

# **GENERAL DYNAMICS**

Ordnance and Tactical Systems

## **Lightweight Medium Machine Gun**



**Distinct Overmatch on  
the Current and Future  
Battlefield**

**Abstract #18356**

**Erik Gudmundsen  
GD-OTS Project Engineer  
25-28 April 2016**

# Introduction

- The Lightweight Medium Machine Gun is a revolutionary weapon designed to eliminate the capability gap that exists between our 7.62mm MG and enemy weapons
- GD-OTS implemented a systems design approach and DFX methods to optimize the weapon, ammunition, user interfaces and accessories.
- The end result is the GD-OTS Medium Machine Gun a man-portable weapon designed to accurately and effectively engage targets beyond 1800 meters.



# Key Requirements for System Design

- Weapon – portable, accurate, reliable
- Ammunition – overmatch to the PKM/PKP machine gun firing the 7.62x54R cartridge
- Optics / accessory integration – flexible, quick and accurate
- Ergonomics / User interface – incorporate best features and lessons learned from other weapons (user input)
- Mounts / Vehicle Integration – M240 interfaces
- DfX (Design for Manufacture & Design for Cost)



# System Solution: GD-OTS .338 Medium Machine Gun

- **Weapon**

- Low recoil mechanism provides stable and accurate automatic fire
  - Felt recoil similar to 7.62mm NATO weapons
- Lightweight - 24 pounds for portability
- Drops into existing M192 tripods and M240B vehicle mounts without modification

- **Ammunition**

- .338 Norma Magnum cartridge with 300 grain bullet = 1800+ meter effective range
  - 2x projectile energy at the muzzle (vs 7.62mm NATO)
  - 5x projectile energy at 1000 meters (vs 7.62mm NATO)
  - 700 meter grazing fire

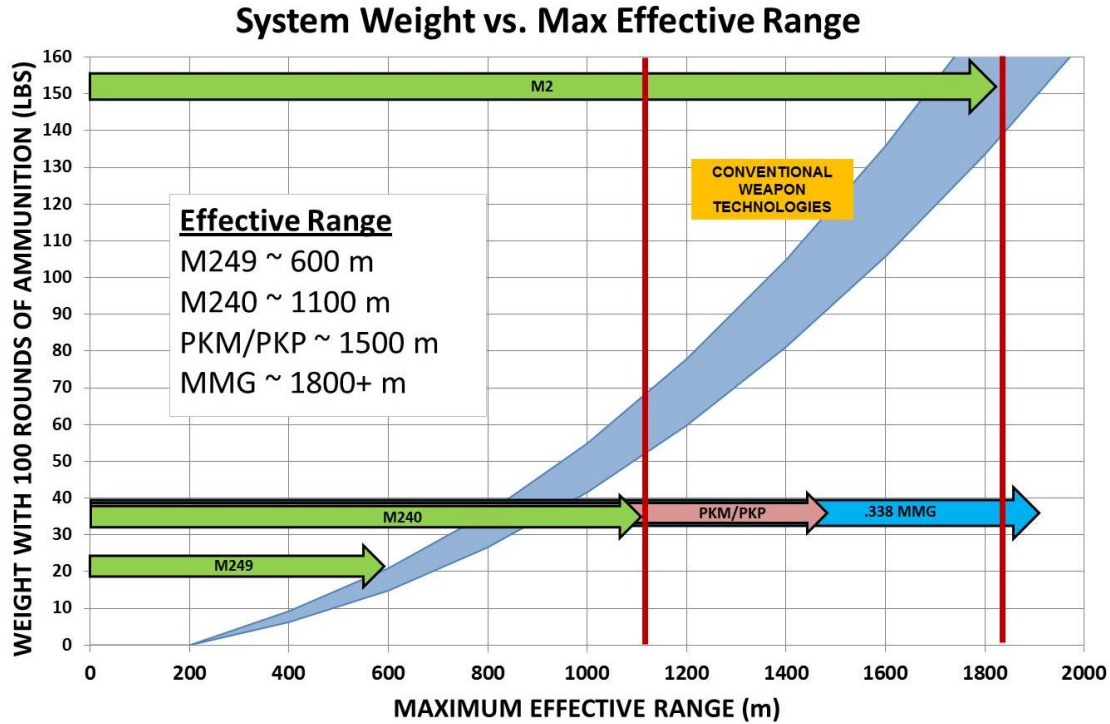
- **Ergonomic**

- Easy to field strip
- Adjustable stock

- **Designed for manufacture - common materials / processes – low cost**



# Next Generation Technology



# WEAPON FEATURES



# .338 Medium Machine Gun

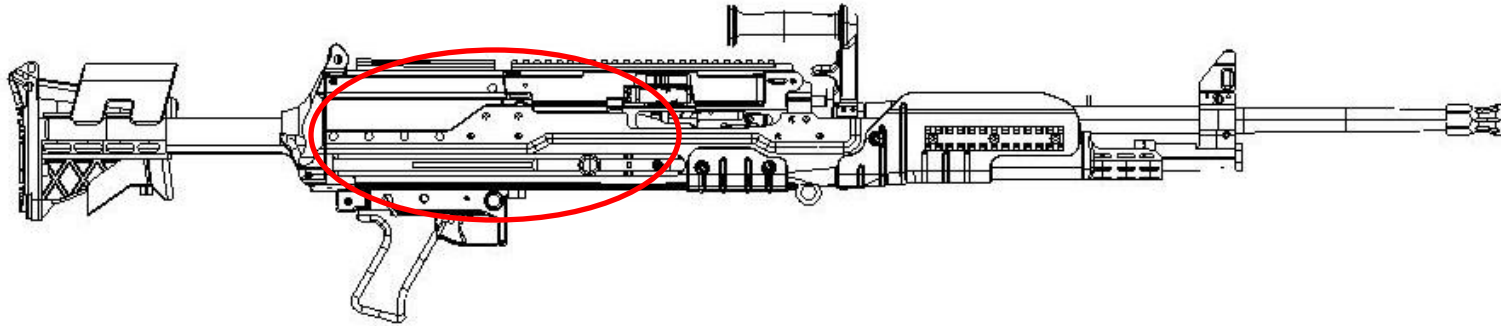
- Ammunition: .338 Norma Magnum
- Rate of Fire: ~500 rounds per minute
- Weapon weight: 24 lbs
- Recoil force ~ M240
- Length: 49"
- Barrel Length: 26 inches
- Quick change barrel design
- Fixed headspace and timing
- Mounts: M192 tripod, Vehicle mounts



**SAME FOOTPRINT AS AN M240B ~2x THE EFFECTIVE RANGE**



# Features – Short Recoil Impulse Averaging



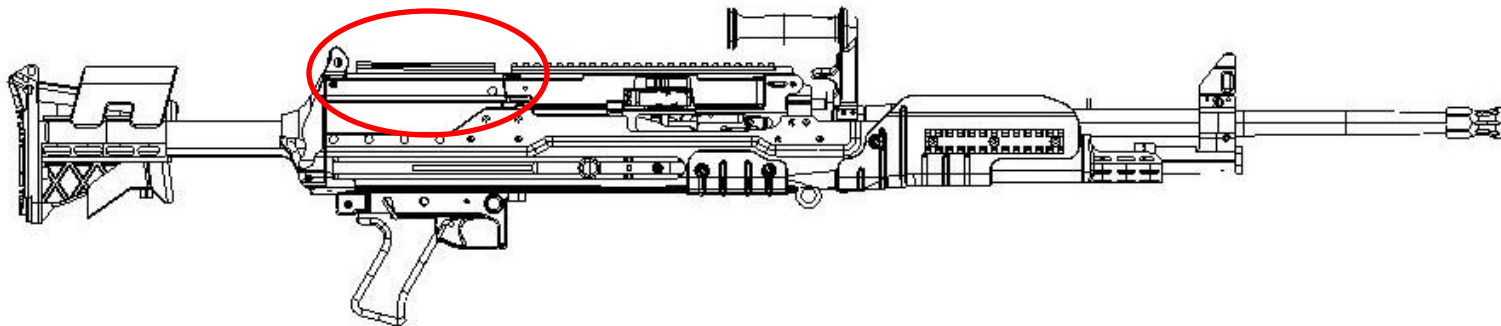
**Patented recoil mitigation system to balance the weapon during automatic fire**

- Incorporates both short recoil and gas assist
- Improves target retention during automatic fire – improved targeting and accuracy at extended ranges
- Felt recoil similar to a 7.62mm machine gun
- Eliminates the need for “soft” mounts





# Features – Integrated MIL-STD-1913 Rail



**MIL-STD-1913 rails permanently fixed to the receiver behind the top cover**

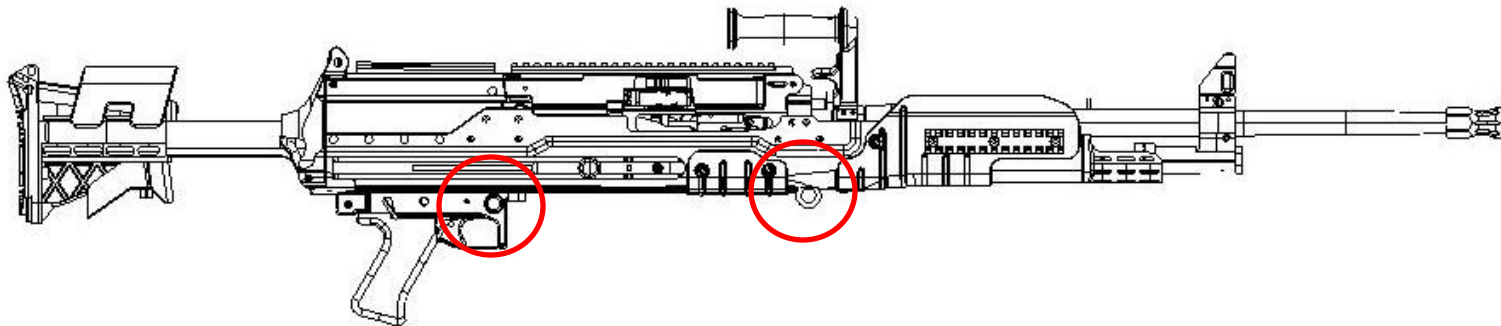
- Optical sights retain their zero
- Sized to accommodate 6x48 optic without interference

**Back up iron sights permanently fixed to the receiver**

- Adjustable front sights fixed to the barrel
- Operator can zero each barrel to the weapon



# Features – Mounting Points

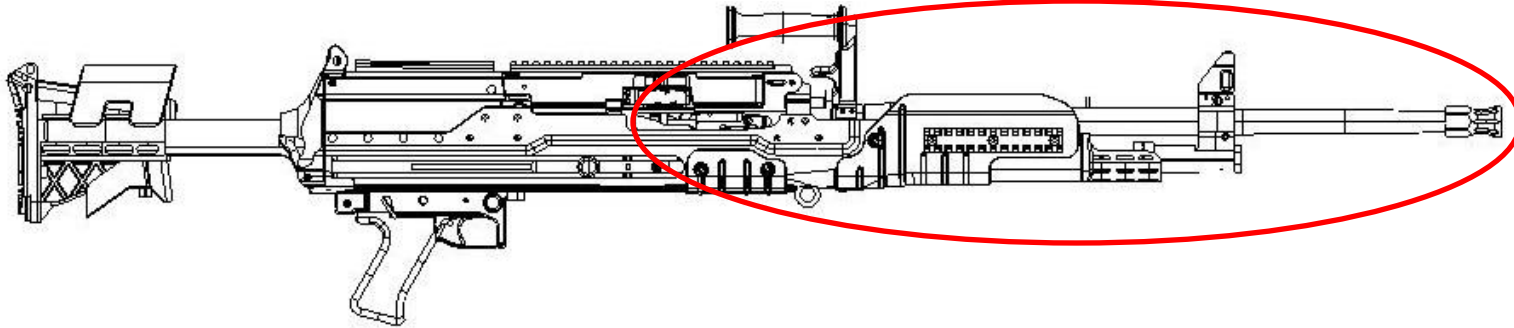


**Mounting points are common to the M240B, M249 and M60**

- **Compatible with the M192 tripod and vehicle mounts**
- **Similar trigger orientation, charger location, and feed path to facilitate Mk93 or Remote Weapon Station integration**



# Features – Quick Change Barrel

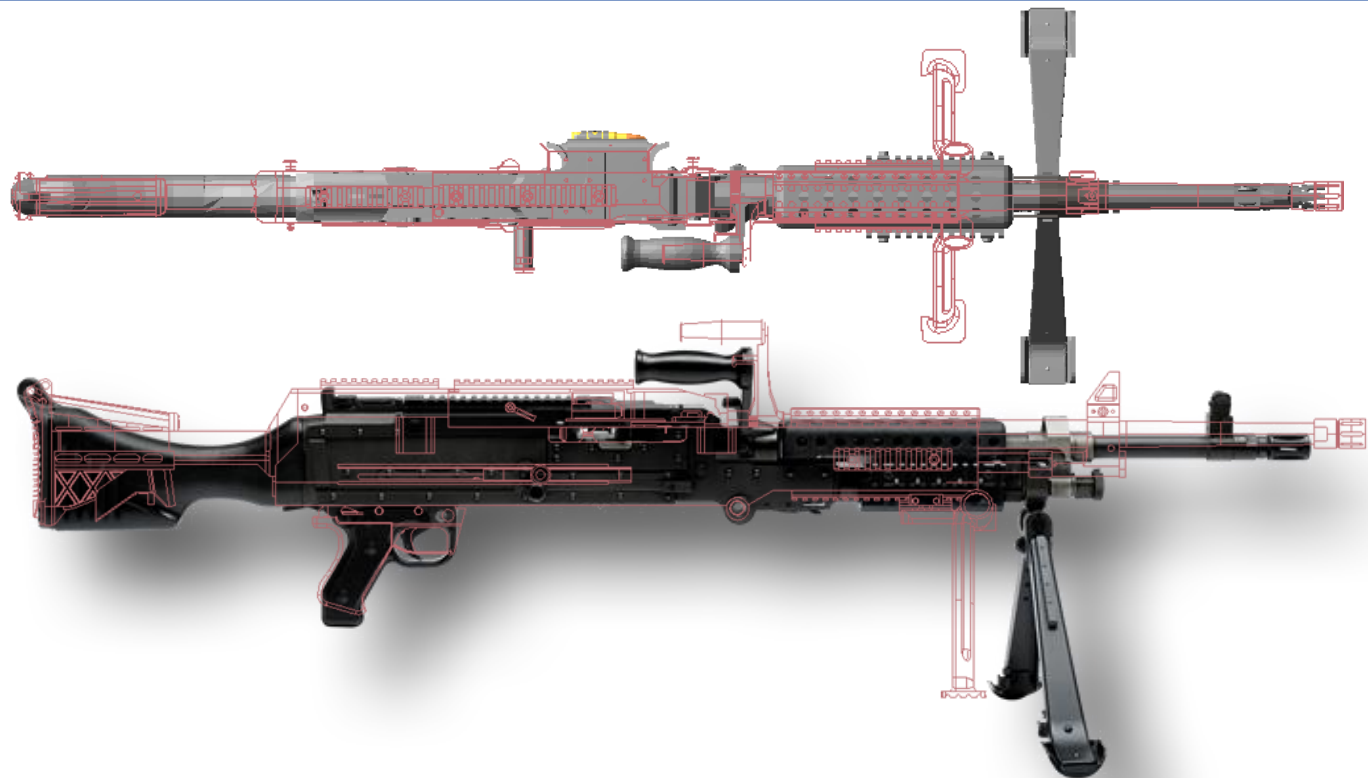


**26" Standard length. 16" minimum. 10,000 round service life**

- **SRIA system is insensitive to barrel weight**
- **Integrated gas system facilitates several options:**
  - **Heavyweight barrel for vehicle operations**
  - **Short or lightweight barrel for dismount operations**
  - **Dedicated blank firing barrel for training operations**
  - **Suppressed Barrel**
- **M60 style self-cleaning gas system. Low maintenance.**



# Similar-to Comparison – MMG vs M240B

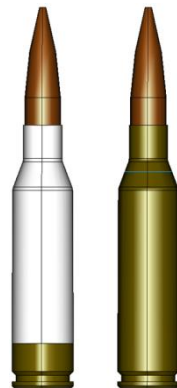


# .338NM CARTRIDGE



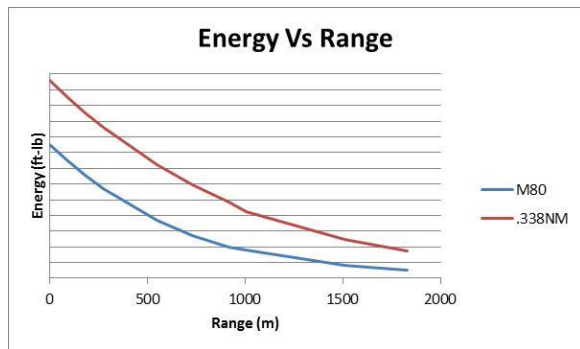
# .338 Norma Magnum Ammunition

- Provides standoff vs. enemy 7.62x54R weapons
- Projectile: 300 gr. Sierra HPBT, FMJ
- Max Effective Range: 1800+ m
- Supersonic beyond 1700m
- Substantial long range accuracy
- Common military propellant and primer



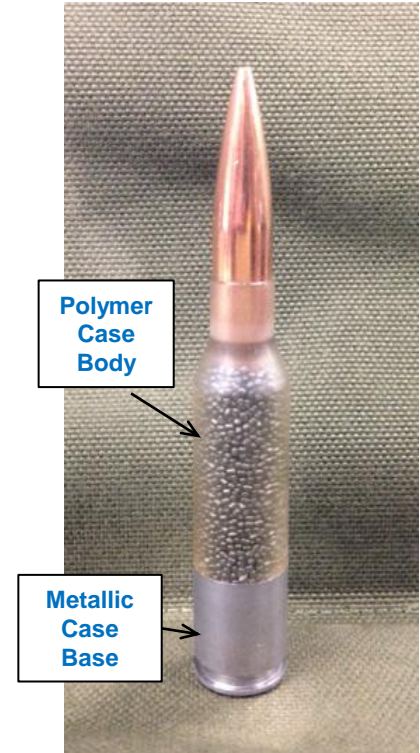
## AP and Tracer ammunition

- AP bullets are already available
- Current IR&D developing tracer ammunition



# .338 NM Ammunition – Polymer Case

- Cooperative development effort with MAC LLC
- Design based on .50 cal Mk323 polymer case
- Weight Reduction: 20% of cartridge weight
- Saves 12.75 Lbs per 500 rounds



# ERGONOMICS & INTERFACES





# Benefits to the Operator

- The MMG and .338 NM cartridge deliver unmatched range, accuracy and lethality for a man-portable weapon
- Provides standoff against all portable machine guns worldwide
- Recoil mitigation substantially reduces impulse felt by the gunner which improves target retention during automatic fire – and accuracy at long range
- Quick change barrel with fixed headspace and timing
- Ideally suited for both mounted and dismounted operations
  - The MMG will fits any tripod or vehicle mount that will accept the M240B
  - Light enough to dismount and carry to new firing location
  - Can even fire from the shoulder/hip on the move if necessary
- Easy to field strip, clean and maintain



# DESIGN FOR MANUFACTURE DESIGN FOR COST



# Design for Manufacture and Cost

- **Design for Manufacture**

- **Manufacturing engineers were part of the design team from Day 1**
- **Common manufacturing processes, standard tolerances with no matched assemblies**
- **Standard materials with standard finishes**
- **Simple assembly in the factory or in the field**

- **Design for Cost**

- **Components producible by most machine shops to facilitate competition**
- **No exotic materials or processes**



# The GD-OTS .338 Medium Machine Gun is the Next Generation weapon for our Warfighters and provides capability overmatch to all known portable machine guns in the world



**Business Development POC: Dave Stouffer 802.238.0756 [david.stouffer@gd-ots.com](mailto:david.stouffer@gd-ots.com)**



**GENERAL DYNAMICS**

Ordnance and Tactical Systems