GD-OTS/Nammo 30mm Combat and Training Ammunition

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Approved for Public Release
Agenda

- Nammo/GD-OTS Team Information
- 30mm MK317 TPDS-T
- 30mm MK266 HEI-T
- 30mm MPAB-T
- 30mm Link
- 30mm MK264 MP-T/SD
- 30mm MK258 APFSDS-T
- 30mm MK320 APDS-T
- 30mm P-SRTA-T Trainer
- 30mm Blank
- Questions/Comments
GD-OTS/Nammo Partnership

- Since 1981, GD-OTS and Nammo have been working together on the development of advanced Medium Caliber Ammunition (MCA). In 2000, the relationship was further strengthened with the signing of a new Strategic Alliance Agreement (SAA) extending to 2020.

- Numerous cooperative efforts have been conducted on both domestic and international production sales as well as joint development efforts including:
  - Kinetic Energy (KE) Cartridges
  - Airburst (HEAB-T) Technology
  - Multipurpose (MPC) Cartridges
General Dynamics-Ordnance and Tactical Systems (GD-OTS)

- 3,927 Employees
- 17 Operating Facilities

- 6 Strategic Business Units
  - Large Caliber Ammunition
  - Medium Caliber Ammunition
  - Small Caliber Ammunition
  - Precision Systems
  - St. Marks Powder
  - GD-OTS Canada
GD-OTS Marion Operations Facility

631 acres leased for Manufacturing

Propelling charge, solid propellant products, Advanced Development

Ammunition Manufacturing

Roadway: 10 miles
Buildings: 224
Operating Buildings: 76 Magazines
(Area, Square Feet) 159,290

Test Range

290 acres owned

Roadway:
Buildings:
Operating Buildings:
(Area, Square Feet)

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GD-OTS Medium Caliber Ammunition
Product Portfolio

20mm Ammunition

20mm C-RAM

30mm x 173

25mm - 57mm Airburst

30mm Lightweight

40mm Grenades

25mm Ammunition
30mm x 173 GD-OTS/Nammo Family

Original 30mm GAU/8, MK44 Family

Improved 30mm MK44 Family

MK317/320 developed as a practice round for MK258

HEAB fills capability gap against troops in trenches, barricades and buildings

MK239 TP
MK264 MPLD-T
MK258 APFSDS-T
MK320 APDS-T

MK266 HEI-T
MK317 TPDS-T
MK258 APDS-T
MK317 TPDS-T

Training, Marking, Other
The GD/Nammo team can provide a 30mmx173mm family of ammunition capable of satisfying all military requirements!
30mm X 173 MK317 TPDS-T

• GD-OTS has developed a low cost 30mm Target Practice Discarding Sabot-Trace (TPDS-T) round that is ballistically matched to the qualified MK258 and MK268.

• Time of flight to 2000m <0.5 second delta to 30mm MK258 and MK268.

• Max range <8,000m using “Fort Bliss Hot Day” conditions.

• Trace visible for >3000 meters (5 sec.).

• TRL-7 design included in recent US Navy qualification testing.
30mm x 173 MK266 Mod 3 HEI-T

• GD has been working with the USN to qualify the MK266 Mod 3, High Explosive Incendiary-Trace (HEI-T) cartridge.

• Cartridge pairs current GD-OTS qualified MK266 projectile and cartridge design with proven M505 fuze.

• All testing successfully completed in 2010.

• USN currently putting into place a Final Operation Classification (FOC) for the MK-266 Mod 3.

• FOC approval expected in 2011 with US Navy/USMC.
• GD-OTS/Nammo team has a 30mm Multi Purpose Air Burst-Trace (MPAB-T) solution.

• Time based fuze operates with both contact and inductive fuze setting methods.
  • Nammo will be demonstrating Radio Frequency (RF) communication in June 2011.

• Fuze has been subjected to US Army fuze safety board reviews and is scalable across 25-57mm.

• The munition has demonstrated effectiveness against hard armor targets, troops in the open and defilade, and light skin targets at multiple ranges.

• GD-OTS under contract for further fuze development.
30mm Link Development

• Compatible with 30mm Bushmaster Weapons.

• Baseline link design complete.

• 30mm/40mm compatible.

• Production ready link tooling is ready.

• Feed system cycle testing with prototype links is complete.
30mm Link Development

30mm Link Die Set

Linked 30mm Ammunition

Link on 40mm Case
Nammo’s Business Units

Small Caliber  Medium & Large Caliber  Missile Products  Demil  Talley Defense Systems
The USG qualified MK264 Multi Purpose-Traced round with Self Destruct (MP-T/SD), is combat proven and is the choice for multispectral target defeat ammunition for 30mm users.

Based on the well proven Nammo MP concept.

Characteristics:
- Muzzle Velocity-1070m/s
- Dispersion- <0.4 mils
- Self Destruct-4.7s, approx 3500m
- Impact delay-0.4ms
- Low velocity drop due to the low drag shape.
- Penetration with high volume of fragmentation (50-60 ea) with blast and incendiary effects.
30x173mm MK258 APFSDS-T

• Armor Piercing Fin Stabilized Discarding Sabot-Trace (APFSDS-T) round for hard armor defeat at extended ranges.

• Design features super cavitating nose tip for below water line missions.

• Nammo currently in production with the qualified MK258 Mod 0 and Mod 1.

• GD-OTS Americanized version (Mod 2) meets all US requirements and leverages high rate APFSDS-T manufacturing experience.
30mm X 173 MK320 APDS-T

• Nammo has developed a 30mm Armor Piercing Discarding Sabot-Trace (APDS-T) round, ballistically matched to the qualified MK258, that can be used in both tactical and training environments.

• Tactical tungsten penetrator with no cobalt defeats urban targets. (walls, hard armor)

• Training window 100-1500m; Max range less than 8000m.

• Tracer identical to APFSDS-T.

• Serial production-June 2008.
30mmX173 P-SRTA-T

• Plastic Short Range Trainer Ammunition-Trace (P-SRTA-T)

• Trainer has a max range <1200m.

• Effective training range=300m

• Trainer round includes:
  o Day/Night Tracer
  o Plastic Link
  o Non Toxic Plastic
  o UV-Degradable Materials
    ▪ Used by Food Industry

• Qualified by FLO in Nov-08
30mm Plastic Blank Ammunition

• Items used for:
  o Force-on-force exercises.
  o Implemented in Battle Training Systems.

• Round Safety Distance:
  o 15m / 50 ft in front of muzzle.

• Cartridge color is either red or black.

• Cartridge utilizes plastic link.

• Status:
  o Delivered 10,000 rds in 2005 to Norway.
  o Delivered 20,520 rds in 2006 to SE Asia.
  o Delivered 25,000 rds in 2009 to SE Asia.
Summary

- GD-OTS/Nammo has ready for USG use an extensive suite of 30mm tactical and training ammunition.

- With a new/strengthened relationship, the Team is now focused on strategies that best reduce manufacturing cost while continuing to develop new higher effectiveness products.

*The GD/Nammo team stands ready to support the USG with state-of-the-art 30mm products!*