

MINIMUM BEARING LOAD, HIGH BANDWIDTH, MOVING MAGNET ACTUATOR

ABSTRACT

A moving magnet actuator for a hard disk drive which includes an arm (9) mounted at a first end on a pivot bearing (10) which allows the arm to rotate about a pivot axis, an inner yoke (13) of magnetic material rigidly attached to the first end of the arm, a pair of permanent magnets (12a,12b) rigidly attached to the yoke (13), centrelines of the magnets 12a,12b) being spaced apart by an angle α , and wherein $100^\circ \leq \alpha \leq 180^\circ$, a stationary outer yoke (14) of magnetic material, a pair of coils (15a,15b) wound about portions of the outer yoke, the coils having portions of their windings immersed in, and substantially orthogonal to, a magnetic field generated by the permanent magnets, whereby passing a current through the coils generates a torque about the pivot axis and rotates the arm.

(Fig. 2)