

## **Axial crushing of thin-walled structure with crease lines**

### **ABSTRACT**

Thin-walled structures receive much attention as energy absorbing device because of its cost advantage. Apart from being energy absorbent, efficient energy absorbing devices should also have low initial peak force, so that no excessive force is transmitted to the structures that needed protection. Thus, this paper focuses on the role of crease lines of patterns, applied to the surface of thin-walled structure to the produced initial peak force and collapse pattern. Two types of thin-walled structures which are pre-folded with horizontal and inclined crease lines are investigated with finite element analysis. The results show that thin-walled structures having pre-folded inclined with horizontal crease lines exhibit lower initial peak force when compared to the thin-walled structure with only pre-folded horizontal crease lines and benchmark thin-walled structure with no crease lines

**Keyword:** Thin-walled axial crushing; Peak force crease lines; Finite element analysis