

Abstract Submitted  
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**Shock response of 7068 aluminium alloy** DAVID CHAPMAN, DANIEL EAKINS, WILLIAM PROUD, Institute of Shock Physics, Imperial College London, London, SW7 2AZ, United Kingdom — Aluminium alloys are widely employed throughout the aerospace and defence industries due to their high specific strength. Aluminium alloy 7068, often described as the ultimate aluminium alloy was developed by Kaiser Aluminium in the mid-1990s and is the strongest aluminium commercially produced. There remains little published data on the response of this micro-structurally anisotropic alloy to dynamic loading. As part of an investigation of the high-rate mechanical properties of Al 7068, a series of plate-impact experiments using a novel meso-scale planar impact facility and a more conventional large bore gas gun were undertaken. The evolution of the elastic-plastic shock wave and spall strength as a function of sample thickness and specimen orientation were investigated using optical velocimetry (line-VISAR, PDV) techniques. Planar shock wave experiments were conducted on specimens several 100 microns to several millimetres thick cut from either parallel or perpendicular to the extrusion direction.

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