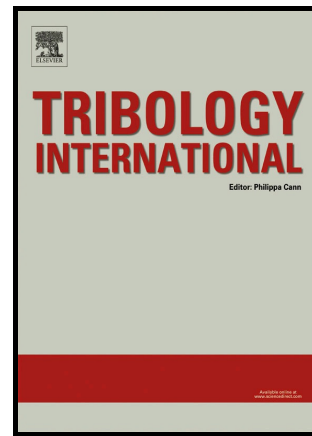


Author's Accepted Manuscript

Modeling the wear process of the ring/liner conjunction considering the evaluation of asperity height distribution

Xianghui Meng, Chunxing Gu, Di Zhang



www.elsevier.com/locate/jtri

PII: S0301-679X(17)30144-5
DOI: <http://dx.doi.org/10.1016/j.triboint.2017.03.025>
Reference: JTRI4653

To appear in: *Tribology International*

Received date: 21 February 2017
Revised date: 17 March 2017
Accepted date: 19 March 2017

Cite this article as: Xianghui Meng, Chunxing Gu and Di Zhang, Modeling the wear process of the ring/liner conjunction considering the evaluation of asperity height distribution, *Tribology International* <http://dx.doi.org/10.1016/j.triboint.2017.03.025>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Modeling the wear process of the ring/liner conjunction considering the evaluation of asperity height distribution

Xianghui Meng^{a,*}, Chunxing Gu^a, Di Zhang^b

^a*School of Mechanical Engineering, Shanghai Jiaotong University, Shanghai 200240, People's Republic of China*

^b*School of Mechanical Electronic Technology, Shanghai JianQiao University, Shanghai 201306, People's Republic of China*

Abstract

This paper presents a combined mixed lubrication and wear model to study the running-in process of the ring/liner system. In this model, the elastic-plastic asperity deformation is considered, as well as the evolution of asperity height distribution due to the asperity plastic deformation and wear. Meanwhile, the wear is computed with the Archard's wear law based on the asperity contact load. In this way, variations of friction loss, wear depth and surface morphology are obtained for the whole rubbing process. It is found that in the initial stage of running-in process, the effect of the asperity height distribution induced by asperity plastic deformation on the mixed lubrication performance is significant and even exceeds the contribution of wear.

Keywords: Asperity height distributions, elastic-plastic contact, running-in, wear.

* *Corresponding author.*

E-mail addresses: xhmeng@sjtu.edu.cn (X.H. Meng), chunxinggu@hotmail.com (C.X. Gu).

Download English Version:

<https://daneshyari.com/en/article/4985955>

Download Persian Version:

<https://daneshyari.com/article/4985955>

[Daneshyari.com](https://daneshyari.com)