

The flow element Parallel Plate Pitot (AF-PPP) is a pressure averaging pitot array designed to operate in air velocities from 50 to 5000 fpm (0.25 to 25.38 m/s). The AF-PPP has a unique design with the static ports on the side of the parallel plates which allows a smooth laminar boundary layer to form prior to the static pressure measurement. This design allows static pressure readings to be made at a much lower velocity than is normally associated with conventional pitots. The AF-PPP does not “boost” the static signal to give a higher output—it reads the true static pressure value.

The AF-PPP's design minimizes the need for straightening vanes or honeycombs when it is installed in ductwork. When used as single plane measurement device in ductwork, the AF-PPP should be installed in the plane of the last bend.

APPLICATIONS

- ▼ Measurement of ductwork air flow
- ▼ Measurement of fume hood face velocity by measuring under the hood airfoil
- ▼ Volumetric synchronization of laboratories and buildings
- ▼ Mass flow measurement (when corrected for temperature)
- ▼ Measurement and control of air flow in a 2 diameter length of ductwork

OPERATION

If the ductwork diameter is greater than 8 in. (20 cm), a ductwork section 1 diameter long is required to install the AF-PPP. If the AF-PPP is installed with a control valve, the ductwork section must be at least 2 diameters long. If the ductwork diameter is less than 8 in. (20 cm), a 20 in. (51 cm) long ductwork section is used to accommodate the actuator, which is mounted parallel to the ductwork.

The minimum required straight ductwork runs are 2 diameters upstream and 1 diameters downstream. For maximum accuracy an upstream straight run equal to 10 diameters should be used. Both the pitot and control valve are mounted in thick-walled duct for stiffness and structural integrity. The measurement section should be installed so that it and the connecting ductwork have the same outside diameter; this means that the thick-walled measurement section will have a smaller inside diameter than the connecting ductwork. The smaller inside diameter of the measurement section will help define the air flow patterns.

Fume hoods up to 12 ft. (3.66 m) can be accommodated by using the AF-PPP, but they should be approved and calibrated prior to use.



APPLICATION NOTES

Under extreme turbulent conditions the output of the pitot must be linearized prior to time averaging to maintain accuracy. When used with low volume transmitters a special “pneumatic capacitor” may be required to decouple the acoustical noise and to force equal response rate characteristics. Please refer to the AF-AFP, AF-CPP, and AF-XPP datasheets for detailed information on the AF-PPP applications.

WORLD HEADQUARTERS

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