



Motion of Fluid in Rayleigh Step Slider Bearing for Rotatory Lubrication Theory of Second Order

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Abstract

The fluid mechanics theory of viscous lubrication was studied from the Navier-stokes equations by the tactic of consecutive approximations that was based mostly upon the size of film thickness. It had been supported that the primary approximation offers the Reynolds equation. The second order rotatory theory of fluid mechanics lubrication was supported on the expression obtained by holding the terms containing 1st and second powers of rotation number within the extended generalized Reynolds equation. In this paper, there are some new wonderful elementary solutions with the assistance of geometrical figure, expressions, calculated tables and graphs for the step bearing within the second order rotatory theory of fluid mechanics lubrication. The analysis of equations for pressure and load capacity, tables and graphs reveal that pressure and load capacity don't seem to be freelance of viscousness. Conjointly the pressure and load capacity each increase with increasing values of rotation range. The relevant tables and graphs ensure these vital investigations within the present paper.

Keywords: Fluid Film, Pressure, Reynolds equation, Rotation number, Viscosity.

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