



Datasheet

Airflow Eco Flow Probes

The ECO FLOW PROBE range is primarily used for permanent flow measurement within HVAC ductwork systems. Probes are installed in pairs that generate a differential pressure signal that directly relates to volume flow. Accuracy of measurement will be dependent upon the number of pairs installed to make up a grid. The probes can be utilised within round, oval, square or rectangular ducts. Available in the following sizes: 100, 150, 200, 250, 300, 400 and 500mm.

Accuracy

Typically if using a pair as a conventional X grid then the accuracy in terms of flow will be typically $\pm 10\%$. If using a number of pairs then a greater proportion of the duct is sensed and as a result the accuracy in terms of flow will be improved. Dependent upon the number of pairs used the accuracy could be typically as good as $\pm 5\%$ and even better if calibrated on site. The location of the probes within the

system will influence accuracy of measurement.

Contents of each probe set: 2 no. probes, 2 no. self-tapping screws, 4 no. grommets, 2 no. elbow tube fittings, 1 no. TEE tube fitting, 2,5m tubing instructions. As an option an Eco Pressure Transmitter is available with analogue output 0-(5)10V or 4-20m A. Power supply 24VDC.

Features

- Easy to fit
- Low cost solution
- Different sizes available
- Suitable for clean air velocities between 1.5 and 30m/s
- Produced from Stainless Steel 321
- Operating temperature till 70°C
- Long term reliability as it has no moving parts
- Simple in operation

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Location

Apply good practice when deciding upon probe location. Allow the following recommended lengths of straight ducting:

1. 2D after tapered contraction or sudden contraction.
2. 3D after slow bends or minor obstructions.
3. 5D after sharp or right angled bends or opposed blade dampers.
4. 1D before a transition or minor obstruction.

1. Having determined the location decide upon the number of probes required.
2. Drill Ø9.0mm holes in both sides of duct wall and remove burrs.
3. Fit grommets.
4. Insert probe through both grommets.
5. Align pointers of both probes to point in direction of flow.
6. Spot through hole in pointer and drill Ø2.7mm.
7. Secure probe in position using No.6 self-tapping screw provided.
8. Attach differential pressure instrumentation to stub ends of probes as indicate +/- on pointers.
9. Adhere the performance curve adjacent to the grid ECO Probe location.



Technology

ECO FLOW PROBES are differential pressure devices. Flow velocity and volume flow rates can be evaluated using the following formula.

$$\Delta p = \frac{1}{2} \rho v^2 K$$

Where

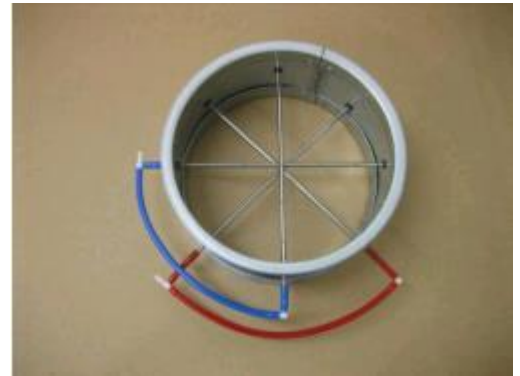
Δp = differential pressure (Pascal)

ρ = air density (Kg/m³). Normally 1.2 Kg/m³ at standard temperature and pressure

v = face velocity

K = magnification factor for grid

Example: velocity, $v = \sqrt{2\Delta p / \rho K}$



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