

A SIMPLE TECHNIQUE FOR MEASURING THE BLAST EFFECT OF REALISTIC WARHEADS

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The damaging effect of high explosive charges in the weight class of a few kilograms in confined to the close proximity of the charge, even against softer target structures: The object to be damaged by the blast must be inside the fireball of the expanding reaction gases. But, as a result of the flow of hot gas and the turbulence that goes along with this, it is virtually impossible to measure the peak pressure and the pressure history in this range. Moreover, the duration of the positive pressure pulse is very short in this range, being much less than 1 ms. This means that any target structure in this range will experience not a static, but a dynamic load, much like a ballistic pendulum. For this reason it is not really significant to measure the pressure history with its value and positive phase duration, but it is enough to determine the time integral, i.e. the impulse as a whole. The impulse relates directly to the damaging effect of such high explosive charges and warheads at the given distances.

A fairly simple method is presented which is suitable to measure this impulse, i.e. the blast effect at close range and as a function of the angle, also for cylindrical warheads having various kinds of radial and axial confinement. The results of firing trials are reported, showing that the blast effect in the diagonal directions, or in the regions of the bridge waves from a cylindrical high explosive charge, is a complicated function of distance.