

# DESIGNING OF THREE PHASE SQUIRREL CAGE INDUCTION MOTOR FOR GOOD EFFICIENCY

## ABSTRACT

Squirrel cage induction motors are mainly employed in almost all the applications. They always operate at low power factor which ultimately results in less efficiency. Different methods are employed to raise the power factor of the induction motors for maximizing efficiency. Instead of making arrangements to improve efficiency, design of induction motor for good efficiency is better option. The significance of this work is highlighted by the recent concerns in the various publications stressing on the importance of designing motor for good efficiency.

This thesis is introducing the designing of new three phase squirrel cage induction motor with an objective of getting good efficiency. A motor rating of 10 horse power, 415 volts with 1440 rpm and 4-pole is selected for design problem and an equivalent circuit model is developed to find out the various performance parameters like efficiency, starting torque, torque developed, efficiency at full load, rotor copper losses, stator copper losses etc in 'matlab' using graphical user interface tool. Then the results are compared with a pre-existed motor having identical power ratings and presented the same. It is observed that new design gives more efficiency (90.156%) than the pre-existed designed motor (87.907%). One important application of this model is that with the help of this model we can analyze the performance of squirrel cage induction motor having any rating. This model also helps to find the optimum parameters required for design.

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