Disain map effisiensi PMSM menggunakan metode quasi statik = Pmsm efficiency map design using quasi static method

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Abstrak

[ABSTRAK
Motor listrik merupakan sebuah mesin yang mengubah energi listrik menjadi energi mekanik. Ada banyak jenis motor, salah satunya adalah PMSM (Permanent Magnet Synchronous Motor). PMSM merupakan motor listrik yang menggunakan permanen magnet sebagai penghasil medan magnet di rotor, sehingga medan magnet yang ada di rotor pun cenderung konstan. Salah satu ukuran kinerja dari PMSM adalah efisiensi. Efisiensi PMSM dapat digambarkan dalam bentuk map effisiensi. Ada beberapa cara untuk membuat map effisiensi motor. Dalam penelitian ini akan digunakan metode quasi statik. Penggunaan metode ini didasarkan pada alasan kemudahannya. Hasil map efisiensi yang didapat dari metode quasi statik akan dibandingkan dengan map efisiensi yang didapat dengan perangka lunak FEM. Hasil dari kedua metode ini akan dibandingkan dengan map efisiensi yang didapat dari pengujian motor. Untuk membuktikan efektivitas metode quasi statik akan diambil contoh PMSM yang digunakan di mobil Toyota Prius. Dari map efisiensi yang didapat metode quasi statik memiliki tingkat akurasi yang tidak berbeda dengan FEM.<hr>
ABSTRACTElectric motor is a machine to convert electric energy become mechanic energy. There are many type of electric motor, one of them is PMSM (permanent magnet synchronous motor). PMSM is electrical motor which using permanent magnet as magnetic field producer in rotor, so as the values of magnetic field on rotor has tended to fix. One of the method to evaluate performance of permanent magnet motor is efficiency, efficiency of PMSM can be created in map efficiency map. Some method has been using to create efficiency map of motor. In this research will use quasi static method. The election of this method for the simplicity. Result of efficiency which gotten from quasi static method will be compared with efficiency map that resulted by FEM software. And then the result of them will be compare with real testing of the motor. Toyota prius IPM wll be use as a PMSM example to prove the effectivity of the quasi static method. Base on the result, quasi static method has not be different accuracy than FEM.;Electric motor is a machine to convert electric energy become mechanic
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