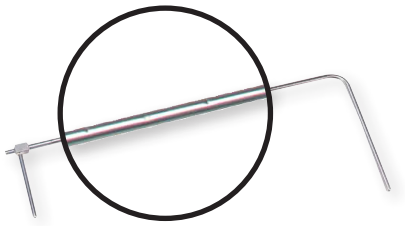
Dwyer

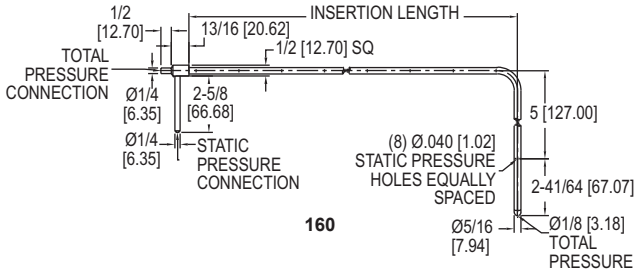
SERIES 160

STAINLESS STEEL PITOT TUBE

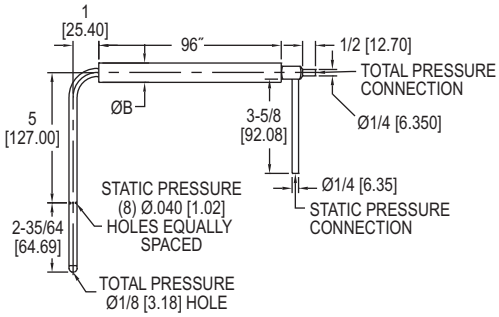
ASME Design Meets AMCA and ASHRAE Codes



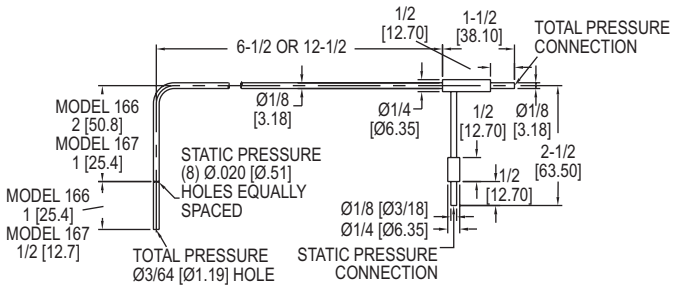
Standard Model 160 Pitot Tube



160



160
96″ and longer with stiffener



166/167

The **Series 160 Stainless Steel Pitot Tube** is constructed from corrosion resistant stainless steel with permanently etched insertion depth graduations for a lifetime of service. The static pressure port is parallel to the sensing tube to allow quick, easy alignment of the tube with air flow. A universal model fits the user supplied 3/4″ schedule 40 pipe in any length.

FEATURES/BENEFITS

- Low sensitivity to misalignment up to 15 degrees
- No calibration needed due to ASHRAE tip design
- Silver soldered connections for leak-proof operation
- 5/16″ models rated to 1500°F (815.5°C)

APPLICATIONS

- Monitor or control air velocity or air flow when combined with differential pressure gage, switch, or transmitter

MODEL CHART			
Standard 5/16″ Diameter Model	**Insertion Length**	**Longer Length with Stiffener Model**	**Insertion Length**
160-8	8-5/8″	**160-96**	96″
160-12	12-5/8″	**Pocket Size 1/8″ Diameter Model**	**Insertion Length**
160-18	18-5/8″		
160-24	24-5/8″	**166-6**	6″
160-36	36-5/8″	**166-12**	12″
160-48	48-5/8″	**167-6**	6″
160-60	60-5/8″	**167-12**	12″
Model	**Description**		
160-KIT	Kit containing 160-18, 160-24, 160-36, 160-48, and carrying case		

OPTIONS	
To order add suffix:	**Description**
-CF	1/8″ male NPT compression fitting, mounting option for Series 166/167
Example: 166-6-CF	

ACCESSORIES	
Model	**Description**
A-156	Flange mounting plate 1/2″ female NPT
A-158	Split flange mounting. Can be added to any Dwyer® No. 160 standard pitot tube. Cadmium plated steel. Gasket is pattern for mounting holes. Secure flange loosely to tube, adjust tube depth and tighten screws. Gasket of 1/16″ Neoprene fits tightly around tube and against duct for leak-proof seal. Nuts, washers included.
A-159	Mounting gland. Versatile adapter slips on any Series 160, 5/16″ standard pitot tube made after Dec. 1990. Two-part stainless steel fitting slides over tube and provides permanent, secure mounting. Where duct interior is accessible, use the washers and jam nut supplied. For blind applications or in thicker materials, use model A-156 flange mounting plate. Once tube is adjusted to proper depth and angle, tighten smaller hex bushing to lock position. Graphite bushing inside assures leak-proof seal even at higher temperatures. TFE bushing also available. **Note:** For full insertion with this fitting, order next longer pitot tube. A-159 mounting gland is used for both duct mounting and flange mounting.
A-160-CASE	Carrying case for pitot tubes up to 48″
A-397	Step drill. For fast, convenient installation of pitot tubes in sheet metal ducts. No center punch needed; automatic de-burring. Drills six sizes from 3/16″-1/2″ in 1/16″ increments.

A-158

A-159

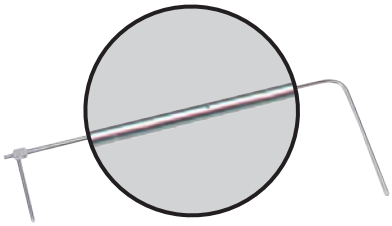
To flange mount, the A-159 must be used with the A-156 flange mounting plate.

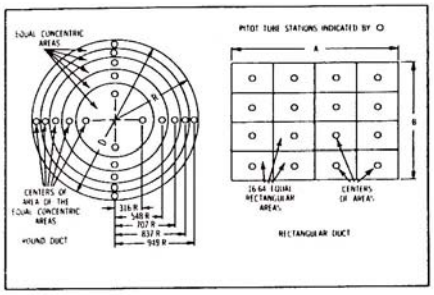
A-160-CASE

A-397

Series 160 Stainless Steel Pitot Tubes

Specifications - Installation and Operating Instructions





The total pressure of an air stream flowing in a duct is the sum of the static or bursting pressure exerted upon the sidewalls of the duct and the impact or velocity pressure of the moving air. Through the use of a pitot tube connected differentially to a manometer, the velocity pressure alone is indicated and the corresponding air velocity determined.

For accuracy of plus or minus 2%, as in laboratory applications, extreme care is required and the following precautions should be observed:

1. Duct diameter to be 30 times pitot tube diameter, or greater.
2. Make an accurate traverse per sketch at right, calculate the velocities and average the readings.
3. Provide smooth, straight duct sections a minimum of 8 1/2 diameters in length upstream and 1 1/2 diameters downstream from the pitot tube.
4. Provide an egg crate type straightener upstream from the pitot tube.

In making an air velocity check select a location as suggested above, connect tubing leads from both pitot tube connections to the manometer and insert in the duct with the tip directed into the air stream. If the manometer shows a minus indication reverse the tubes. With a direct reading manometer, air velocities will now be shown in feet per minute. In other types, the manometer will read velocity pressure in inches of water and the corresponding velocity will be found from the curves in this bulletin. If circumstances do not permit an accurate traverse, center the pitot tube in the duct, determine the center velocity and multiply by a factor of .9 for the approximate average velocity. Field tests run in this manner should be accurate within plus or minus 5%.

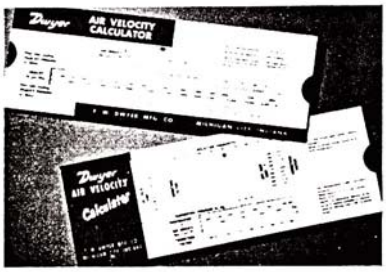
The velocity indicated is for dry air at 70°F., 29.9˝ Barometric Pressure and a resulting density of .075#/cu. ft. For air at a temperature other than 70°F. refer to the curves in this bulletin. For other variations from these conditions, corrections may be based upon the following data:

$$\text{Air Velocity} = 1096.2 \sqrt{\frac{Pv}{D}}$$

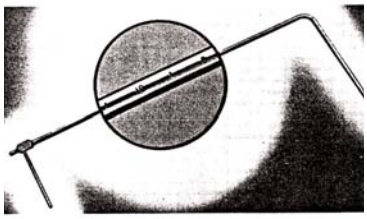
where Pv = velocity pressure in inches of water
D = Air density in #/cu. ft.

$$\text{Air Density} = 1.325 \times \frac{P_B}{T}$$

where P_B = Barometric Pressure in inches of mercury
T = Absolute Temperature (indicated temperature °F plus 460)
Flow in cu. ft. per min. = Duct area in square feet x air velocity in ft. per min.



AIR VELOCITY CALCULATOR
Computes velocity based on air density corrected for conditions of temperature and pressure. Eliminates tedious calculations. Ranges from .01 to 10˝ water corresponding to 400 to 20,000 FPM. Furnished with each pitot tube.



STAINLESS STEEL PITOT TUBES
Test confirmed unity coefficient and lifetime construction of No. 304 stainless steel. Inch graduations show depth of insertion for traversing. Model 160 is designed to meet ASME “Fluid Meters” 6th Ed, ANSI/AMCA 210-99, ANSI/ASHRAE 51-1999, and British Standard 1042. Sizes 12˝ to 60˝ long. Hand or fixed mounting types.

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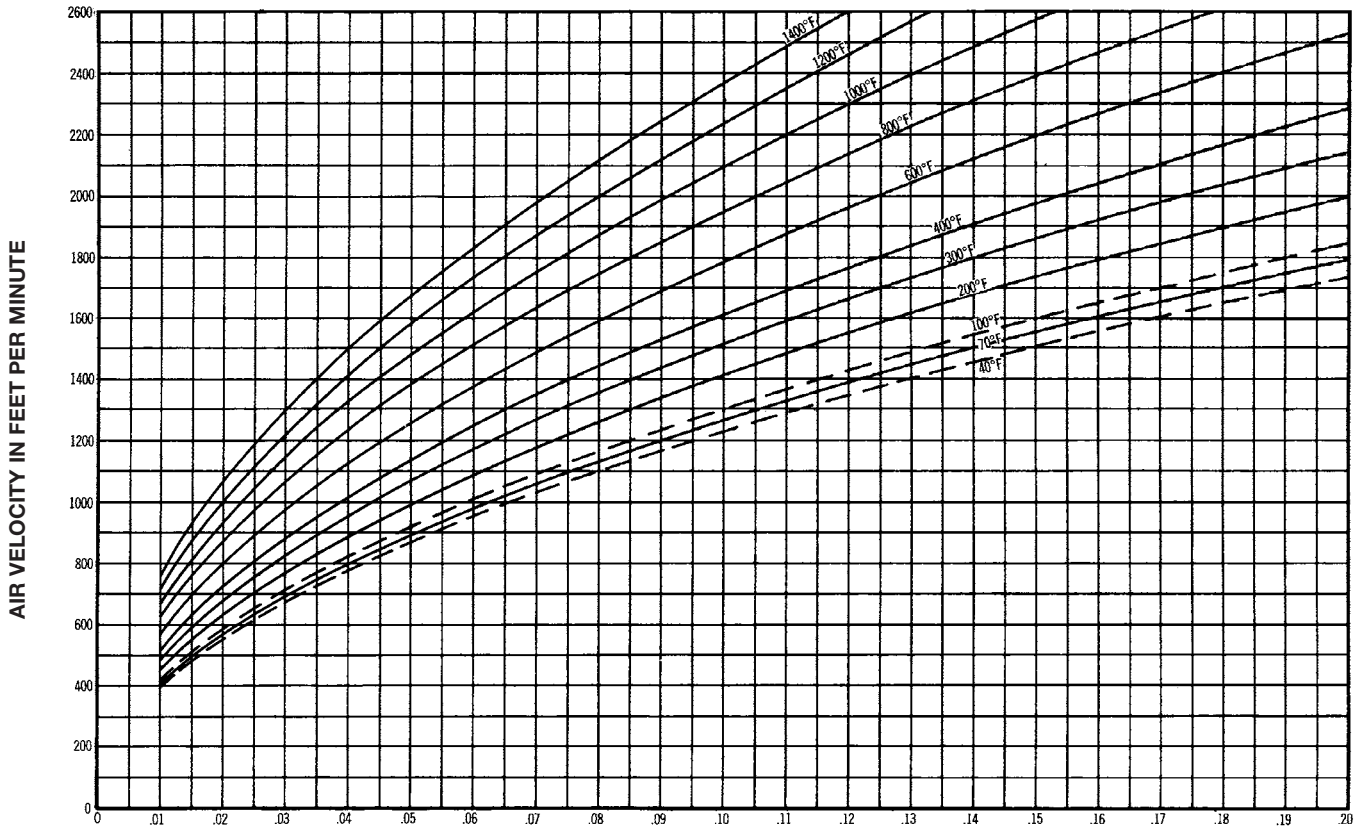

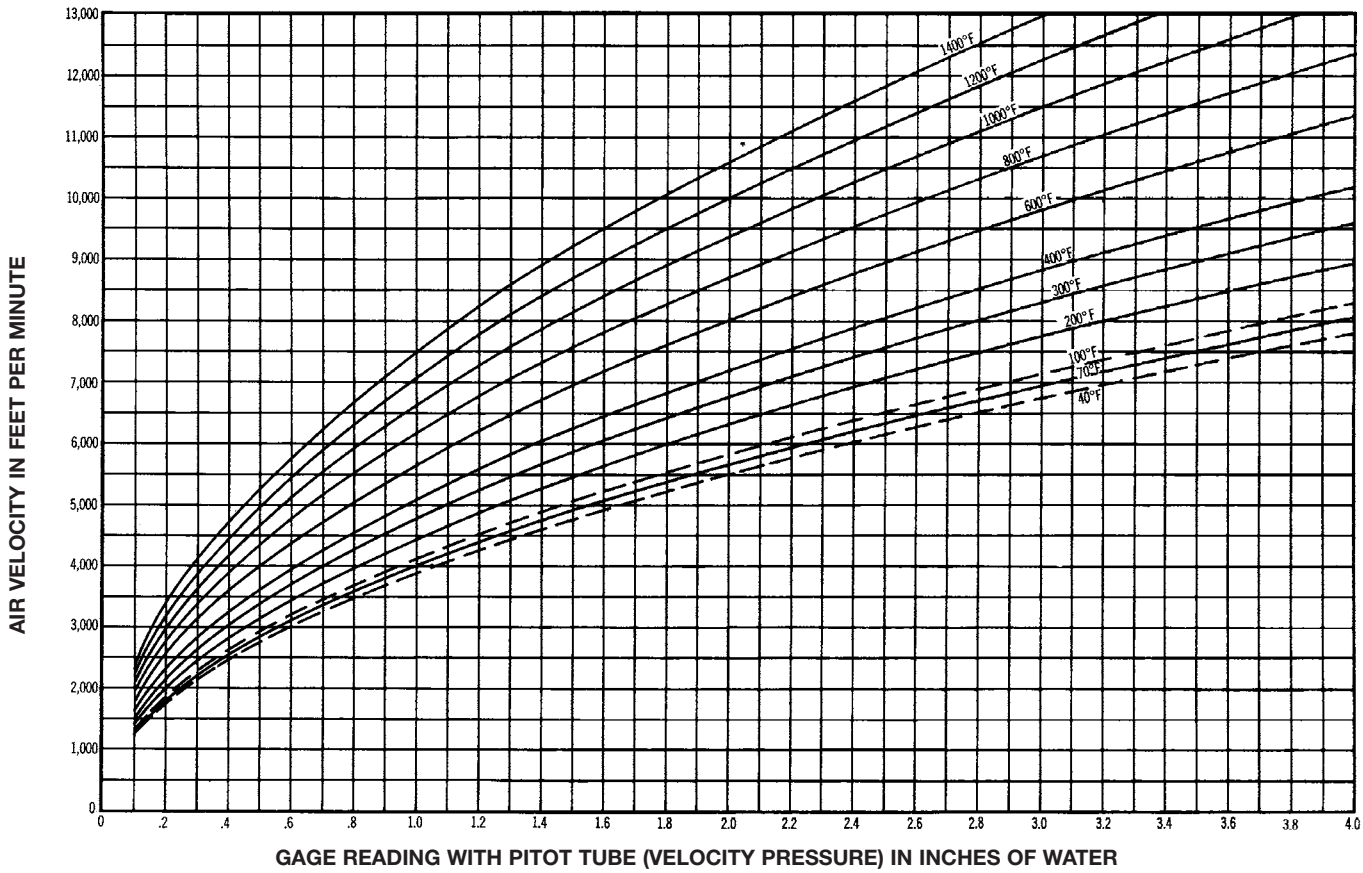

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