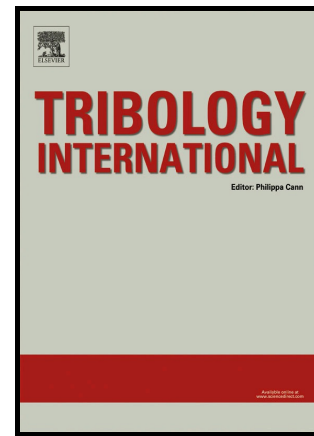


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Experimental investigations for tribo-dynamic behaviours of conventional and textured races ball bearings using fresh and MoS₂ blended greases

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Abstract

Ball bearings are widely employed in machines for supporting/guiding the rotors in spite of their low inherent damping due to the poor retainability of lubricant at the contacts of races and balls. Thus, it has been planned to enhance the availability of grease lubricant at the contacts employing the textured race and investigating its role on the tribodynamics of bearing. Experiments have been conducted employing conventional/textured races in test ball bearings (SKF-51308) for the measurement of frictional torque, temperature rise, and vibrations at various operating parameters. Significant reductions in frictional torque, temperature rise and vibrations are observed with textured races.

Keywords: Textured races, ball bearing, frictional torque, vibrations, temperature rise

1. Introduction

The lubricated concentrated contacts found in ball bearings normally operate under the starved/parched lubricating conditions mainly due to three reasons; (1) pushing aside of grease lubricant from the track of balls after the commencement of the motion, (2) throwing away of grease from the track due to the centrifugal force, and (3) absence of self-bringing back mechanisms of the grease on the track during motion. Hence the effective lubrication in a typical ball bearing is a challenging task. Thus, there is need to improve the tribo-dynamic behaviors of

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