

عنوان مقاله:

Comprehends and Survey Two Type of Two Phase Switched Reluctance Motor Configuration

محل انتشار:

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خلاصه مقاله:

The Switched Reluctance (SR) motor is a simple and robust machine, which has found application over a wide power and speed ranges in different shapes and geometries. This paper is combined two sections. Firstly, this paper briefly reviews the different types of SR motors with different geometries and then presents a new configuration for a two phase SR motor with shaped and skewed rotor poles. This motor has the ability to start and run in a specified direction without any difficulties. In another words the motor will always have starting torque no matter where the rotor position is. It also presents a centrifugal switch mounted on the motor shaft for a sudden advancement of current-pulses relative to rotor position after reaching a preset motor speed in order to develop higher torque at starting. To evaluate the motor performance, two types of analysis, namely numerical technique and experimental study have been utilized. In the numerical analysis, due to highly non-linear nature of the motor, a three dimensional finite element analysis is employed. Secondly, this paper introduces a motor with field assisted generator. The proposed novel motor/generator consists of two magnetically independent stator and rotor sets (layers), where each stator set includes four salient poles with windings wrapped around them, while the rotor comprises of two salient poles. There is a stationary reel, which has the field coils wrapped around it and is placed between the two-stator sets. The two sets are connected independently. To evaluate the motor performance, two types of analysis, too. The numerical technique and the experimental study have been utilized. In the numerical analysis, the finite element analysis is employed, whereas in the experimental study, a proto-type two motors have been built and tested. The calculated results compare favorably with the experimental test results.

کلمات کلیدی:

Switched Reluctance Motor, Reluctance Motor/Generator Hybrid Motor, High Starting Torque

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