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A comparative experimental study of ultrasound technique and vibration analysis in detection of bearing defect

Bouchra Abou El Anouar, Mostafa Elamrani, Bachir Elkihel, Fabienne Delaunois

Abstract : Vibration monitoring of rolling element bearings is probably the most established diagnostic technique for rotating machinery. The application of ultrasound technique for bearing diagnosis is gaining ground as a complementary diagnostic tool. In fact, many similarities exist between these two methods and their principle is to not so far. The experimental investigation reported in this paper was centered on the application of the ultrasound technique for identifying the presence and size of adefect on bearings. Also, a comparison between ultrasound technique and vibration analysis are presented to assess their effectiveness and determine their detection limits and their complementarities. The results reveal that the ultrasound technique is most effective in the early detection of bearing faults vibration monitoring.

Keywords : Ultrasound technique, Vibration analysis, Bearing defect, Condition monitoring, Defect size