

# Electromagnetic Actuator With Ferromagnetic Disk and Magnetic Spring Suspension

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**Abstract**—The paper presents a new type of electromagnetic actuator based on the attraction forces generated by a pair of electromagnets over a ferromagnetic disk, which uses a differential magnetic spring to generate the return forces. The paper also shows some functional characteristics of this device, obtained by numerical simulation with COMSOL Multiphysics. The proposed actuator has been experimentally tested.

**Keywords**—actuator; electromagnet; magnetic spring; numerical simulation;

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