Abstract

This paper presents the performances evaluation of different wavelet transform under broken rotor bars fault diagnosis. In this report, stator phase current was used for wavelet analysis. Discrete wavelet transform (DWT) coefficients of stator current in a specific frequency band are derived and analyzed. Wavelets db8, db9, db10, sym7 and sym8 are employed to analyze broken bar distorted stator current. The sensitivities of these wavelets to fault signal are compared and assessed to select the most optimal one. This approach facilitates the detection and diagnosis of broken rotor bar occurrence or even number of broken bars under load variation. Simulation and experimental tests on induction motors with 1, 2, and 3 broken bars cases are conducted and demonstrate the effectiveness of the proposed approach for fault detection.

References

- Chow, Y M, "Motor fault detection and diagnosis," IEEE Industrial Electronics
Wavelet Transform based Broken Rotor-bar Fault Detection and Diagnosis Performance Evaluations


Index Terms

Computer Science  Applied Sciences
Keywords

Induction machine  broken rotor bar  DWT  stator current