

Effect of textured area on the performances of a hydrodynamic journal bearing

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Abstract: A growing interest is given to the textured hydrodynamic lubricated contacts. The use of textured surfaces with different shapes of microcavities (textures) and at different locations of the texture zone can be an effective approach to improve the performance of bearings. The present study examines the texture location influence on the hydrodynamic journal bearing performance. A numerical modelling is used to analyze the cylindrical texture shape effect on the characteristics of a hydrodynamic journal bearing. The theoretical results show that the most important characteristics can be improved through an appropriate arrangement of the textured area on the contact surface.

Keywords : textures, Hydrodynamic lubrication, journal bearing, Finite difference method