# Dynamically Loaded Analysis of The Adjustable Hydrodynamic Pads Bearing

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**Abstract**

This paper presents the instantaneous journal center velocity under dynamic load for adjustable hydrodynamic four pads bearing. The velocity is calculated by mobility method in different values of length - diameter ratios (0.25, 0.5, 0.75 and 0.95). Finite difference method was used to solve the Reynolds equation in two dimensions. This equation includes the total oil film thickness (oil film thickness and elastic deformation pad material due to generated pressure). The effects of many parameters were studied such as dynamic coefficients (stiffness and damping coefficients) and power loss on the bearing performance. The results proved that the journal center velocity and mobility components is affected by the sign of the eccentricity ratio components, also the maximum value of the journal center velocity is determined by the values of the length - diameter ratios. The vertical stiffness coefficient (Kyy) and damping coefficient (Cyy) increase as the eccentricity ratio increased. The power loss was found increase when length diameter ratio increase.

**Keywords**

- Eccentricity Velocity
- Mobility Method
- Dynamic Bearing Coefficients
- Adjustable Pads Bearing