

## Optimization of Three Phase Squirrel Cage Induction Motor

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**Abstract :** Rotor bar dimensions have a great influence on the air-gap magnetic flux density. Therefore, poor selection of this parameter during the machine design phase causes the air-gap magnetic flux density to be distorted. Thus, it causes noise, torque fluctuation, and losses in the induction motor. On the other hand, the change in rotor bar dimensions will change the resistance of the conductor, so the current will be affected. Therefore, the increase and decrease of rotor bar current affect operation, starting torque, and efficiency. The aim of this study is to examine the effect of rotor bar dimensions on the electromagnetic performance criteria of the induction motor. Modeling of the induction motor is done by the finite element method (FEM), which is a very powerful tool. In FEM, the results generally focus on performance criteria such as torque, torque fluctuation, efficiency, and current.

**Keywords :** induction motor, finite element method, optimization, rotor bar

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