عنوان مقاله:

Sizing Equations of Axial Flux Permanent Magnet (AFPM) Machine Based on an Analytical Method

محل انتشار:

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خلاصه مقاله:

This paper presents a new algorithm for sizing equations of an Axial Flux Permanent Magnet (AFPM) machine based on an analytical method. To obtain a better performance, the dimensions of the stator and rotor cores are calculated. It is shown that the magnetic flux densities throughout these cores remain closed to the flux density of the B-H curve knee point of the ferromagnetic material characteristics. A new algorithm is proposed to determine the dimensions of the different parts of the machine, and it is used to calculate the height of the permanent magnet precisely. To show the effectiveness of the suggested algorithm, a sample AFPM machine is designed based on sizing equations, and Finite Element Analysis (FEA) is employed to validate these design formulas. A complete simulation study is accomplished, and some of the results are presented to confirm the accuracy of the sizing equations.

کلمات کلیدی:

Axial Flux Permanent Magnet (AFPM), Sizing Equations, Design Algorithm, Finite Element Analysis (FEA)

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