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DI TECNOLOGIA

TITLE

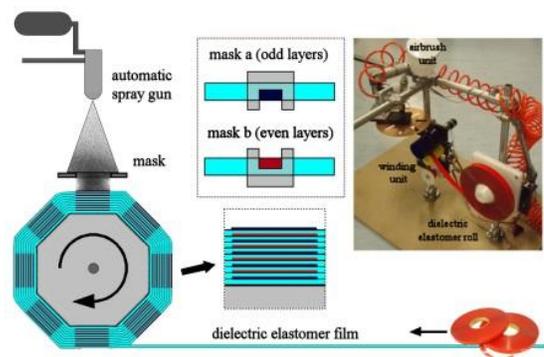
Polymer actuators adapted to implement an artificial muscle

INVENTORS

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DESCRIPTION

A fast, semi-automatic process for the manufacture of modular units of dielectric elastomer actuators (DEA), each of them consisting of many layers of rolled thin dielectric film, is disclosed. The fabrication process of the actuator is divided into two different steps. The first one is the fabrication of the multilayer stack using the semi-automatic machine, while the second step is the fabrication of the lateral contacts and the packaging of the stack into the final actuator. All the manufactured units are independent and take their power from a lateral, compliant supply rail that contacts the sides the electroded layers. This design is very suitable for industrial production: each module can be independently tested and then assembled in a complete macroscopic actuator composed by an unlimited number of these modules. The simple assembly methodology and the semi-automatic manufacture process allow the fabrication of multilayer stacked devices, that can be used both as contractile or expanding actuators.



APPLICATIONS

The invention can be used for the production in a simple and efficient way of DEAs to be used in many different fields such as biomimetic and humanoid robotics, prosthetics, telepresence and rehabilitation.

KEYWORDS

Artificial muscle, polymer actuator, dielectric elastomer actuators, DEA

BIBLIOGRAPHIC DATA

1) Procedimento ed Apparecchiature per la Fabbricazione di Attuatori Polimerici Multistrato adatti alla realizzazione di un muscolo artificiale

Application Number	TO2008A000180
Priority Date	March 10, 2008
Applicants	Fondazione Istituto Italiano di Tecnologia, Università degli Studi di Genova

2) A method and apparatus for the fabrication of multilayer polymer actuators adapted to implement an artificial muscle

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Applicants	Fondazione Istituto Italiano di Tecnologia, Università degli Studi di Genova

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