PAUL-GOTHE-GmbH Bochum

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CE

Manual for S-Pitot Tube

The Pitot-Tube

By Pitot Tubes you have always two pressure tubes. One against the gas flow, which measure the total pressure (sum of dynamic and static pressure) and one to measure the static pressure. The difference between these pressures (dynamic pressure) can use to calculate the gas velocity. This dynamic pressures are depends of the density, temperature and atmospheric pressure. If you know the density, you can calculate the gas velocity by measure of the difference pressure.

So that the gas velocity can be measured right, certain conditions must be kept.

- If you use a S-pitot tube be sure that no heavy vortex are in the channel. A suitable inlet and outlet section must be at the measuring position.

- The probe must be against the gas flow (< 10° angel to the gas stream).

- If you use the S-Pitot tube, you must use on the Pitot tube engraved correction factor.

S-Pitot-Tube

Factor ~ 0,84

One leg against the gas flow.
Find the maximum value at the measure point through easy movements of the pitot tube. To determine the flow direction turned the pitot tube 90°. When the difference pressure is zero, the gas flow is vertically to it.

Formula to calculate the gas velocity:

$$v = K \bullet \sqrt{\frac{200 \bullet \Delta p}{\delta}}$$

with p: difference pressure in mbar,
δ: operating density of the gas

K: Correction factor
(see calibration certificate [K ~ 0,84])

total pressure (+)

stat. pressure (-)