Influence of the position and number of circular notches on the buckling of metal pipes

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Abstract : Thin cylindrical shells are very sensitive to buckling when loaded mechanically and / or thermally. This complex phenomenon has become a major concern. In the present work, the aim is to predict the buckling behavior of imperfect metal pipelines, subjected to compression resulted in an imposed displacement. Following the results obtained by numerical simulation through the Abaqus code, we find that more the distance between the circular notches is greater, more the resistance to buckling is important, but from a distance of 30mm, the position of the notches whatsoever longitudinal or radial has no significant effect. While in approaching both ends of the pipe, the buckling becomes less important.

Keywords : Pipe, Buckling, circular notches, finite element analysis.