Wobble-type stepping electromagnetic micromotor

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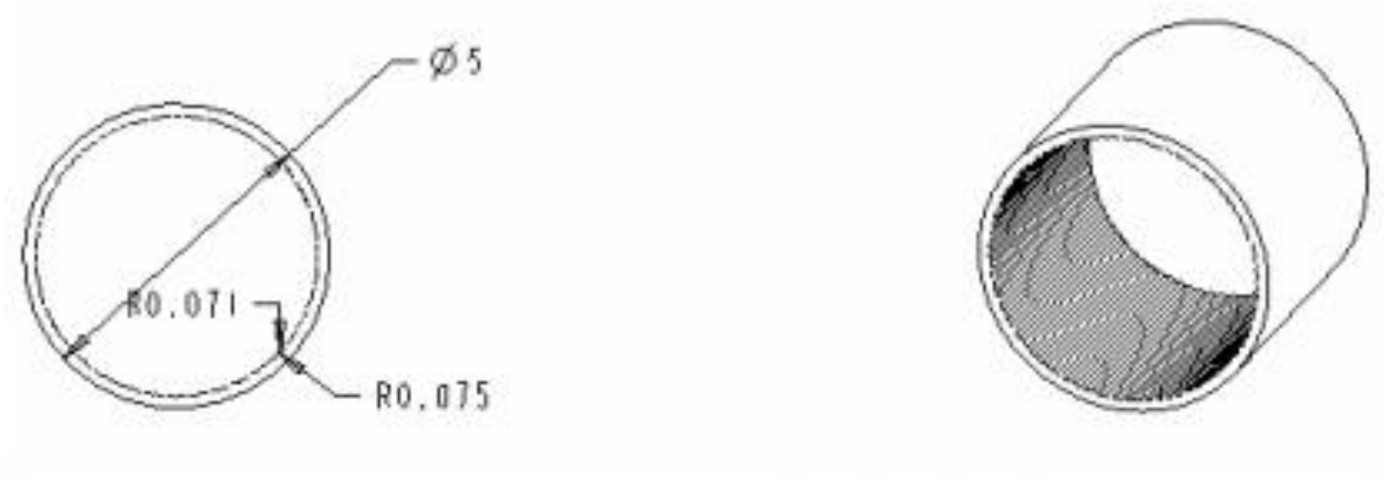
Invention

A step-by-step electromagnetic micromotor of the wobble type is such as to provide an internal component and an annular component to this external one.

The external component can have a stator role and the internal one a rotor role, or vice versa. The internal component has three or more poles, with a winding on each pole, and has an external surface facing an internal surface of the external component. During the operation of the micromotor each winding is in a powered condition.

The external and internal surfaces are shaped in a toothed way. Each tooth has a crest radius of curvature that is different from the throat radius.

Drawings
& pictures



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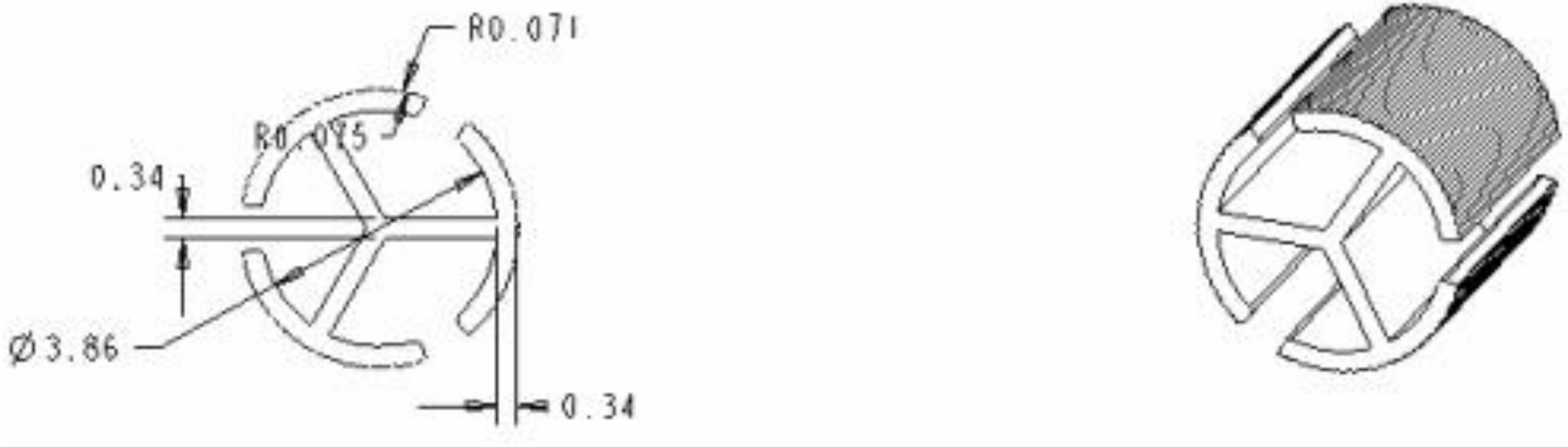

Industrial applications

Motor simple structure and low cost allow to think to a very wide market where the actuator will be commercialized:

- In the field of consumer electronics the micromotor is expected to find application in electromechanical chronographs, in CD players and PCs actuating the read/write heads of these devices, in zoom or focus actuation systems of photographic cameras.
- In the field of mechatronic medical micro-instruments the motor will have application in the actuation of endoscopes lenses and in powered laparoscopic tools, for examples microgrippers or microscissors, drug delivery micropumps and endoscopic intracorporeal autonomous capsules in order to achieve, for example, active locomotion or micro-surgical tools.
- Finally, in the field of robotics, micromanipulators, dosing systems and mobile robots are possible applications.

Possible developments

The research group is interested in industrial partners interested in licensing the technology covered by this patent.

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