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Electrodynamic levitation effect in vertical HTSC electrical machines with axial magnetic flux

ABSTRACT. Vertical synchronous electrical machines (alternators and motors) with axial magnetic flux and disk geometry of rotor and stator are characterized by the presence of an electrodynamic force acting perpendicularly to the active zone elements. It depends mainly on the load angle, magnetic flux density in the air gap and armature current. The presence of this force is to be accounted for during alternator development and testing. It may be used for the development of electrical machines with a levitating rotor as well.

Keywords: high-temperature superconductivity (HTSC), levitation force, synchronous electrical machines

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