# NUMERICAL MODEL OF UOE STEEL PIPES: FORMING PROCESSAND STRUCTURAL BEHAVIOR

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**Resumen**.

Deep water pipelines are designed to with stand, without collapsing, the external pressure and bending imposed on them, either by the laying processor by the topology of the sea bottom. Inprevious publications CINI researchers have developed finite element models to predict collapse load sand collapse propagation loads. Large diameter pipes for onshore and offshore applications are manufactured using the UOE process. The manufacturing process consists in the cold forming of heavy plates followed by welding and then by an expansion. First the plate is pressed along its edges, formed into a U-shape and then pressed into an O-shape between two semicircular dies. Afterwards the pipe is welded by SAW process and finally is expanded. In this paper we develop a 2D finite element model to simulate the UOE process and the structural behavior of the formed pipes in external pressure collapse tests. Using the developed model we cananalyze the effects of the process parameters in each forming step on the final geometry and structural properties of the pipe.

**Palabras clave**: UOE, Pipelines, Collapse, Residual Stress.