

## On the Efficiency of a Double-Cone Gravitational Motor and Generator

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**Abstract :** In this paper, following the study-case of an inclined plane gravitational machine, efficiency of a double-cone gravitational motor and generator is evaluated. Two types of efficiency ratios, called *translational efficiency* and *rotational efficiency*, are defined relative to the intended duty of the gravitational machine, which can be either the production of translational kinetic energy, or rotational kinetic energy. One proved that, for pure rolling movement of the double-cone, in the absence of rolling friction, the total mechanical energy is conserved. In such circumstances, as the motion of the double-cone progresses along rails, the translational efficiency decreases and the rotational efficiency increases, in such way that sum of the rotational and translational efficiencies remains unchanged and equal to 1. Results obtained allow a comparison of the gravitational machine with other types of motor-generators, in terms of the achievable efficiency.

**Keywords :** efficiency, friction, gravitational motor and generator, rolling and sliding, truncated double-cone

**Conference Title :** ICMSA 2017 : International Conference on Mechanism Science and Analysis

**Conference Location :** Kyoto, Japan

**Conference Dates :** November 16-17, 2017