일체형 인치웜 방식 액추에이터의 설계 및 특성

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Design and Characteristics of a Monolithic Inchworm Type Actuator (MITA)

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Abstract

New inchworm type piezoelectric actuator design, which can reduce the number of the piezoelectric body for manufacturing inchworm type actuator, is suggested in this work. Inchworm type actuator consists of three or more piezoelectric bodies, on the other hand the new-designed inchworm type actuator has only one piezoelectric body.

The one piezoelectric body that size is 2 × 2 × 4 [㎟] (DWL) has 2 clamping part and 1 extending part. The size of the new-designed actuator with one piezoelectric body is 5 × 6 × 9 [㎟] (DWL).

The new-designed inchworm type actuator performed the operation at a cycle (6 steps) of 0.3㎛ per 33.3㎲ and a generated force of 0.6N.

Key Words : Piezoelectric, Monolithic, Inchworm, Actuator