Study and Analysis of the Single Phase and Two Poles AC synchronous motor

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ABSTRACT

Motor is a basic device which transfers the electric energy to the mechanic energy. All the researches on motor focus on the improvementfor its best operation. The factors which reduce the motor efficiencymust be taken into consideration in the design of a motor. For instance,for the AC synchronous motor of an aquarium,the cogging torque and therunning current are two important factors which reduce the efficiency. The cogging torque of the AC synchronous motor is a fundamentalphenomenon which occurs between the magnetic rotor and stator in theslot. From the experience of designing AC synchronous motors,it isclear that the cogging torque may be significantly affected if the geometric shape of the stator is modified and/or if the air gap distancebetween the stator and the rotor is changed. Consequently,in this thesis,we changed the shape of the stator and used"MagNet5.2",a finite-elementbased software packang,to perform 2D simulations of the motors in question.

Keywords : 頓轉扭矩 ; 扭矩常數 ; 反電動勢常數

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