

FOAMED ALUMINIUM FOR DETONATION WAVE SHAPING

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Title: Foamed Aluminium for Detonation Wave Shaping

The shaping of a detonation wave within a shaped charge allows (together with liner angle and thickness) to increase the jet velocity and performance considerably. Consequent application of efficient wave shaper designs also allows to reduce charge length at equal performance.

Foamed aluminium is a material with excellent damping properties, used already in many applications (see figure 1.). The presentation will show, that wave shapers, made of aluminium foam, allow low thicknesses at large diameters (at a 1:4 relation), compared with conventional plastic materials. Experimental studies, measuring peripheral detonation break through via contact pins and streak technique will be presented (see figure 2); together with a numerical study performed for a conventional wave shaper design.

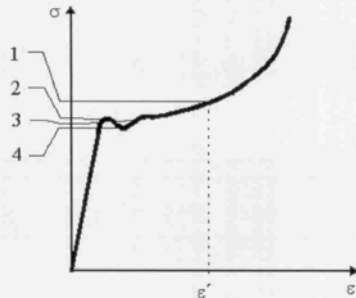


Fig. 1: Principal Stress-Strain curve of Foamed Aluminium

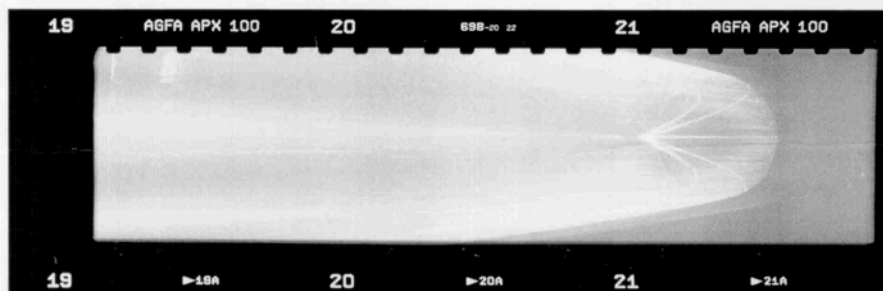


Fig. 2: Streak Record of a Detonation Test

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