P36 Fragmentation of Steel Casings

***KG Rakvåg*, SO Christensen, T Børvik**

Norwegian Defence Estate Agency, Research & Development Department

Abstract:

Recent advances in the field of predicting the load from cased charges have raised the question regarding the influence of material properties of the casing on the resulting airblast. Traditional formulae for equivalent bare charges are only dependent on the mass of the casing. Therefore they assume that the difference in airblast energy is only due to the momentum transfer to the casing and subsequent fragments. In this study a combination of bare charges, cased charges and scored (pre-fragmented) charges are used to investigate the influence of the material strength of the casing on the resulting airblast. Based on a number of experimental tests the fragment velocity, mass distribution and pressure recordings from the different charges were obtained. Numerical simulations of the expanding casing were then validated with respect to the experimental findings, and then further used to examine the amount of energy absorbed during plastic flow and fracture of the casing material. From this approach one can quantify the effect of the mass and material strength of the casing on the resulting airblast.

Notes: