

Online Lubrication Performance Monitoring of Fluid Film Bearing by Shaft Vibration Measurement

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ABSTRACT

Fluid film bearings are commonly used in the heavy rotating machines because they possess not only high load carrying capacity but also inherent damping properties. The stiffness and damping properties of the fluid film significantly change the rotor dynamics such as the critical speed and unbalance response of a rotor, and also effect the stability of rotors. So online monitoring techniques of the operating fluid film bearing properties such as the stiffness, damping coefficients, Sommerfeld number is very important and useful for the stable operation of the high speed machines. Here we propose the online lubrication parameter monitoring method using shaft vibration measurements.

Keywords: Journal Bearing, Lubrication Parameter, On Line Monitoring, Oil Film Stiffness, Oil Film Damping