



## 900-V Series (Vane Axial FRP Fans)

### SPECIFICATIONS

#### 1 GENERAL

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- a) The fan is designed and constructed so that the gas stream only contacts solid FRP surfaces.
- b) All steel fasteners within the gas contact area will be stainless steel and encapsulated with a minimum of 0.1875" (3 mm) of FRP lay-up.
- c) All fan shafts will be fully protected from exposure to the gas stream with FRP shaft sleeves.
- d) The fan shall be constructed as per AMCA Standards 99.
- e) Fans shall be tested to ANSI/AMCA 210 and AMCA 300.
- f) All Electrical components will be CSA/UL compliant and meet NEMA standards
- g) Manufacture of acceptance: Plasticair Inc.

#### 2 AIR PERFORMANCE

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- a) The performance ratings of equal or alternate bidders shall not exceed any of the following: scheduled performance characteristics by more than 5%; revolutions per-minute, horse power, or sound levels.
- b) Supplied fans must be able to achieve 10% variation in static pressure without a motor change.
- c) Fan must bear the AMCA Air and Sound Seal.

#### 3 PROPELLER CONSTRUCTION

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- a) The propeller is to be 6 bladed propeller, full width, full twist design.
- b) The material of construction is to be vinyl ester resin (premium quality Derakane 510) and reinforcing glass throughout.
- c) The method of construction is to be hand lay-up only.
- d) The entire surface of the impeller exposed to the gas stream will be complete with a resin rich corrosion barrier consisting of C-veil and a smooth finish.
- e) The shaft is to be attached to the back-plate of the propeller by way of a taper lock bushing and a one-piece sprocket hub.
- f) The entire shaft attachment assembly is to be completely covered with a minimum 0.25"(6 mm) of FRP lay-up.

#### 4 HOUSING CONSTRUCTION

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- a) The fan housing shall be tubular flow through design and complete with FRP guide vanes.
- b) The method of construction is to be hand lay-up only. The entire surface of housing exposed to the gas stream will be complete with a resin rich corrosion barrier consisting of C-veil and a smooth finish minimum 90 mils thickness.



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- c) All flanges are to have factory flat finishes.
- d) The outer surface of the housing will be of a heavy UV stabilized gel coat and grey in color.
- e) Fan housing shall be structurally designed to handle specified static pressure and reduce vibrations.

## 5 BEARINGS

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- a) The type and mountings of Bearings shall be designed for a minimum of L10 – 115,000 hours.
- b) Bearings shall be ball or spherical roller type.
- c) Mountings shall be solid pillow block or split pillow block.
- d) The successful bidder shall supply with the submittal package, the bearing calculation.

## 6 SHAFT

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- a) Shaft material shall be 316 stainless steel and complete with correct keyways to accept V-belt drive selections.
- b) The diameter of the shaft shall be sized to ensure that the critical speed of the fan is at least 25% above the fan operating speed.
- c) 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 through the housing.
- d) The outside diameter of the sleeve is machined to provide a minimum clearance gap with the Teflon shaft seal.
- e) OPTIONAL Mechanical Shaft Seal. The impeller shaft shall be supplied with a minimum 0.1875” thick shaft sleeve fully covering the shaft throughout the seal. The Shaft seal shall be constructed of FRP, packed with Teflon, spring loaded and lithium grease filled

## 7 MOTOR

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- a) Motor will be a foot mounted totally enclosed fan cooled motor with a 1.15 service factor.

## 8 BELT DRIVE

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- a) V-belt drive shall be sized with a safety factor of 1.5 times the motor horsepower.
- b) An adjustable base will be provided under the motor to permit setting the belt tension.

## 9 GUARDS

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- a) Weatherproof FRP guards complying with the OSHA standard will protect the shaft and v-belt drive. Guards will be vented for proper motor ventilation.



## 10 BALANCING AND TESTING

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- a) Balancing of the impeller shall be achieved only with the use of the identical material used to fabricate the impeller. Balancing shall be in accordance with ASTM D-4167 and meet the standard of G2.5.
- b) The fan shall be test run at operating speed and not shipped until vibration readings are within acceptable limits

## 11 OPTION FOR SPARK RESISTANT CONSTRUCTION

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- a) Fan shall be constructed incorporating an electrically conductive layer of graphite within the gas contact corrosion barrier. Wheel and housing will be pigmented black.
- b) Grounding lugs and wire are to be used to provide a common grounding point for static electricity to safely purge.

## 12 FLAME SPREAD RATING

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- a) All FRP shall be 0-25 flame spread rated.
- b) Fan housing and impeller will be constructed of Derakane 510-C throughout and will meet ASTM-E84 class 1.

## 13 WARRANTY

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- a) 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 startup, whichever occurs first.