

TECHNIQUES FOR CHARACTERIZING AND EVALUATING
BLAST RESISTANT CLOSURE ASSEMBLIES

ABSTRACT

5 Assemblies capable of resisting blast loads can be equipped with a frame, one or
more closure elements secured to the frame, and a plurality of energy absorbing elements
distributed about a perimeter of the frame and configured to connect between the frame
and a support structure. Techniques for design of such blast resistant assemblies are
disclosed, wherein an experimental blast load capability of a single energy absorbing
10 element to predefined blast load conditions is determined. Response of the one or more
closure elements with predetermined properties thereof, when connected directly to the
support structure, to a blast event corresponding to the predefined blast load conditions
can be then simulated. Based on the simulated blast response, velocities of the one or
more closure elements during the simulated blast event are determined, and a number of
15 the energy absorbing elements required for the blast resistant assembly based on the
determined experimental blast load capability and the determined velocities of the one or
more closure elements is also determined. A verification step may check that the blast
resistant assembly having the determined number of the energy absorbing elements
satisfies a predefined hazard level condition.

20 Figure 5