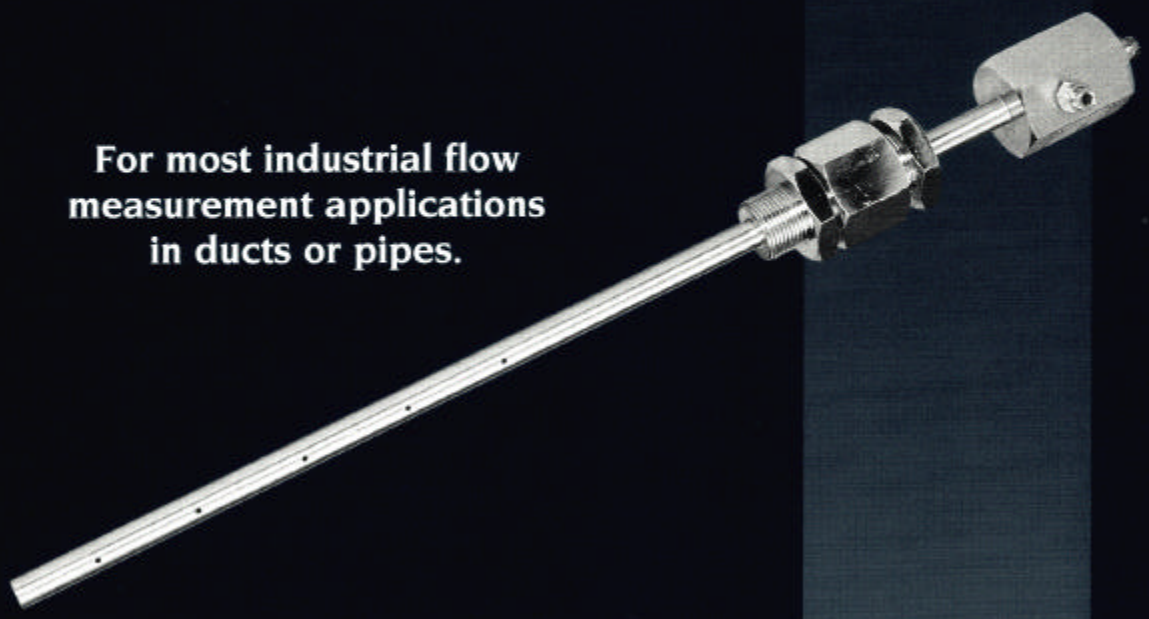
Furness Controls Limited

averaging PITOT TUBES

FCO68

For most industrial flow measurement applications in ducts or pipes.



- Robust stainless steel construction for harsh environments
- Averaging system for enhanced accuracy
- Available for most duct/pipe diameters
- Supplied complete with stuffing boxes and brass locking glands
- For use with Furness Controls' range of transmitters and manometers

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Technique

FCO68 Pitot Tubes are designed to measure the average flowrate in a duct or pipe. The Tube is installed via a tapped hole with the multiple pressure holes facing upstream to measure the average pressure. A static pressure hole on the reverse side of the tube measures the static pressure. The resultant of the two measurements is differential pressure which is a square function of velocity. A transmitter or manometer translates differential pressure to either velocity or volumetric flow by the use of an appropriate linearising function.

Calculation

The calculation of differential pressure corrected for temperature, relative density and absolute pressure can be made using the following formula:

$$H = K \times \frac{P}{1.013} \times \frac{288}{T} \times p \times \frac{V^2}{1.632}$$

Where H is the differential pressure in pascals, T is the temperature in °Kelvin (273 plus °C), P is the absolute pressure in Bar, p is the relative density (air = 1), V is the velocity in metres/seconds, K is the K factor of the Pitot Tube.

The calculation for velocity corrected for temperature relative density and absolute pressure can then be made using the following formula:

$$V = 1.277\sqrt{\frac{H}{K} \times \frac{1.013}{P} \times \frac{T}{288} \times \frac{1}{p}}$$

The above formula is based on standard conditions of 15°C (288°K) and 1.013 bar absolute.

General Specifications

Operating Temperature	-20 to 120°C		
Operating Static Pressure	0 to 2 bar absolute		
K Factor	1.8		
	6mm Pitot	**15mm Pitot**	**25mm Pitot**
Pitot Tube Diameter	6.3mm	15mm	25mm
Pressure Fittings	6mm OD/4mm ID push on tube with locking nut	½" OD compression	½" OD compression
Stuffing Box Options	¼" BSP, ¼" NPT, ½" BSP	1" BSP, 1" NPT	1¼" BSP, 1¼" NPT
Minimum Duct Size	150mm	200mm	360mm
Optional End Stay	No	Yes	Yes

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