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On Beryllium Deformation at High-Velocity Oblique Impact ANATOLY MIKHAYLOV, OLEG DRENNOV, RFNC-VNIIEF — One of the methods for providing intensive dynamic stresses in metals is loading by shock waves (normal or oblique). At oblique impact of metals, intensive plastic shear strains and zones of strong heating are growing in neighborhood of contact point. Shear flows with velocity gradient depending on angle and velocity of impact of plates occur for short time. Due to intensive deformation, heating in local zones causes significant softening of substance. In these areas, shear modulus and yield strength are significantly less comparing to those at normal conditions. The mentioned effects result in distortion of profile of interface between metals after impact. Regular waves, non-symmetric distorted waves, melt layers of mixed components are formed. The process of high-velocity oblique impact of beryllium samples (beryllium and stainless steel) was experimentally studied. Beryllium has high ability for wave formation without significant plastic flow of material along sliding line. During high-velocity oblique impact of beryllium and stainless steel, their welded connection was achieved.

Anatoly Mikhaylov RFNC-VNIIEF

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