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Evaluation of Anisotropy by Two Different Tests for TRIP800 Steel

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Abstract. For the process modeling, material properties such as anisotropy values at different orientation are very important. The most commonly used method for the determining of the anisotropy values is the tensile test that is performed for samples are prepared at different orientation. Besides the tensile test, the anisotropy parameters of TRIP 800 steel are measured with the hole-expansion test. The effects of the test methods on the yield surfaces are determined for using two different anisotropic yield criteria are Hill-48 and Barlat-89. Results illustrated that a significant difference is observed in the yield surfaces for the two test methods. The material under biaxial deformation is deformed plastically faster than the uniaxial deformation mode.