

High Pressure Blowers



- Fourteen Sizes
- Industrial Applications
- Static pressures up to 53" W.G. (13,163 Pa)
- Volume Range from shut off up to 27,000 CFM (12,744 l/sec)



Plasticair

Introduction

In today's industry, applications for corrosion resistant high-pressure exhaust fans are becoming more and more common. Cost has always been a main concern when designing systems that incorporate this high performance equipment. Materials such as Titanium and Hastelloy C have excellent corrosion resistant capabilities, however, these metals can be very straining on project budgets. 316 stainless steel can be more budget friendly, but does not have the corrosion resistant capability of the exotic alloys mentioned above.

For performances up to 250 F (120 C), 53" W.G.(13,163 Pa) 27,000 CFM(12,744 l/sec) Plasticair can combine the corrosion resistant features of Hastelloy C and Titanium with the budgetary costs that are more in line with 316 stainless steel. Plasticair's solution is the Industrial FRP High Pressure Radial Blade Exhaust Fan featured here in this bulletin. This fan exceeds all other FRP corrosive gas exhaust equipment in terms of pressure limitations, safe impeller tip speeds and overall industrial quality.

The HPB Series is available in 14 sizes and a variety of different premium quality resins.

HPB Series

CLASS III

CLASS IV





Housing Construction

Features

- Solid FRP with balsa core construction on drive side, tapered design on inlet side
- Heavy duty industrial FRP flanges (not drilled)
- Drain located at lowest point
- Available in CW/CCW & choice of rotational discharge position
- Centre split fan casing c/w 316 stainless steel fasteners and neoprene gasket
- The corrosion barrier is resin rich and incorporates a C-veil
- The outer surface is a UV stabilized resin rich smooth finish



Bearings

Features

- Bearing housing is of a split pillow block design and is cast iron construction c/w grease fittings.
- Bearings are ball type with self-aligning double row design.
- Bearing seals are double lip design and made from wear resistant polyurethane material.

Shaft

Features

- Shaft is fabricated from polished ground 1045 Carbon steel (316 stainless steel shafts are available as an option)
- Standard keyways are provided to fit with standard pulleys
- Counter sunk mark supplied to accommodate a tachometer



Heavy duty all welded steel base

Features

- Fabricated of heavy gauge mild steel
- All welding is continuous
- Standard coating is 2-4 mils of epoxy paint
- Heavy duty support plates for bearing mounting



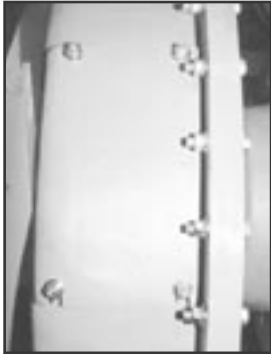
Wheel Construction

The Radial Blade design is fabricated of solid FRP throughout. The blades are designed to allow particulate that may attach to the impeller to be thrown off during operation. The extra lay-up thickness and structurally sound geometrical design gives a safe maximum tip speed of 25000 fpm (127 m/sec). The carbon steel shaft is attached to the back plate of the impeller by way of a taperlock bushing attaching to a sprocket. This entire assembly is completely encapsulated with full thickness FRP lay-up and the shaft is protected by a full thickness FRP shaft sleeve which protrudes past the teflon shaft seal (check accessories for packed and purged seals) located on the fan housing. The impeller is protected with a corrosion barrier. The standard corrosion barrier is resin rich and consists of C-Veil. The tip of each blade incorporates an extra nexus lining, as the majority of wear and tear on an impeller takes place at the outer tip.

Accessories



Access Door: The bolt-on access door is designed to be flush with the inner surface of the fan housing therefore smooth flowing gas stream encounters minimal turbulence when passing the access door. The door is fastened to the fan housing with 304 stainless steel hardware and is sealed air tight with neoprene gasket (exotic gasket is available upon request). The fastening bolts are encapsulated with full thickness FRP to give maximum corrosion resistance protection.



Inlet & outlet transitions



Solid FRP Flanged Drains:

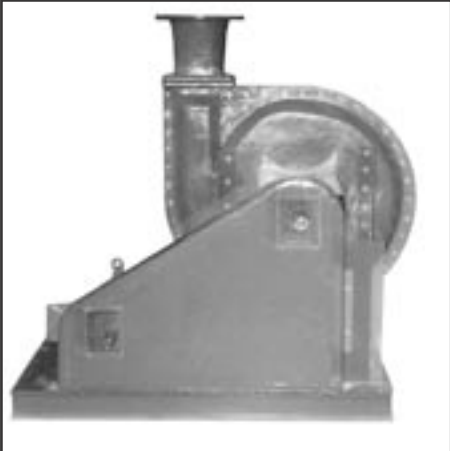
Plasticair's standard PVC drain can be upgraded to a solid FRP drain complete with plug and laminated into the lowest point of the fan scroll. The FRP drain is flanged and drilled to standard pipe flange specification.



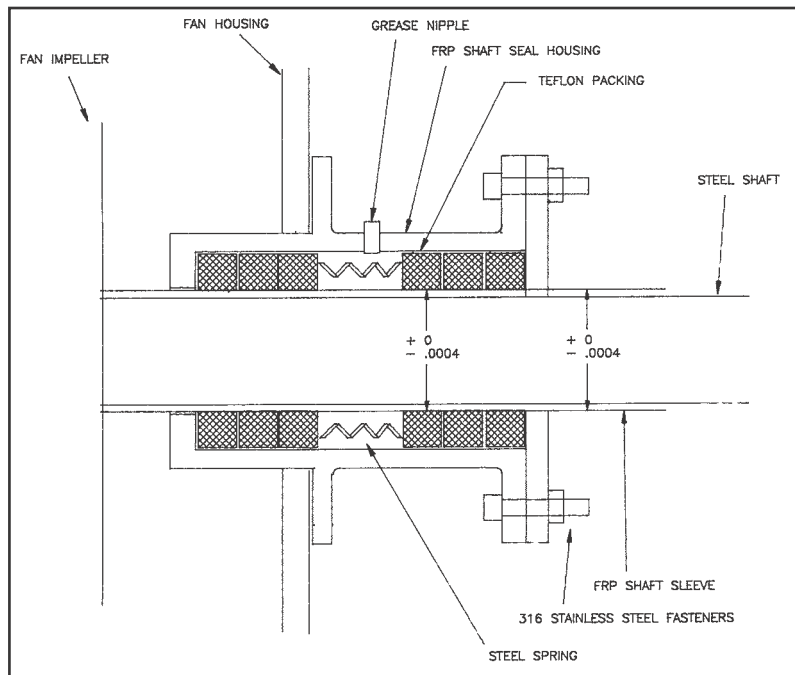
Outdoor Weather Guard: For outdoor installations Plasticair's FRP weather guard is designed for not only protecting the fan against the outdoor environment, but also serves as an OSHA rated belt guard.

Indoor Belt Guard:

For indoor installations a steel mesh epoxy coated guard provides OSHA rated protection and is maintenance friendly.



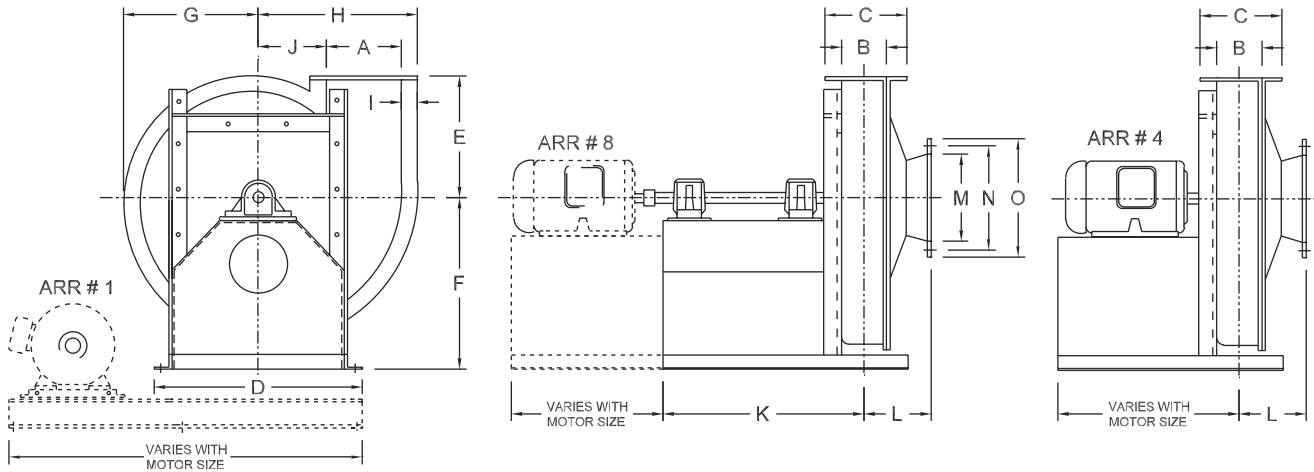
Accessories



Teflon Packed Seal: When applications incorporate a positive pressure on the scroll of a fan, Plasticair offers an option for a mechanically spring loaded, grease filled, teflon packed unit all encased in an FRP housing.

- Nexus Linings
- Option for Polyester resin
- Titanium impeller and shaft assemblies
- 304 or 316 stainless steel motor and bearing pedestals
- Motor and V-belt drive sets
- Graphite lining for spark-resistant construction
- Paint thickness to customer specification
- Vibration isolation
- Companion flanges
- Metal alloy seals
- Silencers constructed of FRP or stainless steel
- Noise enclosures

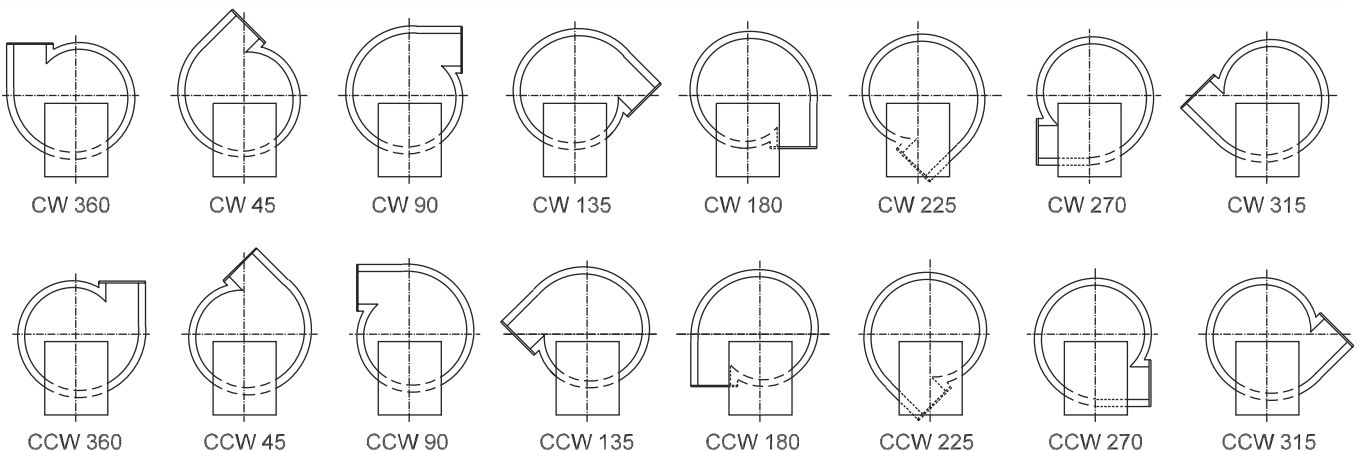
HPB Dimensional Drawings



HPB DIMENSIONS: inches (mm)

FAN SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	(BCD)														
10	8 9/16 (217)	5 (127)	9 (229)	22 1/8 (562)	13 15/16 (354)	22 1/2 (572)	15 5/8 (397)	18 7/16 (468)	2 (51)	7 7/8 (200)	21 3/8 (543)	7 1/2 (191)	10 (254)	13 (330)	14 3/8 (365)
12	10 5/16 (262)	6 (152)	10 1/2 (267)	26 1/2 (673)	16 11/16 (424)	25 3/4 (654)	18 5/8 (473)	21 15/16 (557)	2 1/4 (57)	9 7/16 (239)	25 1/2 (648)	8 15/16 (227)	12 (305)	15 (381)	16 3/8 (416)
14	12 (305)	7 (178)	12 (305)	29 3/8 (746)	19 1/2 (495)	29 (737)	21 1/2 (546)	25 1/2 (648)	2 1/2 (64)	11 (279)	29 9/16 (751)	10 3/8 (264)	14 (356)	17 (432)	18 3/8 (467)
16	13 11/16 (348)	8 (203)	13 (330)	33 5/8 (854)	22 1/4 (565)	32 (813)	24 1/4 (616)	28 13/16 (732)	2 1/2 (64)	12 9/16 (319)	33 11/16 (856)	11 13/16 (300)	16 (406)	19 (483)	20 3/8 (518)
18	15 7/16 (392)	9 (229)	14 (356)	36 (914)	25 1/8 (638)	37 (940)	27 (686)	32 1/16 (814)	2 1/2 (64)	14 1/8 (359)	38 (965)	13 3/8 (340)	18 (457)	21 (533)	22 3/8 (568)
20	17 1/8 (435)	10 (254)	15 (381)	40 (1016)	27 7/8 (708)	40 (1016)	29 5/8 (752)	35 3/8 (899)	2 1/2 (64)	15 11/16 (398)	40 1/8 (1019)	14 13/16 (376)	20 (508)	23 (584)	24 3/8 (619)
22	18 7/8 (479)	11 (279)	16 (406)	41 3/4 (1060)	30 5/8 (778)	43 (1092)	32 3/8 (822)	38 5/8 (981)	2 1/2 (64)	17 5/16 (440)	44 (1118)	16 3/16 (411)	22 (559)	25 (635)	26 3/8 (670)
24	20 5/8 (524)	12 (305)	17 (432)	45 5/8 (1159)	33 3/8 (848)	46 (1168)	35 1/8 (892)	41 15/16 (1065)	2 1/2 (64)	18 7/8 (479)	47 15/16 (1218)	17 3/4 (451)	24 (610)	27 (686)	28 3/8 (721)
26	22 1/4 (565)	13 (330)	18 (457)	46 3/4 (1187)	36 1/4 (921)	49 (1245)	37 7/8 (962)	45 3/16 (1148)	2 1/2 (64)	20 7/16 (519)	52 3/16 (1326)	19 3/16 (487)	26 (660)	29 (737)	30 3/8 (772)
28	24 (610)	14 (356)	20 (508)	50 3/8 (1280)	39 (991)	54 1/2 (1384)	41 (1041)	49 (1245)	3 (76)	22 (559)	56 3/8 (1432)	20 3/4 (527)	28 (711)	31 (787)	32 3/8 (822)
30	25 3/4 (654)	15 (381)	21 (533)	51 (1295)	41 3/4 (1060)	57 1/2 (1461)	43 5/8 (1108)	52 5/16 (1329)	3 (76)	23 9/16 (598)	57 1/4 (1454)	22 3/16 (564)	30 (762)	33 (838)	34 3/8 (873)
32	27 3/8 (695)	16 (406)	22 (559)	54 3/8 (1381)	44 1/2 (1130)	60 1/2 (1537)	46 1/2 (1181)	55 9/16 (1411)	3 (76)	25 1/8 (638)	60 15/16 (1548)	23 5/8 (600)	32 (813)	35 (889)	36 3/8 (924)
34	29 1/8 (740)	17 (432)	25 (635)	57 3/4 (1467)	47 1/4 (1200)	64 1/2 (1638)	50 1/8 (1273)	59 7/8 (1521)	4 (102)	26 11/16 (678)	64 7/8 (1648)	25 5/16 (635)	34 (864)	37 (940)	38 3/8 (975)
36	30 7/8 (784)	18 (457)	26 (660)	61 1/4 (1556)	50 1/4 (1276)	67 1/2 (1715)	52 7/8 (1343)	63 1/8 (1603)	4 (102)	28 5/16 (719)	68 5/8 (1743)	26 11/16 (678)	36 (914)	39 (991)	40 3/8 (1026)

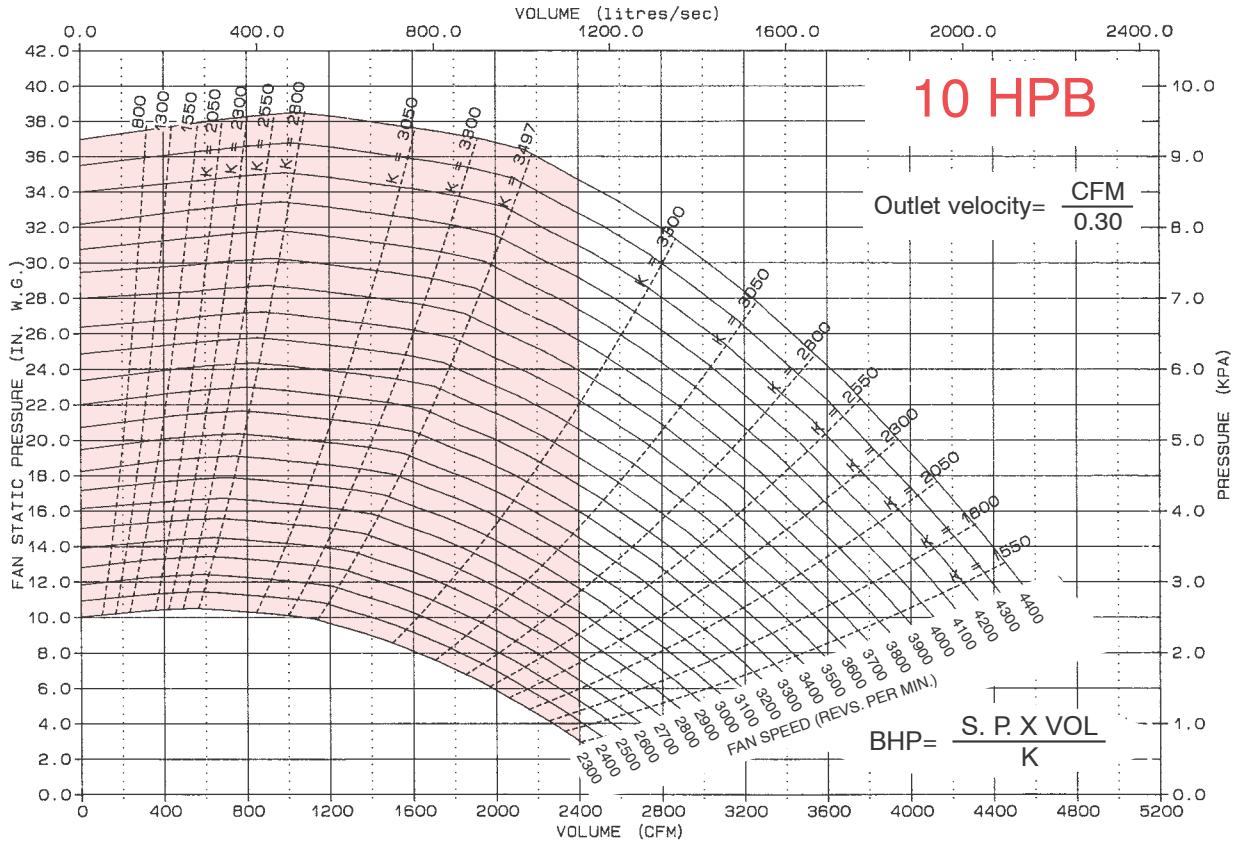
Available Discharge Rotations



View from drive side

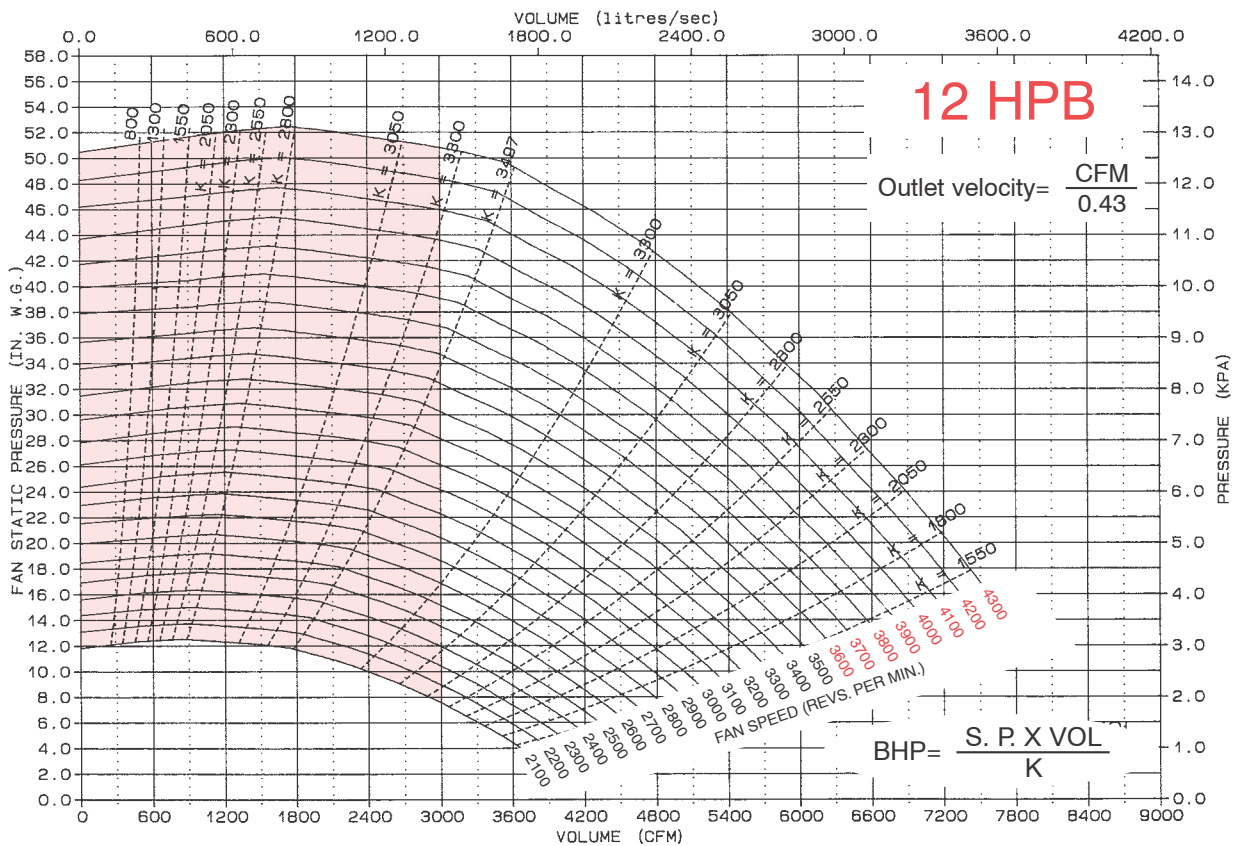
Wheel Diameter: 18.625"
 Outlet Area: 0.30 sq/ft
 Maximum Volume = 2400 CFM

2100 RPM to 4400 RPM: Class III



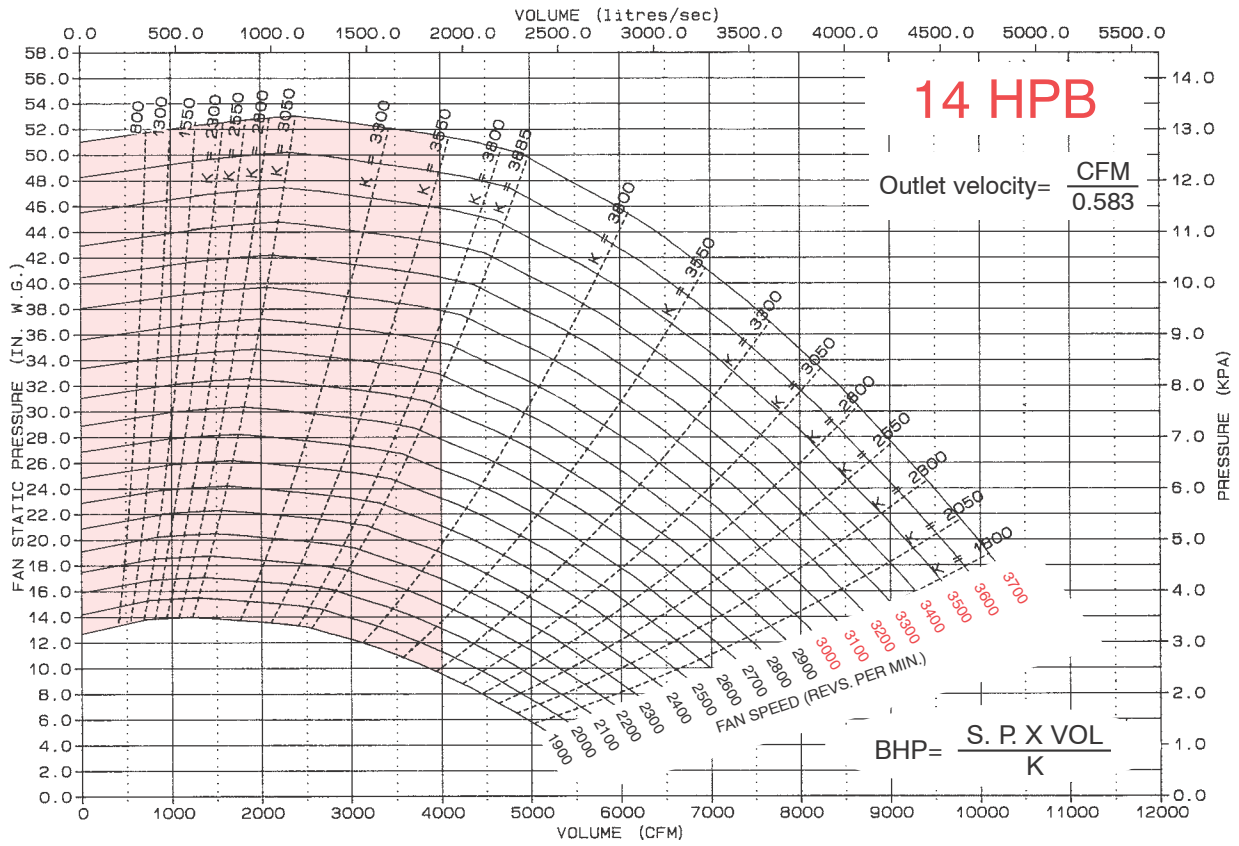
Wheel Diameter: 22.25"
 Outlet Area: 0.43 sq/ft
 Maximum Volume = 3000 CFM

2100 RPM to 3599 RPM: Class III
 3600 RPM to 4300 RPM: Class IV



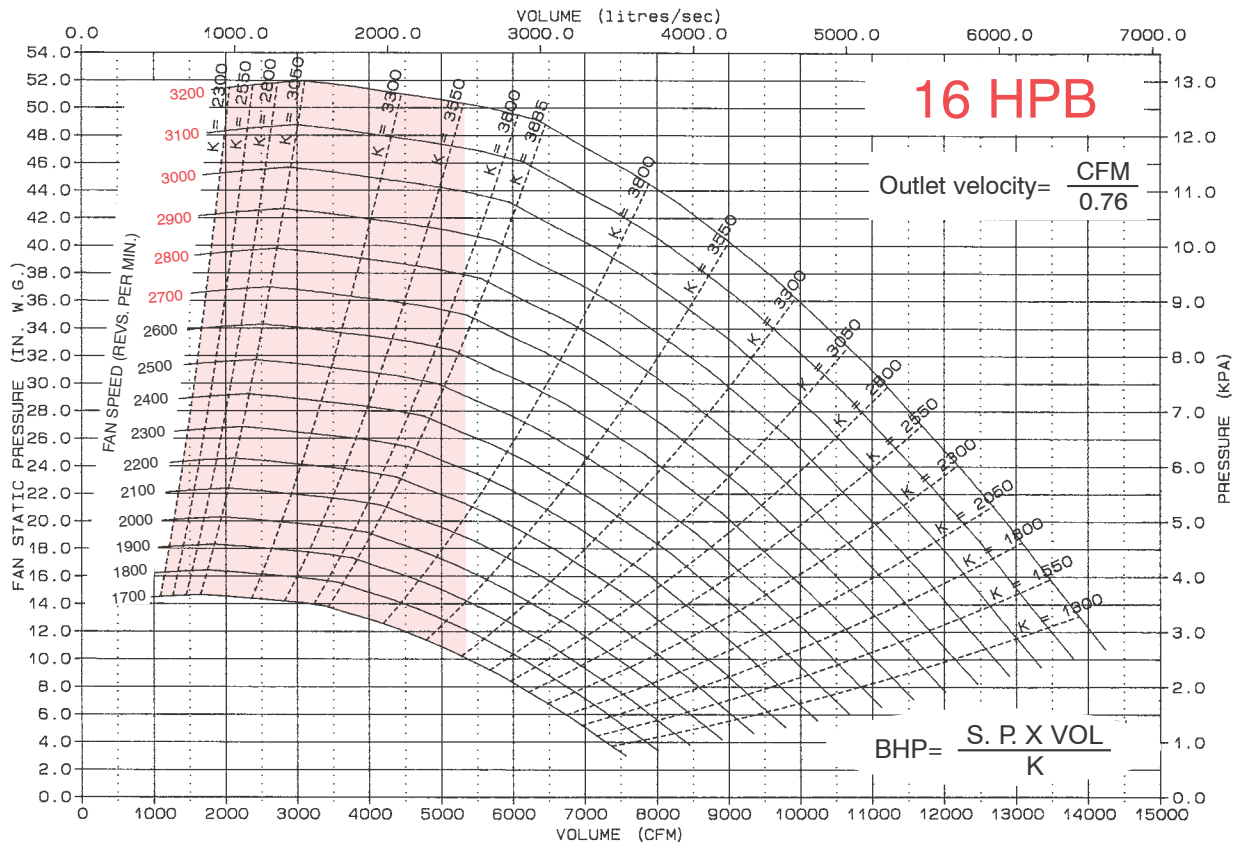
Wheel Diameter: 26.0"
 Outlet Area: 0.583 sq/ft
 Maximum Volume = 4000 CFM

1900 RPM to 2999 RPM: Class III
 3000 RPM to 3700 RPM: Class IV



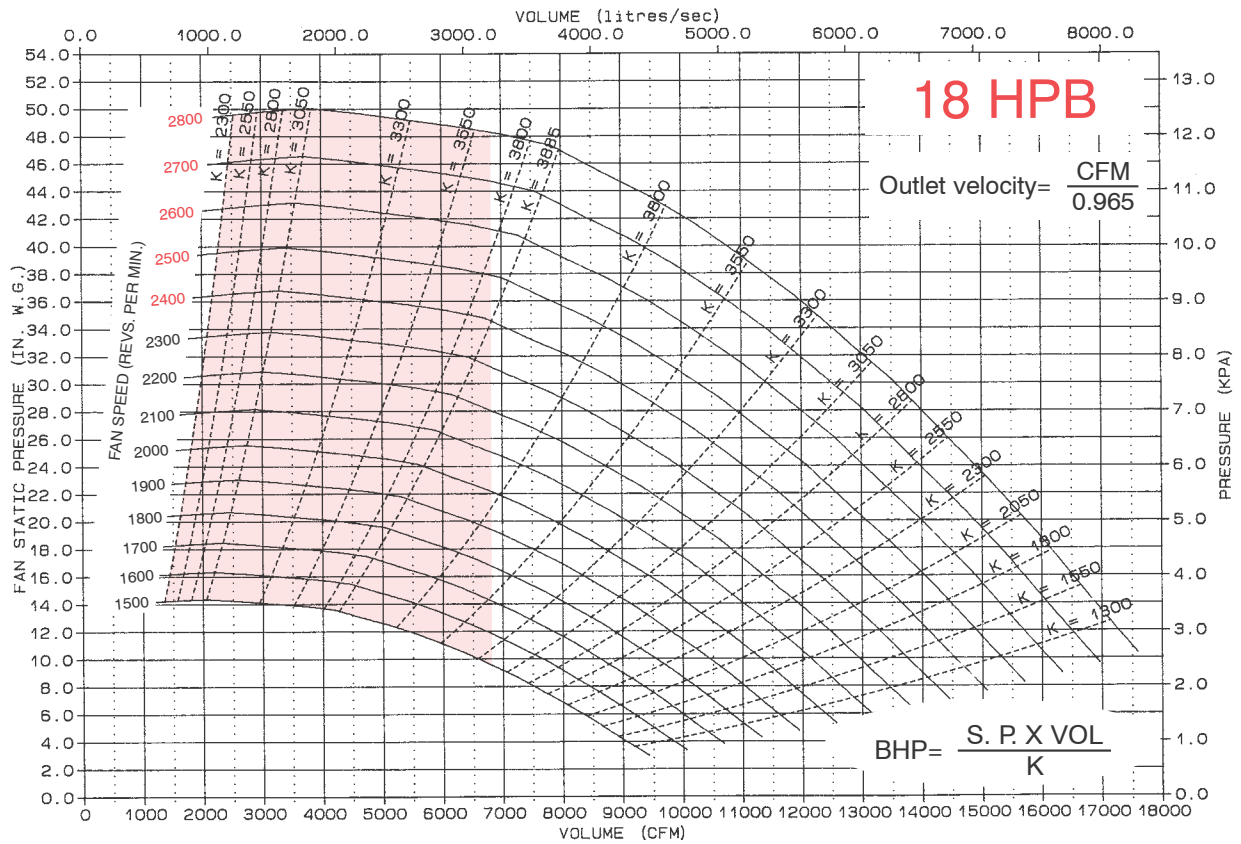
Wheel Diameter: 29.75"
 Outlet Area: 0.76 sq/ft
 Maximum Volume = 5300 CFM

1700 RPM to 2699 RPM: Class III
 2700 RPM to 3200 RPM: Class IV



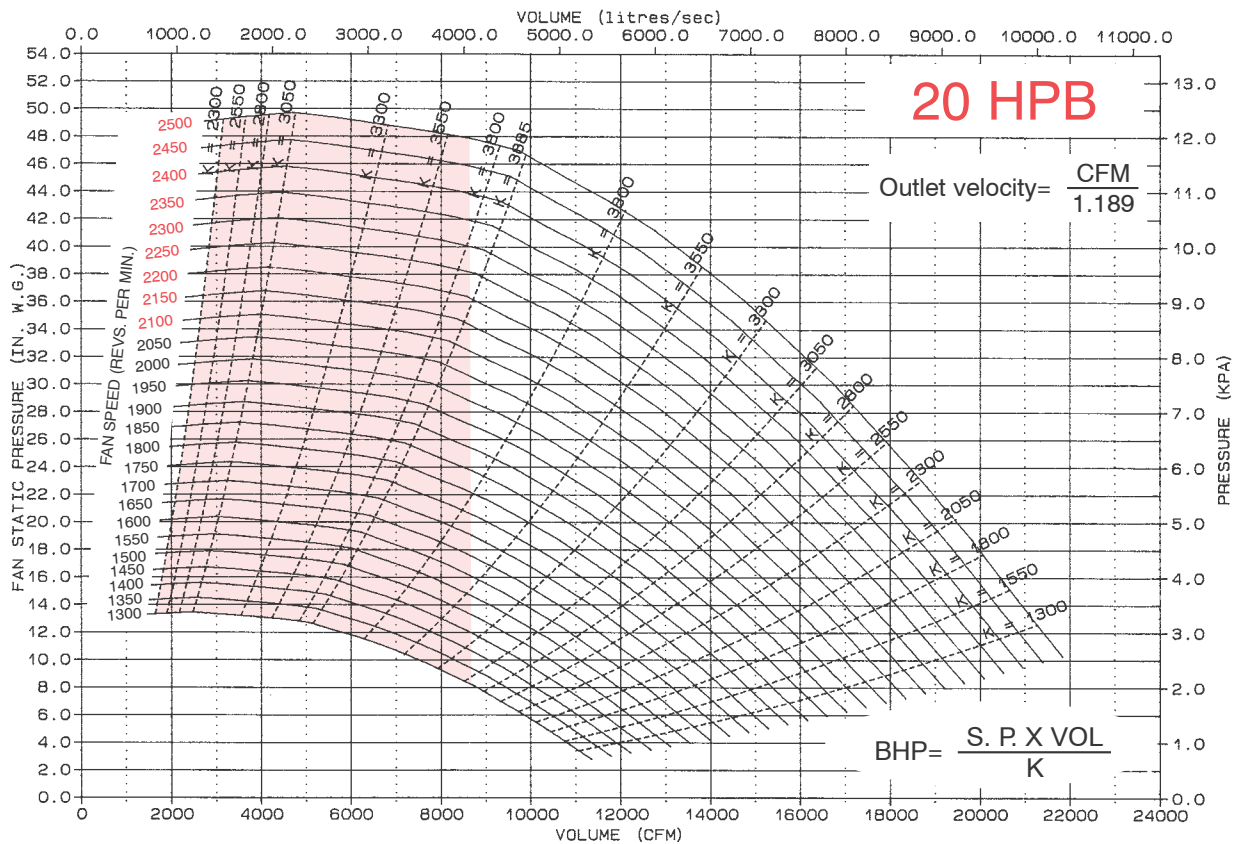
Wheel Diameter: 33.375"
 Outlet Area: 0.965 sq/ft
 Maximum Volume = 6800 CFM

1500 RPM to 2399 RPM: Class III
 2400 RPM to 2800 RPM: Class IV



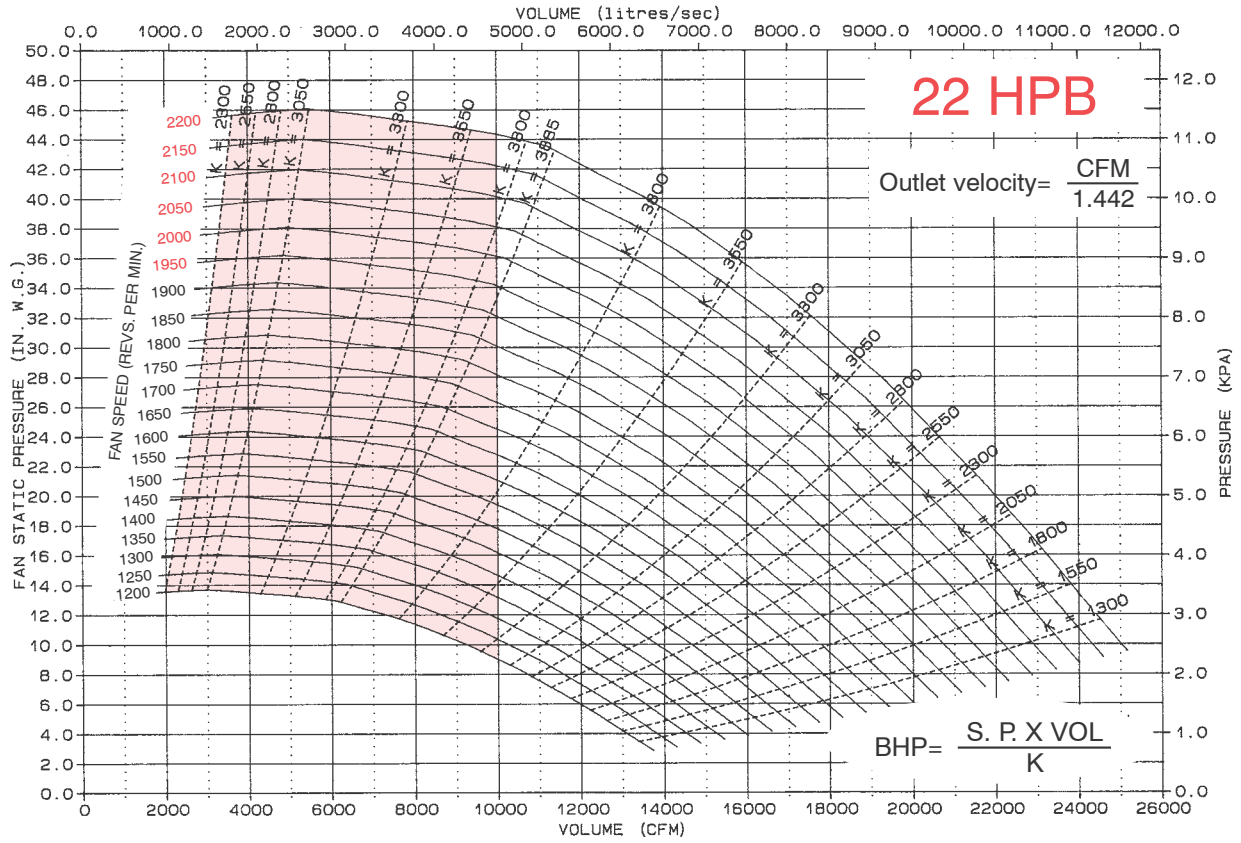
Wheel Diameter: 37.25"
 Outlet Area: 1.189 sq/ft
 Maximum Volume = 8300 CFM

1300 RPM to 2099 RPM: Class III
 2100 RPM to 2500 RPM: Class IV



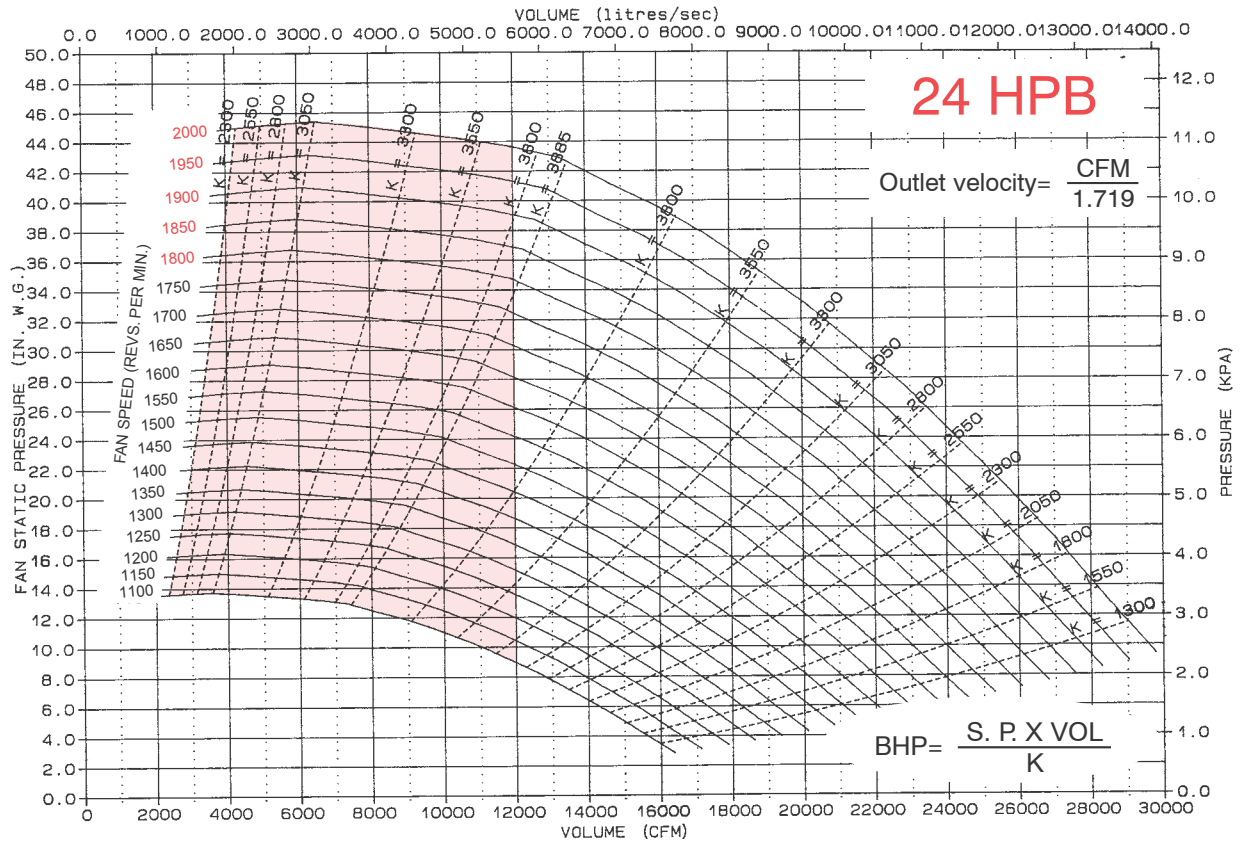
Wheel Diameter: 40.75"
 Outlet Area: 1.442 sq/ft
 Maximum Volume = 10000 CFM

1200 RPM to 1949 RPM: Class III
 1950 RPM to 2200 RPM: Class IV



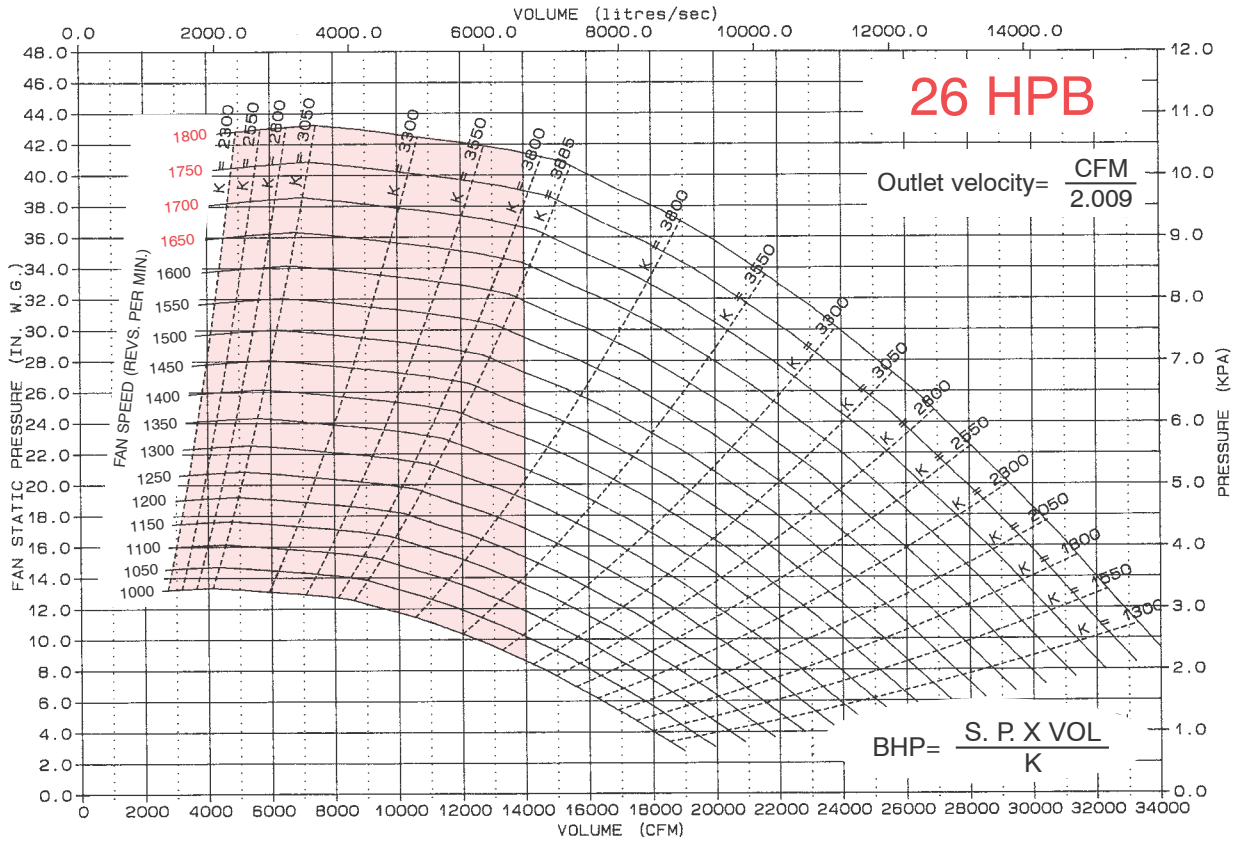
Wheel Diameter: 44.5"
 Outlet Area: 1.719 sq/ft
 Maximum Volume = 12000 CFM

1100 RPM to 1799 RPM: Class III
 1800 RPM to 2000 RPM: Class IV



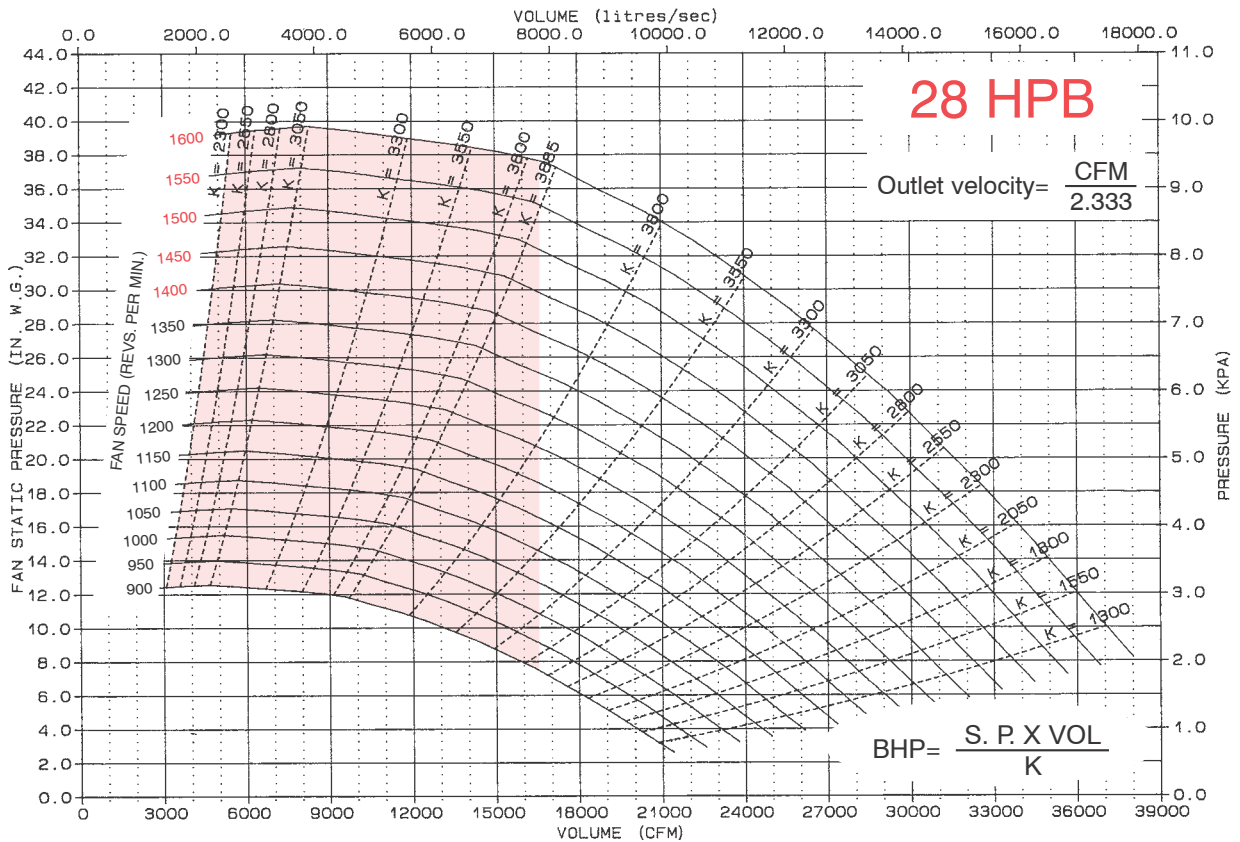
Wheel Diameter: 48.25"
 Outlet Area: 2.009 sq/ft
 Maximum Volume = 14000 CFM

1000 RPM to 1649 RPM: Class III
 1650 RPM to 1800 RPM: Class IV



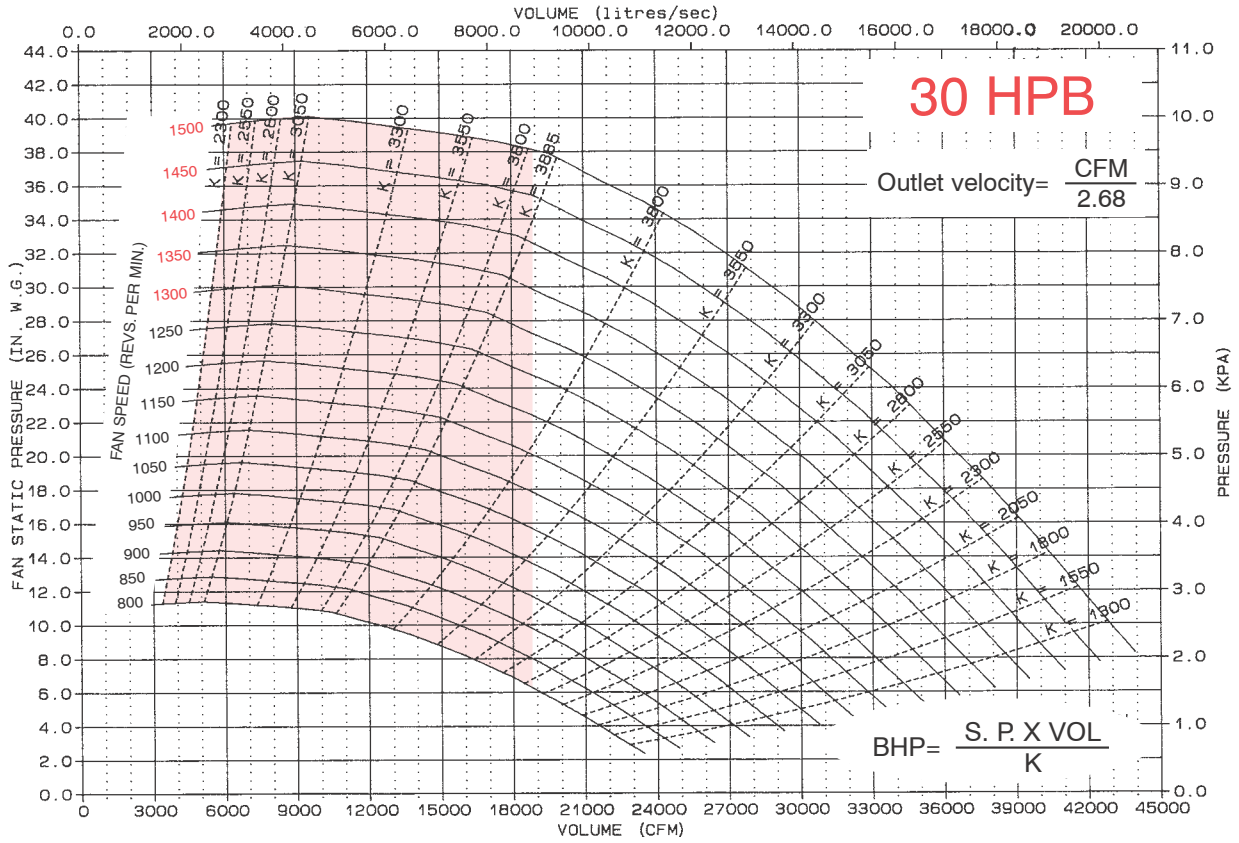
Wheel Diameter: 52.0"
 Outlet Area: 2.333 sq/ft
 Maximum Volume = 16500 CFM

900 RPM to 1399 RPM: Class III
 1400 RPM to 1600 RPM: Class IV



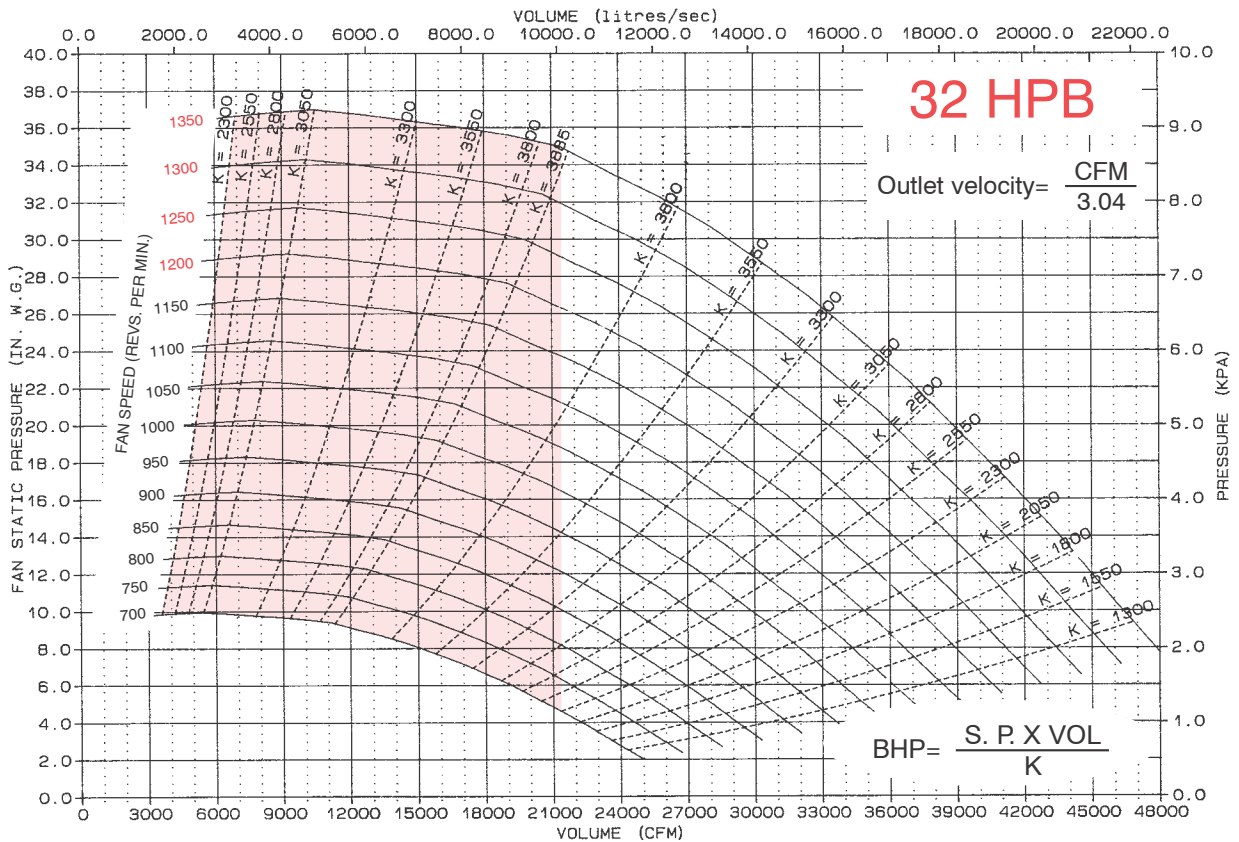
Wheel Diameter: 55.75"
 Outlet Area: 2.68 sq/ft
 Maximum Volume = 18800 CFM

800 RPM to 1299 RPM: Class III
 1300 RPM to 1500 RPM: Class IV



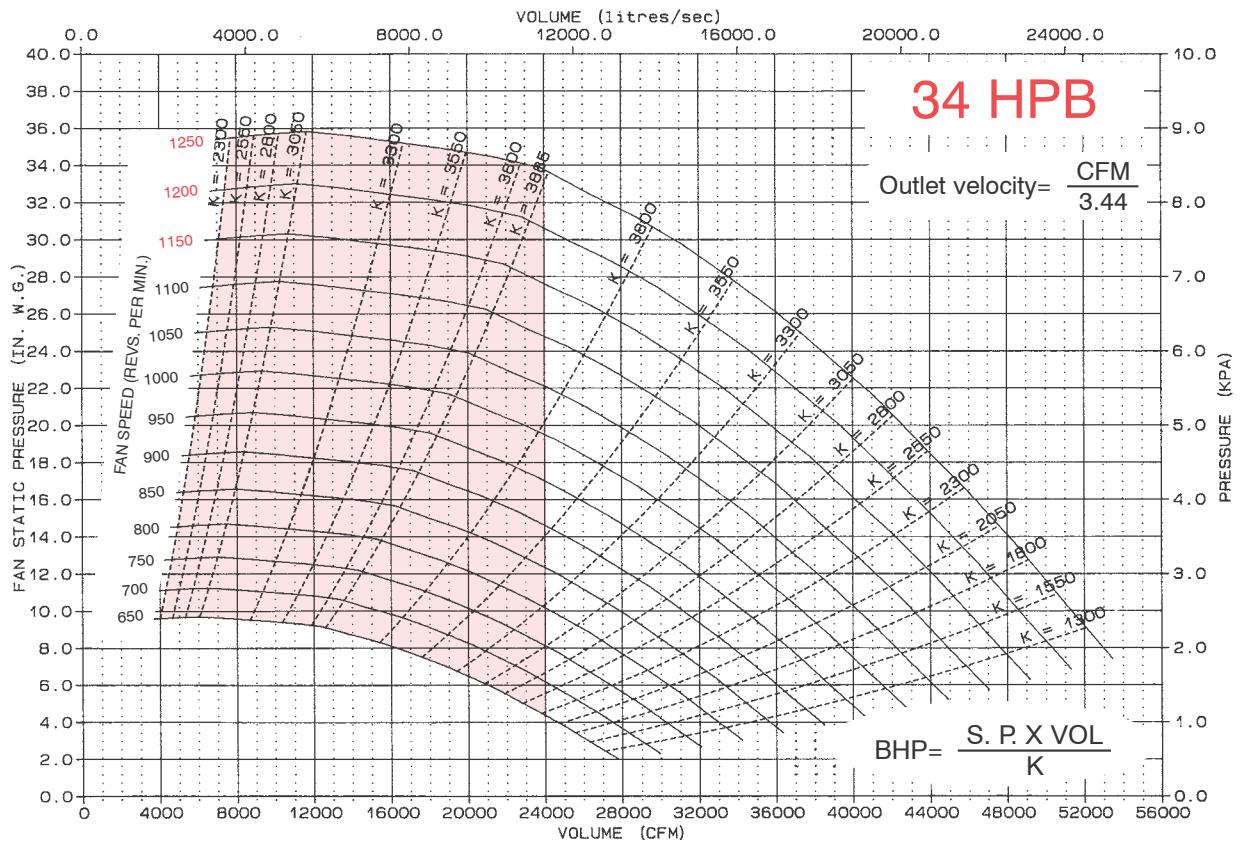
Wheel Diameter: 59.5"
 Outlet Area: 3.04 sq/ft
 Maximum Volume = 21300 CFM

700 RPM to 1199 RPM: Class III
 1200 RPM to 1350 RPM: Class IV



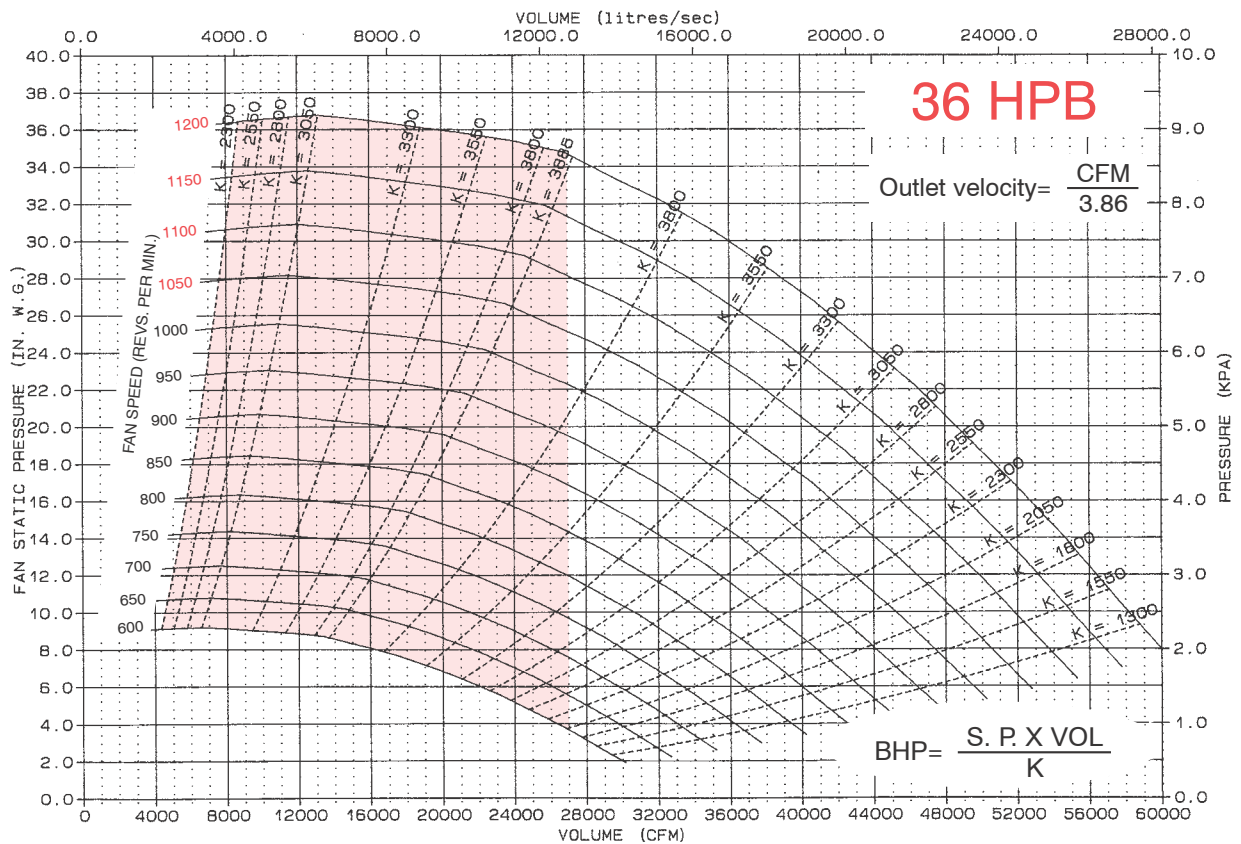
Wheel Diameter: 63.25"
 Outlet Area: 3.44 sq/ft
 Maximum Volume = 24000 CFM

650 RPM to 1149 RPM: Class III
 1150 RPM to 1250 RPM: Class IV



Wheel Diameter: 66.75"
 Outlet Area: 3.86 sq/ft
 Maximum Volume = 27000 CFM

600 RPM to 1049 RPM: Class III
 1050 RPM to 1200 RPM: Class IV



How To Specify Plasticair High Pressure Fans - HPB Series

General

The high-pressure fan is to be designed and constructed so that the corrosive gas stream only contacts solid FRP surfaces. All steel fasteners within the corrosive gas contact area will be stainless steel and encapsulated with a minimum of 0.1875" (3 mm) of FRP lay-up. Acceptable AMCA arrangements are 1, 4, 8 and 9. Under no circumstances shall an impeller or motor shaft be exposed to the corrosive gas stream. All shafts will be fully protected with FRP shaft sleeves. The fan shall be constructed as per AMCA Standards 99.

Air Performance

The cataloged performance ratings are to be in accordance with AMCA standard 210, and are to be guaranteed by the manufacturer. The fan is to be designed to have stable air performance from wide open through to shut off.

Sound Data

Submitted sound data shall be in accordance with AMCA standards 300 and 301. All submitted data will be in decibels, and presented in eight octave bands (10 12 watts). The designing engineer will perform the final dBA calculations.

Impeller Construction

The impeller is to be a self-cleaning radial blade design. The material of construction is to be vinyl ester resin (premium quality Hetron 922) and reinforcing glass throughout. The method of construction is to be hand lay-up only. Injection molded, rotor molded or press molded techniques are not acceptable. The entire surface of the impeller exposed to the gas stream will be complete with a corrosion resin rich barrier consisting of C-veil and a smooth finish. The outer edges of the impeller blades are to be lined with an additional corrosion barrier consisting of nexus for abrasion resistance. The shaft is to be attached to the back-plate of the impeller by way of a taperlock bushing and a one piece cast sprocket hub. Sprockets with welded hubs are not acceptable. The entire shaft attachment assembly is to be completely covered with a minimum 0.25" (6 mm) of FRP lay-up. The impeller is to have a safe maximum tip speed rating of 25000 feet per minute. Steel or thermoplastic impellers with FRP coatings are not acceptable.

Housing Construction

The fan housing is to be designed and constructed to resist vibration and imploding for static pressures up to 35" W.G. for class III, and up to 60" W.G for class IV. The material of construction will be vinyl ester resin (premium quality Hetron 922) and reinforcing glass throughout. The method of construction will be hand lay-up only. Injection molded and press molded techniques are not acceptable. The entire surface exposed to the corrosive gas stream will be complete with a corrosion resin rich barrier consisting of C-veil and a smooth finish. The outer surface of the housing will be a heavy gel coat, UV stabilized coating. The fan housing is to be of a bolted center split design complete with neoprene gasket for easy impeller access. The inlet, outlet and center split flanges are to be of heavy industrial quality. All flanges must have a factory flat finish. The housing shall consist of a machined Teflon seal to limit gas leakage. Steel and thermoplastic housing complete with FRP linings are not acceptable.

Steel Fan Base

The fan base is to be of heavy duty industrial quality to minimize vibration and to ensure long life. The bearing shaft pedestal is to be constructed of heavy gauge steel. The fabrication method is to be continuous welding. Stitch or non-continuous welding is not acceptable. If a unitary motor mounting base (arrangement 1) is required, the bearing and shaft pedestal is to be attached by continuous welding. Attachment by nuts and bolts is not acceptable. After welding is complete, prior to the fan assembly, the fan base is to be coated with 2-4 mils of the manufacturers standard epoxy.

Bearings

Bearings are to be of a self-aligning, double row ball bearing, or spherical roller split pillow block type. The bearings are to be rated and designed for a minimum L-10 life of 50,000 hours or L-50 life of 200,000 hours. The bearings are to be located out of the air stream and are to be covered with an easily removable guard for maintenance access. The method of lubrication will be grease.

Shaft

Fan shaft will be carbon steel 1045. The diameter of the shaft shall not be less than the specified manufacturer. The drive side of the shaft shall be countersunk for tachometer readings and complete with the correct keyways to accept V-belt drive selections. The impeller side of the shaft shall be complete with an FRP shaft sleeve which is bonded to the back-plate of the impeller and protrudes past the Teflon shaft seal located on the housing.

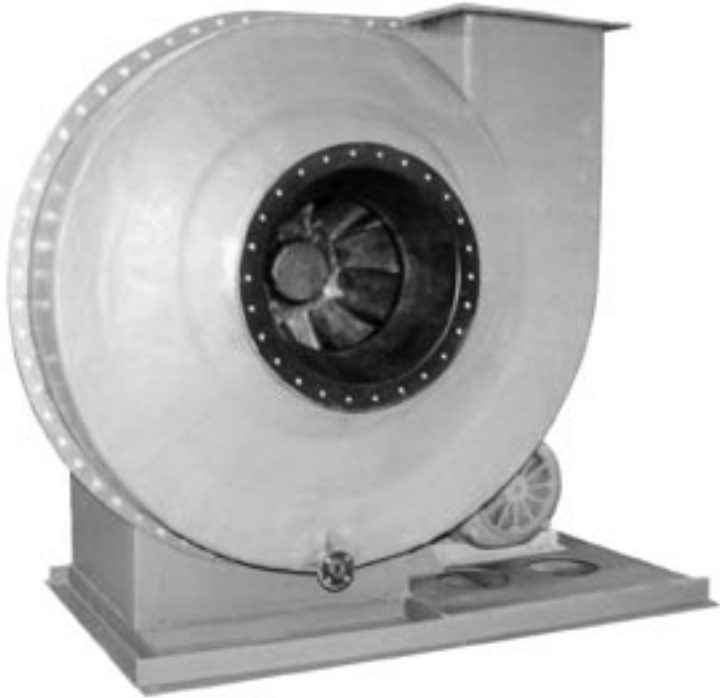
Balancing And Testing

Balancing of the impeller shall be achieved only with the use of the identical material used to fabricate the impeller. The use of any other foreign material is not acceptable. The balancing shall be in accordance with ASTM D-4167. The fan shall be test run and not shipped until vibration readings are within acceptable limits.

Warranty

The supplier shall warrant that all fan components shall be free from defects in materials and workmanship for a period of 15 months from date shipped or 12 months from equipment start up, whichever occurs first.

Proven Experience



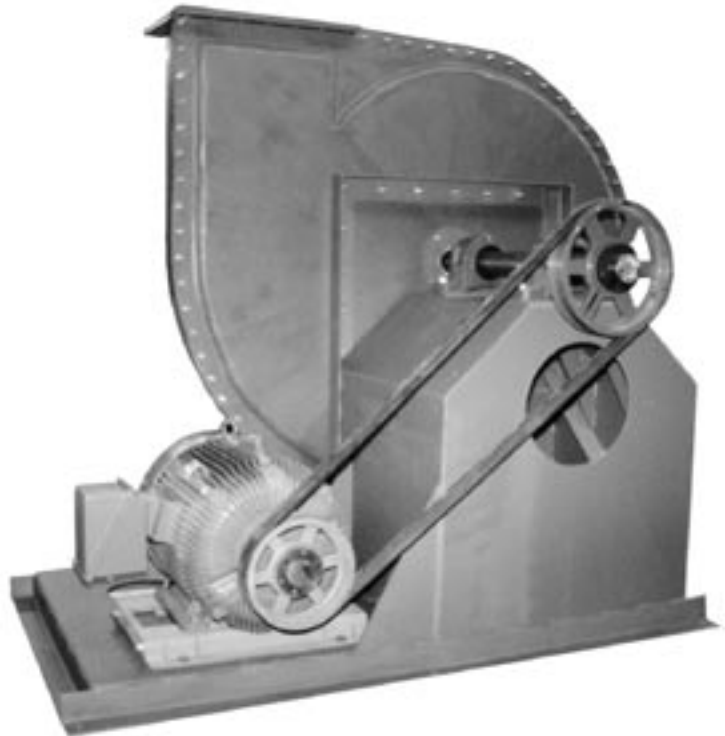
28 HPB Inlet View

Model 28 HPB

The Plasticair Model HPB shown on this page was used for a pickling process and required a performance of:

- 17000 CFM
- 24" static pressure
- 200° F

28 HPB Drive View



Plasticair is leading the way in taking FRP fans to the next industry level.

Plasticair Inc., Servicing Industry



FRP Fans



Scrubbing Equipment



Laboratory Fumehoods

Plasticair Product List

Scrubbers:

- Horizontal Packed Bed - Single/Double (HS-Series)
- Vertical Packed Bed Towers (VS-Series)
- Odour Control Scrubbers (HCS, VCS-Series)
- Demisters - Vane Type (P-Series)
- Demisters - Mesh Type (M-Series)
- Demisters - Multiple Stage Type (E-Series)
- Venturi Scrubbers (ECE-Series)
- Laboratory Fume Hood Scrubbers (FHS-Series)

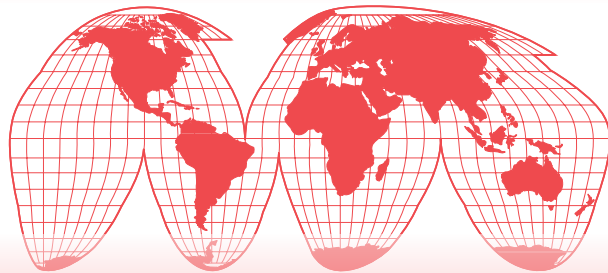
Scrubber Applications:

- Oil/Air Separators
- Chlorine Scrubbers
- Micro Chip Manufacturing Scrubbers
- Plating Plant Scrubbers
- Pickling Line Scrubbers
- Chromic Acid Scrubbers And Demisters

FRP Fans:

- Axial Fans - Vane / Tube
- Panel Fans - Wall Mount / Box Mount
- Inline Centrifugal - Backward Curved
- Laboratory Fans - B.I. Utility Sets / B.I. Tubular
- High Pressure Fans - Radial Blade
- Medium Pressure Fans - Radial Blade
- Medium Pressure Fans - Backward Curved
- Mini Industrial Vent Sets - Radial Blade / B.I.

Plasticair's Sales Forces are located in major cities around the world.



Contact the factory for the agent closest to you.

Your Local Plasticair Representative is:

Bulletin #061
March, 1999



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