

Abstract

Conventional methods (i.e. time, frequency and cepstrum) can routinely be used to reveal fault-indicating information in the vibration signal. In recent years, wavelet analysis, which can lead to a clear identification of the nature of faults, is widely used to describe rotating machine condition. The capability of this method in the detection of any abnormality can be further improved when its low-order frequency moments are considered. This paper presents the use of the fast kurtogram in the early detection and condition monitoring of pitting fault. For this purpose, a dynamic model of a simple stage gearbox (with and without defects) is used. Then, the pinion's vibration displacement is analyzed by using a fast kurtogram method. This method is suitable for such diagnosis and gives valuable information about the presence and effects of the pitting tooth defect.