

## Study Concerning the Energy-to-Mass Ratio in Pneumatic Muscles

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**Abstract :** The utilization of pneumatic muscles in the actuation of industrial systems is still in its early stages, hence studies on the constructive solutions which include an assessment of their functional performance with a focus on one of the most important characteristics-energy efficiency are required. A quality indicator that adequately reflects the energy efficiency of an actuator is the energy-to-mass ratio. This ratio is computed in the paper for various types and sizes of pneumatic muscles manufactured by Festo, and is subsequently compared to the similar ratios determined for two categories of pneumatic cylinders.

**Keywords :** pneumatic cylinders, pneumatic muscles, energy-to-mass ratio, muscle stroke

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