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**ENGINEERING SUPPLEMENT**  
**ES-134**  
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## **SPECIFYING SINGLE-WIDTH PLR FANS**

### **GENERAL**

The fans shall be size \_\_\_\_\_ single-width single-inlet capable of operating over the entire range in accordance with the equipment schedule and as defined in AMCA Standard 99-2408 as designed and manufactured by The New York Blower Company. Fan wheels shall utilize non-overloading flat, single thickness blades in all sizes. Unless otherwise directed, fans shall be in compliance with the layout shown on the drawings.

### **PERFORMANCE**

Fan ratings shall be based on tests made in accordance with AMCA Standard 210 and licensed to bear the AMCA Certified Ratings Seal for Air Performance. Fans not licensed to bear the AMCA Seal for performance shall be tested, at supplier's expense, in an accredited AMCA laboratory. (Option: Only AMCA certified fans will be accepted.) Fans shall have a sharply rising pressure characteristic extending throughout the operating range to assure quiet and stable operation. Fan brake horsepower shall be equal to or less than \_\_\_\_\_ BHP at \_\_\_\_\_ inches static pressure and \_\_\_\_\_ CFM at \_\_\_\_\_ density.

### **SOUND**

Fan manufacturers shall provide sound power level ratings for fans tested and rated in accordance with AMCA Standards 300 and 301. Tests shall be performed in an accredited AMCA laboratory. Sound power ratings shall be in decibels (reference  $10^{-12}$  watts) in eight octave bands. Sound power levels will be corrected for installation by the specifying engineer...dBA levels only are not acceptable.

### **CONSTRUCTION**

Fan housings are to be heavy gauge, continuously welded construction. Housings with lock seams or partially welded construction are not acceptable. Housings are to be reinforced with rigid bracing to increase structural integrity and prevent vibration. Housing inlet cones shall be aerodynamically designed and spun providing a minimum separation of air flow. Wheel diameters and outlet areas shall be in accordance with the standard dimensions adopted by AMCA for centrifugal fans. Designs not in accordance with AMCA Standard 99-240 1 are not acceptable.

### **BEARINGS**

Bearings are to be heavy duty, grease lubricated, precision anti-friction ball or spherical roller, self-aligning, pillow block design. Bearings shall be designed for a minimum L-10 life of 40,000 hours (200,000 hour L-50 life) when rated at the fan's maximum cataloged operating speed. (Optional: bearings to have minimum L-10 life of 250,000 hours.)

### **SHAFT**

Shafts are to be ASTM A-108 steel, grade 1040/1045, precision turned, ground and polished. Grade 1018 steel is not acceptable. The shaft's first critical speed shall be at least 125% of the fan's maximum operating speed. The drive end of the fan shaft shall be counter-sunk for tachometer readings.

### **PAINT**

All fan surfaces are to be thoroughly prepared prior to painting using a combination of washing and hand and power tool cleaning as required. After cleaning, all surfaces are to be coated with an industrial grade alkyd enamel. Surfaces of bolted components not accessible after assembly shall be coated and allowed to dry prior to final assembly. Primer only will not be accepted.

### **BALANCE AND RUN TEST**

All fan wheels shall be dynamically balanced on precision balancers. Prior to shipment, completed fans shall receive a final test balance at the specified operating speed.

### **ACCESSORIES**

Accessories shall be provided as in the plans and specifications.

Required accessories include:

- Cleanout Door - Quick Opening - Flush Bolted - Raised Bolted
- Spark-Resistant Construction- AMCA A - AMCA B - AMCA C
- Drain
- Drain Plug
- Split Housing (non-rotatable fans only)
- Flanged Outlet
- Outlet Companion Flange
- Shaft Seal - Ceramic Felt - Buna-N - Viton® - Teflon®
- Flanged Inlet
- Inlet Companion Flange
- Inlet-Vane Damper - Internal - External
- Heat-Fan construction
- Heavy-Duty Slide Rails (Arrangement 9 only)
- Outlet Damper - Parallel Blade - Opposed Blade
- Safety Equipment - Belt Guard with Tachometer Opening and Plug - Shaft and Bearing Guard with Extended Bearing Lubrication Fittings - Inlet Guard - Outlet Guard
- Unitary Base
- Isolation Base - Spring - Rubber-In-Shear
- Drive - Variable V-Belt - Constant V-Belt - Flexible Coupling

### **FINAL INSPECTION**

All fans shall receive a final inspection by a qualified inspector prior to shipment. Inspection to include: fan description and accessories, balance, welding, dimensions, bearings, duct and base connection points, paint finish and overall workmanship.

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