

Induction Motor Eccentricity Fault Recognition Using Rotor Slot Harmonic with Stator Current Technique

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Abstract : An algorithm for Eccentricity Fault Detection (EFD) applied to a squirrel cage induction machine is proposed in this paper. This algorithm employs the behavior of the stator current spectral analysis and the localization of the Rotor Slot Harmonic (RSH) frequency to detect eccentricity faults in three phase induction machine. The RSH frequency once obtained is used as a key parameter into a simple developed expression to directly compute the eccentricity fault frequencies in the induction machine. Experimental tests performed for both a healthy motor and a faulty motor with different eccentricity fault severities illustrate the effectiveness and merits of the proposed EFD algorithm.

Keywords : squirrel cage motor, diagnosis, eccentricity faults, current spectral analysis, rotor slot harmonic

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