Dynamic response of stiffened plates under repeated impacts

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Highlights

- The dynamic response of stiffened rectangular plates repeatedly impacted by a rigid knife-edged striker, has been investigated experimentally, numerically and theoretically.

- The sensitivity of the Cowper-Symonds material constant is assessed in the numerical simulations.

- Based on the rigid-perfectly plastic analysis, new analyticalformulaeare developedto predict the permanent deflectionsof stiffened plates.

- The strain hardening, strain rate effects and the elastic rebound effects are considered in the theoretical method.

- Good correlations are obtained betweenthe theoretical, experimental and numerical results.