

ABSTRACT

TITLE: MAGNETIC ALIGNMENT SYSTEM AND ALIGNMENT METHOD THEREFOR

A magnetic alignment system is disclosed, including a magnet array (10), a motor rotor (20), a fixed tooling (30) and a force sensor (40). The motor rotor (20) is disposed over the magnet array (10) and is connected via the force sensor (40) to the fixed tooling (30) that is positionally fixed relative to the magnet array (10). By varying an angle of a three-phase current supplied to a specific one of three-phase coil assemblies in the motor rotor (20) within an angular range for magnetic alignment and measuring a force generated by the specific one of three-phase coil assemblies using the force sensor (40), an angle of magnetic alignment for the specific one of three-phase coil assemblies is determinable based on the angle of three-phase current that causes the specific one of three-phase coil assemblies to generate a maximum force. Fig. 3.