

FAULT DIAGNOSIS AND CONDITION MONITORING OF INDUCTION MOTOR USING WAVELET TRANSFORM

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Abstract

Induction motors, especially squirrel cage induction motors, have an important role in industry. Their rotor or stator may be failed under stresses depending on their application and get unexpected failure condition during motor operation. If the failure can be detected during its operation i.e. in transient condition then it prevent failure spread and also manufacture trip. The advancement in digital signal processing technology have enabled researchers to process more data in less time. Consequently, the information that is not previously available can be extracted from the collected data. In the light of these developments, condition monitoring using wavelet transform has recently gather more attention from researchers. There are so many methods used for rotor broken bar fault detection purpose but wavelet transform is widely used for the early rotor broken bar fault detection i.e. in transient condition purpose. The stator current is used as fault diagnosis parameter of the motor. Therefore, it is called Motor current signature analysis (MCSA). In this paper the study is aimed to model and simulate the squirrel cage induction motor using MATLAB. There are various methods used in the broken bar detection purpose but if we compare the results obtained by using wavelet transform method, the results show that the wavelet transform can effectively be used for the broken bar fault detection purpose.

Keywords : Squirrel Cage Induction Motors, Time Domain Analysis, Fast Fourier Transform, Wavelet Transform, Condition Monitoring.

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