

thermal contact conductance mechanical pdf

THERMAL CONTACT CONDUCTANCE M. G. COOPER*, B. B. MIKIC† and M. M. YOVANOVICH‡

(Received 1 January 1968 and in revised form 2 October 1968) Abstract—This paper considers the resistance to the flow of heat between two thick solid bodies in contact in a vacuum.

THERMAL CONTACT CONDUCTANCE - University of Waterloo

Theory of Thermal Contact Conductance and Review of Work Thermal contact resistance is attributable to several factors, the most notable being that contact between two surfaces is made only at a few discrete locations rather

Thermal Contact Conductance - NASA

An integrated thermo-mechanical model for the prediction of thermal contact conductance is developed in this work. For given surface profiles and material properties of the two surfaces in contact,

An Experimentally Validated Thermo-mechanical Model for

The default value is a calculated high value of conductance, meaning there is little to no resistance to heat flow across the contact boundary. In order to make this work, we need to know how the thermal contact conductance is applied. In fact, it is a property of the contact elements.

Making Thermal Contact Conductance a Parameter in ANSYS

This book covers both theoretical and practical aspects of thermal contact conductance. The theoretical discussion focuses on heat transfer through spots, joints, and surfaces, as well as the role of interstitial materials (both planned and inadvertent).

Thermal Contact Conductance | SpringerLink

THERMAL CONTACT RESISTANCE by Borivoje Budimira Mikic and Warren Max Rohsenow A B S T R A C T This work deals with phenomena of thermal resistance for metallic surfaces in contact. The main concern of the work is to develop reliable and practical methods for prediction of the thermal contact

THERMAL CONTACT RESISTANCE WARREN M. ROHSENOW Report No

In this paper, an integrated mechanical–thermal predictive model of thermal contact conductance (TCC) between two nominally flat metallic rough surfaces is developed.

(PDF) An Integrated Mechanical–Thermal Predictive Model of

Determining thermal contact conductance in bolted joints is a major challenge when designing for space application. The lack of heat transfer through convection enforces the need for full understanding of thermal contact conductance, and the influencing physical parameters. Due to the uncertain variance of pressure distribution in a bolted

Thermal Contact Conductance in Bolted Joints

In physics, thermal contact conductance is the study of heat conduction between solid bodies in thermal contact. The thermal contact conductance coefficient, h_c , is a property indicating the thermal conductivity, or ability to conduct heat, between two bodies in contact.

Thermal contact conductance - Wikipedia

16 Thermal Contact Resistance M. B. H. Mantelli* and M. M. Yovanovitch ... Hence the thermal conductance

of contacting surfaces is an important parameter for spacecraft thermal design. This chapter presents analytical tools for modeling thermal joint resistance (or ... thermal, and mechanical parameters, of

16 Thermal Contact Resistance - matthewturner.com

thermal contact conductance and associated problems. Although more than 500 references were consulted during the preparation of the manuscript, only a few representative ones in each category have been cited, so that the actual number of references listed is approximately half the number consulted.

Chakravarti V. Madhusudana Thermal Contact Conductance

An Integrated Mechanical-thermal Predictive Model of Thermal Contact Conductance Corresponding author: PENG HT-11-1498 2 1 Introduction Because real engineering surfaces are not perfectly smooth ...

An Integrated Mechanical-thermal Predictive Model of

The work covers both theoretical and practical aspects of thermal contact conductance. The theoretical discussion focuses on heat transfer through spots, joints, and surfaces, as well as the role of interstitial materials (both planned and inadvertent).

Thermal Contact Conductance | Chakravarti V - Springer

present data, the thermal contact conductance ($= l/R_c$) varies with the calculated contact pressure with a power-law exponent of approximately 1.0, as compared to a theoretical value near 1. In addition, the presence of He or N₂ gas substantially reduces even though the contacting surfaces are coated with a thermal grease.

THERMAL CONTACT RESISTANCE FOR A - Digital Library

Contact conductance Contact stiffness Fractal surfaces Roughness Waviness Numerical methods abstract The dependence of the contact conductance of self-affine rough surfaces on the applied pressure is studied using the electric-mechanical analogy which relates the contact conductance to the normal stiffness.

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