

## Accepted Manuscript

Effect of circular perforations on the progressive collapse of circular cylinders under axial impact

H. Ravi Sankar , Venkitanarayanan Parameswaran

PII: S0734-743X(18)30309-9  
DOI: <https://doi.org/10.1016/j.ijimpeng.2018.09.001>  
Reference: IE 3163



To appear in: *International Journal of Impact Engineering*

Received date: 2 April 2018  
Revised date: 17 August 2018  
Accepted date: 1 September 2018

Please cite this article as: H. Ravi Sankar , Venkitanarayanan Parameswaran , Effect of circular perforations on the progressive collapse of circular cylinders under axial impact, *International Journal of Impact Engineering* (2018), doi: <https://doi.org/10.1016/j.ijimpeng.2018.09.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Highlights

- In the present work, we studied the effect of multiple perforations in a single row as well as multiple rows on the energy absorption characteristics of circular cylinders through extensive numerical simulations and experiments.
- Provision of holes in relatively thick cylinders ( $D/h = 14$  and  $19$ ) acted as triggers by which it could reduce the high initial peak load reached during the progressive collapse of cylinder without altering the mode of collapse.
- Experiments were performed in a modified split-Hokinson pressure bar, whereas simulations are carried out in commercially available finite element package ABAQUS.
- Radial imperfection induced at the hinges after the completion of a buckle has a significant effect on the peak load of the subsequent buckle.
- Devised a novel design of triggering in circular cylinders which improved the energy efficiency without considerably affecting the performance parameters.

Download English Version:

<https://daneshyari.com/en/article/10133802>

Download Persian Version:

<https://daneshyari.com/article/10133802>

[Daneshyari.com](https://daneshyari.com)