		
4500	1225	1.10	1446	2.04	1649	3.07																		
5000	1309	1.29	1517	2.31	1704	3.38	1888	4.60																
5500	1396	1.53	1593	2.58	1769	3.74	1935	4.96	2103	6.36														
6000	1486	1.80	1672	2.87	1840	4.14	1996	5.41	2148	6.78	2302	8.34												
6500	1578	2.11	1755	3.21	1914	4.54	2064	5.92	2205	7.31	2346	8.84	2488	10.53	2630	12.35								
7000	1671	2.44	1839	3.60	1992	4.96	2135	6.44	2270	7.92	2401	9.45	2531	11.10	2664	12.93	2796	14.87						
7500	1767	2.81	1926	4.06	2073	5.43	2210	6.99	2340	8.57	2464	10.15	2586	11.81	2708	13.59	2832	15.54	2955	17.58				
8000	1864	3.22	2014	4.56	2156	5.95	2287	7.54	2413	9.24	2533	10.93	2649	12.62	2762	14.39	2877	16.30	2992	18.33	3108	20.49		
8500	1962	3.67	2104	5.11	2240	6.53	2368	8.15	2488	9.92	2604	11.72	2716	13.51	2824	15.32	2931	17.20	3039	19.21	3148	21.35		
9000	2061	4.16	2195	5.71	2326	7.19	2450	8.82	2566	10.62	2678	12.52	2787	14.44	2892	16.34	2994	18.26	3095	20.25	3196	22.34		
10000	2261	5.30	2383	7.05	2503	8.71	2619	10.37	2729	12.21	2833	14.21	2935	16.32	3034	18.44	3131	20.56						
11000	2464	6.65	2575	8.57	2685	10.46	2792	12.24	2897	14.11	2997	16.15	3092	18.33	3185	20.61								
12000	2668	8.23	2771	10.34	2872	12.43	2971	14.41	3070	16.38	3165	18.42												
13000	2874	10.07	2969	12.35	3063	14.63	3155	16.84																
14000	3081	12.18	3169	14.64																				

Maximum RPM @ 70°F:

Class II — 2380

Class III — 3202

Must derate for temperature and plug wall thickness.

## CPG | Size 221

Impeller Dia.: 22.05"

Max. BHP = 1.21 x (RPM ÷ 1000)<sup>3</sup>

CFM	1" SP		2" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP								
3000	835	0.70																						
3500	867	0.79																						
4000	913	0.91																						
4500	964	1.04	1195	2.06																				
5000	1018	1.18	1231	2.25	1438	3.56																		
5500	1076	1.33	1276	2.49	1463	3.78																		
6000	1135	1.51	1326	2.75	1497	4.05	1670	5.61																
7000	1258	1.97	1432	3.29	1588	4.77	1735	6.30	1883	8.06	</													

# Performance Data

**CPG | Size 251**

**Impeller Dia.: 24.80"**

$$\text{Max. BHP} = 2.17 \times (\text{RPM} \div 1000)^3$$

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**Maximum RPM @ 70°F:**

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Class II — 1889

Class III — 2541

**Must derate for temperature and plug wall thickness.**

**CPG | Size 281**

**Impeller Dia : 27.95"**

$$\text{Max BHP} = 4.26 \times (\text{BPM} \div 1000)^3$$

Maximum BPM @ 70° E

Class II — 1676

Class III — 2255

Must derate for temperature and plug wall thickness

CPG | Size 321

**Impeller Dia.: 31.50"**

$$\text{Max. BHB} = 7.75 \times (\text{RRM} : 1000)^3$$

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Maximum BPM @ 70°F

Class II = 1487

Class III = 2001

**Must derate for temperature and plug wall thickness.**

Underlined figures indicate maximum static efficiency.

Power rating (BHP) does not include transmission losses

# Performance Data

**CPG | Size 351**

**Impeller Dia.: 35.43"**

$$\text{Max. BHP} = 14.21 \times (\text{RPM} \div 1000)^3$$

### **Maximum RPM @ 70°F:**

Class II — 1322

Class III —1779

Must derate for temperature and plug wall thickness.

**CPG | Size 391**

**Impeller Dia : 39.37"**

$$\text{Max BHP} = 24.08 \times (\text{BPM} \div 1000)^3$$

CFM	1" SP		2" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP																
12000	465	2.41																						
14000	490	2.81																						
16000	523	3.30	648	6.54																				
18000	562	3.82	670	7.20	780	11.41																		
20000	604	4.44	696	8.05	797	12.16																		
22000	646	5.12	728	9.00	819	13.15	910	18.13																
24000	687	5.89	766	10.04	846	14.48	930	19.28	1013	25.02														
26000	727	6.75	807	11.17	876	15.86	954	20.79	1031	26.31	1107	32.65												
28000	767	7.72	849	12.40	911	17.33	980	22.48	1053	27.95	1124	34.12	1195	41.07										
30000	806	8.75	891	13.73	950	18.91	1011	24.38	1078	29.99	1146	36.04	1212	42.79	1278	50.23								
32000	846	9.90	933	15.19	991	20.62	1046	26.37	1106	32.23	1170	38.35	1233	44.91	1295	52.20	1357	60.14						
34000	887	11.16	973	16.72	1033	22.46	1084	28.41	1138	34.64	1197	41.00	1257	47.55	1316	54.61	1374	62.35	1433	70.83	1490	79.48		
36000	928	12.52	1013	18.41	1075	24.41	1125	30.67	1173	37.07	1227	43.80	1282	50.42	1339	57.48	1395	65.06	1450	73.26	1505	82.04	1560	91.30
38000	970	14.00	1053	20.26	1118	26.59	1167	33.06	1212	39.72	1260	46.69	1311	53.65	1364	60.76	1418	68.26	1471	76.28	1523	84.86	1575	94.01
40000	1012	15.59	1092	22.19	1159	28.81	1209	35.57	1252	42.43	1296	49.65	1343	57.03	1392	64.36	1443	71.95	1494	79.83	1544	88.19	1594	97.25
42000	1055	17.35	1132	24.32	1199	31.16	1251	38.23	1294	45.41	1335	52.80	1377	60.37	1423	68.16	1471	76.03	1519	83.93	1568	92.29		
44000	1098	19.23	1172	26.57	1239	33.71	1293	41.06	1336	48.50	1376	56.18	1415	63.99	1457	72.12	1501	80.22	1546	88.31	1593	96.80		
46000	1141	21.25	1212	28.94	1279	36.46	1334	44.02	1378	51.75	1417	59.64	1455	67.79	1493	76.06	1534	84.60	1576	93.01				
48000	1184	23.41	1253	31.49	1318	39.29	1375	47.21	1421	55.29	1459	63.34	1496	71.75	1532	80.28	1569	88.99						

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**Maximum RPM @ 70°F:**

Class II = 1190

Class III = 1601

**Must derate for temperature and plug wall thickness.**

**CPG | Size 441**

**Impeller Dia : 44.09"**

$$\text{Max BHP} = 42.41 \times (\text{RRM} : 1000)^3$$

**Maximum RPM @ 70°F:**

Class II — 1062

Class III — 1429

**Must derate for temperature and plug wall thickness.**

Underlined figures indicate maximum static efficiency.

Power rating (BHP) does not include transmission losses.

## CPG | Size 491

Impeller Dia.: 49.21"

Max. BHP =  $73.45 \times (\text{RPM} \div 1000)^3$

CFM	1" SP		2" SP		3" SP		4" SP		5" SP		6" SP		7" SP		8" SP		9" SP		10" SP		11" SP		12" SP	
	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP										
16000	359	3.39																						
18000	368	3.65																						
20000	379	3.98																						
22000	393	4.42																						
24000	409	4.89	514	9.97																				
26000	428	5.40	523	10.47																				
28000	449	5.96	535	11.19	624	17.82																		
32000	492	7.21	563	12.95	642	19.36	719	27.24																
36000	534	8.61	598	14.90	666	21.58	736	29.21	805	38.26														
40000	576	10.30	639	17.08	696	24.36	759	31.94	822	40.71	883	50.53												
44000	616	12.17	682	19.54	731	27.24	786	35.37	844	43.91	901	53.60	957	64.36										
48000	657	14.34	725	22.25	772	30.51	819	39.26	870	48.06	923	57.43	975	67.88	1027	79.54	1078	91.82						
52000	698	16.73	767	25.23	815	34.11	856	43.20	901	52.76	949	62.41	998	72.60	1046	83.76	1094	96.10	1142	109.33				
56000	740	19.39	808	28.55	858	37.97	897	47.56	936	57.59	979	67.94	1024	78.41	1070	89.48	1115	101.38	1159	114.17				
60000	783	22.37	849	32.27	901	42.20	940	52.36	976	62.89	1013	73.72	1054	84.92	1096	96.14	1138	107.66	1180	120.07				
64000	826	25.64	889	36.24	943	46.79	983	57.47	1018	68.55	1052	79.98	1087	91.53	1126	103.58	1165	115.43						
68000	870	29.31	930	40.65	984	51.75	1026	62.99	1061	74.64	1093	86.50	1125	98.69	1159	111.19	1195	123.77						
72000	914	33.31	971	45.37	1025	57.21	1069	69.04	1104	81.09	1135	93.40	1165	106.05	1196	119.18								
76000	959	37.79	1013	50.52	1065	62.96	1110	75.33	1147	88.02	1178	100.85	1207	114.00										

Maximum RPM @ 70°F:

Class II — 952

Class III — 1281

Must derate for temperature and plug wall thickness.

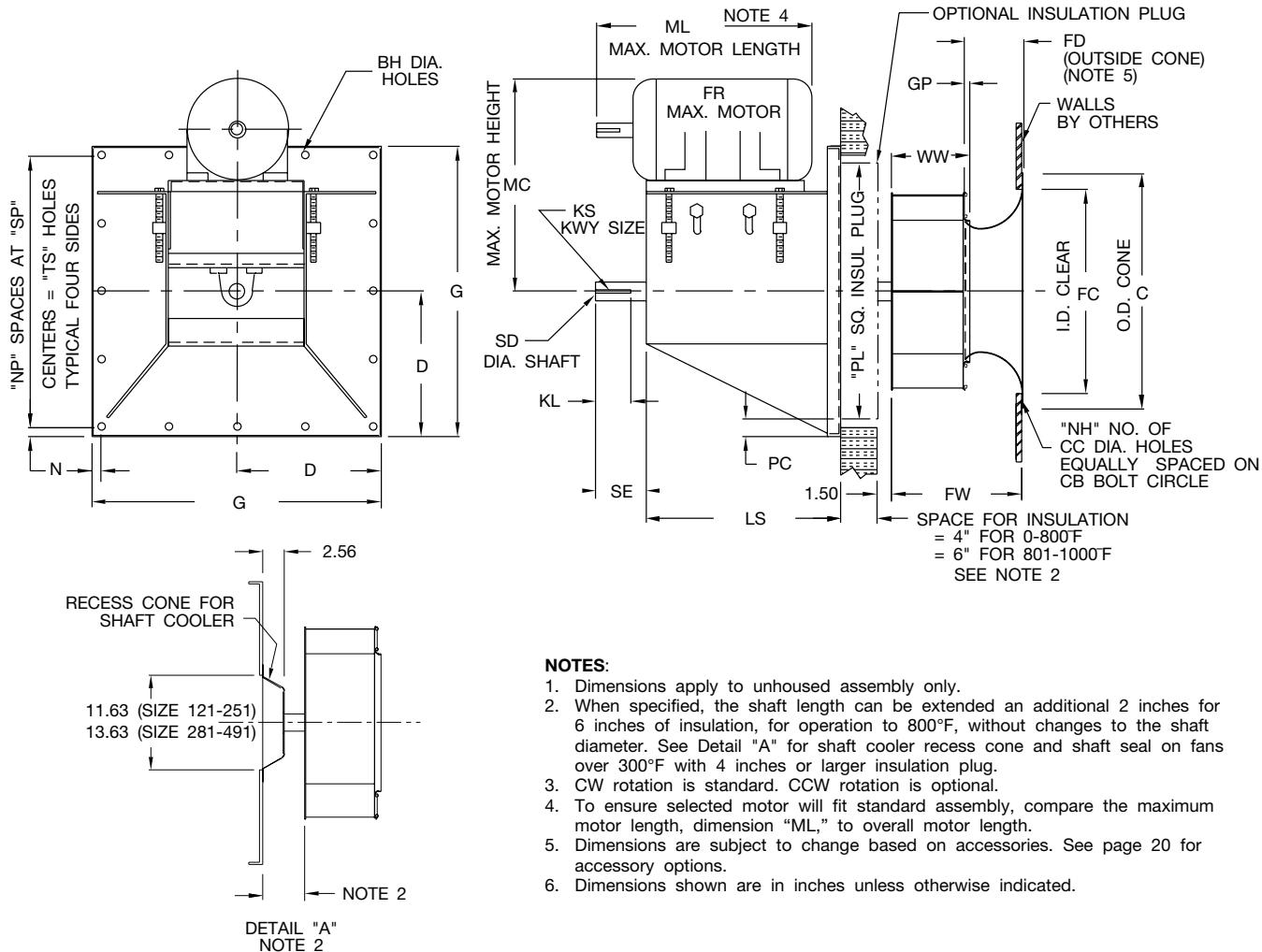
Underlined figures indicate maximum static efficiency.

Power rating (BHP) does not include transmission losses.



# Dimensional Data

## Class II



DETAIL "A"  
NOTE 2

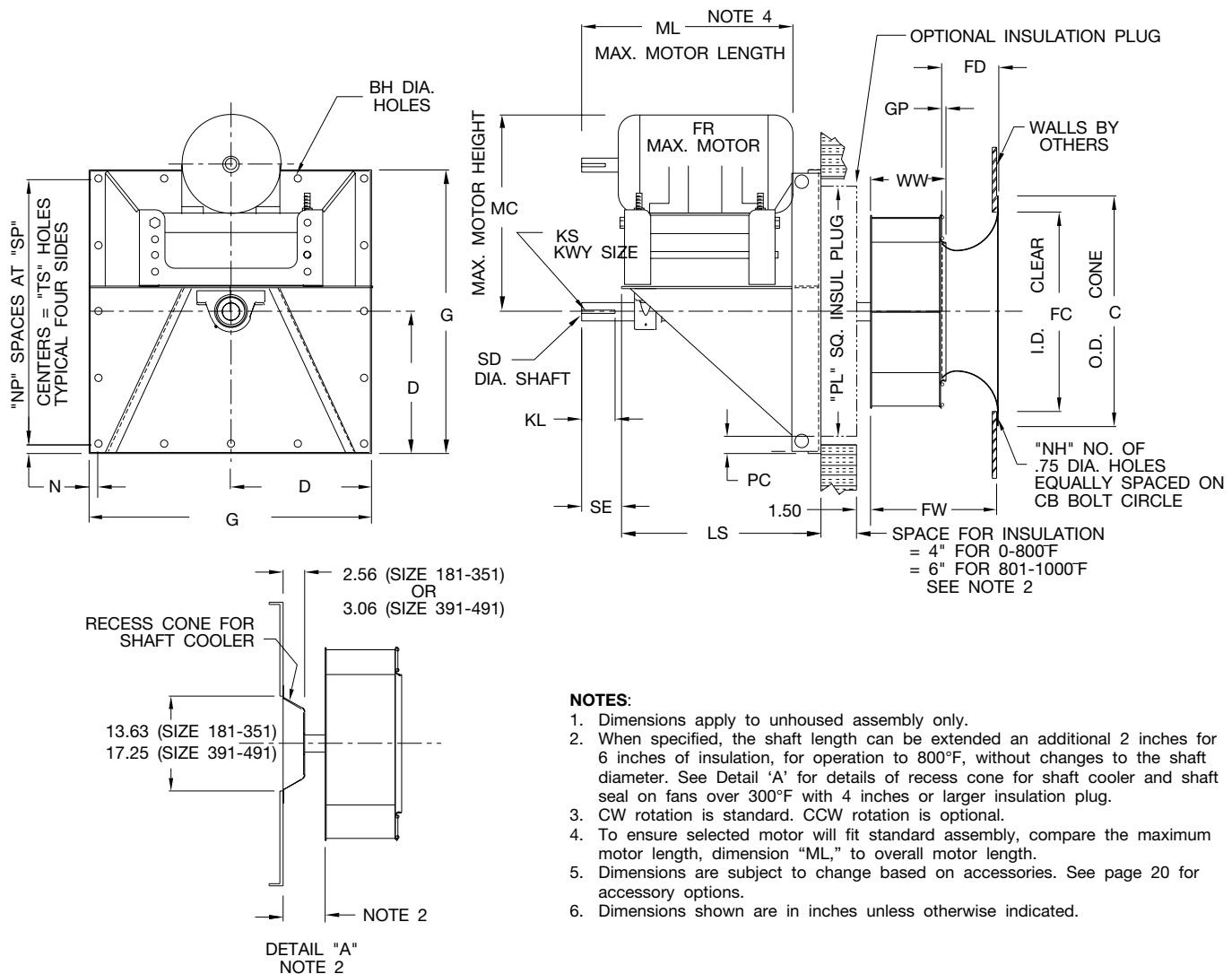
SIZE	BH	C	CB	CC	D	FC	FD	FW	G	GP	KL	KS	LS
121	0.56	17.13	15.88	0.69	11.38	13.75	3.72	8.48	22.75	0.25	4.00	.38x.19	17.50
141	0.56	18.91	17.63	0.69	11.38	15.50	4.19	9.55	22.75	0.25	4.00	.38x.19	18.50
161	0.56	20.88	19.59	0.88	14.81	17.75	4.72	10.75	29.63	0.25	4.00	.38x.19	18.50
181	0.56	22.84	21.56	0.88	14.81	20.00	5.31	12.16	29.63	0.31	4.50	.50x.25	21.00
201	0.56	25.19	23.94	0.88	14.81	22.00	5.88	13.39	29.63	0.31	4.50	.50x.25	21.00
221	0.56	27.97	26.69	0.88	16.00	24.50	6.59	15.01	32.00	0.31	4.50	.50x.25	22.50
251	0.56	31.13	29.84	1.00	16.00	27.50	7.44	16.93	32.00	0.50	4.50	.50x.25	22.50
281	0.69	34.66	33.38	1.00	18.31	30.75	8.38	19.06	36.63	0.50	5.00	.50x.25	23.00
321	0.69	39.59	37.84	1.00	21.81	35.00	9.44	21.40	43.63	0.56	5.00	.50x.25	24.50
351	0.69	43.53	41.78	1.00	21.81	39.25	10.63	24.08	43.63	0.63	5.50	.63x.31	24.50
391	0.69	48.31	46.53	1.00	27.50	43.50	11.75	26.77	55.00	0.63	5.50	.63x.31	27.50
441	0.69	53.41	51.66	1.00	27.50	48.50	13.19	29.96	55.00	0.75	5.50	.63x.31	27.50
491	0.69	59.31	57.56	1.00	28.50	54.25	14.63	33.40	57.00	0.78	5.50	.63x.31	27.50

SIZE	MC	ML	N	NH	NP	PC	PL	SD	SE	SP	TS	WW	MAX. MTR. FRAME
121	24.75	19.13	1.00	8.00	4.00	1.75	19.25	1.687	5.00	5.19	20.75	5.07	213T
141	26.25	20.13	1.00	8.00	4.00	1.75	19.25	1.687	5.00	5.19	20.75	5.67	215T
161	26.25	20.13	1.00	8.00	4.00	1.81	26.00	1.687	5.00	6.91	27.63	6.34	215T
181	29.50	24.13	1.00	16.00	4.00	1.81	26.00	1.937	5.50	6.91	27.63	7.24	254T
201	29.50	24.13	1.00	16.00	4.00	1.81	26.00	1.937	5.50	6.91	27.63	7.90	254T
221	29.50	25.50	1.00	16.00	4.00	1.88	28.25	1.937	5.50	7.50	30.00	8.80	256T
251	29.50	25.50	1.00	16.00	4.00	1.88	28.25	1.937	5.50	7.50	30.00	10.06	256T
281	31.50	26.63	1.00	16.00	6.00	2.25	32.13	2.187	6.00	5.77	34.63	11.25	284T
321	33.50	28.13	1.00	16.00	6.00	2.38	38.88	2.187	6.00	6.94	41.63	12.63	286T
351	33.50	28.13	1.00	16.00	6.00	2.38	38.88	2.437	6.50	6.94	41.63	14.19	286T
391	34.00	31.25	1.00	24.00	6.00	3.38	48.25	2.437	6.50	8.83	53.00	15.75	326T
441	36.00	31.25	1.00	24.00	6.00	3.38	48.25	2.687	6.50	8.83	53.00	17.63	326T
491	36.00	31.25	1.00	24.00	6.00	2.50	52.00	2.687	6.50	9.17	55.00	19.66	326T

R-1004964A

Dimensions are not to be used for construction. Certified drawings are available upon request.

## Class III

DETAIL "A"  
NOTE 2

SIZE	BH	C	CB	CC	D	FC	FD	FW	G	GP	KL	KS	LS
181	0.56	22.84	21.56	0.88	14.81	20.00	5.31	12.24	29.63	0.31	4.50	.63x.31	25.00
201	0.56	25.19	23.94	0.88	14.81	22.00	5.88	13.46	29.63	0.31	5.50	.63x.31	27.50
221	0.56	27.97	26.69	0.88	16.00	24.50	6.59	15.08	32.00	0.31	5.50	.63x.31	27.50
251	0.56	31.13	29.84	1.00	16.00	27.50	7.44	16.93	32.00	0.50	6.00	.63x.31	30.50
281	0.69	34.66	33.38	1.00	18.31	30.75	8.38	19.12	36.63	0.50	6.00	.63x.31	30.63
321	0.69	39.59	37.84	1.00	21.81	35.00	9.44	21.46	43.63	0.56	6.50	.63x.31	32.38
351	0.69	43.53	41.78	1.00	21.81	39.25	10.63	24.15	43.63	0.63	8.00	.63x.31	37.88
391	0.69	48.31	46.53	1.00	27.50	43.50	11.75	26.83	55.00	0.63	8.00	.75x.38	38.38
441	0.69	53.41	51.66	1.00	27.50	48.50	13.19	30.09	55.00	0.75	8.00	.88x.44	38.38
491	0.69	59.31	57.56	1.00	28.50	54.25	14.63	33.46	57.00	0.78	8.00	.88x.44	38.38

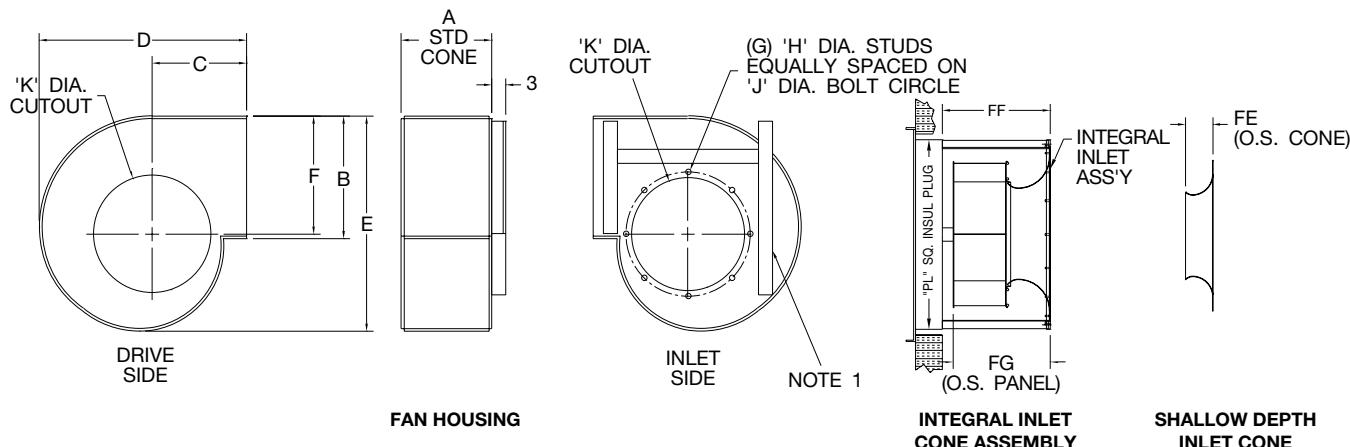
SIZE	MC	ML	N	NH	NP	PC	PL	SD	SE	SP	TS	WW	MAX. MTR. FRAME
181	26.50	25.75	1.00	16.00	4.00	1.81	26.00	2.687	4.50	6.91	27.63	7.31	256T
201	28.00	28.88	1.00	16.00	4.00	1.81	26.00	2.687	5.50	6.91	27.63	7.97	284T
221	28.00	28.88	1.00	16.00	4.00	1.88	28.25	2.687	5.50	7.50	30.00	8.88	286T
251	32.00	32.00	1.00	16.00	4.00	1.88	28.25	2.687	6.00	7.50	30.00	10.06	324T
281	32.00	32.00	1.00	16.00	6.00	2.25	32.13	2.687	6.00	5.77	34.63	11.31	326T
321	34.00	34.38	1.00	16.00	6.00	2.38	38.88	2.687	6.50	6.94	41.63	12.69	365T
351	38.00	41.25	1.00	16.00	6.00	2.38	38.88	2.687	8.00	6.94	41.63	14.25	405T
391	38.00	41.25	1.00	24.00	6.00	3.38	48.25	2.937	8.00	8.83	53.00	15.81	405T
441	38.00	41.25	1.00	24.00	6.00	3.38	48.25	3.437	8.00	8.83	53.00	17.75	405T
491	38.00	41.25	1.00	24.00	6.00	2.50	52.00	3.437	8.00	9.17	55.00	19.72	405T

R-1004965A

Dimensions are not to be used for construction. Certified drawings are available upon request.

# Dimensional Data

## Accessories



### NOTES:

- Inlet side frame angle on sizes 391, 441 and 491 only.
- Dimensions shown are in inches unless otherwise indicated.

SIZE	A	B	C	D	E	F	G	H
121	10.00	13.81	12.56	25.13	23.69	13.19	8	3/8-16
141	11.00	15.63	13.69	27.88	26.69	14.88	8	3/8-16
161	12.19	17.56	14.81	30.81	30.00	16.75	8	3/8-16
181	13.63	19.75	16.13	34.13	33.75	18.81	16	3/8-16
201	14.88	22.00	17.50	37.50	37.50	20.88	16	3/8-16
221	16.44	24.69	19.00	41.38	42.06	23.44	16	3/8-16
251	18.38	27.75	20.81	45.94	47.25	26.31	16	3/8-16
281	20.44	31.25	23.94	52.25	53.25	29.63	16	3/8-16
321	22.81	35.19	26.44	58.38	59.88	33.38	16	3/8-16
351	25.50	39.56	29.44	65.31	67.38	37.50	16	3/8-16
391	28.13	43.94	29.56	69.44	74.88	41.69	24	1/2-13
441	31.25	49.25	32.63	77.25	83.88	46.69	24	1/2-13
491	34.69	54.94	35.88	85.69	93.50	52.06	24	1/2-13

SIZE	J	K	FE		FF		FG	
			STANDARD INLET CONE	SHALLOW INLET CONE	STANDARD INLET CONE	SHALLOW INLET CONE	STANDARD INLET CONE	SHALLOW INLET CONE
121	15.88	14.13	3.75	—	10.19	—	8.69	—
141	17.63	15.94	4.19	—	11.19	—	9.69	—
161	19.59	17.88	4.75	3.44	12.38	11.06	10.88	9.56
181	21.56	19.88	5.31	3.75	13.81	12.25	12.31	10.75
201	23.94	22.19	5.88	4.13	15.06	13.31	13.56	11.81
221	26.69	25.00	6.63	4.50	16.63	14.56	15.13	13.06
251	29.84	28.13	7.44	4.88	18.56	15.94	17.06	14.44
281	33.38	31.69	8.38	5.19	20.63	17.44	19.13	15.94
321	37.84	35.63	9.44	5.50	23.06	19.13	21.56	17.63
351	41.78	39.56	10.63	6.50	25.69	21.56	24.19	20.06
391	46.53	44.31	11.75	7.25	28.38	23.88	26.88	22.38
441	51.66	49.44	13.19	8.25	31.44	26.50	29.94	25.00
491	57.56	55.31	14.63	9.25	34.94	29.56	33.44	28.06

R-1004966

Dimensions are not to be used for construction. Certified drawings are available upon request.

**AEROVENT**   
INDUSTRIAL VENTILATION SYSTEMS

**Belt Centers**

MOTOR FRAME SIZE	CLASS II								CLASS III											
	121-161		181-251		281-351		391-491		181		201-221		251-281		321		351-391		441-491	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
56	13	16.5	14	17.5	14.5	18	16	19.5	9.4	13.4	9.4	13.4	9.3	13.3	9.3	13.3	9.8	13.8		
143-145	13	16.5	14	17.5	14.5	18	16	19.5	9.4	13.4	9.4	13.4	9.3	13.3	9.3	13.3	9.8	13.8		
182-184	14	17.5	15	18.5	15.5	19	17	20.5	10.4	14.4	10.4	14.4	10.3	14.3	10.3	14.3	10.8	14.8		
213-215	14.8	18.3	15.8	19.3	16.3	19.8	17.8	21.3	11.2	15.2	11.2	15.2	11	15	11.1	15.1	11.1	15.1	11.6	15.6
254-256	—	—	16.8	20.3	17.3	20.8	18.8	22.3	14.8	18.8	14.8	18.8	14.6	18.6	14.7	18.7	14.7	18.7	15.2	19.2
284-286	—	—	—	—	18.0	21.5	19.5	23	—	—	15.6	19.6	15.4	19.4	15.4	19.4	15.4	19.4	15.9	19.9
324-326	—	—	—	—	—	—	20.5	24	—	—	—	—	17.6	22.6	17.6	22.6	17.6	22.6	18.1	23.1
364-365	—	—	—	—	—	—	—	—	—	—	—	—	—	18.6	23.6	18.6	23.6	19.1	24.1	
404-405	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20.8	25.8	21.3	26.3



Baking Oven Application

**AEROVENT**   
INDUSTRIAL VENTILATION SYSTEMS

# Typical Specifications



**Model  
CPG**

Fans shall be Model CPG Single Thickness Airfoil, as manufactured by Aerovent, Minneapolis, Minnesota.

**PERFORMANCE** — Fans shall be tested and rated in accordance with industry accepted test codes and shall be guaranteed by the manufacturer to deliver rated published performance levels.

**PLUG PANEL** — Plug panel shall be of minimum 7 gauge steel with formed flanges to maintain flatness and rigidity. Panel shall be prepunched for bolt mounting. The "Cross Frame" bearing support shall be designed for maximum stability and load spreading. Bearings shall be serviceable without disassembly of panel or frame. Plug assembly is available for both horizontal and vertical application. Horizontal construction is standard. Vertical construction must be specified.

**IMPELLER** — CPG impellers shall be backward curved, non-overloading, single thickness airfoil type, designed for maximum efficiency and quiet operation. Impellers shall be constructed of heavy-gauge steel, welded to a flat impeller cone and backplate.

**SHAFT** — Shafts shall be AISI 1040 or 1045 hot rolled steel accurately turned, ground, polished and ring gauged for accuracy. Shafts shall be sized for a first critical speed of at least 1.43 times the maximum speed for the class.

**BEARINGS** — Bearings shall be either ball or spherical roller, heavy duty, self-aligning, pillow block type. Bearing selection is based upon L-10 minimum life of 40,000 hours or L-50 minimum life of 200,000 hours.

**OPTIONAL ALL WELDED HOUSING** — Housing shall be of heavy gauge steel. Housing shall be provided with impeller opening on each side and weld studs on inlet side for cone mounting. Specify rotation and discharge as viewed from drive side to ensure proper stud placement. Housing supports and attachments for wall mounting to be provided by others.

**ADJUSTABLE MOTOR BASE** — Adjustable motor base is standard and shall have a four point leveling and tension adjustment to ensure proper drive belt alignment. The motor base shall be heavy gauge steel and prepunched to accept standard motor frame specified.

**OPTIONAL INLET VANES** — Inlet vane blades are cantilever design or with centered supports equipped with permanently lubricated needle bearings and ball joints for smooth and easy operation. Vane assemblies are external type for sizes 121 through 161 and nested for sizes 181 through 491. Standard inlet vanes are applicable to 300°F. Consult factory for higher temperatures.

**FACTORY RUN TEST** — All fans prior to shipment shall be completely assembled and test run as a unit at the specified operating speed or maximum RPM allowed for the particular construction type. Each impeller shall be statically and dynamically balanced in accordance with ANSI/AMCA 204-96 "Balance Quality and Vibration Levels for Fans" to Fan Application Category BV-3, Balance Quality Grade G6.3. Balance readings shall be taken by electronic type equipment in the axial, vertical and horizontal directions on each of the bearings. Records shall be maintained and a written copy shall be available upon request.

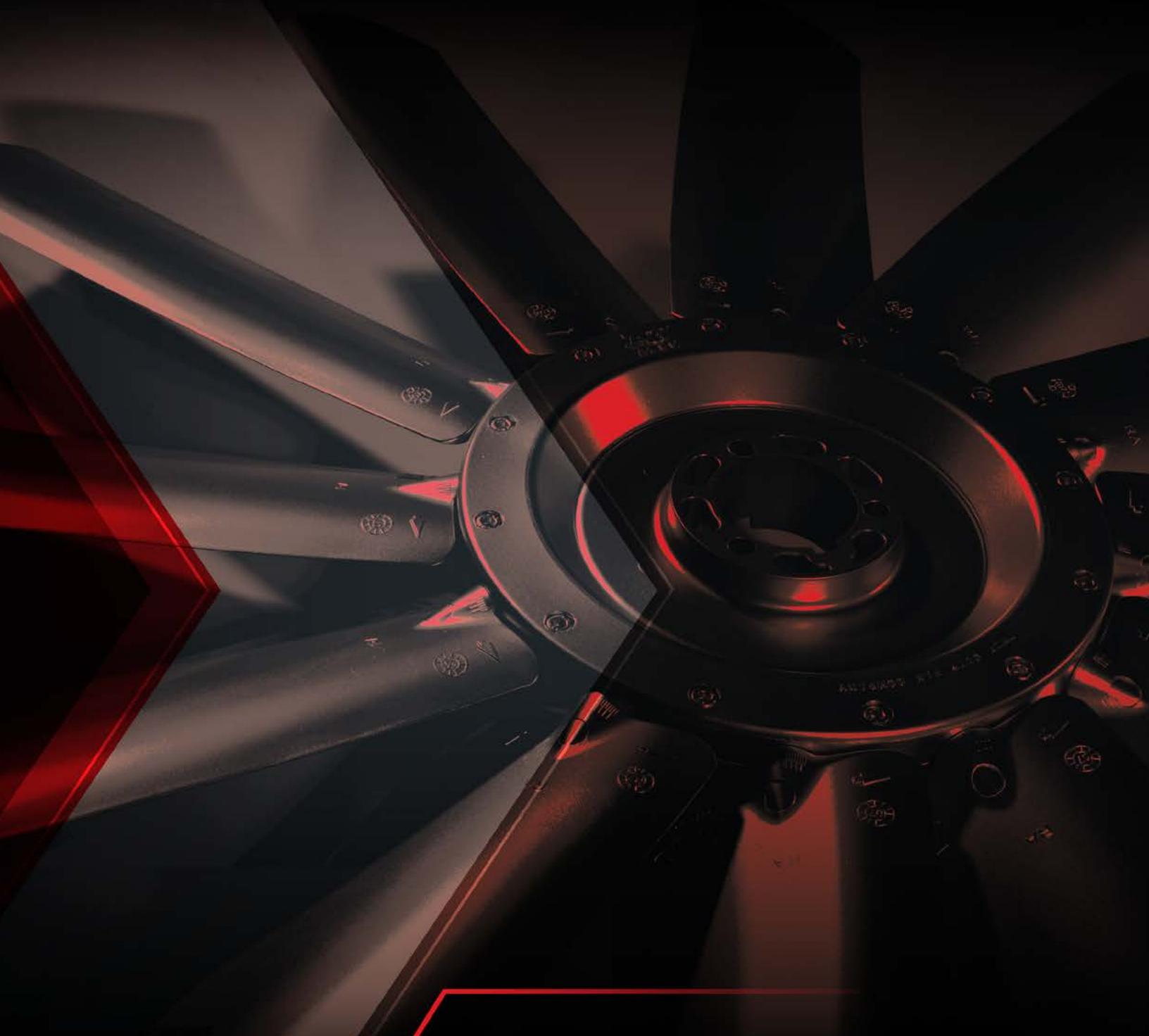
**GUARANTEE** — The manufacturer shall guarantee the workmanship and materials for its CPG Single Thickness Airfoil Plug Fans for at least one (1) year from startup or eighteen (18) months from shipment, whichever occurs first.



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**WALL MOUNTED FANS | TUBEAXIAL & VANEAXIAL FANS | CENTRIFUGAL FANS & BLOWERS  
ROOF VENTILATORS | AIR HEATERS & COOLERS | AIR MAKE-UP | FIBERGLASS FANS | CUSTOM FANS**



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