

Estimation of Thermal Contact Conductance from Unsteady Temperature Measurements

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Thermal contact conductance is an important parameter for describing heat transfer between two bodies. When two solids are put in contact and heat transfer occurs, the temperature drop is observed at the interface between solids. It is caused by an imperfect joint which occurs because of real surfaces are not perfectly smooth and flat.

An experimental device for the evaluation of thermal contact conductance was designed and fabricated in Heat Transfer and Fluid Flow Laboratory. The principal of this investigation is the unsteady measurement of temperatures of two solids which are put in contact. The surface temperature and heat transfer coefficient can be calculated from measured temperatures by an inverse heat transfer task.

The paper describes experimental device and the determination of thermal contact conductance between two solids with different contact pressure and initial temperatures. The measured data and computed values of thermal contact conductance are presented and compared with other experimental study.

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