

Design and Demonstration of a Test-Rig for Static Performance-Studies of Permanent Magnet Couplings

F. BENDIXEN ET AL., 2013. IEEE TRANSACTIONS ON MAGNETICS 49

Keywords: Magnet coupling

The design and construction of an easy-to-use test-rig for permanent magnet couplings is presented. Static torque of permanent magnet couplings as a function of angular displacement is measured of permanent magnet couplings through an semi-automated test system. The test-rig is capable of measuring torque up to 240 Nm (in increments of 0.1 Nm) at a angular step of 0.0011 degrees (mechanical). Axial, radial, and angular misalignment can be imposed on the coupling in order to study abnormal and faulty operating conditions. This can also be used to assess installation tolerances. Measured data is stored in a USB thumb-drive, and no additional software or hardware is needed to operate the test-rig. Tests of the aligned static torque performance of two different cylindrical couplings are presented along with radial and axial misalignment-tests of one. The results demonstrates the diversity and usefulness of the the designed test-rig. Furthermore, the coupling-performance shows a clear influence of end-effects for axially short couplings, and are found to be very robust to small misalignment.

[Read more here.](#)