

Abstract Submitted
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Reduction of steel-ball velocity using sand or water layer accelerated by high explosive¹ TOMOTAKA HOMAE, National Institute of Advanced Industrial Science and Technology, KUNIHICO WAKABAYASHI, TOMOHARU MATSUMURA, YOSHIO NAKAYAMA — The reduction of steel-ball velocity using sand or water was studied. A steel ball, diameter of 9.525 mm, was accelerated using comp. C-4 explosive of 37-52 g. After free flight of about 500-750 mm, the steel ball passed through a sand layer in thickness of 30-125 mm, or a water layer in thickness of 75 or 150 mm. The velocities before and after passage of the layer were determined using a high-speed camera. Although the velocity before the passage was varied from about 300 m/s to about 750 m/s, the velocity after passage was almost constant. The velocity depended only on the kind of materials or thickness of the layer. Sand was more effective in reduction than water for same areal density. Moreover, the steel-ball was accelerated in contact with sand layer in thickness of 30-125 mm. The terminal velocity in such case was comparable to that experienced free flight described above.

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