

عنوان مقاله:

Parametric Investigation on the Arresting of Dynamic Buckle Propagation in Pipelines

محل انتشار:

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خلاصه مقاله:

Local buckles induced by excessive force on specific part of pipeline can locally reduce the collapse pressure of a pipeline and cause local failure. This, in turn, can initiate a buckle which propagates at high speed and has the potential of destroying the whole line. Periodic placement of buckle arrestors along the pipeline can ensure that collapse only effect the length of pipe between two arrestors on either side of the initiation site. In the present study, the propagation and arresting of dynamic buckle are modeled using the finite element method. For the post buckling analysis, the material and geometrical nonlinearity are considered. The effects of different diameter to thickness ratio of pipeline (D/t), arrestor's thickness to pipe's thickness ratio (h/t), and arrestor's length to pipe's diameter ratio (L_a/D) on cross over pressure, speed of dynamic buckle propagation have been evaluated

کلمات کلیدی:

Dynamic Buckle Propagation, Buckle Arrestor, Arrestor Spacing, Velocity of Propagation, Diameter to Thickness Ratio

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