



# AFMC HVAC Average Flow Measuring Tube

**Flow-AFMC**[www.eyc-tech.com](http://www.eyc-tech.com)

## | Features |

- **Pitot tube** : Measure differential pressure caused by flow, combined with differential pressure sensor to calculate flow.
- **Multi-Hole Structure** : Averages differential pressure readings from multiple points for stable and reliable measurements.
- **High Sensitivity** : Low pressure drop within the tube enables measurement of small value.
- **Durable Material** : Aluminum tube for easy installation and stable performance in HVAC environments.
- **Low Air Velocity Measurement** : Paired with eyc-tech PMM330 to measure air velocity down to 1 m/s.
- **Dust-Resistant** : Features a dust-resistant structure that resists clogging, ensuring stable flow measurement.

## | Introduction |

AFMC adapts the Pitot tube principle, where the combination of the Pitot tube and a differential pressure sensor is commonly used for flow measurement. It measures the differential pressure between the total pressure and static pressure of the fluid, allowing for the calculation of fluid velocity. The difference between total and static pressure is known as dynamic pressure, which results from fluid flow and is proportional to the square of the flow velocity. By measuring dynamic pressure, the fluid speed can be accurately determined. The AFMC averaging Pitot tube features a multi-hole structure, which averages pressures from multiple points to better represent the actual flow profile within the pipe, ensuring stable and precise measurements.

## | Applications |

HVAC system / Ventilation ducts / Low flow measurement

## | Specification |

### Environment

|                       |               |
|-----------------------|---------------|
| Operating pressure    | 1 bar         |
| Operating temperature | 0 ... 80°C    |
| Measuring medium      | Air           |
| Flow coefficient (K)  | 0.82 ... 0.84 |

### Installation

|              |                                             |
|--------------|---------------------------------------------|
| Installation | Insertion type (Please install vertically.) |
|--------------|---------------------------------------------|

### Connection

|                         |                     |
|-------------------------|---------------------|
| Installation connection | Secure with screws. |
| Outlet connection       | 1/8" thread         |

### Material

|                |                        |
|----------------|------------------------|
| Measuring tube | Aluminum Extruded Tube |
| Connection     | SS304 Stainless Steel  |

## | Formula |

$$V = K \sqrt{\frac{2}{\rho} \Delta P}$$

$$Q_v = K \epsilon A \sqrt{\frac{2}{\rho} \Delta P}$$

$$Q_m = Q_v \times \rho$$

$V$  = Velocity

$\Delta P$  = Difference between total pressure and static pressure

$\rho$  = Density

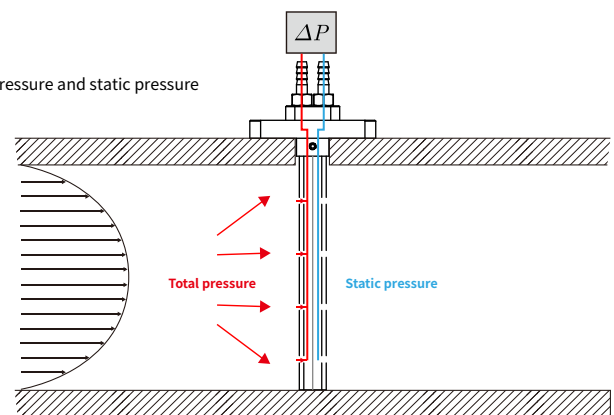
$K$  = Calibration factor

$Q_v$  = Volumetric flow rate

$Q_m$  = Mass flow rate

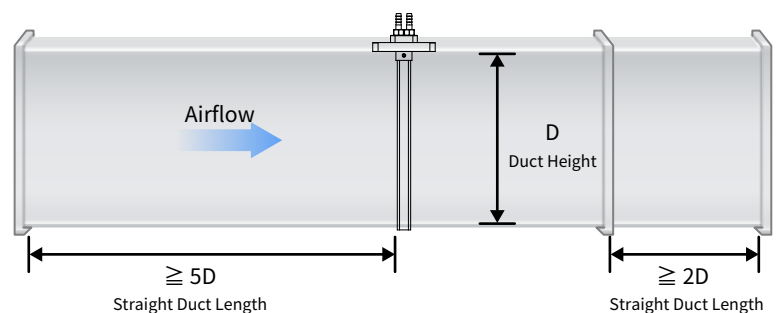
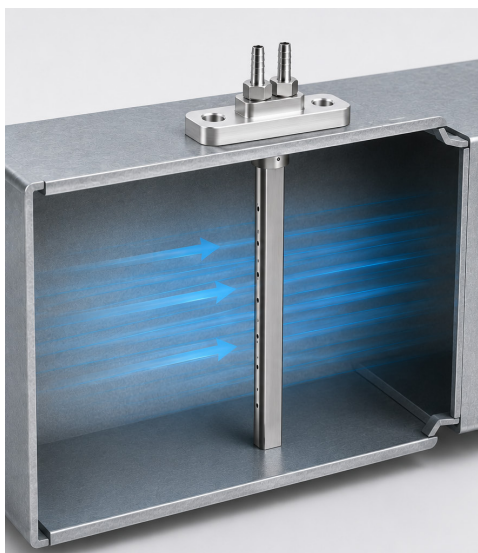
$\epsilon$  = Inflation coefficient

$A$  = Cross-sectional area



The averaging pitot tube

## | Installation Direction |



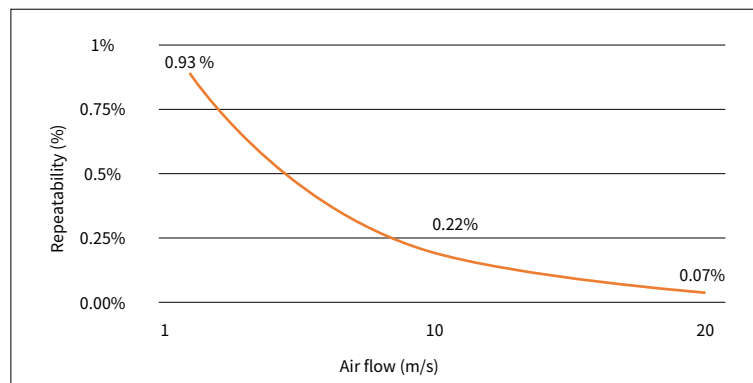
\*AFMC must be installed vertically inside the duct.

## | HVAC Duct Repeatability Test |

### High Repeatability for Stable Duct Measurement

The AFMC Average Flow Measuring Tube was tested using wind tunnel calibration equipment to verify repeatability across an air velocity range of 1 ... 20 m/s, covering typical applications in HVAC main ducts and high-volume supply and exhaust air systems.

Test results show that repeatability error decreases as air velocity increases. Within the 10 ... 20 m/s range, the AFMC demonstrates good measurement consistency, improving the reliability of air velocity and airflow measurement in main ducts and supply and exhaust air systems.

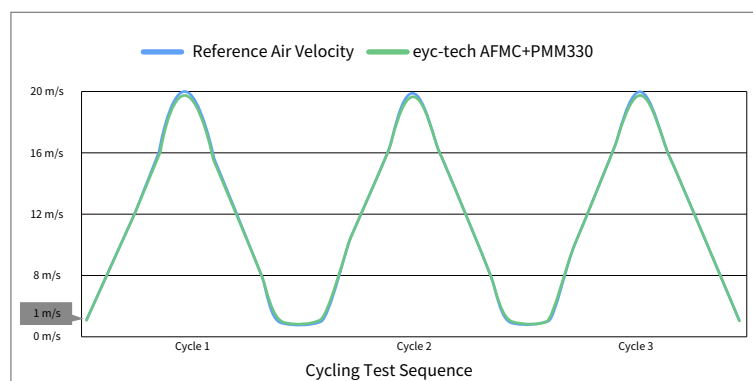


## | Air Velocity Cycling Test |

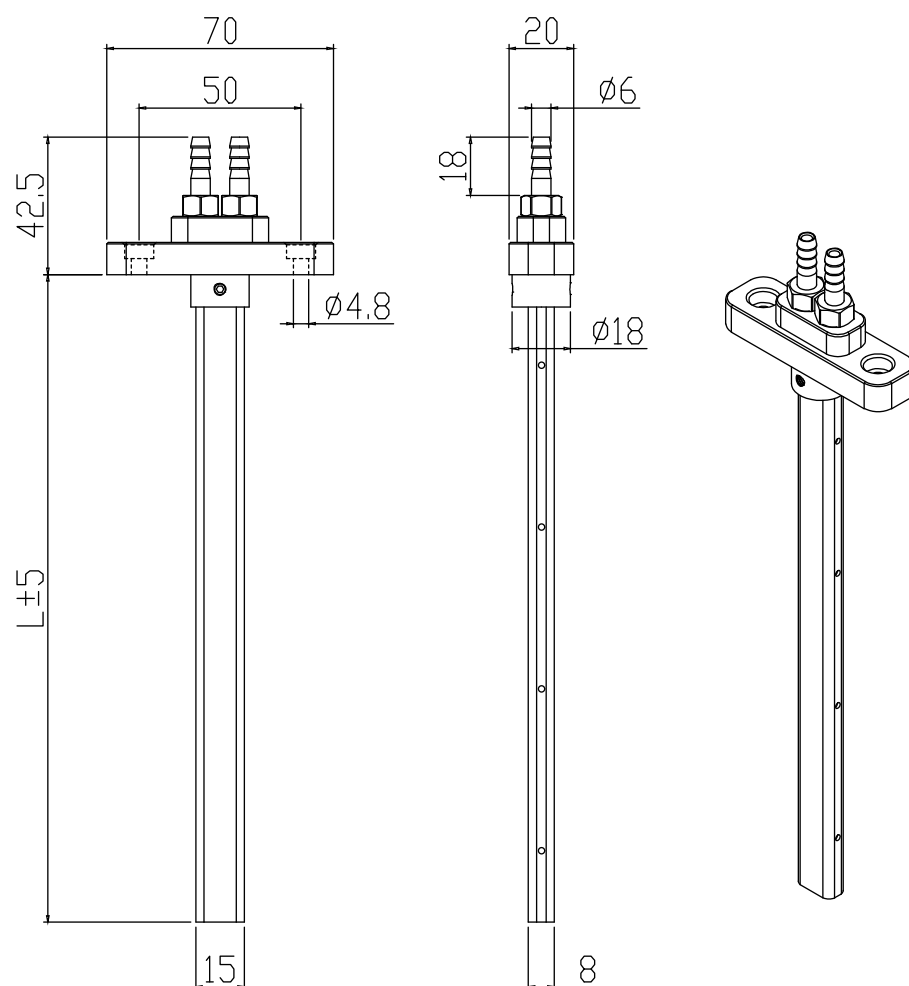
### Three-Cycle Air Velocity Tracking Test Verifies Measurement Stability

The AFMC Average Flow Measuring Tube was paired with the PMM330 Differential Pressure Transmitter for a three-cycle air velocity test, simulating air velocity changes from low to high and back to low within HVAC ducts.

After K-factor correction, the AFMC measurement curve consistently tracked changes in the laboratory reference air velocity. Stable measurement trends were maintained throughout repeated cycles, demonstrating good air velocity tracking performance and repeatability.



## Dimension | Unit : mm



| Product ordering number | L       |
|-------------------------|---------|
| AFMC-043-100            | 100 mm  |
| AFMC-043-200            | 200 mm  |
| AFMC-043-300            | 300 mm  |
| AFMC-043-450            | 450 mm  |
| AFMC-043-600            | 600 mm  |
| AFMC-043-800            | 800 mm  |
| AFMC-043-1000           | 1000 mm |

## Ordering Guide |

| Product ordering number | Specification                                     |
|-------------------------|---------------------------------------------------|
| AFMC-043-100            | Insertion Type / Aluminum Tube / Length : 100 mm  |
| AFMC-043-200            | Insertion Type / Aluminum Tube / Length : 200 mm  |
| AFMC-043-300            | Insertion Type / Aluminum Tube / Length : 300 mm  |
| AFMC-043-450            | Insertion Type / Aluminum Tube / Length : 450 mm  |
| AFMC-043-600            | Insertion Type / Aluminum Tube / Length : 600 mm  |
| AFMC-043-800            | Insertion Type / Aluminum Tube / Length : 800 mm  |
| AFMC-043-1000           | Insertion Type / Aluminum Tube / Length : 1000 mm |