

Definition of TSI Calibration Curve

Frequently Asked Question #7

Question:

We have a TSI CTA system with IFA 300 and ThermalPro software. When doing calibration of the probe, there are different curves available, for fitting. However we could not see what kind of curve the type "TSI" is. How is this one defined?

Answer:

There is a calibration form for hot-wires called King's Law. It looks like

$$e^2 = A + B \cdot u^n$$

where e is bridge voltage, u is fluid velocity and A , B and n are curve-fit parameters. This follows the expected form for heat-loss from a cylinder in cross-flow.

The TSI curve-fit is a kind of polynomial fit using the King's Law form. It takes the following form:

$$e^2 = C_1 \cdot (A + B \cdot u^n) + C_2 \cdot (A + B \cdot u^n)^2 + \dots$$



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