ELECTROMAGNETIC COIL GUN – DESIGN AND CONSTRUCTION

ABSTRACT  A single-stage, sensor less, coil gun was designed to demonstrate the capability to accelerate a ferromagnetic projectile to high velocity. This paper summarize all important steps during coil gun design, such as physical laws of the coil gun, preliminary calculations, the testing device and final product.

The electromagnetic FEA model of the capacitor-driven inductance coil gun was constructed to be able to optimize the coil's dimensions. The driving circuit was implemented as dynamic model for simulation of current.

The coil gun is designed for an exhibition centre as an exhibit. It is not designed for a really shooting applications, this means the projectile is accelerated at relatively low speed.

Keywords: Coil gun, electronics, FEM, electromagnetic force