

عنوان مقاله:

Mechanical Properties and Thermal Condition Effects on Bore Deformation of an Electromagnetic Railgun

محل انتشار:

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خلاصه مقاله:

In this article, the effects of stiffness changes in the static deformation of a particular type of electromagnetic railgun structure's cross-section have been studied. In this approach, a basic model consisted of a pair of composite bar, copper rails with rectangular cross-sections and fastening elastic bolts have been investigated. Considering the plane symmetry, half of the structure is investigated and for different stiffness of bolts and composite bar, a static analysis using Finite Element Method (FEM) has been conducted with respect to deflection and stress. All the rest of elements including geometry of individual parts and pressure load are assumed constant. The effect of fastening elastic bolts is examined upon discrete elastic support. The analysis of the structure has been conducted statically and with assumption of plain strain. The static response represents the advantageous and disadvantageous impacts of these changes on the cross-section.

کلمات کلیدی:

Railgun, Static response, Deformation, Plain strain

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