FLUKE®

922 Pitot Tube

Instruction Sheet

Introduction

Use the 922 Pitot tube with the 922 Airflow Meter to ensure accurate pressure, velocity, and flow measurement.

Contacting Fluke

To contact Fluke, use one of the following telephone numbers:

USA: 1-888-99-FLUKE (1-888-993-5853)
Canada: 1-800-36-FLUKE (1-800-363-5853)
Europe: +31 402-675-200
Japan: +81-3-3434-0181
Singapore: +65-738-5655
Anywhere in the world: +1-425-446-5500

Or visit Fluke's Web site at: www.fluke.com.

Register the Meter at: http://register.fluke.com

Safety Information

⚠Warning

To avoid injury, or damage to the Pitot Tube or 922 Airflow Meter, follow these safety guidelines:

- **Read the entire 922 Users Manual before using the 922 Pitot Tube with the Meter.**
- **The Pitot Tube contains no user-serviceable parts. For service, return to Fluke. See "Contacting Fluke".**

Measuring Air Velocity with Pitot Tubes

Pitot tubes are commonly used to measure velocity pressure within a duct. Velocity pressure is the pressure resulting from moving air within a duct. As air velocity increases, velocity pressure increases accordingly. A Pitot tube is used to sense both total pressure (TP) and static pressure (SP), which are used to calculate velocity pressure (VP) according to the following equation:

$$VP = TP-SP$$

Because airflow through a duct is turbulent and of varying velocities, a single reading does not represent the overall air velocity in the duct. Several readings must be taken across a traverse plane, converted to velocity, and then averaged. To take an accurate air velocity measurement, the Log-Tchebycheff rule provides the greatest uniformity because it accounts for the friction effect of air moving near duct walls. Figures 1 and 2 show the points along the traverse plane where measurements should be taken, either in rectangular or circular ducts.

Per the ASHRAE standard 111-1988, a minimum of 25 points should be measured in a rectangular duct traverse. When traversing a duct side less than 18 in. (450 mm), take readings from the center of equal areas that are no more than 6 in. (150 mm) apart, with a minimum of two points per side of the duct. See Figures 1 and 2.

Refer to the *922 Users Manual* for more information about using the 922 Pitot Tube for measurements with the 922 Airflow Meter.

Helpful Tips

- When performing a duct traverse, ensure the nose of the Pitot tube is parallel to the duct wall and facing the airflow.
- Take readings in long, straight runs of duct, where possible. Avoid taking readings immediately downstream of elbows or other obstructions in the airway.

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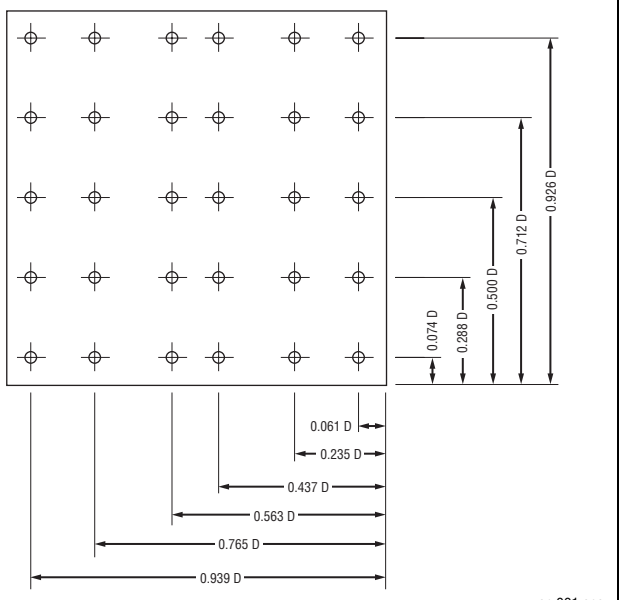
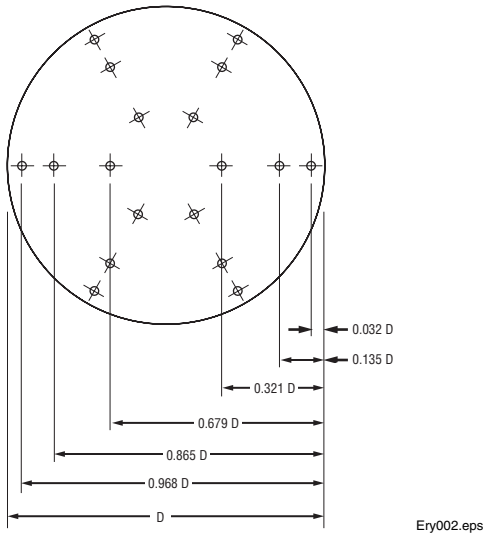


Log-Tchebycheff Rule for Rectangular Ducts	
Number of Points or Traverse Lines	**Position Relative to Inner Wall**
5	0.074, 0.288, 0.500, 0.712, 0.926
6	0.061, 0.235, 0.437, 0.563, 0.765, 0.939
7	0.053, 0.203, 0.366, 0.500, 0.634, 0.797, 0.947

Figure 1. Measuring Points and Traverse Lines for Rectangular Ducts



Number of Points per Diameter	Position Relative to Inner Wall
6	0.032, 0.135, 0.321, 0.679, 0.865, 0.968
8	0.021, 0.117, 0.184, 0.345, 0.655, 0.816, 0.883, 0.981
10	0.019, 0.153, 0.217, 0.361, 0.639, 0.783, 0.847, 0.923, 0.981

Figure 2. Measuring Points and Traverse Lines for Circular Ducts

LIMITED WARRANTY AND LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for two years from the date of purchase, except for any Pitot Tube component (if included with your product) which is warranted for one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke's behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that Service Center with a description of the problem.

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