

Hertzian contact force HDD pivot ball bearing

Dynamic response of a HDD pivot ball bearing acted by Hertzian contact force

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Abstract : Increasing the density magnetic recording of a hard disk drive needs to improve position control of a slider. We have troubles analyzing position of a slider by nonlinear property of pivot ball bearing. Many researches analyze a hard disk drive to change pivot ball bearing part from balls to springs. Pivot ball bearing operates by rotation and movement of balls. This study considers Hertzian contact force when balls contact with outer race to analyze nonlinear movement of a ball bearing. Experiment of this study measures movement of a circular center of a pivot ball bearing. We also verify the simulation results and the experiment results.

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