Holland Safety Equipment part: 12150 velocity duct probe

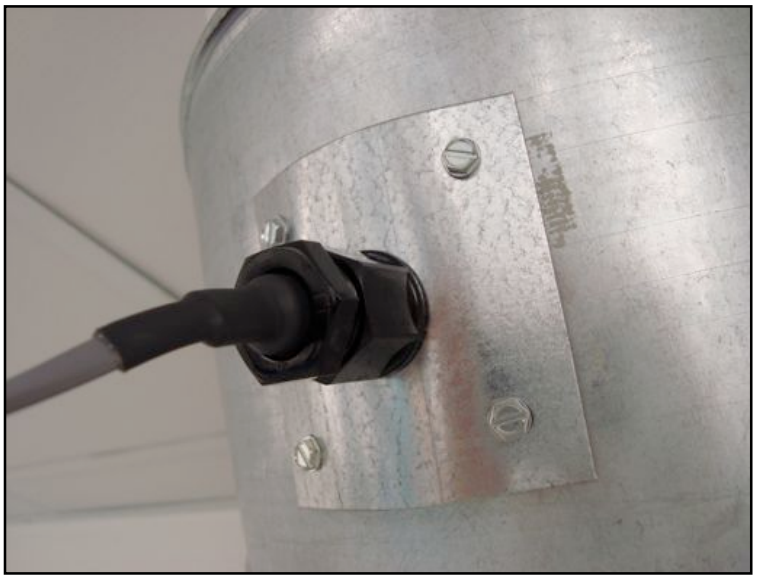
HSE part number: PK00-PK09, also needs A/PROBEBRACKET

The 12150 is a duct probe designed to operate at high flows (up to 2000 fpm).

The sensor accuracy is +/- 5% over the full range.

The operating temperature range is identical to that of the SM6 sensor, 55-86 F (13-30 C). There is temperature compensation for normal room environmental conditions, approximately ambient +/- 3°C.

Standard cable length is two meters (approx. 6 feet); the maximum length is 40 feet. The sensor itself is 150 mm long.



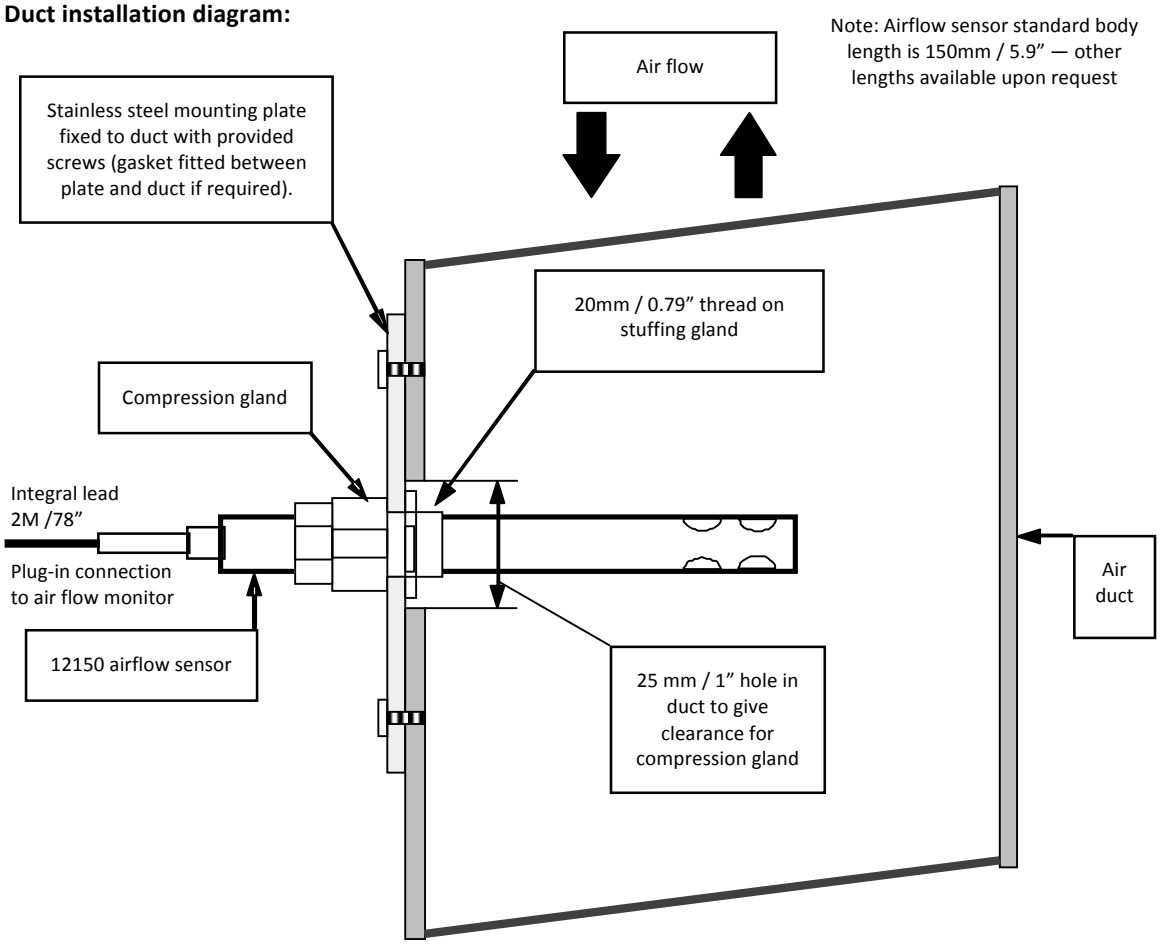
The intended application is for use with bio-safety cabinets. The probe is installed in the exhaust duct above the cabinet's transition collar with a provided mounting plate, a 3-by-3-inch galvanized steel square (see picture at left). The sensor holes should be positioned in the direction of the airflow. The sensor works best when installed in the center of the duct. If it sits just on the edge of a duct it may sense turbulence. If it cannot be repositioned, a longer tube may be a solution.

While a 12150 can connect to an AFA 1000 via the standard data port, the typical arrangement is for use with an AFA 500-BSC monitor that resembles the AFA 500 fume hood monitor, only without the on-board airflow sensor.

Some users have installed an AFA 500-BSC on a canopy hood. In these instances, proper location of the 12150 is essential. The key is to provide access to a steady, laminar air stream with no drafts or cross currents. This location might be in the throat of the transition collar.

See duct installation diagram on page 2.

Duct installation diagram:



Why measure duct velocity instead of pressure?

The major advantage in measuring airflow in a duct as opposed to pressure is airflow will always give a good indication of volume or flow whereas pressure can give a false reading. Consider a situation where there is a blockage in the duct. This can be any restriction — e.g. a damper closes, something gets sucked up the duct or a filter blocks (if measuring on the blower side of the filter) — the duct pressure will increase, indicating higher flow or volume, when in fact the volume and flow has dropped at the BSC or hood face. High pressure does not always mean high flow.

The three types of sensors typically used are:

1. **Hot wire airflow sensors:** These are very sensitive so can easily give the required speed of response and accuracy required, but are in the actual airstream so need to be resistant to any chemicals that may be present.
2. **Differential pressure transducers:** Modern pressure transducers are quite good at measuring very low pressures and low pressure changes as transducers tend to be capacitance type sensors. The transducers are sensors — they would give a voltage or current output over a particular range into a monitor displaying the pressure/giving alarms.
3. **Differential pressure switches** (on/off switch with dead band) tend to be diaphragm type and have difficulty in measuring low pressure changes and also tend not to be able to read to zero, typically 0.08 ins/wg is a minimum pressure. The switches typically are used to give blower runnings/fail indication.