

Dynamic plasticity of expanding copper cylindrical shells

**Kadochnikov D Yu[®], Garmashev A Yu, Degtyaryov A A,
Smirnov E B, Kanunnikov R N, Malyov V V,
Lobachyov A S and Mukhin D V**

Federal State Unitary Enterprise “Russian Federal Nuclear Center—Academician Zababakhin All-Russian Research Institute of Technical Physics”, Vasilieva 13, Snezhinsk, Chelyabinsk Region 456770, Russia

[®] kadochnikov_vniitf@mail.ru

In the present paper, the features of the deformation behavior of Cu cylindrical shells expanding under the action of explosion products are investigated. The experimental statements in which different strain rates of the studied material are realized are described. In these experiments, the velocity of the shell were recorded electrocontact method, and to capture fragments of shells were used damping device, which managed to keep the shell elements for analysis. As a result of processing the experimental data, the plasticity characteristics—relative dynamic elongation and relative dynamic narrowing—were determined. The dependence of the relative dynamic constriction on the strain rate with a pronounced maximum, probably corresponding to the peak of plasticity, is obtained.