

Abstract

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Theory and analysis of three phase series connected parametric motors

This paper presents the steady-state performance of a three phase wound-rotor parametric motor. This type of motor can be practically realized by series connection of stator and rotor phase of a conventional wound-rotor induction machine. The analysis is based on the d-q axes model, from which a phasor diagram is presented. The analysis is extended to include the magnetic saturation effect. Comparison between theoretical and experimental results showed a satisfactory agreement, proving the validity of the mathematical model as well as the magnetic saturation effect representation. Also, the motor stability is investigated.