Comparative study of the protection ability of reactive armor elements with reduced impact on defended object

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The article discusses the numerical simulation of interaction between shaped charge jet (SCJ) and explosive reactive armor (ERA) units containing different materials. Numerical simulation shows a small advantage of ERA with ceramic plates over other materials in case of equal mass of high explosive and plates. Protection ability value of such reactive armor is $0,95L_0$ and $0,93L_0$ (L_0 is the depth of penetration cavern in homogeneous steel armor) for ERA with steel plates. Extension of hole diameter for ceramic ERA plates is much smaller, thus ceramic ERA plates can interact with SCJ directly after ERA high explosive detonation. It is obtained by numerical simulation that value of protection ability for reactive armor with inert filler is the smallest ($0,87\ L_0$).

***Keywords**: shaped charge jet, explosive reactive armor, non-explosive reactive armor, inert filler, steel and ceramic plates.*

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