비선형거동을 고려한 방진고무의 강성해석 및 최적설계

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The Stifiness Analysis and Optimization of the Elastomer Considering Nonlinear Behavior

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Key Words : Elastomer, Large deformation, Mooney-Rivlin Coefficient, shape optimization, ANSYS

Abstract : Elastomer is extensively used to reduce of vibration machine or structure. Over the years an enormous effort has been put into developing procedures to provide properties of rubber material for design function. However, there are still a lot of difficulties to analyze static characteristic of rubber components with hyper elasticity and nonlinear large deformation. In this paper material property is obtained by strain-stress curve using a tension test. Mooney-Rivlin Coefficients are gotten by fitting strain-stress curve. The visco-elastic characteristics of refrigerator elastomer mount was determined by using ANSYS. And to minimize the transmitted force of elastomer mount, the elastomer shape optimization was performed.

KSR-III 로켓의 도로운송 및 핸들링에 의한 진동하중

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Vibration Loads on KSR-III during Ground Transportation and Handling

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Key Words : 진동하중(Vibration loads), 로켓(Rocket), 도로운송(Ground Transportation), 핸들링(handling)

Abstract : It is conducted to analyze vibration loads on KSR-III and its major segments during their ground transportation and various handling process. These loads may be different from the real flight environment. Inadequate assessment of these loads can cause not only local damages on the rocket system but also the critical problem like flight mission failure. Therefore, transportation and handling loads must be considered during design and attenuated to ensure that the rocket structural damage does not occur. This work is concerned with the generation of criteria and prediction of transportation and handling loads for KSR-III. The results show that the shipping container is well designed to satisfy the design requirements.