An Overview of the Shaped Charge Concept

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ABSTRACT:

The collapse, formation, growth, and penetration of a jet from a shaped charge liner results in extremely high strains (>10), strain rates (10^7/s), hydrostatic pressures (up to 200 GPa), and surface temperatures (500-600 C). The tip velocity of the jet usually exceeds Mach 25 in air. However, the flow velocity during the collapse process must remain subsonic (with respect to the liner bulk speed of sound) during the jet collapse process to guarantee that the jet is coherent. This paper describes the shaped charge concept and presents the many applications of shaped charges. Finally, several topics of current research in the shaped charge field are discussed.

KEY WORDS: Shaped Charge, Jet Formation, Jet Temperature, Shaped Charge Liners, Jet Particulation, Shaped Charge Applications

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