
Numerical simulation of copper cylindrical workpiece explosive compaction

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The results of development and practical approval of the computational technique based on numerical solving the problem of continuum mechanics in a three-dimensional formulation are presented to substantiate the rational parameters of explosive compaction of workpieces for antifriction parts made of powder metal composite materials based on fluoroplastic. The formulation of the problem, the physical and mathematical model of the behavior of used metal and powder composite materials and the results of the numerical solving the process of explosive compaction of cylindrical workpieces of copper and fluoroplastic powder mixture with different percentage of the compressed components are given. It is shown that the developed technique can be used as a basis for substantiating of the design parameters of schemes for explosive pressing workpieces of other metal fluoroplastic compositions, including, for example, iron, nickel, aluminum and bronze powders.

Keywords: *explosive, compaction, powder, metal composite, physical and mathematical model, numerical simulation*

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