

PREDICTION OF THERMAL CONDITION OF CAGE-ROTOR INDUCTION MOTORS UNDER NON-STANDARD SUPPLY SYSTEMS

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Abstract- A hybrid thermal model for accurate estimation of thermal condition of cage-rotor induction motors under non-standard supply systems has been presented. The developed thermal model is a combination of lumped and distributed thermal parameters which are available from motor dimensions and other physical constants. The thermal condition of the motor under non-standard supply systems such as unbalanced power supply, distorted power supply can be estimated and the necessary derating of the motor can be carried out. The simulated and experimental results are presented.

Index terms - Thermal model, hybrid, cage-rotor, induction motor, distortion, harmonics, unbalanced supply, transient, derating.