
Assessment of the accuracy of temperature measurement with thermocouples at various ways of placing them in test

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The authors describe results of the study of temperature measurement errors with thermocouples that are placed in the test object with different methods of testing their incorporation into material. The problems of determining the methodological error of temperature measurement in materials with low thermal conductivity are considered. Analysis of errors in placement of the thermocouples with stoppers made from a base material and by cutting a sample, followed by bonding is carried out. Accuracy of the air gap and glue are assessed. The results of this article supplement previously published information on studies of the systematic error of temperature measurement with thermocouples that are placed «in the groove», formed in the test facility and closed with a special adhesive. To seal the thermocouple «in the groove» effect on the results obtained temperature accuracy of anisotropic material properties. The obtained results allow us to navigate in choosing the method of thermocouple probes and measures to improve the accuracy of temperature measurements during the thermal test structure.

Keywords: temperature, error, thermocouple, mounting, sealing thermocouple, plugs, heat flow.

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