



Development of a Simplified Theoretical Model for Dynamic Burst Time and Pressure of a Cylindrical Shell

Carl Cheng Ph.D.

Bjorksten | bit 7 Madison, Wisconsin

G. E. Otto Widera Ph.D.

Center for Joining and Manufacturing Assembly
Marquette University, Milwaukee, Wisconsin

The object of this study is to determine the short-term burst pressure and time of metal cylinders under short term dynamic loading conditions. A simplified theoretical model to calculate these dynamic burst time and pressure of cylindrical shells has been developed and the results are compared with finite element analysis (FEA) results via the use of the LS-DYNA code [1]. Based on the agreement between the two results, it can be concluded that a properly formulated simplified theoretical model can be employed with sufficient accuracy to determine the short-term dynamic burst pressures of metal cylinders.

Keywords: Cylindrical shell, Pipeline, Dynamic burst pressure, Dynamic burst time.

Detailed Paper can be found at Open Ocean Engineering Journal Volume 2 Year 2009
<http://www.bentham.org/open/tooej/openaccess2.htm>