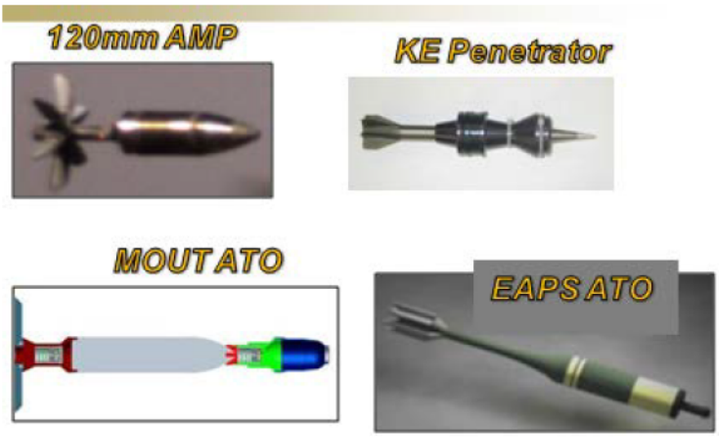
Advanced Munitions Warhead Manufacturing Improvements



M1A2 Abrams Main Battle Tank (AMP)

Shoulder Fired Weapon System (MOUT)

Benefits

- Lower cost through reduced number of manufacturing processes
- Improved safety by decreasing touch labor during munitions manufacture
- Application of Field Assisted Sintering Technology (FAST) and Combustion Driven Compaction (CD) replacing hot isostatic press, nano/plastic composite binding of embedded fragment components
- More reliable munitions using fragmenting sleeves enabling warheads to fragment into reliable sized fragments and achieve IM requirements

Objective

The purpose of this effort is to reduce unit production costs and enable design optimization of advanced warhead manufacturing by reducing number of processes and utilizing updated manufacturing technologies.

How It's Accomplished

- Developing novel manufacturing techniques focusing on Isostatic single increment, no-post machine warhead loading, embedded tungsten fragmenting components, molding of Insensitive Munitions (IM) sleeves for warheads and Multi-Explosive Formed Penetrators (M-EFP)
- Conducting initial evaluation through warhead performance testing of each manufacturing process for explosive isostatic pressing, embedded fragment component IM sleeve and Multi-EFP liners
- Manufacturing process transition into Advanced Multi-Purpose (AMP) projectile
- Replace Depleted Uranium with Tungsten and achieve equal performance for Kinetic Energy penetrator

Achievements

- Loaded MOUT and AMP warhead bodies with novel Isostatic pressing technique which proved successful during ballistic testing
- Injection molded tungsten fragment components performed successfully during AMP ballistic test
- Successful molded warhead bodies with IM polymer using viable process for slow cook-off testing
- Manufactured M-EFPs for process prove-out and material property testing

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