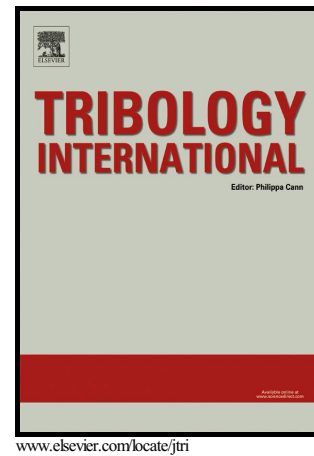


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DEPENDING ON DIFFERENT SCREW
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EXPERIMENTAL STUDY

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TRIBOLOGICAL PROPERTIES OF BOLTS DEPENDING ON DIFFERENT SCREW COATINGS AND LUBRICATIONS: AN EXPERIMENTAL STUDY

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Abstract

This paper is focused on the experimental determination of the frictional properties of bolts, following the ISO 16047 International Standard. The campaigns involved M14 X 2 8.8 class hexagonal head steel screw. Different Design of Experiment techniques were applied to investigate the effects of screw coating and lubrication, along with their interaction. The effect of lubrication was then investigated in further details, comparing two different lubricants and the outcomes of partial lubrication on the underhead or in the threads only. The results indicate that both surface coating and lubrication are highly significant. Regarding lubrication, a ceramic paste by Interflon proved to be highly effective at reducing friction, in particular if applied at the underhead rather than in the threads.

Keywords: screw surface coating, friction coefficient, Mineral Oil lubrication, Ceramic paste lubrication.

1. INTRODUCTION

Threaded joints are widely used in many mechanical applications, involving lightweight structures, since they are simple components that can be easily assembled and disassembled for maintenance purposes. The most widely used tightening approach consists in the use of a

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