

Dry Friction Fluctuations in Plain Journal Bearings

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Abstract : This paper compares oscillations in the dry friction coefficient in different journal bearings. Measurements are made of the average and standard deviation in the coefficient of friction as a function of sliding velocity. The standard deviation of the friction coefficient changed dramatically with sliding velocity. The magnitude and frequency of the oscillations were a function of the velocity. A numerical model was developed for the frictional oscillations. There was good agreement between the model and results. Five different materials were used as the sliding surfaces in the experiments, Aluminum, Bronze, Mild Steel, Stainless Steel, and Nylon.

Keywords : Coulomb friction, dynamic friction, non-lubricated bearings, frictional oscillations

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