

# PB series

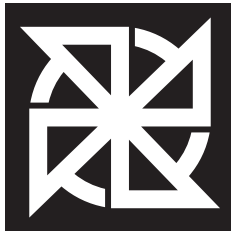
CENTRIFUGAL BLOWER

engineering data  
and specifications



Since the founding of Cincinnati Fan in 1956, the company's mission has been to provide quality products at competitive prices, backed by depend-able service.

This mission is carried out by specializing in the market for industrial air handling products up to 125 hp. But specialization does not mean the product line is small. Cincinnati Fan offers a wide variety of standard and customized products, production flexibility, and customer responsiveness.



### CINCINNATI FAN PROVIDES

- ◆ Technical evaluation for correct performance conditions
- ◆ Review of air stream and ambient conditions that require special attention
- ◆ Selection of proper components to meet required design specifications
- ◆ Selection of proper accessories
- ◆ System analysis for proper fan design

Cincinnati Fan operates in a modern facility specifically designed for world class manufacturing enabling us to build standard products to order, including accessories, and ship within 5 to 10 working days.

With support like this, you can be sure your Cincinnati Fan product will be well-built and will provide maximum dependability and longevity.

Cincinnati Fan has over 170 experienced sales engineers across the US and Canada ready to serve your air handling needs.



## FEATURES AND BENEFITS OF CAST ALUMINUM

Cincinnati Fan Cast Aluminum Blowers are a smart-buy now and for many years to come because aluminum is:

### Non-Sparking

Cincinnati Fan Cast Aluminum Blowers are AMCA Type B spark resistant. With the addition of a non-sparking shaft, they meet AMCA Type A requirements. See Page 5.

### Corrosion-Free

No painting required. Maintenance free in moist environments.

### Lightweight

Aluminum is one-third the weight of steel and therefore, less structural support is required.

### Non-Toxic

Aluminum is friendly to foods, beverages and medicines. Cast Aluminum Blowers are used in many food processing applications where cleanliness is important.

### Strong

Aluminum's strength is exhibited in products such as high-way guard rails, truck trailers and baseball bats. In high speed blower wheels, aluminum is alloyed with magnesium and other metals for greater strength.

### Attractive

Aluminum's natural appearance is desirable. No other metal accepts a greater variety of finishes. It can be brushed, buffed, colored by anodizing and has excellent paint adhesion.

### Non-Magnetic

Resists magnetism even in magnetic fields making it ideal in electronic applications where prevention of interference is very important.

### Workable

Aluminum can be machined by every known metal working process. This makes future modifications easier.

### Not Affected By Cold

Unlike many materials that become brittle when super cold, aluminum alloys can actually become stronger. Cast aluminum blowers are used in many sub-zero applications.

### Available

Approximately eight percent of earth's crust contains aluminum, making it the most common metal on earth.

## SUGGESTED SPECIFICATIONS FOR CAST ALUMINUM BLOWERS

Blowers shall be cast with commercial grade 319 cast aluminum, having a 3/16" minimum wall thickness. Housing halves should be attached with tapered lugs having a minimum 45° taper from centerline for additional strength. Inlets and outlets shall be round for convenient slip fit of duct work or hose. Blower sizes 14A and larger shall have a reversible housing that is rotatable. Blowers shall be AMCA type B spark resistant or better. Blower performance shall be derived from data as tested per AMCA Standard 210.

Blower wheels with tip speeds up to 13,000 feet per minute shall be 319 cast aluminum. Blower wheels with tip speeds over 13,000 feet per minute shall be 356 aluminum with a T6 heat treatment. Wheel hub shall be an integral part of the wheel casting. Wheels shall be locked onto the motor or fan shaft with two, knurled, cup point set screws with a locking patch or nylon insert. Set screws shall be 90° – 120° apart with one over shaft keyway. Up to 13" diameter wheels shall have 5/16-18 set screws torqued to 165 in lb. Wheels over 13" in diameter shall have 3/8-16 set screws torqued to 228 in lb.

Balancing shall be accomplished by removal of material only – no additional weights are to be used in the balancing process. Wheel diameters up to 13" shall be statically balanced. Wheel diameters above 13" shall be dynamically balanced.

Fan motor and bearing cap vibration levels shall not exceed 1.5 mils displacement at 3450 RPM.

All fan bases shall be a minimum of 12 gauge steel.

All motors shall be continuous duty type.

Inlet or outlet flanges (if required) shall be 319 cast aluminum and shall meet ANSI bolt circle and outside diameter dimensions (see dimensions on page 21).

**⚠ Caution**—All fans and blowers shown have rotating parts and pinch points. Severe personal injury can result if operated without guards. Stay away from rotating equipment unless it is disconnected from its power source. Read and understand operating instructions.

## SELECTING A CINCINNATI PB BLOWER

### A word about ratings...

Thirty years ago Cincinnati Fan manufactured one size blower and one size wheel. Today we stock eight sizes of blower housings and fifty-seven wheel sizes. Four of our eight housings are each available with three different inlet sizes. By combining different housings, wheels and inlet sizes, we can offer you more standard direct drive pressure blower ratings than any other fan company in the world. Because we have so many direct drive ratings, chances are good that we can meet your requirements with a compact, cost efficient direct drive Cincinnati PB instead of a heavier, more expensive V-belt driven alternative.

Your Cincinnati Fan Representative is a ratings expert who is ready to help you select precisely the right PB blower for your application.

## HOW TO USE THE PB SERIES DIRECT-DRIVE RATING TABLES

If you know the static pressure and CFM required for your blower application, you can determine which PB blowers you should consider by referring to the tables on Pages 8 and 9 of this catalog. To use the tables, follow these simple directions:

1. Reading to the right, find the column heading which displays the static pressure (SP) you require.
2. Reading down that column, find the line(s) displaying the CFM rating(s) which will satisfy your requirement.
3. Follow the line(s) to the left side of the table, where you will identify the wheel(s) and the blower housing model(s) used to achieve the CFM rating(s).

You may find that several ratings come close to meeting your requirements. Generally, the rating with the lowest brake horsepower requirement (bhp) is the best selection (highest efficiency, least noise). In some situations, other requirements, such as blower dimensions and/or specific inlet/outlet sizes, may override the lower horsepower rule-of-thumb. Your Cincinnati Fan Representative is available to assist you with selection and pricing information.

### Some DOs and DON'Ts

**DO...**consider that radial blades are self-cleaning in most applications. Backward curved (BC) blades are not self-cleaning and may collect dust which can cause balance problems.

**DO...**specify heat-resistant construction (steel wheel) for use with airstreams having temperatures exceeding 200°F (93°C). BC wheels are not available in steel.

**DO NOT...**use a steel wheel and a steel blower housing in any type of environment where sparks could cause an explosion and/or fire. See WARNING on Page 5.

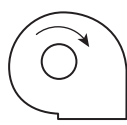
**DO NOT...**use any blower with an unducted inlet and/or outlet without an inlet and/or outlet guard. Severe personal injury could result. See Page 4 for guard accessory.

## Eight Standard Discharge Positions Available. 45° Discharge Positions Available at Additional Charge

Discharges shown are determined by viewing fan from motor or drive side



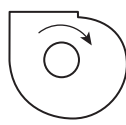
**CW-TH**  
Clockwise Top  
Horizontal  
Discharge



**CW-DB**  
Clockwise  
Down Blast  
Discharge



**CW-BH**  
Clockwise  
Bottom  
Horizontal  
Discharge



**CW-UB**  
Clockwise  
Up Blast  
Discharge



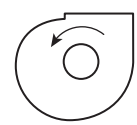
**CCW-TH**  
Counter  
Clockwise Top  
Horizontal  
Discharge



**CW-DB**  
Counter  
Clockwise  
Down Blast  
Discharge



**CW-BH**  
Counter  
Clockwise  
Bottom Horizontal  
Discharge



**CW-UB**  
Counter Clockwise  
Up Blast  
Discharge

### SPARK-RESISTANT CONSTRUCTION

**Type A:** All parts in contact with airstream are of nonferrous material. Blind bore in wheel and brass hardware in airstream. **Maximum Temperature 200°F.**

**Type B:** Standard on all PB series. Aluminum wheel and aluminum housing. **Maximum Temperature up to 400°F except if with EXP motor, maximum temperature is 150°F.**

### HIGH TEMPERATURE CONSTRUCTION

#### Arrangement 2, 4 and 4HM

**Up to 150°F Construction:** Standard construction.

**151° to 400°F Construction:** Standard fan with heat slinger and slinger guard. External hub on wheel or a shaft extension may be required (except on Arrangement 2). Wheel is either high temperature cast aluminum or fabricated steel. **Note:** No BC type steel wheels.

#### Arrangement 1, 8 and 9

**Up to 200°F Construction:** Standard construction

**201° to 300°F Construction:** Standard fan with high temperature cast aluminum wheel or fabricated steel wheel. **Note:** No BC type steel wheels.

**301° to 400°F Construction:** Standard fan with heat slinger and slinger guard. Wheel is either high temperature cast aluminum or fabricated steel. **Note:** No BC type steel wheels.

For temperatures greater than 400°F, see PBS Series catalog

**⚠ WARNING**

The use of aluminum or aluminum alloys in the presence of steel which has been allowed to rust requires special consideration. Research by the U.S. Bureau of Mines and others has shown that aluminum impellers rubbing on rusty steel may cause high intensity sparking. The use of the above Standard in no way implies a guarantee of safety for any level of spark resistance. Spark-resistant construction also does not protect against ignition of explosive gases caused by catastrophic failure or from any airstream material that may be present in a system.

### TEMPERATURE - ALTITUDE ADJUSTMENT

Air Temperature °F	Altitude in Feet Above Sea Level										
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
0'	0.87	0.91	0.94	0.98	1.01	1.05	1.09	1.13	1.17	1.22	1.26
40'	0.94	0.98	1.02	1.06	1.10	1.14	1.19	1.23	1.28	1.32	1.36
70'	1.00	1.04	1.08	1.12	1.16	1.20	1.25	1.30	1.35	1.40	1.45
80'	1.02	1.06	1.10	1.14	1.19	1.23	1.28	1.33	1.38	1.43	1.48
100'	1.06	1.10	1.14	1.19	1.23	1.28	1.33	1.38	1.43	1.48	1.54
120'	1.09	1.14	1.18	1.23	1.28	1.32	1.38	1.43	1.48	1.53	1.58
140'	1.13	1.18	1.22	1.27	1.32	1.37	1.42	1.48	1.54	1.58	1.65
160'	1.17	1.22	1.26	1.31	1.36	1.42	1.47	1.53	1.59	1.64	1.70
180'	1.21	1.26	1.30	1.36	1.41	1.46	1.52	1.58	1.64	1.70	1.75
200'	1.25	1.29	1.34	1.40	1.45	1.51	1.57	1.63	1.69	1.75	1.81
250'	1.34	1.39	1.45	1.50	1.56	1.62	1.68	1.74	1.82	1.88	1.94
300'	1.43	1.49	1.55	1.61	1.67	1.74	1.80	1.87	1.94	2.00	2.08
350'	1.53	1.59	1.65	1.72	1.78	1.85	1.92	2.00	2.07	2.14	2.22
400'	1.62	1.69	1.75	1.82	1.89	1.96	2.04	2.12	2.20	2.27	2.35
450'	1.72	1.79	1.86	1.93	2.00	2.08	2.16	2.24	2.33	2.41	2.50
500'	1.81	1.88	1.96	2.03	2.11	2.19	2.28	2.36	2.46	2.54	2.62
550'	1.91	1.98	2.06	2.14	2.22	2.30	2.40	2.49	2.58	2.68	2.77
600'	2.00	2.08	2.16	2.24	2.33	2.42	2.50	2.61	2.71	2.80	2.90
650'	2.10	2.18	2.26	2.35	2.44	2.54	2.63	2.74	2.84	2.94	3.04
700'	2.19	2.27	2.36	2.46	2.55	2.65	2.75	2.86	2.97	3.06	3.18
750'	2.28	2.37	2.47	2.56	2.66	2.76	2.87	2.98	3.10	3.19	3.31

Fan performance tables are developed using standard air which is 70°F, 29.92" barometric pressure and .075 lb/ft<sup>3</sup>. Density changes resulting from temperature or barometric pressure variations (such as higher altitudes) must be corrected to standard conditions before selecting a fan based on standard performance data. Temperature and/or altitude conversion factors at left are used in making corrections to standard conditions..

**EXAMPLE:** Select a belt driven PB blower to deliver 800 CFM at 4" SP at 200°F, and 9000' altitude.

Step 1 - From the table, conversion factor is 1.75.

Step 2 - Correct static pressure is:

$$1.75 \times 4" \text{ SP} = 7" \text{ SP at standard conditions.}$$

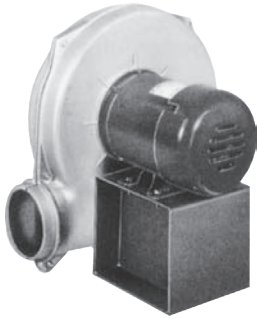
Step 3 - Check the belt drive tables on pages 10 and 11 for 800 CFM at 7" SP. We select a model PB-12A at 3378 RPM and 1.74 bhp.

Step 4 - Correct the bhp for the lighter air:

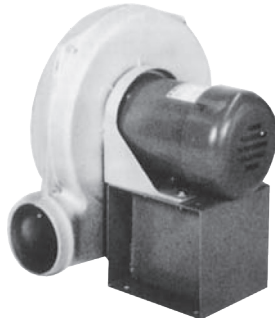
$$1.74 \div 1.75 = .99 \text{ bhp.}$$

A 1.5 hp motor will suffice at 200° F and 9000', but a 2 hp motor would be required at standard conditions. Special motor insulation may be required above 3500 feet altitude. Consult your local Cincinnati Fan sales representative.

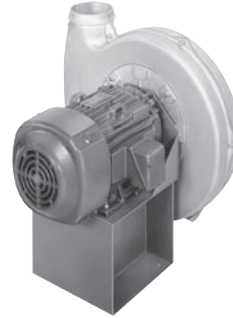
**NINE STANDARD ARRANGEMENTS**



**Arrangement 4**  
◆ Foot and flange motor



**Arrangement 4**  
◆ Flange mount-footless motor



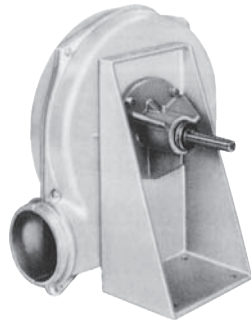
**Arrangement 4**  
◆ Foot mounted motor



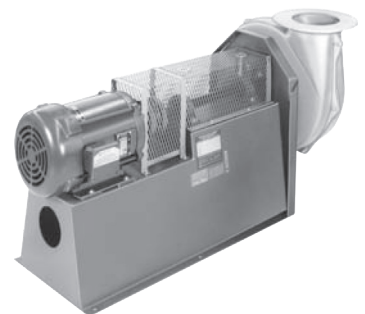
**Arrangement 4HM**  
◆ Horizontal mount—see page 18



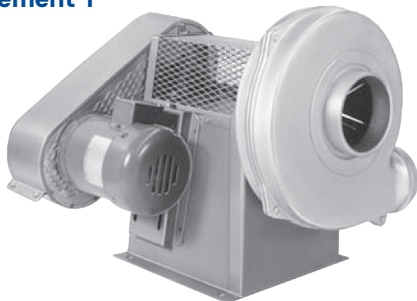
**Arrangement 1**



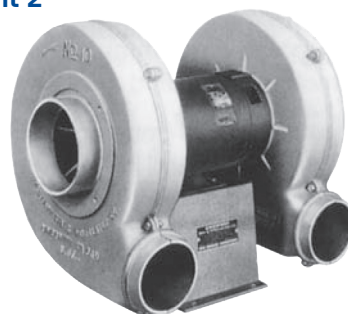
**Arrangement 2**



**Arrangement 8**  
◆ Shaft/coupling guard standard

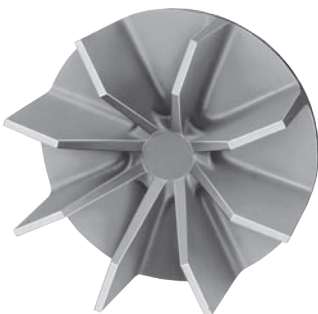


**Arrangement 9**  
◆ Belt guard standard—shaft guard optional

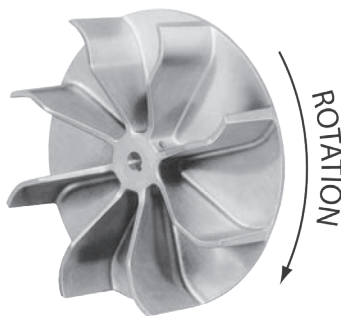


**Arrangement 4D**  
◆ Double blower

**BLOWER WHEELS**



**Cast Aluminum Radial**



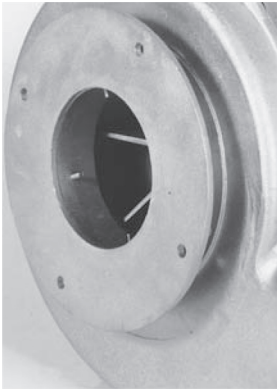
**Cast Aluminum B.C.**  
◆ Backward curve



**Optional Fabricated Steel or Stainless Steel**  
◆ Not available in B.C.

All wheels have two set screws, 90°-120° apart, with one being over keyway. Up to 13" diameter wheels are dynamically, single plane balanced. Wheels over 13" in diameter are dynamically, 2 plane balanced. Use steel wheel for high abrasive or high temperature application above 200°F (93° C). Stainless steel or coated wheels should be used in corrosive environments.

**OPTIONS**



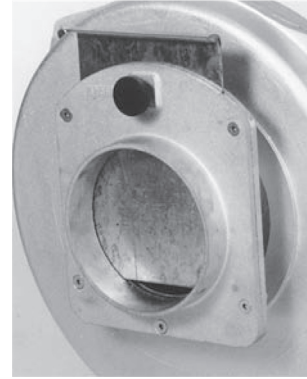
**Inlet/Outlet Flange**

Cast aluminum drilled to ANSI-125 pound flange bolt circle dimensions if requested. **Outlet flange not available in downblast configuration. See dimensions on page 21.**



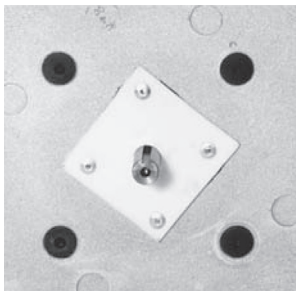
**Inlet/Outlet Guard**

Spiral guard with nickel/chrome/lacquer finish. OSHA type. Available on 4, 5, 6, 7, 8 and 10" inlets or outlets. **Required by OSHA on non-ducted inlet and/or discharge.**



**Slide Gate Damper**

Available for 4, 5, 6, 7, 8 and 10" inlets or outlets. Cast aluminum frame, galvanized steel gate. Suitable for duct work. Dimensions on page 21. **Add inlet/outlet guard if not ducted. Not available on downblast discharge position.**



**Teflon Shaft Seal**

1/8" thick Teflon shaft seal good to 400°F. Ceramic fiber gasket material with steel cover plate above 400°F.



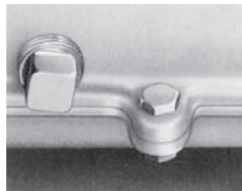
**Inlet Filter**

Many layered fine wire mesh. Pleated paper media available on some sizes.



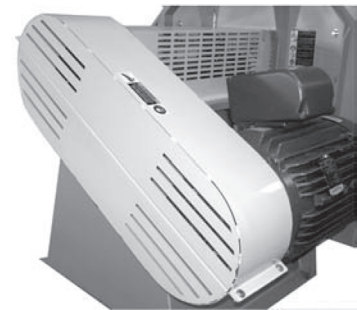
**Shaft and/or Heat Slinger Guard**

Available on arrangement 1 and 9. Covers bearings and shaft between fan housing and belt guard. Has extended lube lines. Meets OSHA standards. Painted safety yellow.



**Drain**

1/2" drain with plug. Not required on bottom horizontal discharges.



**Belt Guard — Standard on Arrangement 0**

Bearing side is enclosed. Not available unless Cincinnati Fan mounts motor. Painted safety yellow.













**DIRECT DRIVE RATINGS TABLES at 2850 RPM — 50 cycle motors only**

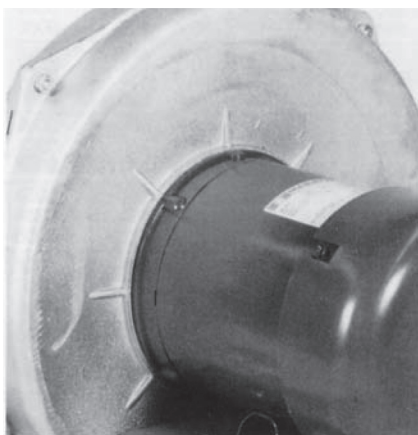
CFM and bhp at Static Pressure Shown – Ratings at 70°F – .075" Density – Sea Level

Model	Nominal Wheel Diameter and Width	Nominal Inlet Diameter	9" SP		10" SP		11" SP		12" SP		13" SP		14" SP		15" SP		16" SP †		
			CFM	bhp	CFM	bhp	CFM	bhp	CFM	bhp	CFM	bhp	CFM	bhp	CFM	bhp	CFM	bhp	CFM
PB-12A	14" x 3.25"	7"	440	1.15															
	14" x 3.25"	7"	385	0.89															
PB-14A	14" x 3.25"	8"	414	0.97															
	14.75" x 4"	6"	749	1.85	541	1.43													
	14.75" x 4"	7"	794	1.92	606	1.54													
	14.75" x 4"	8"	823	1.94	632	1.59													
PB-15A* use 182T frame min	14" x 3.25"	6"	111	0.61															
	15.5" x 5" BC	6"	664	1.60	381	1.18													
	15.5" x 5" BC	10"	720	1.67															
	15.5" x 5" BC	8"	775	1.77	356	1.08													
	16.5" x 4.375" BC	6"	874	2.19	656	1.86	280	1.35											
	16.5" x 4.375" BC	10"	1083	2.61	841	2.23	498	1.64											
	16.5" x 4.375" BC	8"	1085	2.56	855	2.18	579	1.68											
	15.5" x 5"	6"	1098	2.88	898	2.45	558	1.70											
	15.5" x 5"	8"	1360	3.39	1115	2.89	747	2.15											
	15.5" x 5"	6"	1347	3.97	1210	3.64	1044	3.21	810	2.59									
	15.5" x 5"	10"	1427	3.51	1176	2.98													
	16.5" x 4.375"	8"	1696	4.66	1492	4.24	1261	3.74	951	3.02									
16.5" x 4.375"	10"	1877	5.02	1661	4.53	1421	4.01	1097	3.33										
PB-18* use 182T frame min	14" x 3.25"	6"	159	0.68															
	14" x 3.25"	8"	262	0.93															
	16.5" x 4.375" BC	6"	845	2.25	720	2.07	556	1.80	256	1.22									
	16.5" x 4.375" BC	8"	965	2.51	810	2.24	608	1.88											
	16.5" x 4.375" BC	10"	987	2.52	825	2.25	607	1.89											
	18" x 4.375" BC	6"	1110	3.25	1017	3.09	915	2.91	797	2.69	643	2.39	327	1.72					
	16.5" x 4.375"	6"	1206	3.83	1106	3.59	985	3.30	822	2.91	465	2.01							
	18" x 4.375" BC	8"	1325	3.82	1220	3.60	1100	3.35	950	3.04	721	2.56	122	1.46					
	18" x 4.375" BC	10"	1390	3.90	1275	3.68	1150	3.42	1008	3.13	845	2.79	639	2.36					
	16.5" x 4.375"	8"	1428	4.43	1310	4.15	1170	3.81	990	3.34	672	2.49							
	16.5" x 4.375"	10"	1448	4.39	1327	4.11	1188	3.78	1016	3.38	755	2.77							
	18" x 4.375"	6"	1443	5.10	1368	4.90	1286	4.67	1193	4.42	1083	4.13	946	3.76	742	3.19			
18" x 4.375"	8"	1688	5.78	1600	5.56	1505	5.32	1400	5.05	1280	4.74	1135	4.35	938	3.78	432	2.18		
18" x 4.375"	10"	1752	6.04	1653	5.79	1546	5.51	1430	5.19	1301	4.83	1152	4.41	965	3.87	631	2.96		
PB-18WA* use 182T frame min	15.5" x 5" BC	10"	624	2.01	276	1.69													
	16.5" x 5" BC	8"	1008	2.77	819	2.51	587	2.21	259	1.86									
	16.5" x 5" BC	10"	1064	2.93	791	2.53	416	2.03											
	15.5" x 5"	8"	1064	3.07	833	2.67	468	2.06											
	15.5" x 5"	10"	1255	3.48	963	3.04	612	2.48											
	16.5" x 5"	8"	1449	4.26	1278	3.94	1078	3.56	821	3.07	385	2.29							
	17" x 6"	8"	1521	4.91	1378	4.65	1220	4.35	1036	3.99	791	3.47							
	16.5" x 5"	10"	1726	5.19	1503	4.73	1254	4.24	958	3.69	489	2.95							
	17" x 6"	10"	1883	5.82	1704	5.47	1504	5.08	1269	4.59	956	3.88							
18.5" x 6"	10"	2433	8.73	2294	8.33	2151	7.95	2003	7.58	1846	7.21	1674	6.81	1479	6.35	1235	5.76		

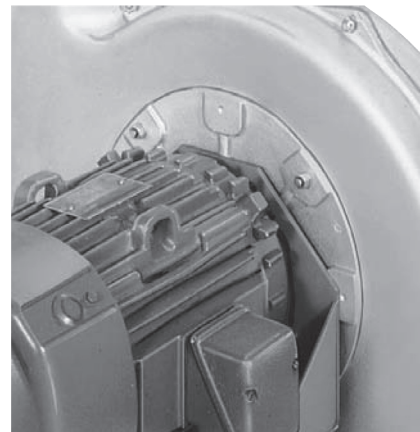
\* Additional ratings available with other inlet and/or wheel sizes. Consult your local Cincinnati Fan sales representative.

† For static pressures above 20" see the HP Series catalog. For higher CFM values, see the RBE catalog.

**HOUSING SIDE PLATES**



On models PB-8 through PB-12A, the inlet collar and motor mounting pad are an integral part of the housing halves. Housings are rotatable but not reversible.



On models PB-14A through PB-18WA, the inlet collars and motor side plates are separate castings which are bolted to the housing halves. These housings are rotatable and reversible. BC type wheels are not reversible.

### MATERIAL CONVEYING

Bulky materials such as those shown in **Table 1**, can be conveyed pneumatically using a Cincinnati Fan PB series cast aluminum pressure blower. Follow the steps below to determine the PB blower best suited for your application.

Example: Assume a requirement to move 900 pounds per hour of barley through 75 feet of straight, horizontal, round duct. See notes 1 and 2.

- I Convert pounds per hour to pounds per minute:  $900 \text{ lb/hr} \div 60 = 15 \text{ lb/min}$
- II Refer to **Table 1**. Find barley under material (column A) and read horizontally. Barley weighs 38 pounds per cubic foot (column B), requires 38 CFM of air per pound of material (column C) and a minimum of 5000 feet per minute conveying velocity (column D).
- III Determine the minimum cubic feet per minute (CFM) requirements:
 

CFM/lb of material	38 (from column C)	x	_____ lb/min =	15 (from step I)
				570 Total minimum CFM required @ 5000 ft/min conveying velocity (column D)
- IV Determine the system static pressure requirements from **Table 2**. Read across the 5000 ft/min velocity line to the 6" duct size column.
 

We have selected 6" duct size with 980 CFM (actual) to maintain a velocity of 5000 ft/min.

The friction loss is 8.02" SP per 100' x .75 = 6.01" plus 3.5" SP suction pickup (column E, **Table 1**) = 9.51" total system static pressure for 75 feet of straight 6" duct.
- V Check direct drive rating tables for 980 CFM at 9.51" SP at the lowest horsepower. We suggest a Model PB-14A, 14" x 3.25" wheel, 6" inlet. Interpolate 2.94 bhp. **Do not use BC type wheels for material conveying.**
- VI If material being conveyed will be going through the fan, the fan bhp can be significantly increased. The approximate increase is calculated as:

$$\text{Actual bhp} = \frac{\text{lb/minute of air} + \text{lb/minute of material}}{\text{lb/minute of air}} \times \text{fan bhp (2.94, step V)}$$

In this example : lb/minute of air = 980 (actual CFM, step IV) x .075 lb/ft<sup>3</sup>  $\left( \frac{\text{Standard}}{\text{Density}} \right) = 73.8$

Therefore:  $\frac{73.5 + 15}{73.5} = \frac{73.5 + 15}{73.5} = 1.20 \times 2.94 + 3.53$  actual bhp note 3

**Note**

- 1 For each 10 feet of vertical duct, add 10 feet to your total straight duct length.
- 2 For equivalent losses through elbows, see chart on page 9 of our Engineering Data catalog.
- 3. Make sure you use correct density for location of fan.

### MATERIAL CONVEYING CALCULATION

(1) Material Being Conveyed		(1) _____	
(2) Pounds Conveyed/Hour	(2) -----		
	+ 60		
(3) Pounds/Minute	-----	→ (3) _____	
(4) Feet of Straight Horizontal Duct	(4) -----	see note 1	
(5) Number of 90° Elbows	(5) + _____	see note 2	
(6) Total Equivalent Feet of Duct	-----	→ (6) _____	
(7) Material Weight, lb/ft <sup>3</sup> (col. B)		(7) _____	
(8) CFM/Pound of Material (col. C)	(8) -----		
(9) Pounds/Minute (step 3)	(9) x _____		
(10) Total Min. CFM Required	-----	→ (10) _____	
(11) Min. Conveying Velocity in FPM (col. D)		(11) _____	
(12) Duct Size to Get Total CFM (step 10) @ Minimum Velocity (step 11) per table 2		(12) _____ Duct Size	
(13) Actual CFM for Duct (step 12)		(13)* _____ Actual CFM*	
(14) Friction Loss/100 ft	(14) -----		
(15) Total Equivalent Feet of Duct (step 6) (in 100s of feet)	(15) x _____	(in 100s of feet)	
(16) Suction Pickup in inches of WC (col. E)	(16) + _____		
(17) Total System SP	-----	→ (17) _____ Total System SP	

Fan Model to get #13 (actual CFM) and #17 (total SP) above \_\_\_\_\_

Fan RPM \_\_\_\_\_

Actual Fan bhp \_\_\_\_\_ Step VI

\*Must be equal or greater than step 10



Note – Blower housing dimensions common to all Blower Arrangements

Model	C	D	J	M	N	O	P	R	S	T	DD notes 1-2-3	DD note 4
PB-8	1"	3 3/4"	2 7/8"	4 1/8"	1 1/8"	4 5/8"	5 5/8"	7 3/8"	4 7/8"	1 1/8"	4"	4"
PB-9	1 1/16"	4 1/8"	3 1/8"	5 5/8"	1 3/16"	6 1/8"	7 3/8"	8 1/2"	6 5/8"	1"	5"	4"
PB-10A	1 1/4"	4 1/4"	3 3/8"	6 9/16"	1"	6 7/8"	9 7/16"	10 3/16"	7 3/16"	1"	6"	5"
PB-12A	1 1/4"	5"	3 3/4"	7 9/16"	7/8"	8"	9 5/8"	11 11/16"	9 7/16"	1"	7"	6"
PB-14A	1 1/4"	6"	4 1/4"	8 1/16"	1"	8 13/16"	10 3/8"	12 3/16"	10 1/4"	1"	7"	6"
PB-15A	1 1/4"	7 1/4"	4 7/8"	7 7/8"	1"	9 13/16"	11 3/8"	13"	10 3/16"	1"	8"	8"
PB-18	1 1/4"	6 1/4"	4 3/8"	10 1/2"	1 5/16"	10 1/2"	12 11/16"	14 1/2"	12 7/16"	1"	8"	8"
PB-18WA	1 1/4"	8 1/16"	5 5/16"	9 7/8"	7/8"	11"	13 3/16"	15 1/8"	11 13/16"	1"	10"	8"

1 PB-14A also available with 6" and 8" inlets.

2 PB-15A and PB-18 also available with 6" and 10" inlets.

3 PB-18WA also available with 8" inlet.

4 All models discharge flange not available for down blast or bottom angular down discharge positions

Approximate Shipping Weight\* lb

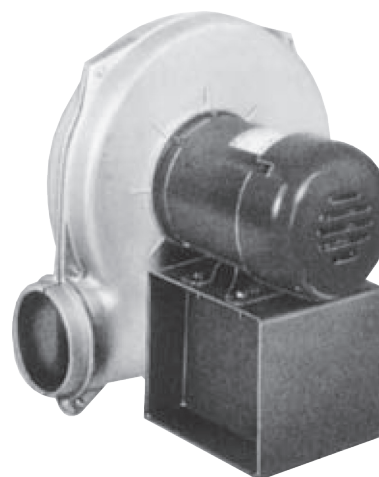
Model	Arrangement 1 no motor	Arrangement 2 no motor	Arrangement 4	Arrangement 4HM	Arrangement 8	Arrangement 9	Nominal Motor hp - weight
PB-8	60	30	50	42	130	104	1/2 - 21
PB-9	66	37	57	48	138	111	1/2 - 22
PB-10A	78	43	63	54	150	126	1 - 22
PB-12A	85	61	91	75	187	157	2 - 41
PB-14A	140	84	139	118	259	226	3 - 54
PB-15A	155	99	176	155	296	273	5 - 76
PB-18	163	105	190	181	320	299	7 1/2 - 87
PB-18WA	197		262	197 <sup>†</sup>	399	389	10 - 122

\* Arrangement 4, 4HM, 8 and 9 weights include nominal hp and corresponding motor weight indicated in column eight, make corrections as necessary by deducting nominal weight and adding weight of actual motor to be used.

† With 7 1/2 hp motor max. Consult factory for larger sizes.

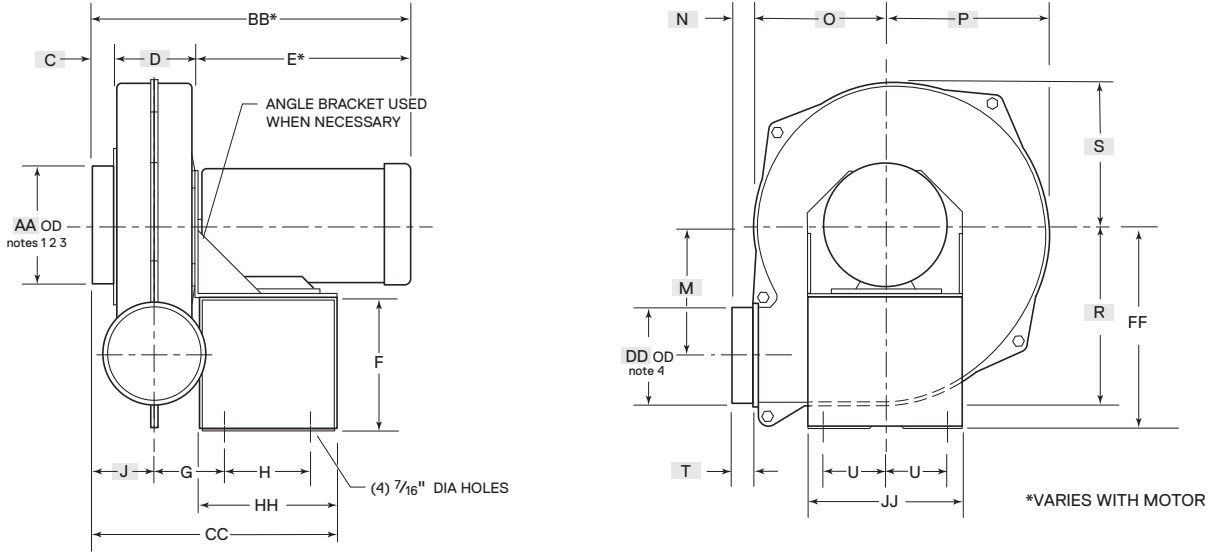
Metric Conversion Factors

Power	1 hp = .7457 kW	hp = horsepower
	1 kW = 1.34 hp	kW = kilowatts
Volume Flow	1 cfm = .00047 m <sup>3</sup> /s	cfm = cubic feet per minute
	1 m <sup>3</sup> /s = .2118.88 cfm	m <sup>3</sup> /s = cubic meters per second
Pressure	1 in wg = 248.36 Pa	in wg = inches water gauge
	1 Pa = .004 in wg	Pa = pascals
Density	1 lb/ft <sup>3</sup> = 16.02 kg/m <sup>3</sup>	lb/ft <sup>3</sup> = pound per cubic foot
	1 kg/m <sup>3</sup> = .0625 lb/ft <sup>3</sup>	kg/m <sup>3</sup> = kilograms per cubic meter
Temperature	°C = (°F-32) x .5556	C = centigrade
	°F = (°C x 1.8) + 32	F = Fahrenheit
Dimension	1 in = 25.4 mm	in = inch
	1 mm = .03937 in	mm = millimeter
Weight	1 lb = .4536 kg	lb = pound
	1 kg = 2.205 lb	kg = kilogram





**ARRANGEMENT 4 — DIRECT DRIVE**

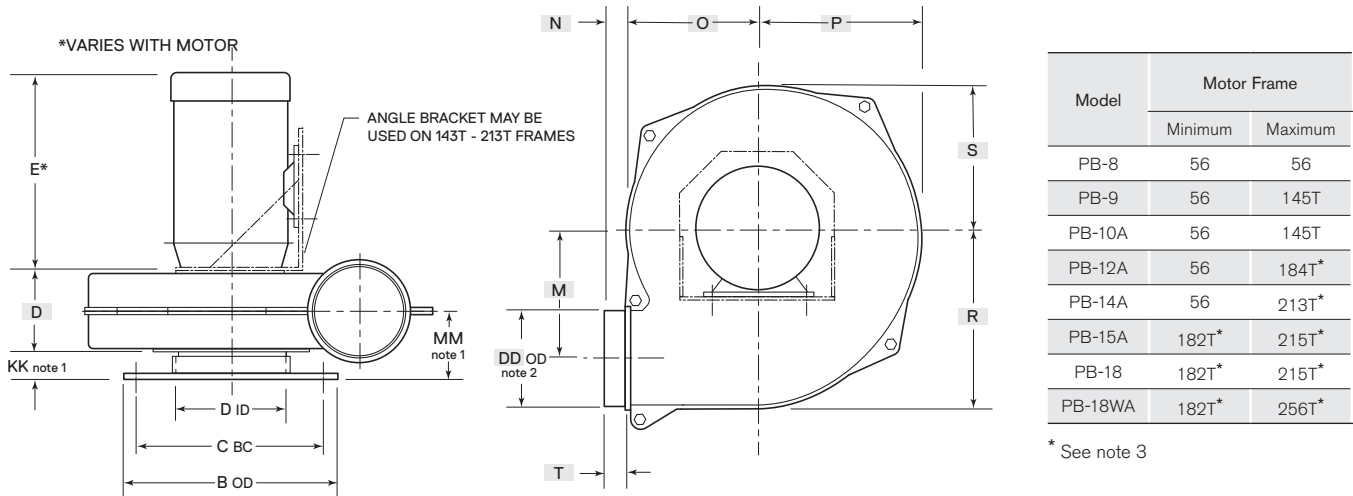


Model	Motor Frame	E*	F	G	H	U	BB*	CC	FF	HH	JJ	KK note 5	MM note 5
PB-8	56	12 1/2"	5 1/2"	3 3/16"	5"	2 3/4"	17 1/4"	12 1/8"	8 9/16"	7 1/8"	7"	1 5/16"	3 3/16"
PB-9	56	12 1/2"	6 7/8"	3 3/8"	5 3/4"	2 3/4"	17 11/16"	13 5/16"	10 7/16"	7 7/8"	7"	1 3/8"	3 7/16"
	143T-145T	12"	8 1/4"	4 3/16"	5"	3 3/4"	17 3/16"	13 13/16"	11 7/8"	8"	9"	1 3/8"	3 7/16"
PB-10A	56	12 1/2"	6 7/8"	3 7/16"	5 3/4"	2 3/4"	18"	13 1/16"	10 7/16"	7 7/8"	7"	1 9/16"	3 11/16"
	143T-145T	12"	8 1/4"	4 1/4"	5"	3 3/4"	17 1/2"	14 3/16"	11 7/8"	8"	9"	1 9/16"	3 11/16"
PB-12A	56	12 1/2"	6 7/8"	4 1/4"	5"	3 3/4"	18 3/4"	14 1/2"	11 7/8"	8"	9"	1 9/16"	4 1/16"
	143T-145T	12"	8 1/4"	4 5/8"	5"	3 3/4"	18 1/4"	14 7/8"	11 7/8"	8"	9"	1 9/16"	4 1/16"
	182T-184T	15 1/2"	6 7/16"	5"	8 3/4"	4 15/16"	21 3/4"	19"	11 7/8"	11 3/4"	12"	1 9/16"	4 1/16"
PB-14A	56	12 1/2"	9 15/16"	5 1/2"	8 3/4"	4 15/16"	19 3/4"	20"	15 3/16"	11 3/4"	12"	1 9/16"	4 9/16"
	143T-145T	12"	9 15/16"	5 1/2"	8 3/4"	4 15/16"	19 1/4"	20"	15 3/16"	11 3/4"	12"	1 9/16"	4 9/16"
	182T-184T	15 1/2"	9 15/16"	5 1/2"	8 3/4"	4 15/16"	22 3/4"	20"	15 3/16"	11 3/4"	12"	1 9/16"	4 9/16"
PB-15A	182T-184T	15 1/2"	9 15/16"	6 1/8"	8 3/4"	4 15/16"	24"	21 1/4"	15 3/16"	11 3/4"	12"	1 9/16"	5 3/16"
	213T-215T	16"	9 15/16"	6 1/8"	8 3/4"	4 15/16"	24 1/2"	21 1/4"	15 3/16"	11 3/4"	12"	1 9/16"	5 3/16"
	254T-256T	19"	8 15/16"	6 1/8"	8 15/16"	4 15/16"	27 1/2"	25 1/2"	15 3/16"	16"	16 1/2"	1 9/16"	5 3/16"
PB-18	182T-184T	15 1/2"	9 15/16"	5 5/8"	8 3/4"	4 15/16"	23"	20 1/4"	15 3/16"	11 3/4"	12"	1 9/16"	4 11/16"
	213T-215T	16"	9 15/16"	5 5/8"	8 3/4"	4 15/16"	23 1/2"	20 1/4"	15 3/16"	11 3/4"	12"	1 9/16"	4 11/16"
	254T-256T	19"	8 15/16"	5 5/8"	13"	4 15/16"	23 1/2"	24 1/2"	15 3/16"	16"	16 1/2"	1 9/16"	4 11/16"
PB-18WA	182T-184T	15 1/2"	12 3/4"	6 1/2"	10 3/4"	6 1/4"	24 13/16"	24 1/16"	18"	13 3/4"	16 1/2"	1 9/16"	5 5/8"
	213T-215T	16"	12 3/4"	6 1/2"	10 3/4"	6 1/4"	25 5/16"	24 1/16"	18"	13 3/4"	16 1/2"	1 9/16"	5 5/8"
	254T-256T	19"	11 3/4"	6 1/2"	15 3/4"	6 1/4"	28 5/16"	29 1/16"	18"	18 3/4"	16 1/2"	1 9/16"	5 5/8"
	284T-286T	19"	11"	6 1/2"	15 3/4"	6 1/4"	31 5/16"	29 1/16"	18"	18 3/4"	16 1/2"	1 9/16"	5 5/8"

Note: For common boxed blower housing dimensions see page 16.  
 1 PB-14A also available with 6" and 8" inlets.  
 2 PB-15A and PB-18 also available with 6" and 10" inlets.  
 3 PB-18WA also available with 8" inlet.

4 All models, discharge flange not available for down blast or bottom angular down discharge positions.  
 5 KK and MM dimensions pertain to Arrangement 4HM on page 18 only.

**ARRANGEMENT 4HM — DIRECT DRIVE**

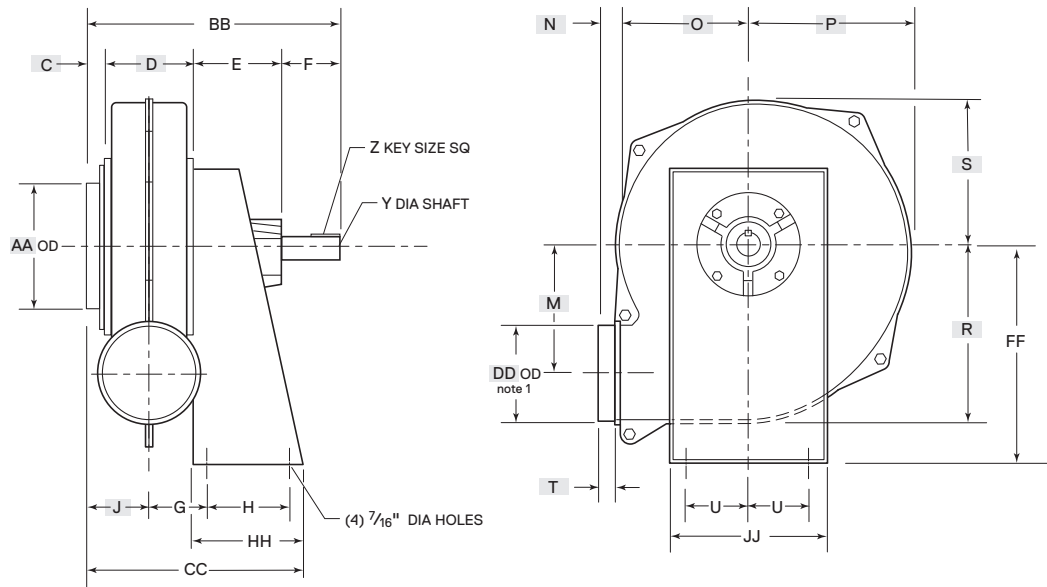


Note: For common boxed blower housing dimensions see page 16.

- 1 For inlet flange dimensions see flange dimensions on page 21 and corresponding A dimension. For KK and MM dimensions see page 17.
- 2 All models, discharge flange not available for down blast or bottom angular down discharge positions.

- 3 Based on fan mounted on top of surface with the motor shaft vertical, down. If fan will be mounted with a horizontal motor shaft, the customer should add additional support under the motor.

**ARRANGEMENT 2 — BELT DRIVE**

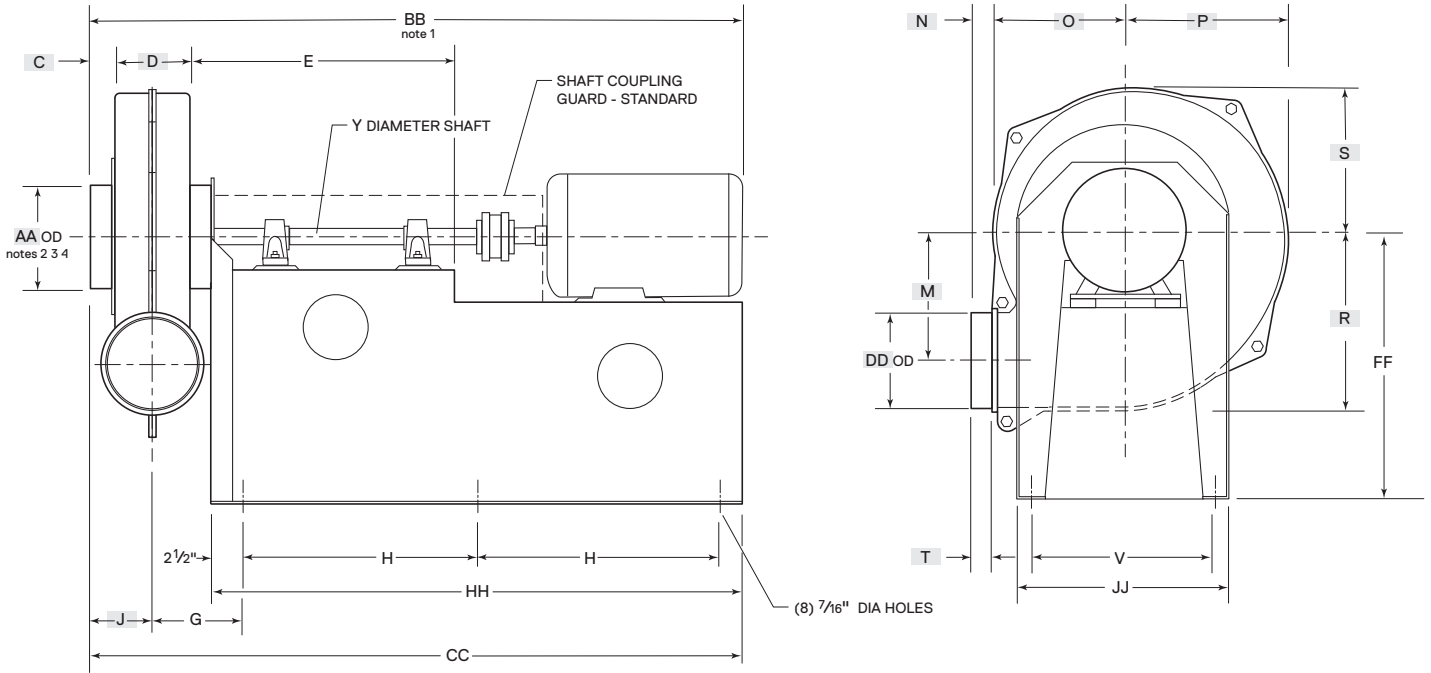


Model	E	F	G	H	U	Y	Z	BB	CC	FF	HH	JJ
PB-8	3 1/2"	3"	2 7/8"	3 1/4"	2 7/8"	5/8"	3/16"	11 1/4"	9 3/4"	7 13/16"	5"	7 3/4"
PB-9	3 11/16"	3"	3 1/16"	4 1/4"	2 7/8"	3/4"	3/16"	11 7/8"	11 3/16"	9 7/8"	6"	7 3/4"
PB-10A	3 11/16"	3"	3 1/8"	4 1/4"	2 7/8"	3/4"	3/16"	12 1/4"	11 9/16"	9 7/8"	6"	7 3/4"
PB-12A	5 1/2"	4"	4"	4 1/2"	3 1/8"	1"	1/4"	15 3/4"	13 1/4"	11 1/2"	7"	9"
PB-14A	5 3/16"	4"	4 1/2"	5 1/2"	3 3/4"	1 7/16"	3/8"	16 7/16"	15 1/4"	15"	8"	10 1/4"
PB-15A	5 3/16"	4"	5 1/8"	5 1/2"	3 3/4"	1 7/16"	3/8"	17 11/16"	16 1/2"	15"	8"	10 1/4"
PB-18	5 3/16"	4"	4 5/8"	5 1/2"	3 3/4"	1 7/16"	3/8"	16 11/16"	15 1/2"	15"	8"	10 1/4"

Note: For common boxed blower housing dimensions see page 16.

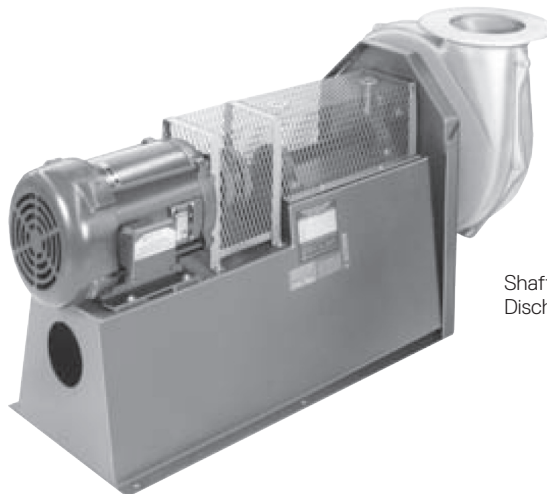
- 1 All models, discharge flange not available for down blast or bottom angular down discharge positions.

**ARRANGEMENT 8 — DIRECT CONNECTED**



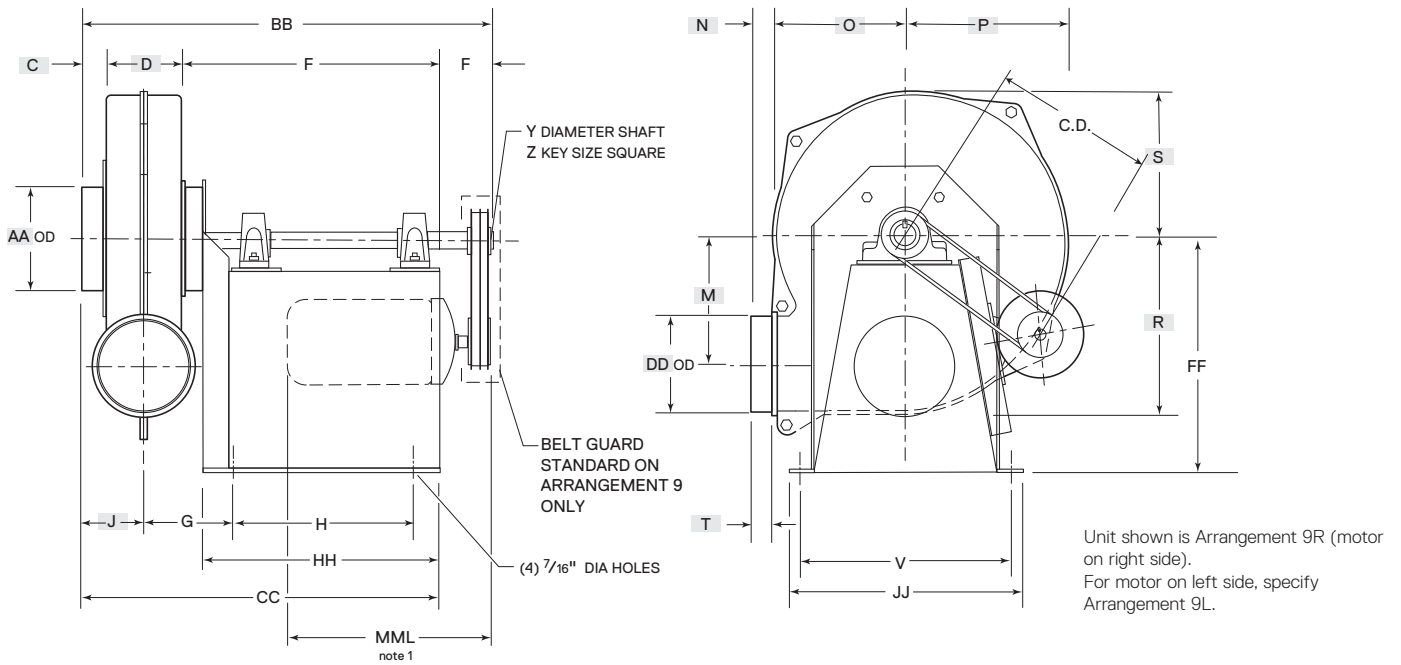
Model	Motor Frame	E	G	H	V	Y	BB note 1	CC	FF	HH	JJ
PB-8	56	12"	5 5/8"	12 1/4"	11 3/8"	3/4"	35 3/16"	35 1/2"	14"	29 1/2"	12 7/8"
PB-9	56-145T	12"	5 13/16"	12 1/4"	11 3/8"	3/4"	35 11/16"	35 15/16"	14"	29 1/2"	12 7/8"
PB-10A	56-145T	12"	5 7/8"	12 1/4"	11 3/8"	3/4"	36 1/16"	36 1/4"	14"	29 1/2"	12 7/8"
PB-12A	56-145T	12"	6 1/4"	12 1/4"	11 3/8"	1"	36 3/4"	37"	14"	29 1/2"	12 7/8"
	182T-215T	13"	6 1/4"	15 1/8"	16"	1"	42 9/16"	42 3/4"	18"	35 1/4"	17 1/2"
PB-14A	56-145T	12"	6 3/4"	12 1/4"	11 3/8"	1 3/16"	36 3/4"	38"	14"	29 1/2"	12 7/8"
	182T-215T	13"	6 3/4"	15 1/8"	16"	1 3/16"	43 9/16"	43 3/4"	18"	35 1/4"	17 1/2"
PB-15A	182T-215T	13"	7 3/8"	15 1/8"	16"	1 3/16"	44 7/16"	45"	18"	35 1/4"	17 1/2"
	254T-256T	13"	7 3/8"	18 3/4"	17 1/4"	1 3/16"	48 5/8"	52 1/4"	23"	42 1/2"	19"
PB-18	182T-215T	13"	6 7/8"	15 1/8"	16"	1 3/16"	43 13/16"	44"	18"	35 1/4"	17 1/2"
	254T-256T	13"	6 7/8"	18 3/4"	17 1/4"	1 7/16"	48"	51 1/4"	23"	42 1/2"	19"
PB-18WA	182T-215T	13"	7 3/4"	15 1/8"	16"	1 7/16"	45 5/8"	45 13/16"	18"	35 1/4"	17 1/2"
	254T-286T	13"	7 3/4"	18 3/4"	17 1/4"	1 7/16"	52 15/16"	53 1/16"	23"	42 1/2"	19"

- 1 Varies with motor - motor may extend past end of base.
  - 2 PB-14A also available with 6" and 8" inlets.
  - 3 PB-15A and PB-18 also available with 6" and 10" inlets.
  - 4 PB-18WA also available with 8" inlet.
  - 5 For common boxed blower housing dimensions see page 22.
- Note: All models, discharge flange not available for down blast or bottom angular down discharge positions.



Shaft/coupling guard is standard.  
Discharge flange is optional

**ARRANGEMENT 1 AND 9 — BELT DRIVE** note 2



Model	Motor Frame	E	F	G	H	V	Y	Z	BB	CC	FF	HH	JJ	MML note 1
PB-8	56-145T	16 1/4"	3"	5 5/8"	10"	11 3/8"	3/4"	3/8"	24"	21"	14"	15"	12 7/8"	15"
PB-9	56-145T	16 1/4"	3"	5 13/16"	10"	11 3/8"	3/4"	3/8"	24 7/16"	21 7/16"	14"	15"	12 7/8"	15"
PB-10A	56-145T	16 1/4"	3"	5 7/8"	10"	11 3/8"	3/4"	3/8"	24 3/4"	21 3/4"	14"	15"	12 7/8"	15"
PB-12A*	56-145T*	16 1/4"	4"	6 1/4"	10"	11 3/8"	1"	1/4"	26 1/2"	22 1/2"	14"	15"	12 7/8"	15"
	182T-215T	19 1/4"	4"	6 1/4"	13"	16"	1"	1/4"	29 1/2"	25 1/2"	18"	18"	17 1/2"	19"
PB-14A	56-215T	19 1/4"	4"	6 3/4"	13"	11 3/8"	1 1/16"	3/8"	30 1/2"	26 1/2"	14"	18"	12 7/8"	19"
PB-15A*	182T-215T*	19 1/4"	4"	7 3/8"	13"	16"	1 1/16"	3/8"	31 3/4"	27 3/4"	18"	18"	17 1/2"	19"
	254T-256T	25 3/4"	4"	7 3/8"	19 1/2"	17 1/4"	1 11/16"	3/8"	38 1/4"	34 1/4"	23"	24 1/2"	19"	26"
PB-18*	182T-215T*	19 1/4"	4"	6 7/8"	13"	16"	1 1/16"	3/8"	30 3/4"	26 3/4"	18"	18"	17 1/2"	19"
	254T-256T	25 3/4"	4"	6 7/8"	19 1/2"	17 1/4"	1 11/16"	3/8"	37 1/4"	33 1/4"	23"	24 1/2"	19"	19"
PB-18WA*	182T-215T*	19 1/4"	4"	7 3/4"	13"	16"	1 1/16"	3/8"	32 9/16"	28 9/16"	18"	18"	17 1/2"	19"
	254T-286T	25 3/4"	6"	7 3/4"	19 1/2"	17 1/4"	1 11/16"	3/8"	41 1/16"	35 1/16"	23"	24 1/2"	19"	19"

\* All Arrangement 1 units use small base dimensions.

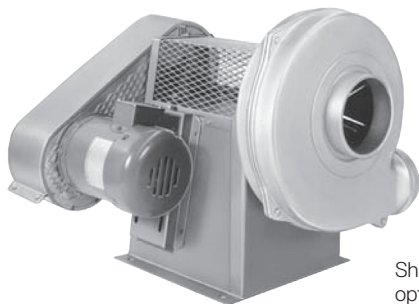
1 MML is the maximum motor length on customer-supplied motor. Motor manufacturer's C dimension cannot exceed MML.

2 Arrangement 9 dimensions are the same as Arrangement 1 with the exception of dimensions C.D and MML which are for Arrangement 9 only

Note: All models, discharge flange not available for down blast or bottom angular down discharge positions.

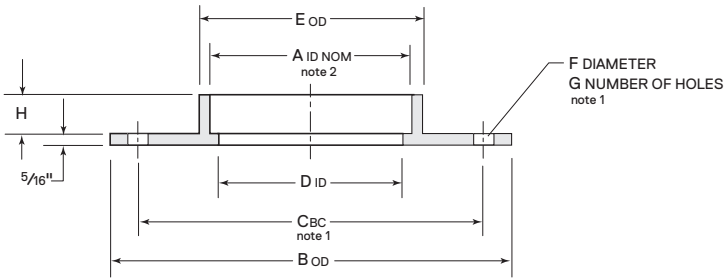
**C.D. Belt Center Distance**

Model	56-145T		182T-184T		213T-215T		254T-256T		284T-286T	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
PB-8	10 1/4"	11 1/4"								
PB-9	10 1/4"	11 1/4"								
PB-10A	10 1/4"	11 1/4"								
PB-12A	10 1/4"	11 1/4"	13 5/8"	14 5/8"	14 3/8"	15 1/2"				
PB-14A	12"	13"	13 5/8"	14 5/8"	14 3/8"	15 1/2"				
PB-15A			13 5/8"	14 5/8"	14 3/8"	15 1/2"	17"	18 5/8"		
PB-18			13 5/8"	14 5/8"	14 3/8"	15 1/2"	17"	18 5/8"		
PB-18WA			13 5/8"	14 5/8"	14 3/8"	15 1/2"	17"	18 5/8"	17 3/8"	19 1/4"



Shaft guard optional

**INLET AND DISCHARGE FLANGE**

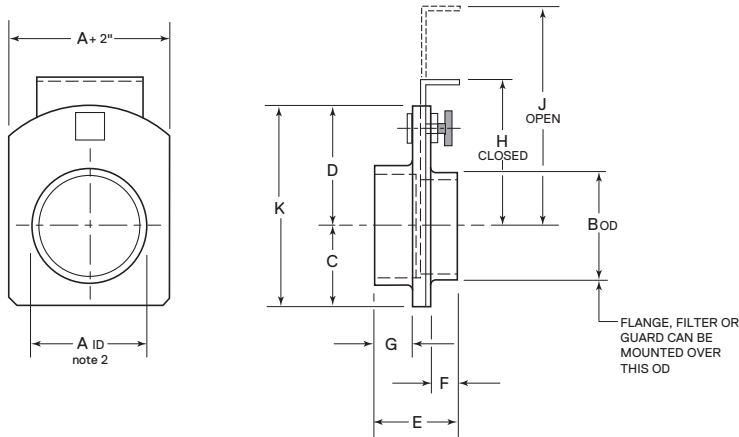


A note 2	B note 3	C note 3	D	E	F	G	H
4 1/16"	9"	7 1/2"	3 11/16"	4 9/16"	7/16"	4	15/16"
5 1/16"	11"	8 1/2"	4 9/16"	5 9/16"	7/16"	4	15/16"
6 1/16"	11"	9 1/2"	5 1/2"	6 9/16"	7/16"	4	1 1/16"
7 1/16"	11"	9"	6 1/16"	7 11/16"	7/16"	8	15/16"
8 1/16"	13 1/2"	11 3/4"	7 1/2"	8 5/8"	7/16"	8	1"
9 1/16"	16"	14 1/4"	9 11/16"	10 9/16"	7/16"	8	1"

- 1 Holes will not be drilled unless customer specifies. If drilled per our standard, holes will be drilled on centerlines unless specified otherwise on order. Dimensions C, F and G can be made to customer specifications at an additional charge.
- 2 Dimension A fits over inlet or outlet of blower AA or DD dimension.

- 3 Meet ANSI-125 lb flange dimensions.
  - 4 All dimensions are ±1/8" except C and F.
  - 5 All flanges are 319 cast aluminum
- Note:** Discharge flanges not available on downblast or bottom angular down discharge positions.

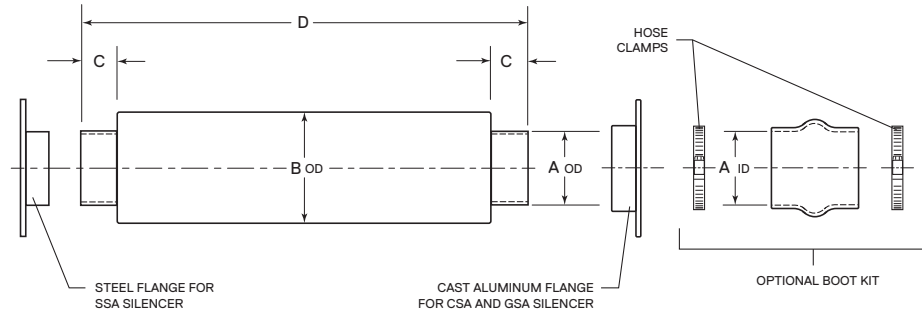
**INLET AND DISCHARGE SLIDE GATE**



- 1 Gate halves are 319 cast aluminum. Slide gate is 12 gauge galvanized steel. Aluminum slide gate available at additional charge.
  - 2 Dimension A fits over inlet or outlet of blower AA or DD dimension.
- Note:** Not available on downblast or bottom angular down discharge positions.

Model	A note 2	B	C	D	E	F	G	H	J	K
FG-4	4 1/16"	3 15/16"	3 1/4"	4 1/2"	2 11/16"	1"	1 1/16"	5 5/8"	9"	7 3/4"
FG-5	5 1/16"	4 15/16"	3 1/2"	5 1/2"	2 9/16"	1 1/8"	7/8"	6 1/8"	10 1/2"	9"
FG-6	6 1/16"	5 15/16"	4"	5 1/2"	2 11/16"	1 1/16"	1"	6 1/4"	11 1/2"	9 1/2"
FG-7	7 1/16"	6 15/16"	4 1/2"	5 1/2"	2 7/8"	1 1/8"	1 1/8"	6 1/4"	12 1/2"	10"
FG-8	8 1/16"	7 15/16"	5"	6 3/4"	2 13/16"	1"	1 3/16"	7 3/4"	15"	11 3/4"
FG-10	10 1/16"	9 15/16"	6"	8"	3 1/16"	1 5/16"	1"	9"	18 1/2"	14"

**INLET AND DISCHARGE SILENCER**



Model	A	B	C	D ± 1"	Approximate Shipping Weight lb	Maximum SP WG	Temperature Range °F	Outer Casing
CS-4	4"	6"	2 5/8"	60"	6	20"	-20° to 350° note 1	.006" Aluminum
CS-5	5"	7"	2 5/8"	60"	6			
CS-6	6"	8"	2 5/8"	60"	7			
CS-7	7"	9"	2 5/8"	60"	8			
CS-8	8"	10"	2 5/8"	60"	9			
CS-10	10"	12"	2 5/8"	60"	11	20"	-20° to 350° note 1	26 Gauge Galvanized Steel
GSA-4	4"	7 7/8"	2 1/4"	28 1/2"	10			
GSA-5	5"	8 7/8"	2 1/4"	28 1/2"	11			
GSA-6	6"	9 7/8"	1 3/8"	26 1/8"	12			
GSA-7	6" note 9	9 7/8"	1 3/8"	26 1/8"	14			
GSA-8	8"	11 7/8"	2 3/4"	29 3/4"	16	20"	-20° to 500° note 2	16 Gauge Mild Steel
GSA-10	10"	14"	2 3/4"	39 5/8"	26			
SSA-4	4 1/4"	12"	2"	40"	50			
SSA-5	5 1/4"	13"	2"	40"	53			
SSA-6	6 1/4"	14"	2"	40"	59	20"	-20° to 500° note 2	16 Gauge Mild Steel
SSA-7	7 1/4"	15"	2"	40"	67			
SSA-8	8 1/4"	16"	2"	40"	74			
SSA-10	10 1/4"	18"	2"	40"	87			

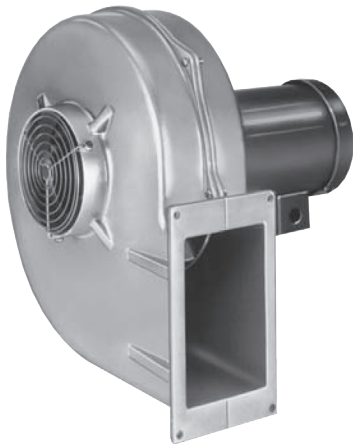
- 1 If used with a boot kit, the temperature range of the boot is -40°F up to +250°F.
- 2 Standard paint may fade or deteriorate at temperatures above 200°F.
- 3 All models contain fiberglass media.
- 4 Model **CSA** silencers are flexible and can be carefully bent a little to go around obstructions.
- 5 Neoprene boot kits are available to mount **CSA** and **GSA** silencers only. Boot kits include 1 boot and 2 hose clamps.  
Neoprene boots are approximately 1/4" thick. Flanges are optional for all models.

- 6 Model **SSA** silencers should use flanges for mounting but flanges are optional.
- 7 **All GSA and SSA silencers must be independently supported. Do Not use the blower to support the silencers.**
- 8 Flexible hose will **Not** fit over the OD of the inlet/outlet collars (A dimension). The inlet collars will not slide over the inlet or discharge of the blowers.
- 9 The **GSA-7** requires a special boot kit if requested. There are no **GSA-7** silencers. We use a **GSA-6** with a special boot that is 6" ID on one end to connect to the **GSA-6** and 7" ID on the other end to connect to **PB-12A** inlet or 7" duct. For a current detail drawing of the **GSA-7** silencer, contact the Cincinnati Fan sales office for your location.

**CUSTOM PRODUCTS**



PB-14 with special motor and mounting plate for cooling traction motors on rapid transit systems. All aluminum parts black anodized.



PB-12 with special wider housing (PB-12W) and integral discharge flange. Blower used to cool large DC motors.



PB-9 with air motor. Cast aluminum blower with non-electric motor required to handle highly volatile substances at variable flow rates.



PB-14 with continuous flange added to ensure meeting "low leakage" requirement in evacuating oil mist at 14" SP WG on discharge.



PB-14 with special inlet mounting pad used to pressurize calendar rolls on corrugated paper machines.

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