

# Parametric design optimization of a novel permanent magnet coupling using finite element analysis

F. BENDIXEN ET AL., 2014. 2014 IEEE ENERGY CONVERSION CONGRESS AND EXPOSITION (ECCE)

Keywords: Magnet coupling

A parametric design optimization routine has been applied to a novel magnetic coupling with improved recyclability. Coupling designs are modeled in a 3-D finite element environment, and evaluated by three design objectives: pull-out torque, torque density by magnet mass, and torque density by total mass. Magnet and outer core thicknesses are varied discretely, whereas outer dimensions and air-gap length are kept constant. Comparative trends as a function of pole number and dimensions are depicted. A compromise exist between the design objectives, in which favoring one might reduce the other two significantly.

[Read more here.](#)