

# Author's Accepted Manuscript

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www.elsevier.com/locate/jtri

PII: S0301-679X(16)30047-0  
DOI: <http://dx.doi.org/10.1016/j.triboint.2016.04.001>  
Reference: JTRI4145

To appear in: *Tribology International*

Received date: 23 November 2015  
Revised date: 31 March 2016  
Accepted date: 1 April 2016

Cite this article as: Gary F. Dargush and Andres Soom, Contact modeling in boundary element analysis including the simulation of thermomechanical wear *Tribology International*, <http://dx.doi.org/10.1016/j.triboint.2016.04.001>

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# Contact modeling in boundary element analysis including the simulation of thermomechanical wear

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## Abstract

Computational mechanics codes include contact or over-closure models to account for contact stiffness, which can be related to surface roughness and nominal pressure from Greenwood and Williamson. We present results of wear simulation studies with adjustable contact parameters for a ring-on-ring sliding configuration. A boundary element code is used to solve the non-linear contact problem with an axisymmetric thermoelastic representation of the rings, along with a localized Archard wear model. Parametric studies indicate the extent to which the wear tracks can be affected by the roughness and wear history. The effects range from minor to moderately significant, with areas of maximum wear shifting radially. Contact parameters influence pressure, temperature and wear distributions, with stiffer contacts resulting in greater localization.

Key words: Wear; Thermomechanical; Computational modeling; Contact parameters; Surface roughness; Local wear model

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