

FERROFLUID SEAL FOR ACTUATOR BEARING

Abstract

A ferrofluid seal for a hard disk drive actuator bearing has two circular plates which are axially spaced apart about a nonmagnetic pivot shaft (53) of the actuator. The plates (63, 65) are parallel and in close proximity to one another. The upper plate (63) is made of magnetically-conductive steel and is mounted to a stationary sleeve (57) which surrounds the shaft. The lower plate (65) is mounted to the shaft (53) and has an annular magnet (71) with pole pieces on an upper surface. A magnetic ferrofluid (75) is located between the magnet (71) and the upper plate (63) to complete the magnetic circuit and form a seal (61). The ferrofluid seal (61) prevents bearing emissions such as grease oil vapor and aerosol droplets from contaminating the disk drive.

Fig 4