

Novel Spoke-Type BLDC Motor Design for Cost Effective and High Power Density

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Abstract : Recently because of the rise in the price of rare earth magnet, interest of non-rare earth or less-rare earth motor is growing. Especially to achieve the high power density, Spoke-Type BLDC (Brushless Permanent Magnet) Motor with ferrite permanent magnet are spotlighted. But Spoke-Type Ferrite BLDC Motor has much of magnetic flux leakage in the direction of rotor shaft. In order to solve this problem, there are two conventional ways. But conventional ways bring the increases of product cost or the decreases of the power density. Therefore, this paper proposes new Spoke-Type BLDC Rotor shape that has the advantages of both conventional methods. The new shape is consists of a one-piece core. The inside and the outside of the rotor are open alternately. So it can take reduced production cost and high power density.

Keywords : motor, BLDC, spoke, ferrite

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