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Theoretical analysis of Functionally Graded Thickness tubes under dynamic external inversion loading

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Highlights

- As a new study, a theoretical formulation of the functionally graded thickness (FGT) tube under dynamic external inversion loading is developed and validated by three-dimensional finite element model.
- The effect of design parameters in FGT structures including the selection of the gradient functions on the impact properties of thin walled structures subjected to inversion process has been studied.
- A comparative study is presented contained impact energy absorption characteristics of various kinds of FGT inversion aluminium tubes under axial dynamic loading.
- The role of die radius on the impact energy absorption characteristics and the initial peak load of FGT inversion tubes is investigated.

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