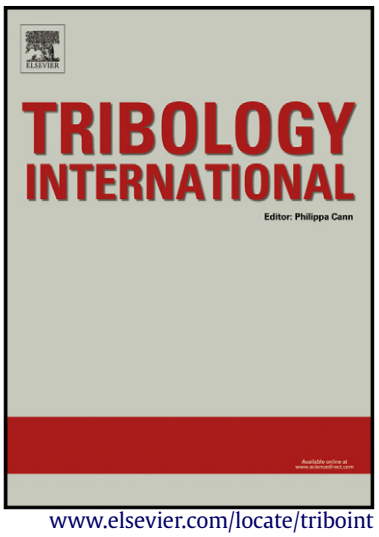

A numerical investigation of both thermal and texturing surface effects on the journal bearings static characteristics

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www.elsevier.com/locate/triboint

PII: S0301-679X(15)00184-X
DOI: http://dx.doi.org/10.1016/j.triboint.2015.02.032
Reference: JTRI3660

To appear in: *Tribology International*

Received date: 16 July 2014
Revised date: 4 February 2015
Accepted date: 13 February 2015

Cite this article as: Nacer Tala-Ighil, Michel Fillon, A numerical investigation of both thermal and texturing surface effects on the journal bearings static characteristics, *Tribology International,* http://dx.doi.org/10.1016/j.triboint.2015.02.032

A numerical investigation of both thermal and texturing surface effects on the journal bearings static characteristics

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Abstract:

Journal bearing characteristics modellization has been investigated in this paper for both cases of texture presence or absence onto the bearing surface. The thermal effect has been studied. The used numerical approach in this analysis is Finite Difference Method. The textured bearing performance enhancement passes essentially by a minimum film thickness and a friction torque improvement through an appropriate surface texture geometry and right texture distribution on the bearing surface. It is found that the simulations results are in good concordance with those issued from the literature. The obtained results by considering the temperature effect are more realistic.

Keywords: Journal bearings, Reynolds equation, hydrodynamic lubrication, Stribeck curve, texture.