

# **In house construction of an induction motor rotor by using 0.35mm thickness of steel sheet for efficiency based investigation**

## **Abstract**

In this paper, an in house production of a 0.5hp induction motor's rotor is investigated. This investigation considers the induction motor's efficiency and losses dissipation as an important aspect to determine the rotors efficiency. Through out this project, a new rotor which has 0.35mm steel sheet thickness and 10mm rotor bar slot size is constructed and compared with the existing rotor which has 0.50mm steel sheet thickness and 10mm rotor bar slot size. Once the construction phase of the rotor has been completed an in house motor experiment is done such as the no load, blocked rotor and dc resistance test. Result shows that thinner steel sheet (0.35mm) of the constructed rotor increase the efficiency up to 3.2% and reduces the losses to 17.2 watts compare to the thicker steel sheet rotor (0.5mm). An economical aspect is presented to show the amount of energy and money that can be saved from replacing the existing rotor (0.5mm) with a thinner rotor (0.35mm). As for the annual energy saving (AES) and total cost saving (TCS), the new rotor manage to save 138.7kWh per year and utility billing by RM45.51 per year per motor.