

Study on the Vibration Response of Ball Bearings Due to Solid Contaminants in Lubrication.

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Abstract: *Aim of this paper is to analyze the effect of solid contaminant in lubrication on vibration response of ball bearing. Rolling element bearings are common in any rotating machinery. They are subject to failure under continuous running. Therefore they have received a great deal of attention in the field of condition monitoring. In rolling element bearings, contamination of lubricant by solid particles is one of the several reasons for an early bearing failure. This project investigates the effect of contamination of lubricant by solid particles on the dynamic behavior of rolling bearings. Solid contaminate at three concentration levels and different particle sizes is used to contaminate the lubricant. An experimental test is to be performed on the ball bearings lubricated with grease, and the trends in the amount of vibration affected by the contamination of the grease determined. The sawdust is used as contaminant. The contaminant concentration as well as the particle size is varied. Vibration signatures is analysed in terms of root mean square (RMS) values. From the results, The effects of contaminant and the bearing vibration is studied for both good and defective bearings. Then find significant variation in the RMS velocity values on varying the contaminant concentration and particle size.*

Keywords: frequency spectrum, good bearing ,healthy grease , particle size , rolling element bearing ,solid contaminate

