STRAIGHT FROM THE LAB

Batch calibration is good but individual testing is best

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Batch calibration involves calibrating a few individual sensors and then using the results to represent the entire batch. This might mean calibrating the first and last thermocouples taken from the same reel of wire or metal-sheathed cable. In some cases a number of in-between units are also calibrated.

"Batch calibration involves exploiting the fact that a single batch of thermocouple material normally exhibits small deviations in sensitivity along the material's length," explains lab manager Lars Grönlund.

"For unused type K thermocouples at lower temperatures, say under 200 °C, the deviations for IEC Tolerance Class 1 are limited to one- or two-tenths of a degree. Thermocouples taken from the batch between the tested units risk having greater measurement uncertainty than those that are calibrated.

"For more reliable knowledge about the measurement uncertainty of each thermocouple being used, you therefore need to calibrate each of them separately."