| Record Nr.              | UNINA9910438045903321  |
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| Autore                  | Dvorkin Eduardo N  |
| Titolo                  | Finite Element Analysis of the Collapse and Post-Collapse Behavior of Steel Pipes: Applications to the Oil Industry [[electronic resource] /] / by Eduardo N Dvorkin, Rita G. Toscano  |
| Pubbl/distr/stampa      | Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer,<br>, 2013  |
| ISBN                    | 3-642-37361-5  |
| Edizione                | [1st ed. 2013.]  |
| Descrizione fisica      | 1 online resource (103 p.)   |
| Collana                 | SpringerBriefs in Computational Mechanics, , 2191-5342   |
| Disciplina              | 518/.25<br>620.17  |
| Soggetti                | Mechanics<br>Mechanics, Applied<br>Civil engineering<br>Manufactures<br>Solid Mechanics<br>Civil Engineering<br>Manufacturing, Machines, Tools, Processes  |
| Lingua di pubblicazione | Inglese  |
| Formato                 | Materiale a stampa   |
| Livello bibliografico   | Monografia   |
| Note generali           | Description based upon print version of record.  |
| Nota di bibliografia    | Includes bibliographical references.   |
| Nota di contenuto       | Introduction Shell element formulations for general nonlinear<br>analysis Modeling techniques Collapse and post-collapse behavior<br>of steel pipes Finite element models Experimental validation of the<br>finite element models Applications: slotted pipes and axial loads<br>Collapse and post-collapse behavior of deepwater pipelines with buckle<br>arrestors. Cross-over mechanisms Conclusions.   |
| Sommario/riassunto      | This book presents a detailed discussion of the models that were<br>developed to simulate the collapse and post-collapse behavior of steel<br>pipes. The finite element method offers to engineers the possibility of<br>developing models to simulate the collapse behavior of casings inside<br>oil wells and the collapse behavior of deepwater pipelines. However, if<br>technological decisions are going to be reached from these model<br>results, with implications for the economic success of industrial<br>operations, for the occupational safety and health and for the |

environment, the engineering models need to be highly reliable. Using these models engineers can quantify the effect of manufacturing tolerances, wear, corrosion, etc. This book describes in great details the experimental programs that are developed to validate the numerical results.