

## Abstract Details

**Title:** Simulation of 85 mm Shaped Charge Jet tip Velocity and Penetration

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**Abstract:** The shaped charge jet formation depends on different parameters like explosive type, liner thickness, liner material and target material which can have effect on jet behavior such as jet velocity, jet breakup and penetration.

The objective of this work to simulate shaped charge jet velocity and penetration by using different methods.

The well-known 85 mm shaped charge simulated by using hydrodynamic theory for jet formation and penetration which is also known as Birkhoff theory and 2D-Autodyn simulation. In this simulation Autodyn explicit dynamic basing on finite element used to simulate jet velocity and compared with Birkhoff theory output.

Also the jet velocity for different four types of explosive and jet velocity distribution was studied through jet path by using Autodyn and Birkhoff theory.

Experimental penetration of 85 mm shaped charge was done to highlight the efficiency of our work.

Good agreement observed between experimental results and analytical and simulation results.

Autodyn simulation can improved to use in investigating protective shield materials which used in armor and car and to simulate multi layers target like oil well perforation which is too difficult to investigate with Birkhoff method.

**Keywords:** Shaped Charge, Penetration, Jet Tip Velocity, Autodyn.