



# Electromagnetic Railgun

The Electromagnetic Railgun (EM Railgun) is an advanced containment technology demonstrator, capable of 32 Megajoules (MJ) of muzzle energy. In conjunction with the EM Railgun, hypersonic projectiles and pulse forming networks for power generation are also being researched and developed.

On 10 December 2010, the U.S. Navy made history at the Naval Surface Warfare Center-Dahlgren Division with the BAE Systems developed Laboratory Railgun. A 33-MJ shot was fired, the energy equivalent of 110 nmi range.

When fully weaponized, the EM Railgun will deliver hypervelocity projectiles in support of U.S. Marines, ground forces, and ship defense. The EM Railgun technology uses high-power electromagnetic energy instead of

explosive chemi-cal propellants (energetics) to propel a projectile farther and faster than any preceding gun. At full capability, the EM Railgun mounted on U.S. naval vessels will be able to fire a projectile 100 nautical miles at a muzzle velocity up to Mach 7.5 and impacting the target at Mach 5. The high-velocity projectile will destroy land, sea, and air targets due to its kinetic energy, rather than with conventional explosives.

The safety aspect of the railgun is one of the greatest potential advantages of the EM Railgun. No propellant is required to fire the projectile, and no explosive rounds are stored in the ship's magazine.

The EM Railgun represents significant advances in U.S. Navy and Marine Corps capabilities, extends the range of U.S. Marine Corps combat capability and distributed operations, as well as improves safety aboard surface ships. The EM Railgun is just one more leap-ahead technology in which BAE Systems is involved.



## Specifications

Notional Performance Goals

Range 100 nmi

Launch velocity up to Mach 7.5

Impact velocity Mach 5.0

## Attributes

Long Range Fire Support

Time Critical Strike

Missile Defense

Antisurface Warfare

Reduced Ship Vulnerability



**BAE Systems, Inc.**  
Platforms & Services  
baesystems.com

**For more information contact**  
E: [platforms.services@baesystems.com](mailto:platforms.services@baesystems.com)

This document gives only a general description of products and services and except where expressly provided otherwise shall not form part of any contract. From time to time, changes may be made in the products or conditions of supply.

© BAE Systems 2019. All rights reserved.  
BAE SYSTEMS is a registered trade mark of BAE Systems.  
11.19.EMRailgun.BTR Approved for public release 2014-08.