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壓電致動無閥式微泵浦之設計與製作(II)

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摘要

本研究利用紫外光電鍍技術(UV-LIGA)製作微泵浦元件，包括微泵浦主體及振動微膜片，利用多層堆疊電鍍方式製作，以正型厚光阻為電鍍模，反覆光阻成模與電鍍兩道製程，在不鏽鋼基板上堆疊成所設計之結構。微泵浦主體經三次堆疊電鍍而成，而壓電驅動之振動微膜片則經兩層堆疊而成，完成元件從基板上脫離後，利用對準組裝平台將微泵浦主體和振動微膜片膠合，再黏貼 PZT 壓電致動器，及組裝進出口流道，完成以電鍍鎳材料製作無閥式微泵浦之雛形。

關鍵字: PZT 壓電致動器; 微泵浦; 電鍍; UV-LIGA

The Design and Fabrication of PZT Actuated Valve-Less Micropump (II)

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Abstract

The components of a valveless micropump were fabricated by UV-LIGA technology. Its components include the vibration plate and chamber plate. The thick positive photoresist is used as the electroforming mould, which is patterned by UV lithography. The repeat steps including the photoresist patterning and nickel electroforming make the component form a quasi 3-D (or 2.5-D) microstructure. The two components assembled by aligning apparatus using epoxy adhesive. Then, a PZT actuator was glued and inlet/outlet tube is assembled. A nickel micropump prototype is fulfilled for further testing work.

Key words: PZT actuator;Micropump;Electroforming;UV-LIGA