

Abstract

This paper presents the dynamic eccentricity (DE) in the squirrel cage induction machine obtained by the simulation using finite element method (FEM) and the experimental tests. Motor current signature analysis (MCSA) through the power spectral density (PSD) is used to monitor the low frequency components related to the rotor faults. In order to generalise the study, a comparison was performed between faulty machines and healthy, under different load conditions. The experimental tests show the encountered difficulties in the detection of the dynamic eccentricity under various load conditions because the spectral representation shows the existence of low frequency components for the healthy case, which are superimposed with the indicator components. These low frequency components offer an alternative way to the monitoring of eccentricity air-gap when the load is balanced.