NUMERICAL MODELING OF THE COMBINED CHARGE BLAST INSIDE CLOSED CONCRETE STRUCTURES WITH EQUIPMENT

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Abstract: The effect of the combined explosive charge inside closed concrete structures was investigated numerically. The charge included a powerful explosive and a coaxial layer of reactive material. The damping effect of the equipment was simulated by a continuous or discontinuous layer of the porous filler with a certain location and relative volume inside the structure. The two-dimensional axisymmetric geometry was used; the influence of the relative volume, the geometry of the filler, the TNT equivalent of the charge, and the time of combustion of the reactive material was investigated. The specific features of the gas dynamics have been considered at different stages of the explosion and the destruction parameters of concrete structures have been determined.

Keywords: numerical modeling; combined explosive charge; reactive material; destruction of concrete structures

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Received December 29, 2016

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