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Motion of Hydrodynamic Fluid through Bearing of Type "$h = h_o\ Exp.(\theta); \theta = f(y)$" for Rotation

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Abstract

The second order rotatory theory of fluid mechanics lubrication was supported on the expression obtained by retentive the terms containing initial and second powers of rotation range within the extended generalized Reynolds equation. Within the present paper, there are some new glorious basic solutions with the assistance of geometrical figures, expressions, calculated tables and graphs for the bearing of type $h = h_o\ Exp.(\theta); \theta = f(y)$ *within the second order rotatory theory of fluid mechanics lubrication. The analysis of equations for pressure and load capability, tables and graphs reveal that pressure and load capability aren't freelance of viscosity of fluid and increase linearly, slightly with viscosity. Conjointly the pressure and load capability each increase exponentially with increasing values of rotation range. Within the absence of rotation, the equation of pressure and load capability provides the classical solutions of the classical theory of fluid mechanics lubrication. The relevant tables and graphs make sure these necessary investigations within this paper.*

Keywords: Rotation number, Taylor's number, Reynolds equation, Viscosity.

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