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Electrodynamic bearings

KEYWORDS

- High efficiency guidance
- High spin speed
- Low losses
- Vacuum

Technology Market:

Passive magnetic bearing for high-speed applications

Traditional bearings are a limiting factor to high-speed applications. Nowadays, active magnetic bearings are available, but due to their price and their complexity, they remain a last resort solution.

The UCL invention

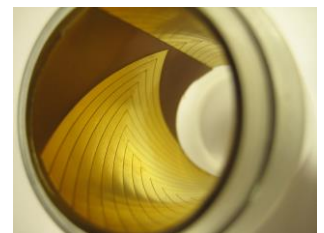
This invented bearing is a fully passive magnetic bearing, stable when spinning at room-temperature. It gathers the benefits from active magnetic bearings, i.e. contactless operation, and the benefits from a passive device, which means a simpler, cheaper and intrinsically stable device. The invention is based on the null-flux principle, which means there are no losses in nominal operation, when centered.

Applications

- High-speed motors
- Flywheel
- Vacuum pumps

Main features

- Contact free bearing
- Easy-to-use and to implement
- Reliable
- Low losses and superior lifetime
- No need for active control
- No need for cryogenic cooling
- Easy integration in permanent magnet motors



Stator of the electrodynamic bearing

Technology status

TRL 2 Theoretical developments give us a complete toolbox to predict static and dynamic performances of the bearing.

Shortly, a prototype showing the working principle will be operating.

IPR This work was the subject of a PCT patent application filed on the 13th of August, 2014 (PCT/EP2014/067306) and published on the 26th February, 2015 (WO2015/024830).

Preferred partnership

Joint developments, licensing opportunities

Interested to develop and / or commercialize this technology?

UCL
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