

**COMPARISONS OF FOUR CLOSE-IN EXPLOSIVE  
GEOMETRIC LOADS ON A MILD STEEL PLATE  
UNDERGOING ELASTIC DEFORMATION**

G. Yiannakopoulos, Craig Flockhart, P. Vincent and M. Brincat

*Defence Science & Technology Group,  
506 Lorimer St, Fishermans Bend, Melbourne, VIC 3207, Australia;*

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A series of close-in explosive experiments were conducted on a 10 mm mild steel plate undergoing elastic deformation. The aim of the experiment was to investigate loadings emanating from different explosive charge geometries. Four charge geometries were used consisting of PE4 shaped into a cube, cylinder, sphere and hemisphere. The spherical charge was centrally initiated, whereas the other geometries were initiated at the top.

The underlying fluid-structural interactions are examined based on measurements undertaken and FE simulations conducted. The measurements include high speed video of the detonation and fireball evolution, and pressure transducers mounted on the plate recording reflected pressure-time profiles. Selected measurements and high speed video are correlated and compared to FE simulations. A discussion is presented on the limitations of both the measurements and FE simulations for close-in explosive studies.