

# USE OF 3D IMAGE CORRELATION FOR ASSESSMENT OF DAMAGE TO MILD STEEL CONTAINERS SUBJECTED TO INTERNAL BLAST LOADING AND FRAGMENTATION EVENTS

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This paper presents a methodology for the measurement of deformation and surface strain of a metal structure subjected to a combination of blast and fragment loading using a three dimensional Digital Image Correlation (DIC) technique.

Modelling the response of a structure to the synergistic effects of an internally generated blast, coupled with fragmentation, is complex. However, the ability to apply realistic failure criteria to panels helps identify probable damage zones. In a multiple compartment structure, such as a ship, it is essential for development of survivable structures and systems to the effects of blast/fragmenting weapons.

The DIC technology has been used to measure the full-field surface strain developed across a panel of a simple fully welded structure undergoing deformation from an internal blast and fragmentation event. This data has been used to identify high strain regions which may validate finite element modelling.