

지능판의 진동제어를 위한 수동구속감쇠의 위치 설정 강 영규^{*}(국민대) · 김찬묵^{*}(국민대)

Placement of Passive Constrained Layer Damping for Vibration Control of Smart Plate

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Key Words : Smart Plate, Passive Constrained Layer Damping, Finite Element Method, Placement

Abstract : Dynamic characteristics of smart laminated composite plates with passive constrained layer damping have been investigated to design structure with maximum possible damping capacity. The equations of motion are derived for flexural vibrations of symmetrical, multi-layer laminated plates. The damping ratio and modal damping of the first bending and torsional modes are calculated by means of iterative complex eigensolution method. The structural damping index(SDI) is introduced to determine the optimum placement of viscoelastic patch. This paper addresses a design strategy of laminated composite plate under vibrations.

Terfenol-D를 이용한 선형 자기변형 구동기의 설계 및 특성 연구

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A Study on Design and Characteristics of Linear Magneto-strictive Actuator Using Terfenol-D

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Key Words : Terfenol-D, Linear magnetostrictive actuator

Abstract : Terfenol-D is one of magnetostrictive materials which have the property of converting the energy in magnetic fields into mechanical movement and vice versa. We designed and fabricated a linear magnetostrictive actuator using Terfenol-D. It has 25mm diameter and 100mm long. To grasp the characteristics of it, a series of tests were performed in the range of 50Hz below. Induced-strain actuation displacements of the actuator measured by test and predicted by magnetic analysis agreed well. And blocked forces according to the input currents were estimated from the testing results. Modelling method representing the exerting force of a linear magnetostrictive actuator was confirmed through some testing results.