

FE-1050 FAN INLET AIRFLOW SENSING ELEMENT

DESCRIPTION

The **FE-1050** is an airflow measuring element assembly specifically designed for installation in the inlet cone of centrifugal fans or inlet bell of vane-axial fans. The design of these primary elements provides a means of accurate measurement of fan capacity along with ease of installation. Each assembly is complete with two airflow measuring elements and pivot mounting hardware.

The **FE-1050** airflow averaging element assembly is a head type device, which generates a differential (velocity) pressure signal. The basic design is a “cylindrical tube within a cylindrical tube” creating independent chambers which permit the simultaneous measurement of both total pressure and static pressure. Multiple total and static pressure sensing ports (which are strategically located based on the known pressure distribution over a cylindrical surface) provide comprehensive averaging of the velocity variations. Each chamber is then connected to one side of a differential measurement device (gauge, transmitter, etc.) for flow measurement and indication purposes.

Features

- Low signal-to-noise ratio
- Multiple total and static pressure sensing ports along the length of the element
- Averaging internal manifold
- Insensitive to flow angle variations of as much as $\pm 20^\circ$ when faced in the normal direction of flow
- $\pm 2\%$ accuracy throughout the velocity ranges of 100 fpm and over
- Standard construction is 6063-T5 aluminum with anodized finish
- Available in optional corrosive resistance materials including Type 316L stainless steel, Hastelloy C-22, and Type 1 PVC
- Standard elements can be operated (in air) continuously in temperatures up to 350°F or intermittently in temperatures up to 400°F
- All elements can be operated in humidity ranges of 0 to 100%
- Standard elements have good salt air and mild acid resistance; excellent solvent and aromatic hydrocarbon resistance

FE-1050 Technical Specifications

1. Accuracy

Within $\pm 2\%$ of actual flow when installed in accordance with published recommendations

2. Operating Velocity Range

100 to 8,000 fpm

Note: Model FE-1050 fan inlet airflow measuring elements should not be used on fan inlet applications where the narrowest diameter of the inlet cone is less than 12 inches

3. Material

6063-T5 anodized aluminum (standard)

Type 316L stainless steel (optional)

Hastelloy C22

Type 1 PVC (optional)

Note

Other corrosive resistant materials are available. Consult factory for further information.

4. Temperature

Aluminum Elements

350°F continuous operation (in air)

400°F intermittent operation (in air)

Stainless Steel Elements

1600°F continuous or intermittent operation (in air)

Hastelloy Elements

900°F continuous or intermittent operation (in air)

PVC Elements

120°F continuous operation and 170°F intermittent operation (in air)

Note

Corrosive resistant element maximum operating temperatures vary greatly with the concentration of the media in the process stream. Consult factory for further information

5. Humidity

All Elements

0 to 100% non condensing

6. Corrosion Resistance

Aluminum Elements

Good salt, air, and mild acid gas resistance; excellent solvent and aromatic hydrocarbon resistance

Stainless Steel Elements

Good for sulfates, phosphates and other salts, as well as reducing acids such as sulphurous and phosphoric

Hastelloy Elements

Excellent resistance to strong oxidizers such as ferric and cupric chlorides, chlorine, formic and acetic acids, acetic anhydride, and salts.

PVC Elements

Excellent acid and alkalis resistance (supplied with Hastelloy C22 alloy mounting brackets)

7. Instrument Connections

Aluminum Elements

1/4" compression, suitable for use with thermoplastic or copper tubing; thermoplastic tubing requires the use of tubing inserts, which are supplied with the fittings

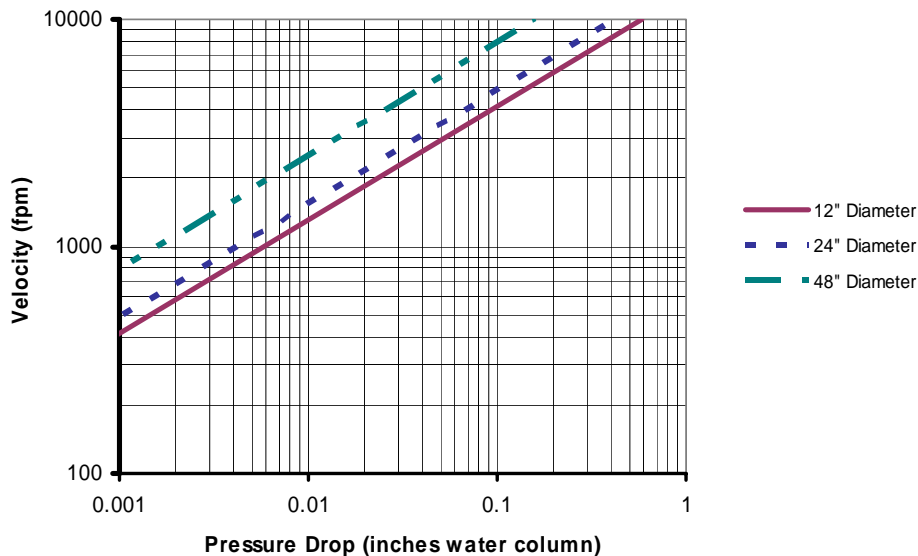
Stainless Steel and Hastelloy Elements

1/8-27 Female NPT

PVC Elements

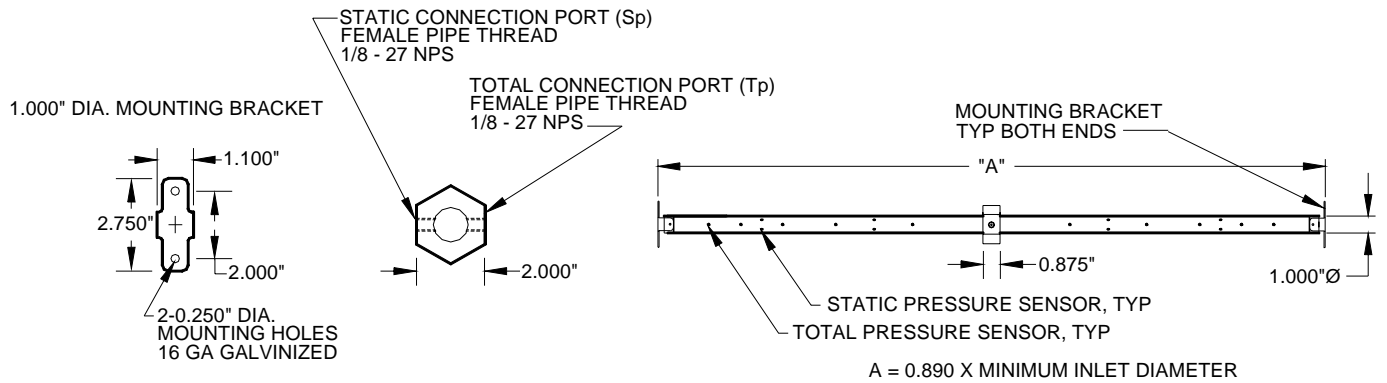
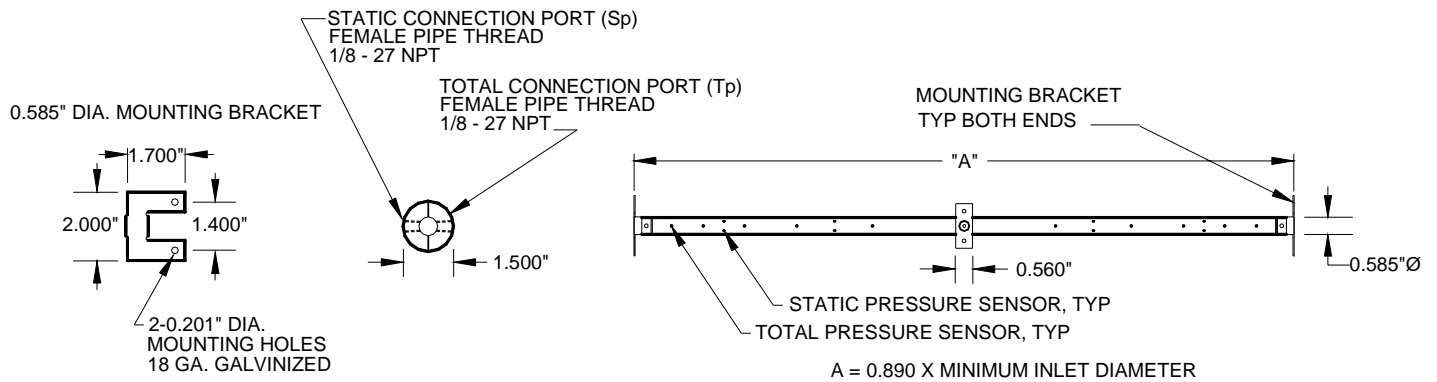
1/8-27 Female NPT

FE-1050 Resistance to Airflow



FE-1050 Dimensions

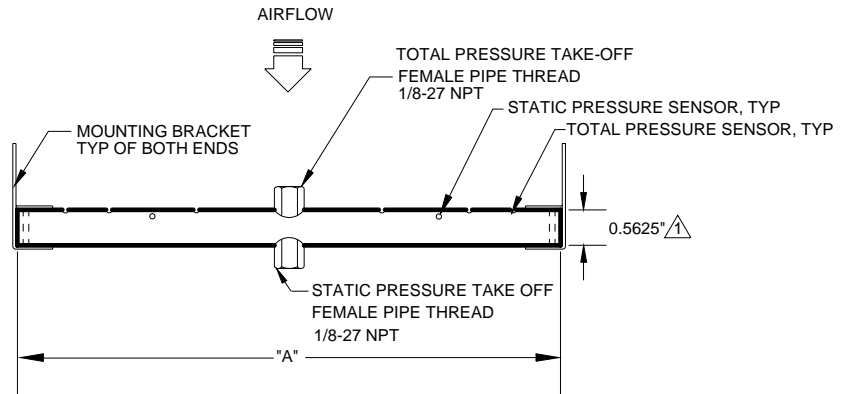
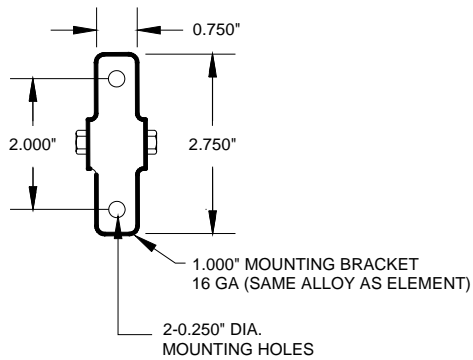
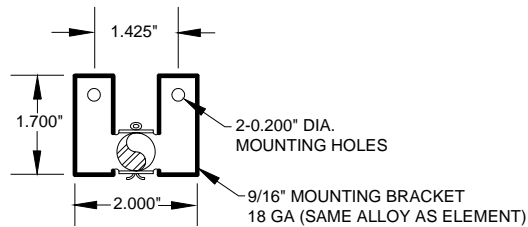
Aluminum Elements



Note: The 0.585 inch diameter probe is used for minimum fan inlets less than or equal to 28 inches and the 1 inch diameter probe is used for minimum fan inlets greater than 28 inches.

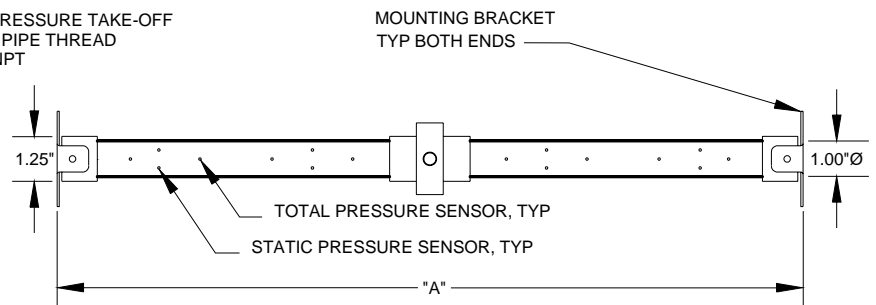
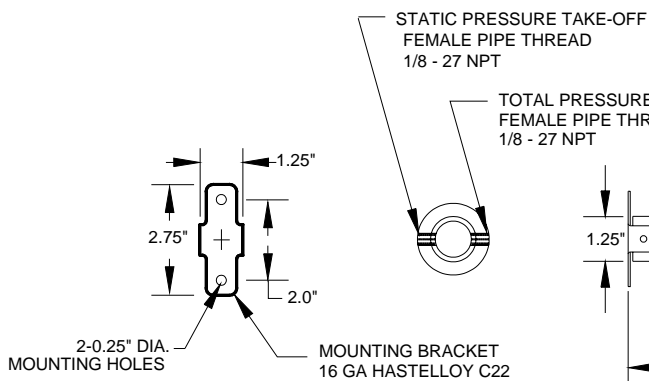
FE-1050 Dimensions (Continued)

Stainless Steel, Hastelloy, and Other Corrosive Resistant Elements



A=0.890 X MINIMUM INLET DIAMETER
NOTE: 1.000" ELEMENT USED FOR MINIMUM INLETS GREATER THAN 28.000".

PVC Elements



A = 0.89 X MINIMUM INLET DIAMETER

FE-1050 Specification Guide (Continued)

Installation Considerations

1. Primary flow elements shall be installed in strict accordance with the manufacture's published requirements. These elements serve as the primary signals for the airflow systems; it shall be the responsibility of the contractor to verify correct installation to assure that accurate primary signals are obtained.
2. An identification label shall be place on each primary flow element listing the model number; system served, size and identifying tag number.

Manufacturer

1. Fan inlet airflow measuring elements shall be Paragon Controls Inc. Model FE-1050 or equal as approved by the Engineer.
2. Naming of a manufacturer does not automatically constitute acceptance of this standard product nor waive the responsibility of the manufacturer to comply totally with all requirements of the proceeding specification.