

FEA of Forging and Cold Welding: Conditions, Comparisons and Differences

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ABSTRACT

The paper presents finite elements analysis for 99% aluminum bars forging and cold welding, demonstrating the differences between the material displacements due to the different clamping and pressing techniques.

The analytical method is confirming our previous laboratory tests, for the case of butt cold welding, that when the pressing force is acting, the material flows first inside the bar producing cold hardening and, after that, the barrel between the clamps is obtained.

Conclusions regarding the history of total die force versus material displacements in both cases, and the complete bars stresses analysis directly connected to the material flowing determination are presented. The tests were performed in Pressure Welding Laboratory, Dunarea de Jos University of Galati – Romania.

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