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EFFECT OF THERMAL CYCLES ON COLLAPSE RESISTANCE OF COLD-FORMED TUBES

Santiago Serebrinsky

TenarisSiderca, Argentina, sserebrinsky@gmail.com

Abstract. The collapse pressure pc is a prime quantity for deepwater tubes for the oil industry, and it is affected by several parameters of the tube, e.g., mechanical properties, residual stress distribution, ovality, surface quality, etc. These in turn depend on the manufacturing process. One such process, frequently used for deepwater tubes, is the UOE. The application of thermal cycles after UOE processing has been found to improve the collapse resistance, which becomes fundamental for increasingly demanding applications.
In this work, a computational method to predict the effect of thermal treatments on collapse pressure has been developed. Currently, the effect of thermal cycles on residual stresses was taken into account, and integrated into the finite elements model. We report the results of parametric studies.