

⚙️ Description :

The FS1000 is an insertion type airflow sensing element designed for quick, easy installation through a small cutout in the existing ductwork. Where multiple elements are required for proper duct traversing, the output ports are manifolded together, external to the ductwork. Each element is furnished complete with mounting hardware and sealing gaskets. Standard aluminum elements also include all brass compression fittings required to manifold the elements together.



The FS1000 airflow sensing element is a head type device, which generates a differential (velocity) pressure signal similar to the orifice, venturi, and other head producing primary elements. The FS1000 is constructed so that strategically located sensing ports (based on duct size) continually sample the total and static pressures, when inserted normal to flow. The total pressures sensed by the upstream ports are continually averaged within the element in an isolated chamber. The static sensing ports (located where the influence of the velocity head is zero) are averaged in a second isolation chamber. Each chamber is then connected to one side of a differential measurement device (gauge, transmitter, etc.) for flow measurement and indication purposes.

⚙️ Features :

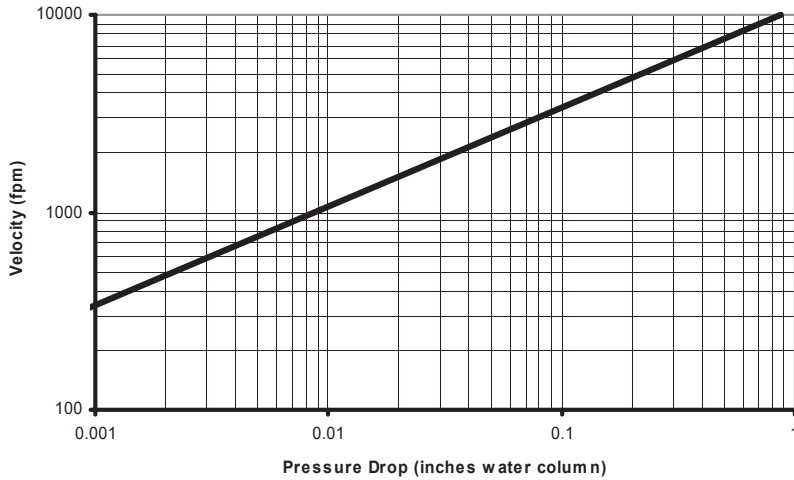
- Low signal-to-noise ratio
- Multiple total and static pressure sensing ports along the length of the element
- Averaging internal manifold
- Insensitive to flow angle variations of as much as $\pm 20^\circ$ when faced in the normal direction of flow
- $\pm 2\%$ accuracy throughout the velocity ranges 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, Hastaloy, 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



Technical Specifications :

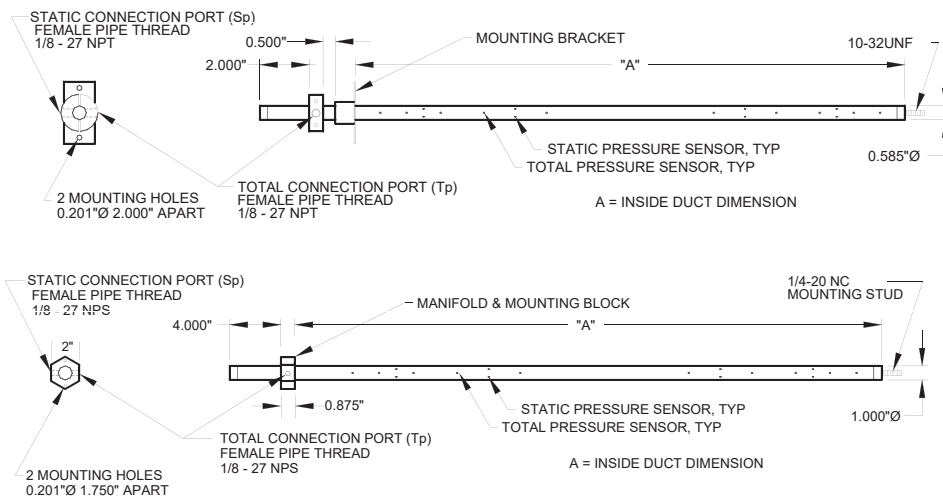
Accuracy	:	Within 2% of actual flow (even in moderately turbulent flows) with approach angle variation of $\pm 20^\circ$, when installed in accordance with published recommendations
Operating Velocity Range	:	100 to 10,000 fpm
Material	:	6063-T5 anodized aluminum (standard) Type 316L stainless steel (optional) Hastaloy (optional) Type 1 PVC (optional) Note : Other corrosive resistant materials are available. Consult factory for further information.
Temperature	:	<p>Aluminum Elements 350°F continuous operation (in air) 400°F intermittent operation (in air)</p> <p>Stainless Steel Elements 1600°F continuous or intermittent operation (in air)</p> <p>Hastaloy Elements 900°F continuous or intermittent operation (in air)</p> <p>PVC Elements 120°F continuous operation and 170°F intermittent operation (in air)</p> <p>Note: Corrosive resistant element maximum operating temperatures vary greatly with the concentration of the media in the process stream. Consult factory for further information.</p>
Humidity	:	<p>All Elements 0 to 100% non condensing</p>
Corrosion Resistance	:	<p>Aluminum Elements Good salt, air, and mild acid gas resistance; excellent solvent and aromatic hydrocarbon resistance</p> <p>Stainless Steel Elements Good for sulfates, phosphates and other salts, as well as reducing acids such as sulphurous and phosphoric</p> <p>Hastaloy Elements Excellent resistance to strong oxidizers such as ferric and cupric chlorides, chlorine, formic and acetic acids, acetic anhydride, and salts.</p> <p>PVC Elements Excellent acid and alkalis resistance</p>
Instrument Connections	:	<p>Aluminum Elements $\frac{1}{4}$" compression, suitable for use with thermoplastic or copper tubing; thermoplastic tubing requires the use of tubing inserts, which are supplied with the fittings</p> <p>Stainless Steel and Hastaloy Elements 1/8-27 Female NPT</p> <p>PVC Elements 1/8-27 Female NPT</p>

Resistance to Airflow :



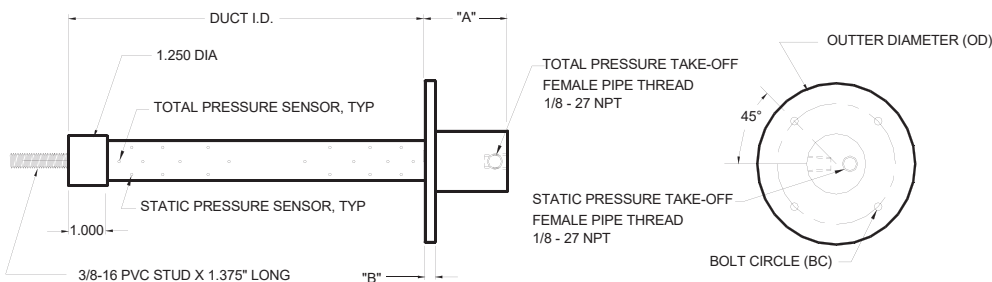
Dimensions :

Aluminum Elements

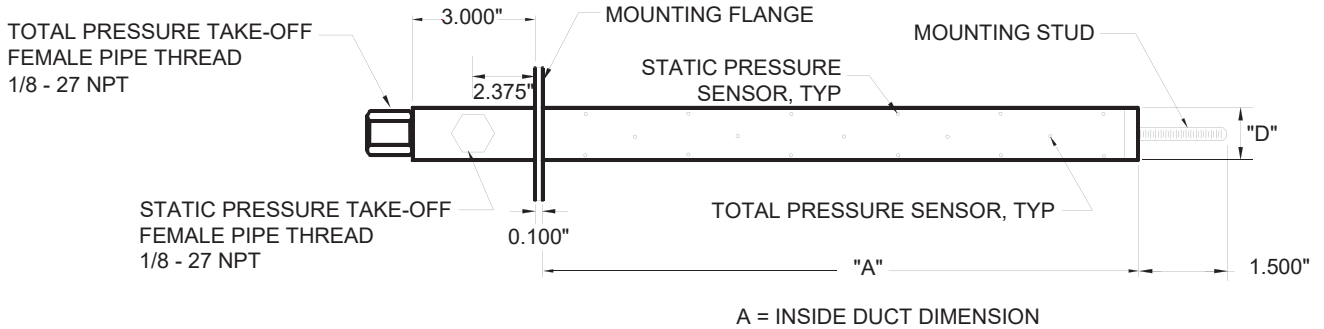
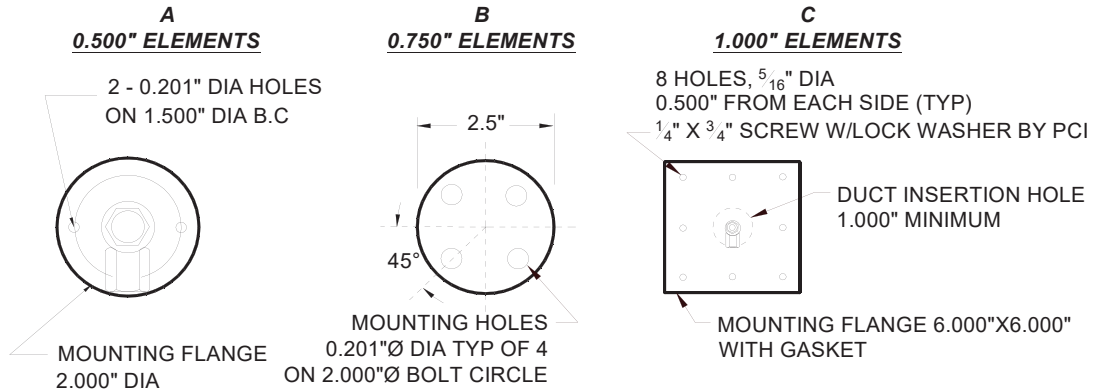
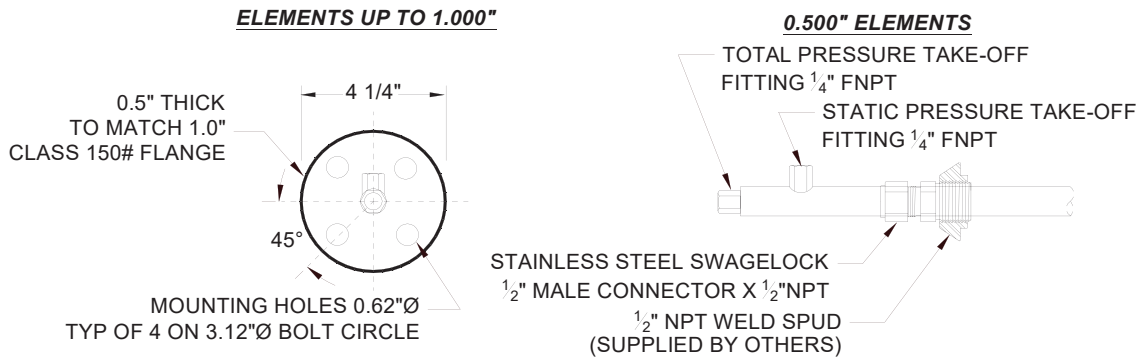


Note: The 0.585 inch diameter probe is used for elements up to 36 inches long and the 1 inch diameter probe is used for elements greater than 36 inches long.

PVC Elements



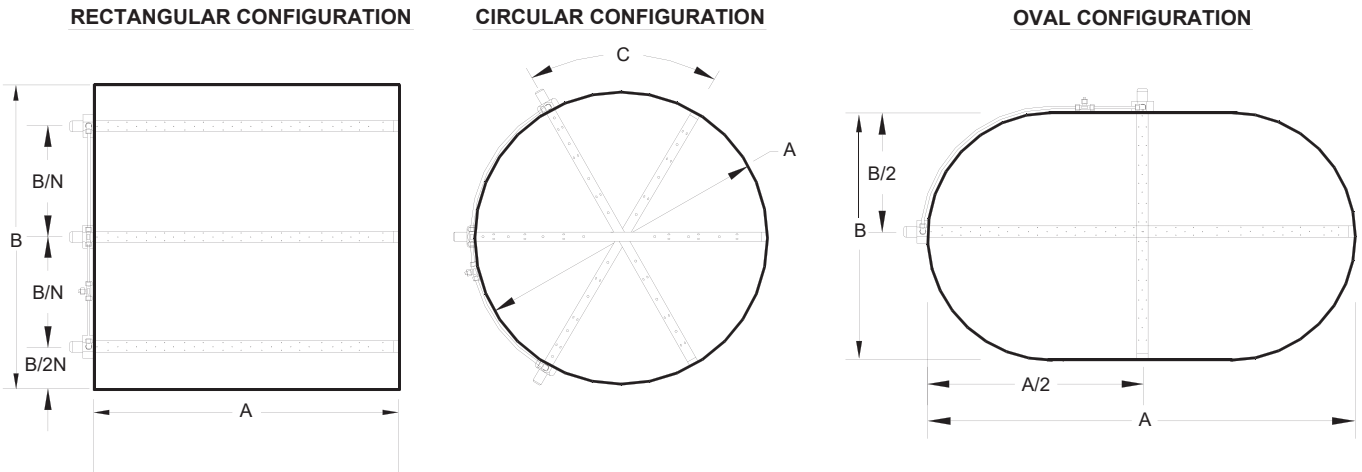
Dimension	Standard Flange (inches)	Optional 150# Flange (inches)
A	2.000	2.500
B	0.250	0.750
OD	4.000	5.000
BC	4-0.201" Diameter Holes on 3.000" BC	4-0.625" Diameter Holes on 3.880" BC

Dimensions :
Stainless Steel, Hastaloy, and Other Corrosive Resistant Elements

STANDARD MOUNTING FLANGES

OPTIONAL MOUNTING ARRANGEMENTS


Element Dimensions		Standard Mounting Flanges	Mounting Stud
0 - 24"	0.500"	A	1/4-20 NC
25 - 60"	0.750"	B	1/4-20 NC
Over 60"	1.000"	C	3/8-16 NC



Element Arrangement :


Notes:

- A = Inside duct dimension (element length side)
- B = Inside duct dimension (element mounting side)
- C = Angle between elements, $360^\circ/2N$
- N = Number of elements mounted on 'B' dimension
- For rectangular ducts, if dimension 'B' is less than 12 inches then $N = 2$

Application Guide

Rectangular		Circular	
Dimension B (inches)	Number of Elements Required	Dimension A (inches)	Number of Elements Required
6 - 11	1	6 - 11	1
12 - 23	2	12 - 45	2
24 - 36	3	46 - 84	3
37 - 64	4	85 & Over	4
65 - 96	5		
97 & Over	6		

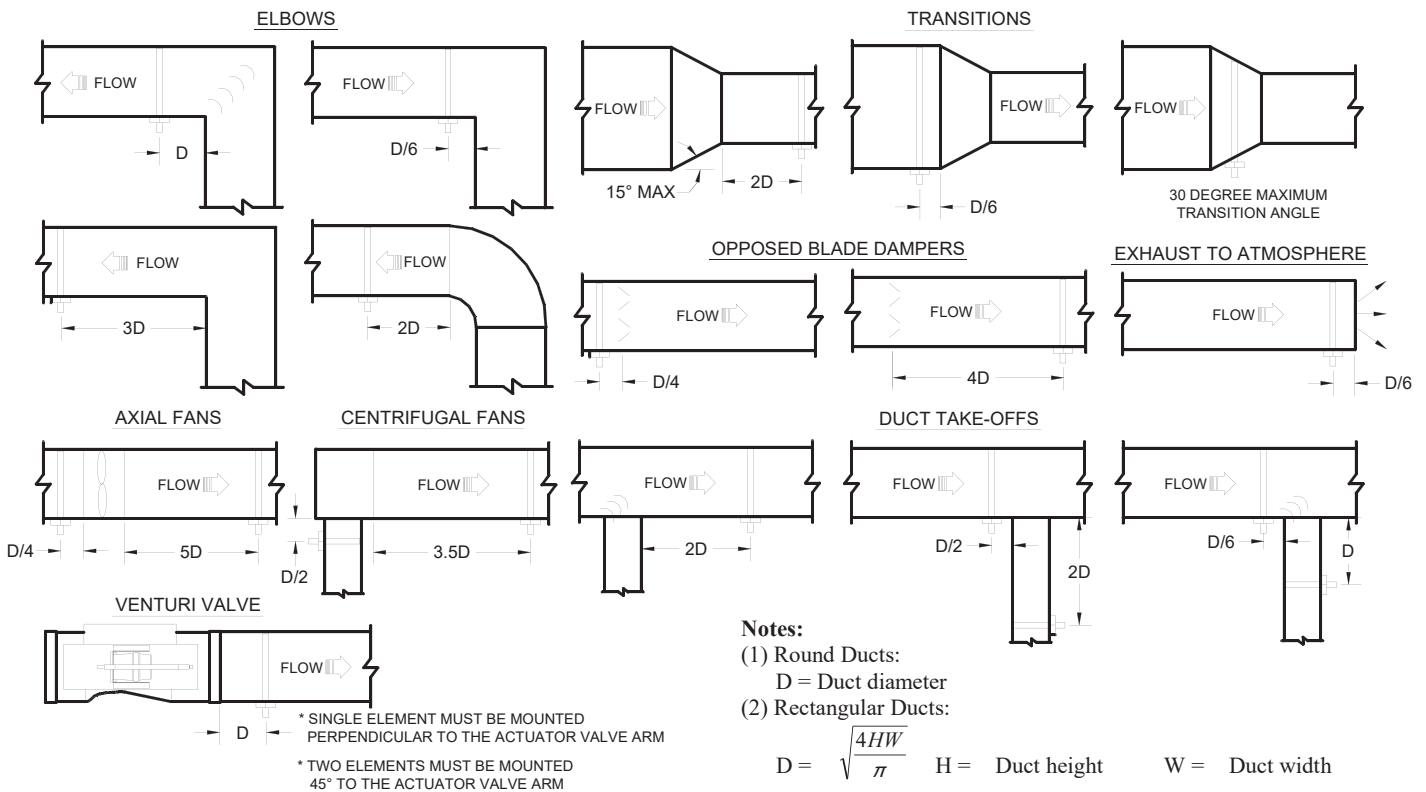
Notes:

- A = Inside Duct Dimension (Element Length Side)
- B = Inside Duct Dimension (Element Mounting Side)
- Oval ducts require one element 'A' inches long and one element 'B' inches long

Minimum Installation requirements :

The elements may be installed in most duct configuration. However, the accuracy of the installation is dependent on the flow conditions in the duct. The minimum installation requirements for the elements based upon a uniform velocity profile approaching the duct disturbance for flow rates less than 2,500 fpm are shown below. Elements should always be installed across the flow gradient. Add one duct diameter to the installation requirements shown below for each additional flow rate of 1,000 fpm. These are not ideal locations. It is always best to locate the elements as far as possible from all duct disturbances, with upstream disturbances being the most critical consideration.

2D



HOW TO ORDER

⚙️ **Basic Model :** FS1000

⚙️ **Insulation Thickness (inches) :** 0

Indicates insulation thickness for an internally insulated duct
 0 = No Insulation

⚙️ **Configuration :** R

- R Rectangular
- C Circular
- O Oval

⚙️ **Duct Height (inches) – Rectangular and Oval :** 0

0 Circular Duct

⚙️ **Duct Width or Diameter (inches) – Element Length :** 0

⚙️ **Element Material :** A

- A = Aluminum
- S = Type 316 stainless steel
- P = Type 1 PVC
- H = Hastaloy

Ordering Example:
 FS1000 - 0 - R - 0 - A