

ABSTRACT

Improved Dual Coil Actuator With Combined Configuration of Axial and Radial Magnets

An improved dual moving coil actuator a cylindrical shell having a closed end and an open end; a inner core disposed within a centre of the cylindrical shell to define an annular air gap therebetween, the inner core including an axially-magnetized cylindrical permanent magnet having a first direction of magnetization and disposed in proximity to the closed end of the cylindrical shell; a coil assembly movably disposed within the annular air gap and connectable to an electrical power supply, the coil assembly including a first coil winding and a second coil winding, such that the first and second coil windings are wound in series but in opposite directions; wherein the said moving coil actuator uses a different configuration of an axially magnetized permanent magnet with an array of radially magnetized permanent arc magnets to provide 2 magnetic circuits, thereby allowing the 2 coil sections of a dual coil actuator to cut the flux more efficiently at the air gaps.

Fig. 4