

STAT-probe

Static Pressure Traverse Probe

Air Monitor's STAT-probe Static Pressure Traverse Probe is ideally suited for both new installations and retrofit applications requiring accurate static pressure measurement in locations having limited straight duct runs. Multiple sets of static pressure sensing ports positioned along the entire length of the STAT-probe traverse the airstream in a single line across the duct, and average the sensed pressures in an internal manifold. The STAT-probe is suited for installation in ductwork operating at temperatures up to 200°F. As a primary static pressure sensing means, the STAT-probe can be used in applications ranging from commercial building HVAC to laboratory, pharmaceutical and electronics production, and health care institutions.

Product Specifications

Accuracy. $\pm 2-3\%$; dependent upon quantity and placement of probes to achieve traverse of ducted airflow.

Outputs. Averaged signal of static pressure.

Operating Velocity. 100 to 10,000 FPM.

Directional Sensitivity. Not measurably affected by directional airflows with pitch and yaw angles up to 30°.

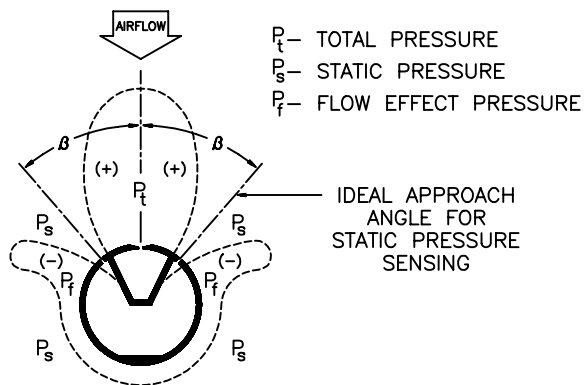
Traverse Pattern. On an equal area basis for rectangular probes. On an equal concentric area basis for circular probes.

Resistance. Less than 0.1 times the velocity pressure head at probe operating velocity.

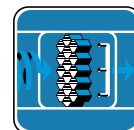
Construction. Type 6063 anodized aluminum extrusion in $\frac{3}{4}$ " and $1\frac{3}{8}$ " diameters. Aluminum mounting plate. Plated steel fasteners. Standard gasket is neoprene; high temperature gasket is silicone rubber.



How It Works



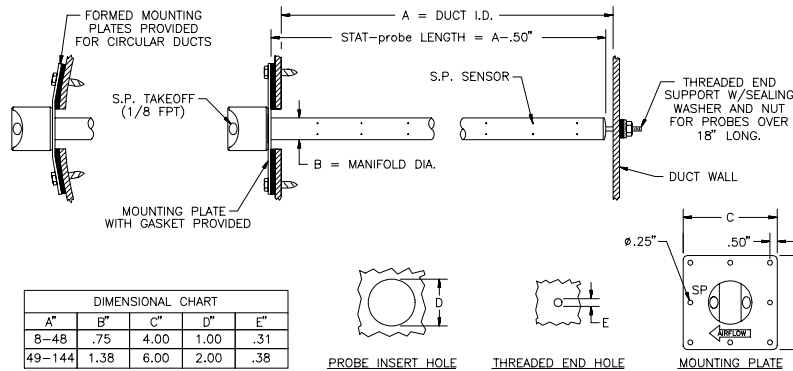
The STAT-probe operates on the Fechheimer derivative of the multi-point, self-averaging Pitot principle to measure the static pressure component of airflow. Fechheimer pairs of static pressure sensing ports, positioned at designated angles offset from the flow normal vector, minimize the error inducing effect of directionalized airflow. As the flow direction veers from the normal, one static sensor is exposed to a higher pressure ($P_s + \text{part of } P_t$), whereas the other static sensor experiences a lower pressure ($P_s - \text{part of } P_t$) of the same magnitude, thereby canceling out the undesired effect of partial total pressure (P_t). It is this unique design of offset static pressure sensors that makes the STAT-probe insensitive to approaching multi-directional, rotating airflow with yaw and pitch up to 30° from straight flow, thereby assuring the accurate measurement of the sensed static pressure without the presence of an airflow straightener upstream.



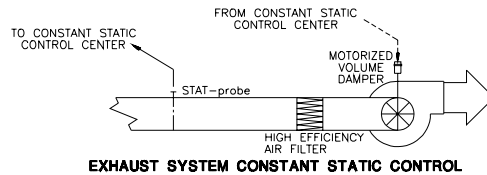
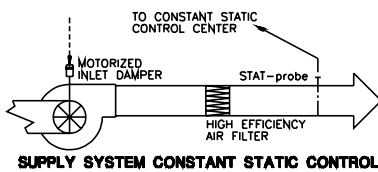
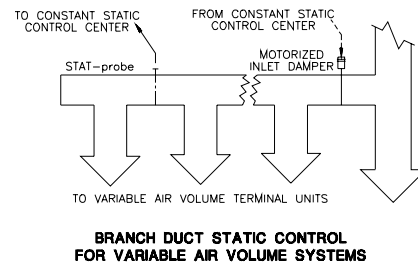
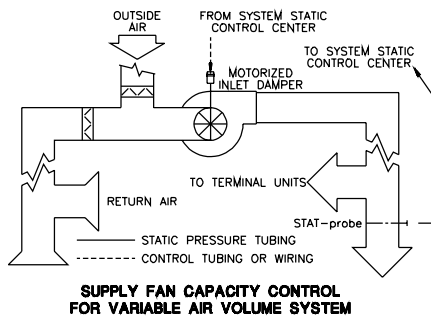
AIR MONITOR
CORPORATION

STAT-probe Static Pressure Traverse Probe

Dimensional Specifications



Applications



Design and Installation Guide

Turbulent Airflow. The dual offset static sensor design of the STAT-probe will permit accurate sensing of duct static pressure even in the presence of turbulent and rotational airflows with a maximum 30° yaw and pitch.

Airborne Contaminants. The level of air filtration and cleanliness associated with commercial HVAC systems is satisfactory for operation of the STAT-probe.

Stratified Airflow. The STAT-probe should be mounted so that the probe is across the stratified airflow – not parallel to the flow.

Air Temperature. The STAT-probe, constructed of 6063-T5 anodized aluminum extrusion, is designed to operate in air systems with temperatures up to 200°F.

Direction of Airflow. An arrow indicating the direction of airflow is on the STAT-probe mounting plate to assure proper installation.

Suggested Specification

Provide where indicated duct static traverse probe(s) capable of continuously monitoring the duct or system static pressure it serves.

Each duct static traverse probe(s) shall contain multiple static pressure sensors located along the exterior surface of the cylindrical probe. Said sensors shall not protrude beyond the surface of the probe. The duct static traverse probe(s) shall be of extruded aluminum construction and (except for 3/4" dia. probes with lengths of 24" or less) be complete with threaded end support rod, sealing

washer and nut, and mounting plate with gasket and static pressure signal fitting. The static traverse probe(s) shall be capable of producing a steady, non-pulsating signal of standard static pressure, without need for correction factors, with an instrument accuracy of 1%.

The duct static pressure traverse probe(s) shall be the STAT-probe as manufactured by Air Monitor Corporation, Santa Rosa, California.

