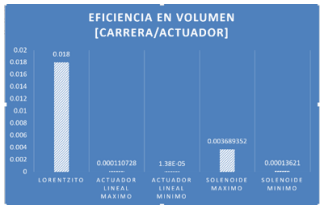
LORENTZITO

The next generation in electric engines. Low-energy, miniaturisable electric actuators that are simple to control.



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Technological Offers type

Technological solutions

Research and innovation areas

- Climate, Energy and Mobility
- Industry, Materials and Circular Economy

ODS

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Keywords: | electric actuators | electricity

Brief description of the solution and the added value it delivers

Using novel electric driving techniques, a new generation of electric actuators has been developed which improve energy efficiency and which, on account of their simplicity, reduce the size and weight of the actuator, making millimetre-scale miniaturisation possible. These advantages have already been proved.

Description of the technological basis

The solution is a new generation of electric actuators. Novel electric driving techniques have been developed to make it possible to implement this new generation of engines introduced previously. Thanks to these techniques, electromagnetic forces can be used directly to generate motion, thereby dropping the use of standard mechanical elements such as gearboxes or motion conversion mechanisms. This results in high energy efficiency, space-saving construction and versatility in power and size. Its simplicity enables miniaturisation down to the micrometre scale and its straightforward control opens up new possibilities in the field of electric actuators. It is generally more efficient than linear solenoids and actuators in terms of cost, space and weight.

'Lorentzito reduces energy consumption, space and weight, thereby lowering the cost of using electric actuators'

Business needs / application

Agri-food

- Energy saving in the packaging industry.
- Reduction in the weight and volume of agricultural machinery.
- Less machinery maintenance.

Health

- Cheaper diagnostic machines with lower energy consumption.
- More powerful and precise surgical robots.

Transport

- Smaller and more efficient hydraulic valves.
- Greater battery autonomy.

Space

- Solar panel positioning with lower energy consumption.
- Lighter and smaller actuators, given the high cost of putting equipment into orbit.

Energy

- Avoids the need for capacitor banks to improve the power factor.
- Relays with lower energy consumption.

'In all movement, energy consumption is an inevitable cost and a limit to autonomy'

Competitive advantages

- Energy efficiency: We achieve an energy saving of 25% compared to any of the 200 engines analysed.
- Better performance: It has no limit in terms of power and no restrictions in terms of size.
- Lighter and smaller: It requires less parts than the current generation, which makes it smaller and more lightweight while still offering the same functionality.

References

- ETSI Telecomunicación (UPM) research team at the Laboratory of Robotics & Control, with more than 15 years' experience.

Industrial protection

- Patent granted in Spain: P201830581

Stage of development

- Concept
- Research
- Lab prototype
- Industrial prototype
- Production

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Innovation and Entrepreneurship Programmes

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