Abstract

This paper has presented a mathematical-based scheme for induction motor drive system leading to efficiency optimization. The proposed scheme uses information on torque of the squirrel cage motor to generate the appropriate voltage amplitude that maximizes the motor efficiency. A constant V/f efficiency controller model has been configured and built depending on a set of experimental data, based on the motor equivalent circuit, using Matlab computer program. The model was validated by simulation using a typical induction motor drive model implemented with Matlab/Simulink. The aim of this paper is the drive system performance improvement by designing optimal efficiency controller; this will supply stator of the motor with proper voltage and frequency under different loading conditions using appropriate algorithm.

References

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Index Terms

Computer Science  Control Systems

Keywords

Squirrel Cage Motor  Efficiency  Drive System  Optimization  Modeling  Simulation