عنوان مقاله:

Two-Dimensional Hydrodynamic Analysis of Turbulent Flow in Journal Bearings

محل انتشار:

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خلاصه مقاله:

In this study, hydrodynamic characteristics of turbulent flow in journal bearings with infinite length is investigated. The analysis is based on the numerical solution of the full Navier-Stokes equations with the equations governing the kinetic energy of turbulence and the dissipation rate using CFD techniques. The AKN Low-Re $k - \varepsilon$ turbulence model is used to simulate the mean turbulent flow field. Considering the complexity of the physical geometry, conformal mapping is used to generate an orthogonal grid and the governing equations are transformed in the computational domain. Discretized forms of the transformed equations are obtained by control volume method and solved by SIMPLE algorithm. The numerical results of this analysis can be used to investigate the oil flow pattern in the journal bearings. To validate the computational results, comparison with the experimental data of other investigators is made, and reasonable agreement is found.

کلمات کلیدی:

journal bearings, hydrodynamic analysis, infinite length, turbulent flow, CFD

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