

عنوان مقاله:

Experimental and Numerical Study of Lateral Loadings on the Composite Tubes with SMA and Aluminum Wires and Without Wire

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خلاصه مقاله:

In this paper, crushing length, deformations and energy absorption of thin walled square and rectangular composite tubes which are reinforced with Aluminium and SMA wires and without wire have been investigated under a quasi-static lateral load, both experimentally and numerically. To experimental study, square and rectangular composite tubes have been fabricated with SMA wire, Aluminium wire and without wire. To validate the results, a finite element model is constructed and analysed under the same conditions by using FEM^{۲۷} and LS-DYNA software packages for composite tubes with Aluminium wire and without wire. The numerical results are in a good agreement with the experimental data. The results show that section geometry and the types of reinforcement wires have a considerable effect on the energy absorption. Rectangular cross-section samples with SMA wires have the most energy absorption capacity.

کلمات کلیدی:

Absorbed-Energy, Composite Tubes, Quasi- Static Load, SMA Wires

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