A comparative analysis of several material models in LS-DYNA at high velocity impact

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Abstract.

The questions of application of the LS-DYNA finite element analysis package for describing the interaction of a spherical projectile and a massive metal obstacle are considered. Based on a comparison of the results of numerical simulation with experimental data, a qualitative possibility has been shown to determine the magnitude of the dynamic hardness of the obstacle material.

A simulation of the collision of a spherical impactor and a massive metal barrier shaped as a cube is performed. Data are obtained on the penetration of the striker into the barrier.

Using the simulation curve, the values of the dynamic hardness of the obstacle were restored and a comparison was made with their experimental values. The qualitative correspondence is shown.