TRANSVERSE IMPACT OF CIRCULAR MARINE COMPOSITE PLATES

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ABSTRACT

Falling-weight impact tests on circular low fibre-volume E-glass / polyester composite plates have been performed. Three behaviour 'regimes' have been defined: 'Undelaminated', 'Delaminated' and 'Fibre damage'. A fracture mechanics model describes extremely well the sudden onset of delamination, and gives good scaling between specimen sizes. Bending and membrane effects are significant for thin laminates. For thick laminates, especially after the sudden onset of delamination, the response is shear-dominated. Delaminated behaviour was well described by an energy balance model. Final failure appears to be due to back-face strains.