

Biaxial Test of Tubes Using Elastomer

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To obtain the values of material characteristics of tubes such as the strain hardening exponent n and the strength coefficient K is most frequently used the hydraulic bulge test. The tool and an additional equipment are often complicated and very expensive for this test. This article deals with the question whether it would be possible to obtain the corresponding values n and K by the simple biaxial test of tube using elastomer. To solve this problem, a simple tool was designed and the verification tests were realized for thin-walled tubes from material AISI 321. The results showed that it's not possible to obtain real values n and K by biaxial test of tubes using elastomer. The reason is the elastic forming medium, which complicates the evaluation of these material characteristics, because the elastomer introduces many additional factors into the forming process.

Keywords: Biaxial test, Tube, Elastomer, Strain hardening exponent

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