

Measurement of mechanical properties on line pipe: difficulties and pitfalls

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Abstract:

Line pipe manufacturers always verify the mechanical properties on pipe to make sure that the pipe meets the requirements specified by the standard. This involves measurement of mechanical properties along the hoop direction. The most appropriate way to do so is by performing a ring expansion test. As this test requires quite dedicated tools, most manufacturers measure the mechanical properties on pipe based on so called 'flattened tensile samples'. However, it was observed that the mechanical properties especially the yield strength resulting from tensile tests on flattened samples largely depend on residual deflection, extensometer position, flattening procedure and other test parameters.