

论文

一种新型转子永磁同步电机磁场分析及特性

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摘要:

提出一种面贴及内置两种方式混合的永磁电机转子拓扑新结构。采用有限元法分别建立内置式、面贴式及新型混合转子拓扑结构的永磁电机模型; 计算3种结构电机的静态磁场, 比较分析其等位线分布规律及一极距内气隙磁感应强度幅值分布; 仿真了3种结构电机的空载感应电势, 分析得出新型结构的永磁电机空载感应电势波形更接近正弦; 计算了新型转子结构永磁电机的空载定子损耗及转矩等运行参数。

关键词: 永磁同步电机; 面贴式永磁; 内置式永磁; 混合拓扑结构; 磁场分析

Magnetic field analysis and characteristics research on permanent magnet synchronous motors with new structure rotor

Abstract:

This paper presented a new rotor hybrid topologies structure of both the permanent magnet(PM) motors.Surface mounted, built-in and hybrid permanent magnet motor topology model was established using the finite element method to calculate the static magnetic field three structures of the motor.Comparative analysis of their contour distribution of the pole from the amplitude distribution within the air gap flux density in one pole zone was done.EMF distribution in permanent magnet motor with new structure was more close to the sine based on simulation and analysis of EMF.The torque and stator loss without load were calculated.

Keywords: permanent magnet synchronous motor; surface-mounted PM; built-in PM; hybrid topologies structure; field analysis

收稿日期 2012-02-02 修回日期 2012-04-16 网络版发布日期 2013-03-05

DOI:

基金项目:

国家自然科学基金资助项目(51277054); 教育部高等学校博士学科点专项科研基金资助项目(20104116120001); 河南省科技厅科技攻关资助项目(122102210118)

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