

## Documents

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**Energy Saving Capability of Variable Inertia Magneto-Rheological (MR) Flywheel**

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**Abstract**

A flywheel is an electromechanical, readily available energy storage system of rotating mass. The aim of this project is to study about the energy saving capability of variable inertia magneto-rheological (MR) flywheel. This paper signifies the importance of variable inertia flywheel. To overcome above situation, a variable inertia flywheel designed with four MR (magneto-rheological) dampers and magneto-rheological fluid (MRVIF) is proposed. The four MR dampers are hollow-cylindrical, vertically joined from centre to circumference of flywheel. A movable mass is placed inside the frame having one side attached with spring. The mass can move along the internal cavity of the cylinder from the center side to the circumference side depends on the rotational speed of the flywheel. The energy conservation of the system gradually increases with the increase of flywheel rotational speed. The simulation of this system is done in MATLAB and 3D prototype is designed in Solid works. © 2023 American Institute of Physics Inc.. All rights reserved.

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