NAMMO AMMUNITION HANDBOOK

Edition 5, 2018

Nammo

We Are Nammo

Nammo is an international aerospace and defense company headquartered in Norway. With more than 2 300 employees in 14 countries, we are among the world's leading providers of specialty ammunition and rocket engines for both military and civilian customers.

We believe that those doing an important job deserve the right equipment. Our societies look to a small group of dedicated specialists to keep us safe, to help us explore, and to make us proud. Whether defending our security and interests in space or on the sports field, they accept only the best from themselves and their equipment. These are the people we serve, with products, services and support that provide a truly reliable advantage.

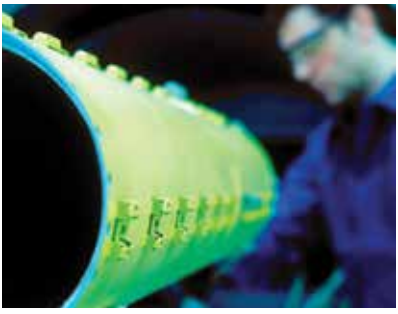
Core Business

Ammunition

Nammo is a superior quality producer of small, medium and large caliber ammunition products.

Shoulder Fired Systems

Nammo has a broad range of SFS covering most of the warfighters' needs in today's scenarios.



Rocket Motors

Nammo has unique competence within engineering, analysis and manufacturing of high performance rocket motors and space applications.

Demilitarization

Nammo is a world leader within environmentally friendly demilitarization.

Contents

MEDIUM CALIBER AMMUNITION

LARGE CALIBER AMMUNITION

SHOULDER FIRED SYSTEMS

OTHER PRODUCTS AND SERVICES

SMALL CALIBER AMMUNITION

- Combat and premium projectiles
- Cartridge technology
- Commercial brands ranging from 4.6 mm to 12.7 mm ammunition

4.6 mm x 30

Plastic Blank Ammunition

Mission

Plastic Blank Ammunition is non-lethal ammunition designed to provide military forces and law enforcement communities with realistic training and maximum safety at low cost. Plastic Blank Ammunition allows training such as force on force exercises and firearm familiarization.

Service temperature	Operational temperature -30°C to +63°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	3 m
Shelf life	15 years

Status

Qualified for use in HK MP7 with Blank Firing Attachment.

5.56 mm x 45 Armor Piercing 3

M995

Mission

Significantly increases the warfighter's lethality. Optimized projectile design with a tungsten carbide core for penetration of hard targets. Penetrates 12 mm rolled homogeneous armor 300HB at 100 m and light body armor at normal combat distances.

Projectile weight	3.4 g (52 grain)
Muzzle velocity	1 030 m/s
Max. dispersion	SD < 200 mm at 550 m
Penetration	12 mm RHA at 0° at 100 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

Type classified by US Army in 1996 as M995. Nammo has been the sole supplier since then. In service in several countries. Combat proven and in production.

5.56 mm x 45
Armor Piercing 45

Mission

Incorporating Nammo's knowledge on tungsten carbide technology and lead free projectile design, the 5.56 mm AP 45 provides a cost effective Armor Piercing round for use in assault rifles and machine guns. Military specified (STANAG 4172). The heavy projectile provides increased performance at long ranges.

Projectile weight	4.5 g (69 grain)
Muzzle velocity	900 m/s
Max. dispersion	SD < 200 mm at 550 m
Penetration	NATO plate at 900 m, 7 mm RHA at 200 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production.

5.56 mm x 45
Ball 5 Long Range

Mission

Military specified (STANAG 4172) cartridge with a full metal jacket projectile providing excellent accuracy at long ranges. Suitable for semi-automatic rifles (DMR) or machine guns. The high projectile weight increases the impact energy by 40 percent at 550 m compared to standard ball (M855).

Projectile weight	5 g (77 grain)
Muzzle velocity	835 m/s
Max. dispersion	≤ 1 MOA
Penetration	N/A
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production.

5.56 mm x 45 NATO Ball

Mission

Standard ball round of M855 type. Can be delivered linked together with tracers, dim tracers or Armor Piercing rounds in any combination required to fit the specific need. Also available in battle packs like the M249 plastic magazine.

Projectile weight	4 g (62 grain)
Muzzle velocity	> 930 m/s
Max. dispersion	SD ≤ 200 mm at 550 m
Penetration	3.5 mm NATO plate at 570 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production and NATO qualified as AC/225-127A.

5.56 mm x 45
Ball Non Toxic 4 HP Mk2

Mission

Second generation of the non toxic, lead free, high performance 5.56 mm cartridge. Optimized cartridge with flatter trajectory and enhanced effect in all targets.

Projectile weight	4 g (62 grain)
Muzzle velocity	> 930 m/s
Max. dispersion	SD ≤ 200 mm at 550 m
Penetration	3.5 mm NATO plate at 700 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production. Qualified by Norwegian Defense Forces as NM255.

5.56 mm x 45 Dim Tracer (IR) 4

Mk301 Mod 0

Mission

The infrared (IR) tracer is totally invisible to the naked eye. It can only be seen with Night Vision Devices (NVDs), giving the user clear advantages as a stealth fighter at night. Instant ignition for short combat distances.

Projectile weight	3.9 g (60 grain)
Muzzle velocity	930 m/s
Max. dispersion	SD ≤ 300 mm at 550 m
Tracer	13 m-600 m (typically visible to 950 m)
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

Type classified by US Army and United States Marine Corps (Mk301 Mod 0). In service with US, Swedish, Norwegian and UK Defense Forces. Combat proven. Also available as a non toxic, lead free cartridge.

5.56 mm x 45 NATO Tracer

Mission

Standard tracer that supports the gunner during firing engagements with a distinct and clear trace, giving full trajectory control out to typically 800 m.

Projectile weight	4 g (62 grain)
Muzzle velocity	> 920 m/s
Max. dispersion	SD ≤ 300 mm at 550 m
Tracer	140 m – ≥ 600 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production.

5.56 mm x 45
Tracer Non Toxic 4

Mission

A non toxic, lead free tracer that supports the gunner during firing engagements. With a distinct and clear tracer, it gives full trajectory control out to typically 800 m. Also available as a direct ignition tracer suitable for Military Operations on Urbanized Terrain with short combat distances.

Projectile weight	3.9 g (60 grain)
Muzzle velocity	920 m/s
Max. dispersion	SD ≤ 300 mm at 550 m
Tracer	140 m – ≥ 600 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production and in service with Swedish and Norwegian Defense Forces.

5.56 mm x 45 Frangible Non Toxic 4 Semi-Jacketed

Mission

Ammunition that fragments upon impact with hard targets. Perfect for Close Quarter Battle training or other situations in which you want to avoid ricochets and splash-back. The ammunition is military specified and meets all applicable NATO STANAG requirements. Optimal for use in carbines. 100 percent lead free to reduce impact on the environment and ensure a user environment free from lead vapors.

Projectile weight	4.0 g (62 grain)
Projectile design	Copper-polymer matrix core, semi-jacketed
Muzzle velocity	900 m/s
Max dispersion	SD < 25 mm at 100 m
Service temperature	-32°C to +52°C

Status

In production.

5.56 mm x 45

Plastic Blank Ammunition

Mission

Plastic Blank Ammunition is non-lethal ammunition designed to provide military forces and law enforcement communities with realistic training and maximum safety at low cost. Plastic Blank Ammunition allows training such as force on force exercises and firearm familiarization.

Service temperature	Operational temperature -30°C to +40°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	3 m
Shelf life	15 years

Status

Qualified for use in Colt M16/M4, C7/C8, FN Minimi, HK G36 family, HK 416 N/K and Steyr Aug. Nammo provides Blank Firing Attachment for HK 416 N/K.

5.56 mm x 45

Plastic Short Range Training Ammunition (PSRTA)

Mission

Plastic Short Range Training Ammunition (PSRTA) is intended for use in training areas where range restrictions preclude the use of full range standard service ammunition. The cartridges provide the ability to increase the frequency of carrying out realistic training scenarios, even on restricted ranges, in built-up areas and at shooting houses, therefore enhancing the proficiency of the user. The cartridges offer an operational temperature range of -30°C to +40°C.

Projectile weight	0.3 g (5 grain)
Service temperature	Operational temperature -30°C to +63°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	200 m
Shelf life	15 years

Status

The ammunition is qualified to be used in Colt M16/M4, C7/C8, FN Minimi, HK G36 family, HK 416 N/K, SIG 550/551, SIG 552 family, and Steyr Aug. 13.

7.62 mm x 51 NATO Ball

Mission

NATO qualified standard ball round of M80 type. Can be delivered linked together with tracers, dim tracers or Armor Piercing rounds in any combination required to fit the specific need.

Projectile weight	9.45 g (146 grain)
Muzzle velocity	> 810 m/s
Max. dispersion	SD ≤ 200 mm at 550 m
Penetration	3.5 mm NATO plate at 550 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production and NATO qualified as AC/116-29A. First Article approved by US Government.

7.62 mm x 51
Ball 11 Long Range

Mission

Military specified (STANAG 2310) cartridge with a full metal jacket projectile providing excellent accuracy at long ranges.
Suitable for semi-automatic rifles (DMR), sniper rifles and machine guns. The high projectile weight increases the impact energy by 40 percent at 800 m compared to standard ball (M80).

Projectile weight	10.9 g (168 grain)
Muzzle velocity	805 m/s
Max. dispersion	≤ 1 MOA
Penetration	3.5 mm NATO plate at 550 m
Powder	Temperature stable
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production. Qualified by Norwegian Defense Forces as NM258.

7.62 mm x 51
Armor Piercing 11 Long Range

Mission

Combining Nammo's long range technology with world leading tungsten carbide Armor Piercing technology, this cartridge provides superior penetration capabilities, as well as excellent accuracy at long ranges. Military specified (STANAG 2310) cartridge with a full metal jacket projectile. Suitable for semi-automatic rifles (DMR), sniper rifles and machine guns.

Projectile weight	10.9 g (168 grain)
Muzzle velocity	805 m/s
Max. dispersion	≤ 1.5 MOA
Penetration	18 mm RHA at 80 m, 7 mm RHA at 600 m. 3.5 mm NATO plate at 1 100 m
Powder	Temperature stable
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production.

7.62 mm x 51
Armor Piercing 10

Mission

Utilizing Nammo's knowledge of tungsten carbide technology and lead free projectile design, the 7.62 Armor Piercing 10 provides a cost effective Armor Piercing round for use in assault rifles and machine guns. Military specified (STANAG 2310). The heavy projectile gives increased performance at long ranges.

Projectile weight	9.85 g (152 grain)
Muzzle velocity	845 m/s
Max. dispersion	SD ≤ 200 mm at 550 m
Penetration	7 mm RHA at 300 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production.

7.62 mm x 51 Armor Piercing 8

M993

Mission

Significantly increases the warfighter's lethality. Optimized projectile design with a tungsten carbide core for penetration of hard targets. Penetrates 18 mm rolled homogeneous armor 300HB at 100 m and heavy body armor at normal combat distances.

Projectile weight	8.3 g (128 grain)
Muzzle velocity	930 m/s
Max. dispersion	SD ≤ 200 mm at 550 m
Penetration	18 mm RHA at 100 m, 7 mm RHA at 500 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

Type classified by US Army in 1996 as M993. Nammo has been the sole supplier. In service in several countries. Combat proven and in production. Also available as a non toxic, lead free round.

7.62 mm x 51
Ball Non Toxic 9 HP

Mission

The cartridge has an improved performance compared to the standard NATO Ball and is 100 percent lead free. Exists in all three NATO calibers – both as ball and tracer.

Projectile weight	9 g (139 grain)
Muzzle velocity	860 m/s
Max. dispersion	SD ≤ 150 mm at 550 m
Penetration	3.5 mm NATO plate at 900 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

The world's only NATO qualified 7.62 mm "green" ball round totally free from lead. In service with Swedish and Norwegian Defense Forces. Combat proven and NATO qualified as AC/116-32A.

7.62 mm x 51 NATO Tracer

Mission

Standard tracer that supports the gunner during firing engagements with a distinct and clear tracer, giving full trajectory control out to typically 900 m.

Projectile weight	9 g (139 grain)
Muzzle velocity	> 820 m/s
Max. dispersion	SD ≤ 300 mm at 550 m
Penetration	140 m – ≥ 775 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production and NATO qualified as AC/116-30A.

7.62 mm x 51
Tracer Non Toxic 9

Mission

A non toxic, lead free tracer that supports the gunner during firing engagements with a distinct and clear tracer, giving full trajectory control out to typically 900 m. Also available as direct ignition tracer suitable for Military Operations on Urbanized Terrain with short combat distances.

Projectile weight	8.7 g (134 grain)
Muzzle velocity	850 m/s
Max. dispersion	SD ≤ 250 mm at 550 m
Tracer	140 m – ≥ 775 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

The world's only NATO qualified "green" tracer round totally free from lead. In service with Swedish and Norwegian Defense Forces. Combat proven and NATO qualified as AC/116-37A.

7.62 mm x 51
Dim Tracer (IR) 9

Mission

The infrared (IR) tracer is totally invisible to the naked eye. It can only be seen with Night Vision Devices (NVDs), giving the user clear advantages as a stealth fighter at night. Instant ignition for short combat distances.

Projectile weight	9 g (139 grain)
Muzzle velocity	840 m/s
Max. dispersion	SD ≤ 300 mm at 550 m
Tracer	13 m-775 m (typically visible to 1 250 m)
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +71°C

Status

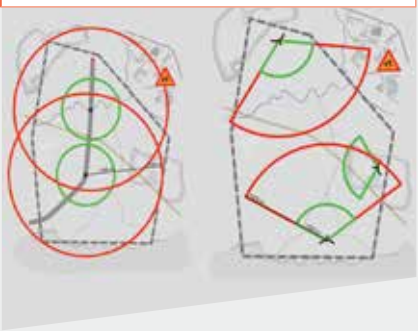
In service with Swedish, Norwegian and UK Defense Forces. Combat proven. Also available as a non toxic, lead free cartridge.

7.62 mm x 51
Ball Non Toxic 6 Reduced Range

Mission

Lead free cartridge that has the same performance as NATO Ball up to a distance of 200 m, but with a safety fan of a maximum 1 500 m (compared to 4 300 m for a NATO Ball). For use in populated, sensitive areas and in the protection of airports, harbors, embassies and dangerous goods transportation vehicles. An excellent cartridge for training on small ranges, restricted areas and from moving platforms, for example RWS.

Projectile weight	6.2 g (96 grain)
Muzzle velocity	880 m/s
Max. dispersion	SD ≤ 30 mm at 100 m
Trajectory	Matches NATO Ball up to 200 m
Service temperature	-20°C to +52°C
Safety temperature	-54°C to +71°C



Status

In production.

7.62 mm x 51
Frangible Non Toxic 9 Open Tip

Mission

Ammunition that fragments upon impact with hard targets. Perfect for Close Quarter Battle training or other situations in which you want to avoid ricochets and splash-back. The ammunition is military specified and meets all applicable NATO STANAG requirements. Optimal for use in carbines and DMRs. 100 percent lead free to reduce impact on the environment and ensure a user environment free from lead vapors.

Projectile weight	9.1 g (140 grain)
Projectile design	Copper-tin matrix core, jacketed open tip
Muzzle velocity	815 m/s
Max dispersion	SD < 25 mm at 100 m
Service temperature	-40°C to +52°C

Status

In production.

7.62 mm x 51
Tracer Non Toxic 6 Reduced Range

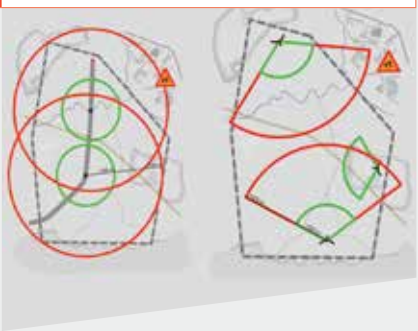
Mission

Lead free cartridge that has the same performance as NATO Tracer up to a distance of 200 m, but with a safety fan of a maximum 1 500 m (compared to 4 300 m for a NATO Ball). For use in populated, sensitive areas. An excellent cartridge for training in small ranges, restricted areas and from moving platforms, for example RWS. Preferably linked together with 7.62 Ball Non Toxic 6 Reduced Range for use in machine guns.

Projectile weight	5.9 g (91 grain)
Muzzle velocity	880 m/s
Max. dispersion	SD ≤ 45 mm at 100 m
Trajectory	Matches NATO Ball up to 200 m
Tracer	40 m - ≥ 200 m
Service temperature	-20°C to +52°C
Safety temperature	-54°C to +71°C

Status

In production.



7.62 mm x 51

Plastic Blank Ammunition

Mission

Plastic Blank Ammunition is non-lethal ammunition designed to provide military forces and law enforcement communities with realistic training and maximum safety at low cost. Plastic Blank Ammunition allows training such as force on force exercises and firearm familiarization.

Service temperature	Operational temperature -30°C to +40°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	3 m
Shelf life	15 years

Status

Ammunition is qualified for these weapons: HK G3 and MG 3; FN MAG/Minimi. Nammo provides and delivers Blank Firing Attachment, Practice Bolt and Cartridge Discriminator.

7.62 mm x 51

Plastic Short Range Training Ammunition (PSRTA)

Mission

Plastic Short Range Training Ammunition (PSRTA) is intended for use in training areas where range restrictions preclude the use of full range standard service ammunition. The cartridges provide the ability to increase the frequency of carrying out realistic training scenarios, even on restricted ranges, in built-up areas and at shooting houses, therefore enhancing the proficiency of the user. The cartridges offer an operational temperature range of -30°C to +40°C.

Projectile weight	0.7 g (11 grain)
Service temperature	Operational temperature -30°C to +40°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	200 m
Shelf life	15 years

Status

Nammo supplies Firing Attachment and Practice Bolt for HK G3, as well as Firing Attachment for MG 3.

.308 Winchester D46

7.62 mm x 51

Mission

Often copied, never equaled. The legendary D46 in caliber 7.62 is the product by which all others of its type are measured. Manufactured to the strictest tolerances for concentricity, uniformity of shape and weight, it has been shooting its way into the record books since the 1930s.

Projectile weight	12.0 g (185 grain)
Projectile type	D46 (FMJBT)
Muzzle velocity	760 m/s (2 490 fps)
Accuracy at 300 m (10 rds)	≤ 85 mm

Status

In production for over 80 years and still used by professionals.

.308 Winchester Lock Base

7.62 mm x 51

Mission

Unbeatable accuracy over extra long distances. Lock Base tail structure also provides exceptional precision at high pressures and high muzzle velocities. Full metal jacket boat tail configuration reduces drag and provides a flatter trajectory.

Projectile weight	9.7 g (150 grain)	11.0 g (170 grain)
Projectile type	B466 (FMJBT)	B476 (FMJBT)
Muzzle velocity	850 m/s (2 790 fps)	840 m/s (2 756 fps)
Accuracy at 300 m (10 rds)	< 105 mm	< 95 mm

Status

B476 is regular service ammunition for several Armed Forces.

.308 Winchester Scenar

7.62 mm x 51

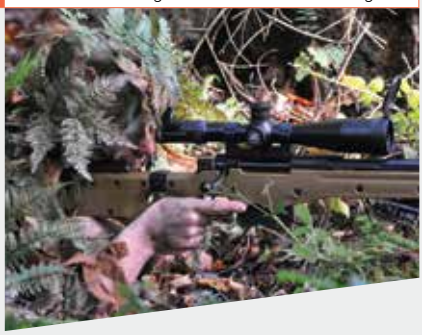
Mission

Scenar is an extremely accurate Open-Tip Match (OTM) bullet. A boat tail base gives an outstanding ballistic coefficient. Nammo's Scenar projectiles deliver superb results at long ranges.

Projectile weight	10.0 g (155 grain), 11.3 g (175 grain) 10.85 g (167 grain), 12.0 g (185 grain)	
Projectile type	GB491 (OTM), GB550 (OTM) GB422 (OTM), GB432 (OTM)	
Muzzle velocity	860 m/s (2 820 fps) 820 m/s (2 690 fps)	793 m/s (2 602 fps) 755 m/s (2 475 fps)
Accuracy at 300 m (10 rds)	< 85 mm average < 70 mm average	< 70 mm average < 70 mm average

Status

Used by multiple Special Forces around the world.



.308 Winchester Armor Piercing

7.62 mm x 51

Mission

Lapua's Armor Piercing is the most accurate Armor Piercing ammunition that is manufactured using proven match grade technology. It provides excellent penetration against extra hard targets.

Projectile weight	10.7 g (165 grain)
Projectile type	AP492
Muzzle velocity	870 m/s (2 850 fps)
Penetration	> 15 mm at 100 m. Steel plate HB400
Accuracy at 300 m (10 rds)	≤ 120 mm

Status

Used by several Armed Forces and police forces needing extreme penetrating power and accuracy. Extra hard tungsten carbide based penetrator.

.308 Winchester Subsonic

7.62 mm x 51

Mission

This ammunition is the most widely used 7.62 mm caliber subsonic ammunition for military and law enforcement special operations. Designed specifically for specialized short barrel tactical rifles that have sound suppressors.

Projectile weight	13.0 g (200 grain)
Projectile type	B416 (FMJBT)
Muzzle velocity	325 m/s (1 066 fps)
Accuracy at 100 m (10 rds)	≤ 60 mm
Barrel length	300-450 mm/12-17"
Twist	200-250 mm/8-10"

Status

Most sold and most accurate factory subsonic ammunition in this caliber.

.338 Lapua Magnum Lock Base

8.6 mm x 70

Mission

Unbeatable accuracy over extra long distances. Lock Base tail structure also provides exceptional precision at high pressures and high muzzle velocities. Full metal jacket boat tail configuration reduces drag and provides a flatter trajectory.

Projectile weight	16.2 g (250 grain)
Projectile type	B408 (FMJBT)
Muzzle velocity	900 m/s (2 953 fps)
Accuracy at 300 m (5 rds)	95 mm

Status

Service ammunition of several Armed Forces.
In operation since 1998.

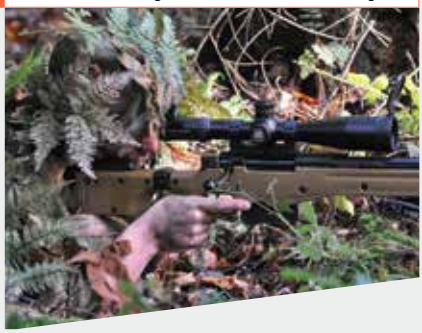
.338 Lapua Magnum Scenar

8.6 mm x 70

Mission

Scenar is an extremely accurate Open-Tip Match (OTM) bullet. Boat tail base delivers an outstanding ballistic coefficient. Lapua Scenar bullets deliver superb results at long ranges.

Projectile weight	16.2 g (250 grain)	19.4 g (300 grain)
Projectile type	GB488 (OTM)	GB528 (OTM)
Muzzle velocity	905 m/s (2 970 fps)	830 m/s (2 723 fps)
Accuracy at 300 m (5 rds)	< 85 mm average	< 85 mm average



Status

Used by multiple Special Forces around the world.

.338 Lapua Magnum Solid

8.6 mm x 70

Mission

Bullet construction with valve design provides maximum shock effect over a wide terminal velocity range (500-1 000 m/s). For operational purposes, the solid frame construction enables straight bullet path through laminated glass without fragmentation.

Projectile weight	15.0 g (231 grain)
Muzzle velocity	920 m/s (3 018 fps)
Accuracy at 100 m (5 rds)	< 50 mm average

Status

Used for glass penetration.

.338 Lapua Magnum Armor Piercing

8.6 mm x 70

Mission

Lapua's AP is the most accurate Armor Piercing ammunition that is manufactured using proven match grade technology. It provides excellent penetration against extra hard targets.

Projectile weight	16.1 g (248 grain)	19.4 g (300 grain)
Projectile type	AP485	AP529
Muzzle velocity	905 m/s (2 970 fps)	830 m/s (2 723 fps)
Penetration	> 12 mm at 550 m Steel plate HB400	> 12 mm at 600 m Steel plate HB500
Accuracy at 300 m (5 rds)	< 120 mm average	< 120 mm average

Status

Used by several Armed Forces needing extreme penetrating power and accuracy. Extra hard tungsten carbide based penetrator of special design.

.338 Lapua Magnum Armor Piercing Incendiary

8.6 mm x 70

Mission

Designed to be used against vehicles and structures in situations when excellent penetration, incendiary and point of impact indication are required. The API bullet is designed to meet current insensitive munitions standards. Classified as 1.4S.

Projectile weight	16.4 g (253 grain)
Projectile type	API526
Muzzle velocity	895 m/s (2 935 fps)
Penetration	> 10 mm at 500 m Steel plate HB400
Accuracy at 300 m (5 rds)	< 130 mm
Special characteristics	Observable flash at hard targets. Ignition of vaporized fuel.

Status

Latest development in this caliber used by top professionals.

.338 Lapua Magnum Proof, Drill & Blank

8.6 mm x 70

Mission

High Pressure Proof, Drill and Blank cartridges complete the .338 Lapua Magnum family.

Status

Produced on request.

9 mm x 19 Ball 7 HP

Mission

Optimized to penetrate body armor. Penetrates more than 50 layers of Para-Aramide at 6 m or 3 mm steel at 75 m. Suitable for SF or police units using weapons like Glock, MP-9 and HK MP5.

Projectile weight	6.75 g (104 grain)
Muzzle velocity	450 m/s
Max. dispersion	SD < 50 mm at 46 m
Penetration	3 mm mild steel at 75 m 50 layers of Para-Aramide at 6 m
Service temperature	-54°C to +52°C

Status

In service with several forces. Combat proven.

9 mm x 19
Ball Non Toxic 7 HP

Mission

A 100 percent Lead Free High Performance cartridge penetrating more than 50 layers of Para-Aramide at 6 m or 3 mm steel at 75 m. Suitable for SF or police units using weapons like Glock, MP-9 and HK MP5.

Projectile weight	7.1 g (110 grain)
Muzzle velocity	410 m/s
Max. dispersion	SD < 50 mm at 46 m
Penetration	3 mm mild steel at 75 m 50 layers of Para-Aramide at 6 m
Service temperature	-54°C to +52°C

Status

World's only NATO qualified 9 mm "green" round totally free from lead. In service with several forces. Combat proven and NATO qualified as AC/116-XVIA.

9 mm x 19
Frangible Non Toxic 6

Mission

Ammunition that fragments upon impact with hard targets. Perfect for Close Quarter Battle training or other situations in which you want to avoid ricochets and splash-back. The ammunition is military specified and meets all applicable NATO STANAG requirements. Optimal for use in pistols and submachine guns. 100 percent lead free to reduce impact on the environment and ensure a user environment free from lead vapors.

Projectile weight	6.5 g (100 grain)
Projectile design	Sintered copper-tin
Muzzle velocity	410 m/s
Max dispersion	SD < 50 mm at 46 m
Service temperature	-32°C to +52°C

Status

In production.

12.7 mm × 99 Ball (.50 cal)

Mission

Standard .50 caliber ball round for general purpose use in machine guns, which can be linked together with or without tracer rounds.

Projectile weight	Approx. 42 g
Muzzle velocity	Approx. 903 m/s
Max. dispersion at 550 m	SD ≤ 300 mm
Penetration	N/A
Tracer	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in Browning M2 HB, M2 QCB, M2 Flex & Turret, M2 Manroy QCB, M2 CIS-50 and M3A3. First Article approved by US Government. Equivalent to M33.

12.7 mm × 99 Tracer (.50 cal)

Mission

Standard .50 caliber tracer round, ballistically matched to the standard ball rounds, for use in machine guns, which can be linked together with ball rounds.

Projectile weight	Approx. 40 g
Muzzle velocity	903 m/s
Max. dispersion at 550 m	SD ≤ 400 mm
Penetration	N/A
Tracer	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in Browning M2 HB, M2 QCB, M2 Flex & Turret, M2 Manroy QCB and M2 CIS-50. Equivalent to M17.

12.7 mm x 99 SG Ball (.50 cal)

NM241 Grade A (Match Grade)

Mission

Ball round for use against soft targets with extreme accuracy at long ranges.

Projectile weight	Approx. 46 g
Muzzle velocity	Approx. 903 m/s
Max. dispersion	< 1.8 MOA
Penetration	N/A
Tracer	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.

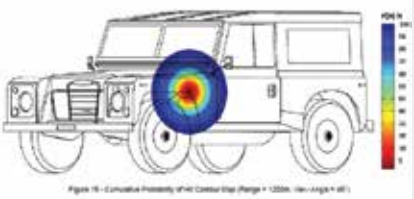


Figure 15 – Cumulative Probability og Hit Contour Map (Range = 1 200 m, View Angle = 45°)

12.7 mm x 99
SG-T Ball Tracer (.50 cal)

NM242 Grade A (Match Grade)

Mission

Ball round with tracer for use against soft targets with extreme accuracy at long ranges. The tracer has a dark zone from 50-200 m and burns out to minimum 1 500 m.

Projectile weight	Approx. 43 g
Muzzle velocity	Approx. 903 m/s
Max. dispersion	≤ 2 MOA
Penetration	N/A
Tracer	Visible 50-200, ≥ 1 500
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.

12.7 mm x 99 SG–M (.50 cal)

Grade A (Match Grade) & Grade B (Linked)

Mission

Ball round with marker/spotter function, extreme accuracy at long ranges. Upon impact the round will produce a marker flash, making it easy to spot.

Projectile weight	Approx. 43 g
Muzzle velocity	Approx. 903 m/s
Max. dispersion at 550 m	Grade A ≤ 1.8 MOA/Grade B SD ≤ 200 mm
Penetration	N/A
Tracer	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.

12.7 mm x 99
Ball-DT (IR) (.50 cal)

NM260 Grade A (Match Grade) & Grade B (Linked)

Mission

Ball round with tracer for use against soft targets with extreme accuracy at long ranges. The IR tracer is only visible with Night Vision Equipment and completely invisible to the naked eye. The IR tracer burns for more than 1 000 m, making the gunner position untraceable as well as not lighting up the surroundings as conventional tracers. This makes the round ideal for night operations.

Projectile weight	Approx. 43 g
Muzzle velocity	Approx. 903 m/s
Max. dispersion at 550 m	Grade A ≤ 2 MOA/Grade B SD ≤ 250 mm
Penetration	N/A
Tracer	Infrared, visible with NVG ≤ 200, ≥ 1 000
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillanTAC-50,Rangemaster.50 and Steyr .50. Combat proven.

12.7 mm × 99 API (.50 cal)

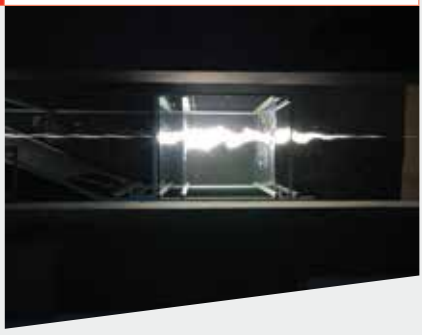
Mission

Armor Piercing/Incendiary round for machine gun use. The hard steel core together with the incendiary composition provide excellent performance against material/light armor targets.

Projectile weight	Approx. 42 g
Muzzle velocity	903 m/s
Max. dispersion at 550 m	SD ≤ 300 mm
Penetration	22 mm (321-375 HB) at 100 m
Tracer	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in Browning M2 HB, M2 QCB, M2 Flex & Turret, M2 CIS-50 and M3A3. First Article approved by US Government. Equivalent to M8.



12.7 mm × 99 API-T (.50 cal)

Mission

Tracer round ballistically matched to the API round, for use in machine guns, which can be linked together with the API rounds.

Projectile weight	Approx. 40 g
Muzzle velocity	903 m/s
Max. dispersion at 550 m	SD ≤ 400 mm
Penetration	22 mm (321-375 HB) at 100 m
Tracer	Visible from 200 m to 1 500 m
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in Browning M2 HB, M2 QCB, M2 Flex & Turret, M2 Manroy QCB and M2 CIS-50. Equivalent to M20.

12.7 mm x 99 AP-S (.50 cal)

NM185 Grade A (Match Grade) & Grade B (Linked)

Mission

Armor Piercing round for extreme accuracy and high penetration capability against material targets. A large tungsten carbide penetrator provides excellent armor penetration (22 mm armored steel at 900 m). Targets range from light material to light armored vehicles.

Projectile weight	Approx. 47 g
Muzzle velocity	Approx. 893 m/s
Max. dispersion at 550 m	Grade A ≤ 1.8 MOA/Grade B SD ≤ 200 mm
Penetration	22 mm RHA @ 0° @ 900 m
Tracer/self destruct	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. More than 15 user countries in different applications. Combat proven.

12.7 mm x 99 APi-S (.50 cal)

NM173 Grade A (Match Grade) & Grade B (Linked)

Mission

Armor Piercing round for extreme accuracy and high penetration capability against material targets. A large tungsten carbide penetrator provides excellent armor penetration (22 mm armored steel at 900 m) with an incendiary/marker effect for spotting purposes. Targets range from light material to light armored vehicles.

Projectile weight	Approx. 47 g
Muzzle velocity	Approx. 893 m/s
Max. dispersion at 550 m	Grade A ≤ 1.8 MOA/Grade B SD ≤ 200 mm
Penetration	22 mm RHA @ 0° @ 900 m
Tracer	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. More than 15 user countries in different applications. Combat proven.

12.7 mm x 99 MP (.50 cal)

NM140F3 Grade A (Match Grade) & Grade B (Linked)

NEW and improved MP

Mission

The new and improved Multipurpose F3 version gives better penetration, fragment pattern, accuracy and improved safety. It has approximately 30 percent higher penetration capability and fulfills full STANAG AP requirements. The round has 20 percent more fragments than the old version and, with a temperature stable propellant from extreme -54°C (-62°F) up to +71°C (161°F), it has excellent ballistic performance.

Projectile weight	Approx. 43 g
Muzzle velocity	Approx. 903 m/s
Dispersion requirement	SD ≤ 150 mm (Grade A)/SD ≤ 200 mm (Grade B)
Penetration requirement	22 mm RHA @ 0° @ 200 m
Tracer	N/A
Service temperature	-54°C to +71°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. More than 15 user countries in different applications. Combat proven.

12.7 mm x 99 MP (.50 cal)

Mk211/NM140 Grade A (Match Grade) & Grade B (Linked)

Mission

The Multipurpose round is for use against material targets. The high explosive, together with a tungsten carbide penetration and incendiary composition, gives blast, fragmentation and incendiary effects, as well as excellent armor penetration capabilities and extreme accuracy at long ranges. With the Multipurpose characteristics and superb accuracy, this is the ideal choice for weapon station use as well as Anti Material Rifles (AMR).

Projectile weight	Approx. 43 g
Muzzle velocity	Approx. 903 m/s
Dispersion requirement	SD ≤ 300 mm
Penetration requirement	10.6 mm RHA @ 45° @ 100 m
Tracer/self destruct	N/A
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +63°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. More than 15 user countries in different applications. Combat proven.

12.7 mm x 99 MP-T (.50 cal)

NM160F3 Grade A (Match Grade) & Grade B (Linked)

NEW and improved MP-T

Mission

The new and improved Multipurpose-Trace F3 version gives better penetration, fragment pattern, accuracy and improved safety. It has approximately 30 percent more penetration and fulfills full STANAG AP requirements. The round has 20 percent more fragments than the old version and, with a temperature stable propellant from -54°C (-62°F) up to +71°C (+161°F), it has excellent ballistic performance. The tracer has a dark zone from 50-200 m and burnout to minimum 1 500 m.

Projectile weight	Approx. 44 g
Muzzle velocity	Approx. 903 m/s
Dispersion requirement	SD ≤ 200 mm (Grade A)/SD ≤ 300 mm (Grade B)
Penetration requirement	22 mm RHA @ 0° @ 200 m
Tracer	Visible 50-200, ≥ 1 500 m
Service temperature	-54°C to +71°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.

12.7 mm x 99 MP-T (.50 cal)

MK300/NM160 Grade A (Match Grade) & Grade B (Linked)

Mission

The Multipurpose round is for use against material targets. The high explosive, together with a tungsten carbide penetration and incendiary composition, give blast, fragmentation and incendiary effects, as well as excellent armor penetration capabilities and extreme accuracy at long ranges.
The tracer has a dark zone from 50-200 m and burnout to minimum 1 500 m.

Projectile weight	Approx. 44 g
Muzzle velocity	Approx. 903 m/s
Dispersion requirement	SD ≤ 400 mm
Penetration requirement	10.6 mm RHA @ 45° @ 100 m
Tracer	Visible 50-200, ≥ 1 500 m
Service temperature	-54°C to +52°C
Safety temperature	-54°C to +63°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.

12.7 mm x 99
MP-DT (IR) (.50 cal)

Grade A (Match Grade) & Grade B (Linked)

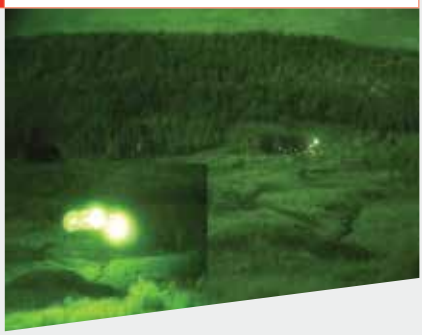
Mission

The Multipurpose round with an infrared tracer is for use against material targets. The high explosive, together with a tungsten carbide penetration and incendiary composition, give blast, fragmentation and incendiary effects, as well as excellent armor penetration capabilities and extreme accuracy at long ranges. The IR tracer burns for more than 1 000 m, making the gunner position not traceable as well as not lighting up the surroundings as conventional tracers. This makes the round ideal for night operations.

Projectile weight	Approx. 44 g
Muzzle velocity	Approx. 903 m/s
Max. dispersion at 550 m	Grade A ≤ 2 MOA/Grade B SD ≤ 250 mm
Penetration	10.6 mm RHA @ 30° @ 1 000 m
Tracer	Infrared, visible with NVG ≤ 200 ≤ 1 000
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.



12.7 mm x 99 RR (.50 cal)

NM243 Grade A (Match Grade) & Grade B (Linked)

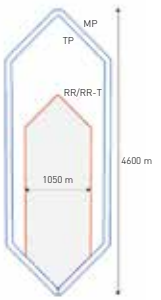
Mission

Reduced range ball round with enhanced accuracy for use in both a training and an operational environment. Ballistics match standard ball round out to 800 m. Maximum Ricochet Range 2 630 m.

Projectile weight	Approx. 43 g
Muzzle velocity	Approx. 940 m/s
Max. dispersion at 550 m	Grade A ≤ 1.8 MOA/Grade B SD ≤ 250 mm
Penetration	N/A
Tracer	N/A
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.



12.7 mm x 99 RR-T (.50 cal)

NM244 Grade A (Match Grade) & Grade B (Linked)

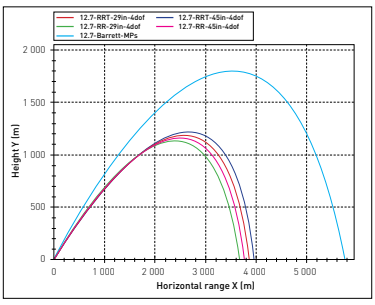
Mission

Reduced range ball round with enhanced accuracy for use in both a training and an operational environment. Ballistics match standard ball round out to 800 m. Maximum Ricochet Range 2 780 m. The tracer has a 50 m dark zone, which prevents gunner blindness and traceability from the target area. The tracer burns for more than 1 000 m, making it ideal for night operations.

Projectile weight	Approx. 38 g
Muzzle velocity	Approx. 940 m/s
Max. dispersion at 550 m	Grade A ≤ 2.2 MOA/Grade B SD ≤ 300 mm
Penetration	N/A
Tracer	Visible 50-200, ≥ 1 000
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.



12.7 mm x 99
RR-DT (IR) (.50 cal)

Grade A (Match Grade) & Grade B (Linked)

Mission

Reduced range ball round with enhanced accuracy for use in both a training and an operational environment. Ballistics match with standard ball round out to 800 m. Maximum Ricochet Range 2 780 m. The infrared tracer is only visible with Night Vision Equipment and completely invisible to the naked eye. The infrared tracer burns for more than 1 000 m, making the gunner position not traceable as well as not lighting up the surroundings as conventional tracers. This makes the round ideal for night operations.

Projectile weight	Approx. 38 g
Muzzle velocity	Approx. 940 m/s
Max. dispersion at 550 m	Grade A ≤ 2.2 MOA/Grade B SD ≤ 300 mm
Penetration	N/A
Tracer	Infrared, visible with NVG ≤ 200, ≥ 1 000
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in Browning M2HB, M2 QCB, M2 NM218, FNH M3M & M3P, CIS-50, Barrett M82, Barrett M107, AI AW-50, AI AX-50, AS-50, HECATE PGM, McMillan TAC-50, Rangemaster .50 and Steyr .50. Combat proven.

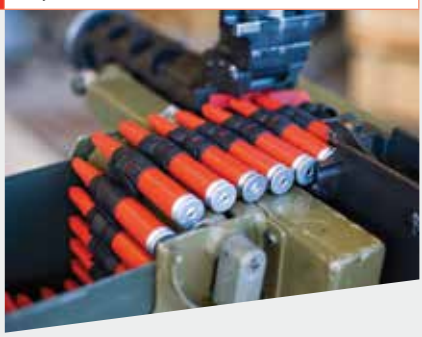
12.7 mm x 99 (.50 cal)

Plastic Blank Ammunition

Mission

Plastic Blank Ammunition is non-lethal ammunition designed to provide military forces and law enforcement communities with realistic training and maximum safety at low cost. Plastic Blank Ammunition allows training such as force on force exercises and firearm familiarization.

Service temperature	Operational temperature -30°C to +40°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	5 m
Shelf life	15 years



Status

Ammunition for use in cal .50 M2 and QCB weapons. Nammo has developed a plastic link and adapted the cartridge thus reducing the wear and tear of the feeding system. Nammo delivers Recoil Amplifiers, Blank Firing Attachment and cartridge discriminator.

12.7 mm x 99 (.50 cal)

Plastic Short Range Training Ammunition/ Tracer (PSRTA-T)

Mission

Plastic Short Range Training Ammunition (PSRTA-T) is intended for use in training areas where range restrictions preclude the use of full range standard service ammunition. The cartridges provide the ability to increase the frequency of carrying out realistic training scenarios, even on restricted ranges, in built-up areas and at shooting houses, therefore enhancing the proficiency of the user. The cartridges offer an operational temperature range of -30°C to +40°C.

Projectile weight	3.4 g Ball, 4.3 g Tracer
Service temperature	Operational temperature -30°C to +40°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	700 m
Shelf life	15 years

Status

For use with Firing Attachment supplied by Nammo. Lethal within training distance.
In service.

Drill Rounds

Small Arms Ammunition

Premium quality drill rounds – for professional training

- Weight and center of gravity equal to standard ball cartridges
- Made of nickel plated brass (minimum weapon fatigue)
- Highest training functionality

Cartridge data	Weight	Inch-pound	Dimensions
4.6 x 30 mm	8.5 g	131 grains	Standard
5.56 x 45 mm	14.3 g	220 grains	STANAG 4172
7.62 x 39 mm	25.4 g	391 grains	Standard
7.62 x 51 mm	25.7 g	395 grains	STANAG 2310
9 x 19 mm	11.0 g	169 grains	STANAG 4090
12.7 x 99 mm	113.0 g	1 744 grains	STANAG 4383

Packaging and Marking

In accordance with customer's requirements

MEDIUM CALIBER AMMUNITION

- Combat and training ammunition for army, navy and air force applications
- Programmable ammunition technology
- Technologies including Armor Piercing, Dim Trace, Lead Free, Multipurpose and Plastic Training

20 mm x 102
MP LD M70 A1

Mission

The 20 mm x 102 Multipurpose low-drag round is the superior aircraft ammunition designed to defeat multi-spectrum target types up to light armored vehicles. This technology is the basis for the PGU-28 A/B round. The projectile's low drag design maintains higher velocity and reduces the time of flight compared to the M50 series ammunition. Lower flight time gives higher probability of hit and higher impact velocity improves the lethality. The round is initiated by pyrotechnics and has a natural delay ensuring delivery of the incendiary, blast and fragmentation effects inside the target.

Projectile weight	Approx. 100 g
Muzzle velocity	1 039 m/s
Max. dispersion	Mean R 0.167 m at 200 m
Penetration	Min. 10 mm RHA at 1 000 m
Service temperature	-54°C to +71°C

Status

Qualified for use in M61, M197 and M39 guns.

20 mm x 102 MP LD M70

Mission

The 20 mm x 102 Multipurpose low-drag ammunition is designed to defeat multi-spectrum target types up to light armored vehicles. This ammunition is equal to 20 mm MP LD M70 A1 except that the driving band is made of copper. The round is initiated by pyrotechnics and has a natural delay ensuring delivery of the effects inside the target.

Projectile weight	Approx. 100 g
Muzzle velocity	1 039 m/s
Max. dispersion	Mean R 0.167 m at 200 m
Penetration	Min. 10 mm RHA at 1 000 m
Service temperature	-54°C to +71°C

Status

Qualified for use in M61, M197 and M39 guns.

20 mm x 102 MP M70 A2

Mission

The 20 mm x 102 Multipurpose ammunition is designed to defeat targets ranging from different kinds of aircraft to light armored vehicles. The projectile has ballistics equal to M50 series rounds and is used on both fighters and attack helicopters. Initiated by pyrotechnics with a natural delay ensuring delivery of the effects inside the target.

Projectile weight	Approx. 102 g
Muzzle velocity	1 030 m/s
Max. dispersion	Mean R 0.139 m at 200 m
Service temperature	-54°C to +71°C

Status

Qualified for use in M61, M197 and M39 guns.

20 mm x 102 TP-RRR LD M2

Mission

The 20 mm x 102 TP-RRR LD M2 ammunition is designed for training purposes and has Reduced Ricochet Risk. The projectile disintegrates when impacting the target, creating high drag fragments with no ballistic properties which are unable to reach the aircraft flight path. The round has also been successfully used as suppressive fire in offensive missions when low collateral damage is of great importance. With its low drag design, it has a ballistic match to the 20 mm MP LD M70 A1.

Muzzle velocity	1 039 m/s
Max. dispersion	Mean R 0.167 m at 200 m
Service temperature	-54°C to +71°C

Status

Qualified for use in M61, M197 and M39 guns.

20 mm x 102 TP-RRR LD

Mission

The 20 mm x 102 TP-RRR ammunition is designed for training purposes with Reduced Ricochet Risk. This round is equal to the 20 mm x 102 TP-RRR LD M2 except that the driving band is made of copper. It has a ballistic match to the 20 mm MP LD M70.

Muzzle velocity	1 039 m/s
Max. dispersion	Mean R 0.167 m at 200 m
Service temperature	-54°C to +71°C

Status

Qualified for use in M61, M197 and M39 guns.

20 mm x 102 TP LD M12

Mission

The 20 mm x 102 TP LD M12 is training ammunition equal to the PGU 27A/B. With its low drag design, it has a ballistic match to the 20 mm MP LD M70 A1.

Projectile weight	Approx. 101 g
Muzzle velocity	1 039 m/s
Max. dispersion	Mean R 0.167 m at 200 m
Service temperature	-54°C to +71°C

Status

Qualified for use in M61, M197 and M39 guns.

20 mm x 102 TP-T LD M13

Mission

The 20 mm x 102 TP-T LD M13 is training ammunition with tracer, equal to the PGU 30A/B.

Projectile weight	Approx. 101 g
Muzzle velocity	1 039 m/s
Max. dispersion	Mean R 0.167 m at 200 m
Service temperature	-54°C to +71°C

Status

Qualified for use in M61, M197 and M39 guns.

20 mm x 102 TP

Mission

Training ammunition for use on aircraft equipped with 20 mm Vulcan guns.

Projectile weight	Approx. 100 g
Muzzle velocity (24 m)	1 040 m/s
Max. dispersion	0.5 mils at 200 m
Penetration	N/A
Tracer	N/A
Safety temperature	-54°C to +71°C

Status

Qualified for M61 and M39 guns.

20 mm x 102 TP-T

Mission

Traced training ammunition for use on aircraft equipped with 20 mm Vulcan guns.

Projectile weight	Approx. 94.6 g
Muzzle velocity (24 m)	1 040 m/s
Max. dispersion	0.5 mils at 200 m
Penetration	N/A
Tracer	> 1.9 s
Service temperature	-54°C to +71°C

Status

Qualified for M61 and M39 guns.

20 mm x 102 TP-M

Mission

20 mm x 102 TP-Marker is a training ammunition with a marker/spotter function. The round is an inert TP with a pyrotechnic filled nose providing the flash, giving the same visual effects as firing with live Multipurpose rounds. This provides the shooters with a realistic training scenario without using combat rounds. It has an M50 series design and has a ballistic match with the 20 mm MP M70 A2.

Projectile weight	Approx. 102 g
Muzzle velocity	1 030 m/s
Max. dispersion	Mean R 0.139 m at 200 m
Service temperature	-54°C to +71°C

Status

Qualified for use in the M197 gun.

20 mm × 128 TP/TP-T

Mission

Training ammunition for use on Oerlikon anti-aircraft guns. Ballistically matched to the HEI/SD, HEI-T/SD, API-T and SAPHEI/SD combat rounds.

Projectile weight	Approx. 125 g
Muzzle velocity	1 050 or 1 100 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	N/A
Tracer	> 4 s
Service temperature	-54°C to +71°C

Status

Qualified for use in Oerlikon 20/85 and Oerlikon 20/120 by Spanish MoD.

20 mm × 128
HEI/SD and HEI-T/SD

Mission

Highly efficient High Explosive/Incendiary rounds for anti-aircraft use on the Oerlikon guns.

Projectile weight	Approx. 102 g/Approx. 112 g
Muzzle velocity	1 050 or 1 100 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	N/A
Tracer	> 2.5 s/Between 4 s and 9 s
Service temperature	-54°C to +71°C

Status

Qualified for use in Oerlikon 20/85 and Oerlikon 20/120 by Spanish MoD.

20 mm × 128 API-T

Mission

Traced Armor Piercing/Incendiary round for anti-aircraft use on 20 mm Oerlikon guns.

Projectile weight	Approx. 112.5 g
Muzzle velocity	1 050 or 1 100 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	40 mm NATO plate at 30° at 200 m
Tracer	> 2.5 s
Safety temperature	-54°C to +71°C

Status

Qualified for use in Oerlikon 20/85 and Oerlikon 20/120 by Spanish MoD.

20 mm × 128 SAPHEI/SD

Mission

Armor Piercing/High Explosive/Incendiary round for anti-aircraft use on 20 mm Oerlikon guns.

Projectile weight	Approx. 128 g
Muzzle velocity	1 050 or 1 100 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	20 mm NATO plate at 30° at 150 m
Tracer/self-destruction	N/A / Between 4 s and 9 s
Service temperature	-54°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in Oerlikon 20/85 and Oerlikon 20/120 by Spanish MoD.

20 mm x 139
MP-T SD NM75 F2/DM91

Mission

The 20 mm x 139 Multipurpose ammunition with tracer and self-destruct device is designed to defeat a broad spectrum of targets, ranging from all kinds of soft skinned air and ground targets up to light armored and semi-hard targets. The tracer gives the shooter target correction information and the self-destruct device minimizes the risk for collateral damage. The hardened steel body with explosive filling gives significant penetration, blast, incendiary and fragmentation effects. The pyrotechnical initiation chain gives a natural delay ensuring all effects are delivered inside the target.

Muzzle velocity	1 045 m/s
Tracer/self-destruction	Min. 3.7 s, max 5.3 s
Max. dispersion	< 0.2 m x 0.6745 fired at 200 m
Fragments	6 to 40 fragments penetrating 19 mm thick chipboard plate
Service temperature	-40°C to +50°C

Status

Designated by BAAINBw in Germany with the number DM91 and the Norwegian army with NM75 F2. Qualified for use in the Mk 20 Rh202 and the Giat F2 gun.

25 mm x 137 MP-T SD MK2

Mission

The 25 mm x 137 Multipurpose ammunition with tracer and self-destruct device is designed to defeat a broad range of targets ranging from all kinds of soft skinned targets up to semi-hard armored targets and building constructions. The round is well known for its low dispersion and the self-destruct function minimizes the risk for collateral damage. Initiated by pyrotechnics with a natural delay ensures delivery of the incendiary, blast and fragmentation effects inside the target.

Muzzle velocity	1 100 m/s
Tracer/self-destruction	Min. visible in 5.3 s. Self-destruction after min. 5.3 s
Max. dispersion	Max. 1.0 m at a range of 1 000 m (H&V)
Penetration	20 mm RHA at 400 m, 16 mm at 1 000 m and 11 mm at 1 700 m
Service temperature	-54°C to +70°C

Status

Qualified for use in Bushmaster M242 and the KBA gun.


Photo: Italian Army photographers

25 mm × 137 HEI/HEI-T

Mission

Superior performance High Explosive/Incendiary rounds with steel cartridge case for anti-personnel and anti-matériel use in Bushmaster and Oerlikon KBA guns.

Projectile weight	Approx. 180 g/Approx. 198 g
Muzzle velocity	1 100 m/s
Max. dispersion	Typical H&V deviation < 0.8 mils
Penetration	N/A
Tracer	> 1.7 s
Service temperature	-54°C to +71°C

Status

Qualified for use in Bushmaster M242 and Oerlikon KBA.

25 mm × 137
HEI/SD and HEI-T/SD

Mission

Superior performance High Explosive/Incendiary rounds with steel cartridge case for anti-personnel and anti-matériel use on Bushmaster and Oerlikon KBA guns.

Projectile weight	Approx. 180 g
Muzzle velocity	1 100 m/s
Max. dispersion	Typical H&V deviation < 0.8 mils
Penetration	N/A
Tracer/self-destruction	> 1.7 s/Between 4.5 s and 11 s
Service temperature	-54°C to +71°C

Status

Qualified for use in Bushmaster M242 and Oerlikon KBA.

25 mm × 137
SAPHEI/SD and SAPHEI-T/SD

Mission

Armor Piercing/High Explosive/Incendiary rounds with steel cartridge case for use against a variety of targets (light armor and matériel) in Bushmaster and Oerlikon KBA guns.

Projectile weight	Approx. 170 g/Approx. 180 g
Muzzle velocity	1 100 m/s
Max. dispersion	Typical H&V deviation < 0.8 mils
Penetration	10 mm NATO plate at 60° at 200 m
Tracer/self-destruction	> 1.7 s/Between 5 s and 11 s
Service temperature	-54°C to +71°C

Status

Qualified for use in Bushmaster M242 and the KBA gun.

25 mm x 137 SAPHEI-T

PGU-32/U

Mission

The 25 mm x 137 PGU-32/U SAPHEI-T features the Multipurpose technology with tracer, and is designed to defeat all kinds of soft targets as well as light armor targets. Pyrotechnical initiation provides a delay, ensuring the incendiary, blast and fragmentation effects are delivered inside the target, and a high graze angle sensitivity.

Projectile weight	185 g
Muzzle velocity	1 100 m/s
Tracer	> 1.7 s
Dispersion	< 0.8 mils
Penetration	6.5 mm RHA 60° NATO @ impact velocity 800 m/s

Status

Qualified for use in the M242 Bushmaster gun, the GAU-12 for AV-8/B and GAU-22 for F-35.

25 mm x 137 APEX

PGU-47/U

Mission

The APEX is designed to defeat a multi-spectrum of target types ranging from air targets to both soft and armored ground targets. It has an explosive filled warhead, with a delayed initiation, so the blast, fragments and incendiary effect are delivered inside the target. A penetrator in the nose gives enhanced penetration capabilities. The APEX is designed specifically for the F-35 fighter, but it may also be used on platforms with a M242 Bushmaster gun.

Projectile weight	222 g
Muzzle velocity	970 m/s for the F-35
Max. dispersion from single barrel	< 0.5 mils
Penetration	14 mm steel 45° NATO @ 9 000 ft 8 mm RHA 45° NATO @ 9 000 ft
Tracer	> 3 s
Service temperature	-62°C to +80°C

Status

Ongoing integration activities for all three F-35 variants.

25 mm x 137 TP-RRR

Mission

The ultimate choice of training ammunition for the F-35 with a ballistic match to 25 mm x 137 APEX/PGU-47/U. The Reduced Ricochet Risk concept is developed into the 25 mm x 137 caliber, resulting in an extremely safe training round with significant offensive capabilities. The penetration of armored targets and fragmentation in softer targets makes this round a good supplement to the combat round in scenarios where low collateral damage is of great importance. It is the only REACH compliant TP round available for the F-35.

Projectile weight	223 g
Muzzle velocity	970 m/s for the F-35
Max. dispersion from single barrel	< 0.5 mils
Tracer	> 3 s
Service temperature	-62°C to +80°C

Status

Undergoing ground qualification in the GAU-22/A and will be qualified in the F-35 CTOL.

25 mm × 137 TP/TP-T

Mission

Steel case training ammunition for use on armored vehicles equipped with Bushmaster or Oerlikon KBA guns. Ballistically matched to the HEI and SAPHEI rounds.

Projectile weight	Approx. 190 g/Approx. 180 g
Muzzle velocity	1 100 m/s
Max. dispersion	Typical H&V deviation < 0.8 mils
Penetration	N/A
Tracer	> 1.7 s
Service temperature	-54°C to +71°C

Status

Qualified for use in Bushmaster M242 and Oerlikon KBA.

25 mm x 137

Plastic Blank Ammunition

Mission

Plastic Blank Ammunition is non-lethal ammunition designed to provide military forces and law enforcement with realistic training and maximum safety at low cost. Plastic Blank Ammunition allows training such as force on force exercises and firearm familiarization.

Service temperature	Operational temperature -30°C/+63°C
Safety temperature	-46°C to +71°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	5 m
Shelf life	15 years

Status

Qualified in 25 mm M242 Bushmaster Automatic Cannon equipped with ATK Hangfire Override Module (HOM), which gives original rate of fire (200 rpm). In service.

27 mm x 145, DM73, MP

Mission

The 27 mm x 145 Multipurpose ammunition is the ideal choice for defeating both aircraft and semi-hard ground targets. The round has a large HE charge giving it a powerful blast, incendiary and fragmentation effect, and the pyrotechnical initiation with delay ensures the effects are delivered inside the target.

Projectile weight	Approx. 260 g
Muzzle velocity	1 025 m/s
Max. dispersion	Max. 1.0 m at a range of 1 000 m (H&V)
Penetration	Min 20 mm RHA
Service temperature	-63°C to +70°C

Status

Qualified for use in Eurofighter Typhoon and the Tornado aircraft.

27 mm x 145, DM68, TP-RRR

Mission

The 27 mm x 145 TP-RRR ammunition is a training round with Reduced Ricochet Risk design. The projectile disintegrates when impacting the target, creating high drag fragments with no ballistic properties which are unable to reach the aircraft flight path. The round ensures safe training for personnel and aircraft.

Projectile weight	Approx. 260 g
Muzzle velocity	1 025 m/s
Max. dispersion	Max. 1.0 m at a range of 1 000 m (H&V)
Service temperature	-63°C to +70°C

Status

Qualified for use in the BK 27 gun and the qualification process for the JAS Gripen aircraft is ongoing.

30 mm × 113 TP/TP-T

Mission

Steel case training ammunition for use in airborne DEFA guns.

Projectile weight	Approx. 245 g
Muzzle velocity	800 m/s
Max. dispersion at 100 m	Typical H&V deviation ≤ 50 cm
Penetration	N/A
Tracer	> 4 s
Service temperature	-54°C to +71°C

Status

Qualified for use in DEFA guns.

30 mm × 173 HEI/HEI-T

Mission

Steel case High Explosive/Incendiary rounds suitable for anti-matériel/ anti-personnel use on Bushmaster II and Mauser MK30 guns.

Projectile weight	Approx. 378 g
Muzzle velocity	1 100 m/s
Max. dispersion	Typical H&V deviation < 0.5 mils
Penetration	N/A
Tracer	> 4 s
Service temperature	-46°C to +63°C

Status

Qualified for use in Mauser MK30.
Tested in Bushmaster II MK44.

30 mm × 173
HEI/SD and HEI-T/SD

Mission

Steel case High Explosive/Incendiary rounds suitable for anti-matériel/ anti-personnel use in Bushmaster II and Mauser MK30 guns.

Projectile weight	Approx. 363 g
Muzzle velocity	1 100 m/s
Max. dispersion	Typical H&V deviation < 0.5 mils
Penetration	N/A
Tracer/self-destruction	> 4 s/Between 4 s and 9 s
Service temperature	-46°C to +63°C

Status

Qualified for use in Mauser MK30 and Bushmaster II MK44.

30 mm × 173
SAPHEI/SD and SAPHEI-T/SD

Mission

Armor Piercing/High Explosive/Incendiary rounds with steel cartridge case for use against a variety of targets (light armor and matériel) in Bushmaster II and Mauser MK30.

Projectile weight	Approx. 363 g
Muzzle velocity	1 100 m/s
Max. dispersion	Typical H&V deviation < 0.5 mils
Penetration	30 mm NATO plate at 30° at 200 m 20 mm NATO plate at 60° at 200 m
Tracer/self-destruction	> 3 s/Between 4 s and 9 s
Service temperature	-46°C to +63°C

Status

Qualified for use in Mauser MK30 and Bushmaster II MK44.

30 mm x 173 MP-T/SD

NM 222/MK 264

Mission

This round is the ultimate choice for different target scenarios. The MP-T/SD round provides excellent penetration, blast, fragmentation and incendiary effects against a multiple range of targets.

Projectile weight	363 g
Muzzle velocity	1 070 m/s
Max. dispersion	< 0.4 mils at 1 000 m
Penetration	10 mm RHA 60° NATO at 1 000 m
Tracer/self-destruction	+ 3 000 m
Service temperature	-46°C to +63°C

Status

Qualified in Bushmaster II MK44, Mauser MK 30-2 and DLS CAMGUN 30 GI-30.
More than 13 user countries in different applications.
Combat proven.

30 mm x 173 APFSDS-T

NM225/MK258 Mod 0

Mission

The 30 mm x 173 APFSDS-T is designed to defeat the armor threats of today and tomorrow, such as infantry fighting vehicles, armored helicopters and other vehicles with heavy protection. The round has an extremely low drag coefficient giving short time of flight, high accuracy and superior penetration capabilities out to more than 4 000 m. The tungsten penetrator is designed to provide high energy and maximum penetration capability.

Projectile weight	230 g
Muzzle velocity	1 430 m/s
Max. dispersion	< 0.3 mils at 1 000 m
Penetration	>100 mm RHA at 1 000 m
Tracer/self-destruction	N/A
Service temperature	-46°C to +63°C

Status

Qualified for use in the Bushmaster II MK44 and DLS CAMGUN 30 GI-30.

30 mm x 173 APFSDS-T

MK258 Mod 1 Swimmer

Mission

The MK258 Mod 1 APFSDS-T Swimmer round is the most advanced ammunition technology available. It will be effective towards various surface threats, small to medium sized boats, personal watercraft that can be loaded with explosives, and submerged targets, or it can be fired through the waves before impacting the target. The tungsten penetrator provides short time of flight, high impact energy and maximum penetration capability out to more than 4 000 m.

Projectile weight	230 g
Muzzle velocity	1 430 m/s
Max. dispersion	< 0.4 mils at 1 000 m
Penetration	>100 mm RHA at 1 000 m
Service temperature	-46°C to +63°C

Status

Qualified for use in the Bushmaster II MK44 and DLS CAMGUN 30 GI-30. Qualified for service with US Navy/Marine Corps.

30 mm x 173 TP-T

NM219/MK270

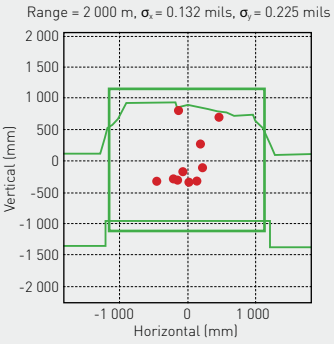
Mission

The 30 mm x 173 TP-T round is developed to be a ballistic match to the MP-T/SD NM222/MK264. Precision tests show superb accuracy out to distances of 3 000 m.

Projectile weight	363 g
Muzzle velocity	1 070 m/s
Max. dispersion	< 0.4 mils at 1 000 m
Penetration	N/A
Tracer/self-destruction	N/A
Service temperature	-46°C to +63°C

Status

Qualified for the Bushmaster II MK44, Mauser MK30-2 and DLS CAMGUN 30 GI-30.



30 mm x 173 TPDS-T/APDS-T

NM245/MK320

Mission

This round offers realistic and effective training with a ballistic match to the APFSDS-T out to 1 200 m. It reduces the need for specific training areas with kinetic energy penetrators. It has the same safety template as the TP-T with a maximum range of 8 500 m. It also features short range war capabilities against a wide range of armor targets.

Projectile weight	190 g
Muzzle velocity	1 480 m/s
Max. dispersion	< 0.4 mils at 1 000 m
Penetration	> 70 mm RHA at 1 000 m
Tracer/self-destruction	N/A
Service temperature	-46°C to +63°C

Status

Qualified for use in the Bushmaster II MK44 and DLS CAMGUN 30 GI-30.

30 mm x 173

Plastic Short Range Training Ammunition/ Tracer (PSRTA-T)

Mission

Plastic Short Range Training Ammunition (PSRTA-T) is intended for use in training areas where range restrictions preclude the use of full range standard service ammunition. The cartridges provide the ability to increase the frequency of carrying out realistic training scenarios, even on restricted ranges, in built-up areas and at shooting houses, therefore enhancing the proficiency of the user. The cartridges offer an operational temperature range of -30°C to +40°C.

Projectile weight	45 g
Service temperature	Operational temperature -30°C to +63°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	1 200 m
Shelf life	15 years

Status

The 30 mm PSRTA is qualified for use in the Bushmaster II MK44 and CAMGUN. Use of a Hangfire Override Module is optional.

30 mm x 173

Plastic Blank Ammunition

Mission

Plastic Blank Ammunition is non-lethal ammunition designed to provide military forces and law enforcement communities with realistic training and maximum safety at low cost. Plastic Blank Ammunition allows training such as force on force exercises and firearm familiarization.

Service temperature	Operational temperature -30°C to +63°C
Storage temperature	Temperature and storage conditions as for live ammunition
Safety area	5 m
Shelf life	15 years

Status

Qualified in 30 mm Mk II Bushmaster Automatic Cannon/ Bushmaster II. ATK Hangfire Override Module (HOM) gives original rate of fire (200 rpm). Without the ATK HOM original rate of fire is reduced (60 rpm).

35 mm × 228
HEI/SD and HEI-T/SD

(Point or base detonating fuze)

Mission

High Explosive/Incendiary rounds, with point detonating or base detonating fuze, suitable for anti-matériel/anti-personnel use in Oerlikon guns.

Projectile weight	Approx. 555 g/Approx. 535 g
Muzzle velocity	1 180 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	N/A
Tracer/self-destruction	> 4 s/Between 6 s and 12 s
Service temperature	-46°C to +63°C

Status

Qualified for use in Oerlikon guns 35/90 KDB type GDF-001, GDF-005 and GDF-007.

35 mm × 228 SAPHEI/SD

Mission

Armor Piercing/High Explosive/Incendiary rounds for use against a variety of targets (light armor and matériel) in Oerlikon guns.

Projectile weight	Approx. 550 g
Muzzle velocity	1 180 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	40 mm NATO plate at 100 m
Tracer/self-destruction	N/A / Between 6 s and 18 s
Service temperature	-46°C to +63°C

Status

Qualified for use in Oerlikon guns 35/90 KDB type GDF-001, GDF-005 and GDF-007.

35 mm × 228 TP/TP-T

Mission

Training ammunition for use in 35 mm Oerlikon guns. Successfully tested on Bushmaster III. Ballistically matched to the HEI and SAPHEI rounds.

Projectile weight	Approx. 550 g
Muzzle velocity	1 180 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	N/A
Tracer	> 6 s
Service temperature	-46°C to +63°C

Status

Supplied to Spanish MoD for 35 mm Oerlikon KDB gun (successfully tested on Bushmaster III).

40 mm x 53 MK285 PPHE

Programmable Pre-fragmented High Explosive Airburst

Mission

The MK285 Airburst ammunition is specifically designed for the MK47 gun. The MK285 round gives excellent fragmentation and provides airburst with pinpoint accuracy. The MK285 is designed to take out targets in defilade, with a fragment distribution sideways and rearwards.

Projectile weight	241 g
Muzzle velocity	240 m/s
Max. dispersion	1.0 mils
Number of fragments	1 450
Tracer/self-destruction	Optional/Electronic SD
Airburst accuracy	1 millisecond resolution
Service temperature	-32°C to +63°C
Safety temperature	-46°C to +71°C

Status

Qualified by the US Navy in 2006. More than 100 000 rounds produced and in service.

40 mm x 53
C171 PPHE-RF

Programmable Pre-fragmented Airburst – Radio Frequency

Mission

Airburst ammunition designed for use in any 40 mm AGL weapons. The wireless programming unit is easily adaptable to any fire control system. The C171 round gives excellent fragmentation and provides airburst with pinpoint accuracy. The C171 is designed to take out targets in defilade, with a fragment distribution sideways and rearwards.

Projectile weight	242 g
Muzzle velocity	240 m/s
Max. dispersion	1.0 mils
Number of fragments	1 450
Tracer/self-destruction	Optional/Electronic SD
Airburst accuracy	1 millisecond resolution
Service temperature	-32˚C to +63˚C
Safety temperature	-46˚C to +71˚C

Status

Qualified in the H&K AGL weapon. In service.

40 mm x 53
MK314 HEDP-AB

High Explosive Dual Purpose Airburst

Mission

The HEDP Airburst ammunition is specifically designed for the MK47 gun system. The MK314 HEDP round provides airburst with pinpoint accuracy. The HEDP warhead provides fragmentation, penetration, blast and incendiary effect with a high reliability. This allows for different target scenarios with only one type of 40 mm round.

Projectile weight	247 g
Muzzle velocity	240 m/s
Max. dispersion	1.0 mils
Number of fragments	1 200
Penetration	> 65 mm RHA
Tracer/self-destruction	NA/Electronic SD
Airburst accuracy	1 millisecond resolution
Service temperature	-32°C to +63°C
Safety temperature	-46°C to +71°C

Status

Qualification tests for the US Navy completed in June 2012.

40 mm x 53
HEDP-RF (NM 264)

High Explosive Dual Purpose Airburst – Radio Frequency

Mission

The HEDP Airburst ammunition is designed for use in any 40 mm AGL weapon. The wireless programming unit is easily adaptable to any fire control system. The HEDP-RF round provides airburst with pinpoint accuracy. The HEDP warhead provides fragmentation and penetration with high reliability. This allows for different target scenarios with only one type of 40 mm round.

Projectile weight	247 g
Muzzle velocity	240 m/s
Max. dispersion	1.0 mils
Number of fragments	1 200
Penetration	> 65 mm RHA
Airburst accuracy	1 millisecond resolution
Service temperature	-32˚C to +63˚C
Safety temperature	-46˚C to +71˚C

Status

Internal qualification by Nammo in 2013.

MPU

Manual Programming Unit for Nammo's 40 mm RF Airburst ammunition

Mission

The MPU is a true, low cost solution that will eliminate the use of expensive fire control systems to program Nammo's 40 mm RF airburst ammunition. The MPU can be mounted on almost any Automatic Grenade Launcher (AGL) without significant changes to the weapon and its functionality. By using the MPU, 40 mm airburst solutions are within reach without costly investments in complicated and sensitive fire control systems.

Battery life	72 hours of normal use
Weight	1 195 g including battery pack
Width	202 mm
Height	96 mm
Depth	121 mm
Operational temperature	-40°C to +63°C
Storage temperature	-46°C to +71°C

40 mm × 53 HEDP/HEDP-SD

Mission

Dual Purpose HV grenades for use on AGLs against a variety of targets (light armor/matériel/dismounted infantry). Available with standard PD or self-destruct fuzes.

Projectile weight	Approx. 245 g
Muzzle velocity	240 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	50 mm (HB 269-352) at 65 m
Tracer/self-destruction	N/A / Approx. 14 s
Service temperature	-46°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in grenade launcher MK19 and LAG 40. Tested in MK47 and H&K grenade launcher. HEDP round homologated by Spanish MoD.

40 mm × 53
HE and HE/SD

Mission

HV High Explosive grenades for anti-personnel/anti-matériel use on AGLs. Available with standard PD or self-destruct fuzes.

Projectile weight	Approx. 240 g
Muzzle velocity	240 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	N/A
Tracer/self-destruction	N/A / Approx. 14 s
Service temperature	-46°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in grenade launcher MK19 and LAG 40. Tested in MK47 and H&K grenade launcher. HE round homologated by Spanish MoD.

40 mm × 53 TP/TP-T

Mission

40 mm x 53 HV training ammunition suitable for use with NATO standard AGLs, such as the MK19, MK47, LAG 40 and H&K.

Projectile weight	Approx. 245 g/Approx. 249 g
Muzzle velocity	240 m/s
Max. dispersion	Typical H&V deviation < 1 mils
Penetration	N/A
Tracer	> 4 s
Service temperature	-46°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified for use in grenade launcher MK19 and LAG 40. Tested in MK47 and H&K grenade launcher. TP-T round homologated by Spanish MoD.

40 mm x 53 TP-T (NM 265)

Target Practice with tracer and marker function

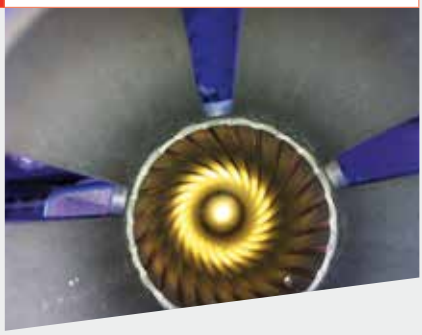
Mission

Training ammunition designed for use in any 40 mm AGL weapons. The cartridge has similar ballistic characteristics as standard 40 mm rounds. The TP-T has an environmentally friendly impact signature and tracer capability.

Projectile weight	247 g
Muzzle velocity	240 m/s
Max. dispersion	1.0 mils
Impact signature	Orange
Tracer	> 10 s
Service temperature	-46°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified in the H&K AGL weapon.



40 mm × 53
Drill Cartridge

Mission

The 40 mm x 53 drill cartridge is used as a drill round to train users in handling ammunition and loading the AGL, such as the MK19, H&K GMG and MK47. The cartridge is completely inert and simulates a loaded round of 40 mm HE ammunition in size, shape and weight. The round can be reused by twisting and pushing the link back to the initial position.

Cartridge weight	350 g

40 mm L/60 HE

High Explosive ammunition for Bofors Gun-system

Mission

Nammo, former Bofors, is the true Original Equipment Manufacturer (OEM) for conventional 40 mm L/60 ammunition intended for Bofors Gun-systems. Nammo 40 mm ammunition ensures flawless functionality and minimum wear and tear. Nammo offers a variety of 40 mm L/60 ammunition, for both training and combat situations.

Projectile weight	0.93 kg
Muzzle velocity	860 m/s
Max. dispersion	0.9 m Vert and Lat @ 600 m
Penetration	N/A
Tracer/self-destruction	Optional ≥ 4 s
Service temperature	-40°C to +60°C

Status

Qualified and in production.

40 mm L/60 APHC

Armor Piercing High Capacity for Bofors Gun-system

Mission

Nammo, former Bofors, is the true Original Equipment Manufacturer (OEM) for conventional 40 mm L/60 ammunition intended for Bofors Gun-systems. Nammo 40 mm ammunition ensures flawless functionality and minimum wear and tear. The APHC ammunition is the third generation KE-Projectile based on a tungsten penetrator, ensuring an improved penetration capability compared to conventional steel penetrators.

Projectile weight	0.95 kg
Muzzle velocity	860 m/s (@ 21°C)
Max. dispersion	@ 600 m 0.5 m (Vert/Lat)
Penetration	> 50 mm @ 60° impact (approx. 300 m distance)
Tracer/self-destruction	≥ 4 s
Service temperature	-40°C to +60°C

Status

Qualified for Bofors L/60 systems.

40 mm L/60 TP

Target Practice ammunition for Bofors Gun-system

Mission

Nammo, former Bofors, is the true Original Equipment Manufacturer (OEM) for conventional 40 mm L/60 ammunition intended for Bofors Gun-systems. Nammo 40 mm ammunition ensures flawless functionality and minimum wear and tear. Nammo offers a variety of 40 mm L/60 ammunition for both training and combat situations.

Projectile weight	0.93 kg
Muzzle velocity	860 m/s
Max. dispersion	0.9 m Vert and Lat @ 600 m
Penetration	N/A
Tracer/self-destruction	Optional ≥ 4 s
Service temperature	-40°C to +60°C

Status

Qualified and in production.

40 mm L/70 HE-T

High Explosive ammunition for Bofors Gun-system

Mission

Nammo, former Bofors, is the true Original Equipment Manufacturer (OEM) for conventional 40 mm L/70 ammunition intended for Bofors Gun-systems. Nammo 40 mm ammunition ensures flawless functionality and minimum wear and tear. Nammo offers a variety of 40 mm L/70 ammunition for both training and combat situations.

Projectile weight	0.95 kg
Muzzle velocity	1 005 m/s
Max. dispersion	0.9 m Vert and Lat @ 600 m
Penetration	N/A
Tracer/self-destruction	≥ 4 s
Service temperature	-40°C to +60°C

Status

Qualified and in production.

40 mm L/70 TP-T

High Explosive ammunition for Bofors Gun-system

Mission

Nammo, former Bofors, is the true Original Equipment Manufacturer (OEM) for conventional 40 mm L/70 ammunition intended for Bofors Gun-systems. Nammo 40 mm ammunition ensures flawless functionality and minimum wear and tear. Nammo offers a variety of 40 mm L/70 ammunition for both training and combat situations.

Projectile weight	0.96 kg
Muzzle velocity	1 005 m/s
Max. dispersion	0.9 m Vert and Lat @ 600 m
Penetration	N/A
Tracer/self-destruction	≥ 4 s
Service temperature	-40°C to +60°C

Status

Qualified and in production.

57 mm L/70 HE

High Explosive ammunition for Bofors Gun-system

Mission

Nammo, former Bofors, is the true Original Equipment Manufacturer (OEM) for conventional 57 mm L/70 ammunition intended for Bofors Gun-systems. Nammo 57 mm ammunition ensures flawless functionality and minimum wear and tear. Nammo offers a variety of 57 mm L/70 ammunition for both training and combat situations.

Projectile weight	2.4 kg
Muzzle velocity	1 020 m/s
Max. dispersion	0.26 Vert, 0.33 Lat @ 600 m
Penetration	N/A
Tracer/self-destruction	N/A
Service temperature	-46°C to +63°C

Status

Qualified, in production.

57 mm L/70 TP

Target Practice ammunition for Bofors Gun-system

Mission

Nammo, former Bofors, is the true Original Equipment Manufacturer (OEM) for conventional 57 mm L/70 ammunition intended for Bofors Gun-systems. Nammo 57 mm ammunition ensures flawless functionality and minimum wear and tear. Nammo offers a variety of 57 mm L/70 ammunition for both training and combat situations.

Projectile weight	2.4 kg
Muzzle velocity	1 020 m/s
Max. dispersion	0.26 Vert, 0.33 Lat @ 600 m
Penetration	N/A
Tracer/self-destruction	N/A
Service temperature	-46°C to +63°C

Status

Qualified, in production.

LARGE CALIBER AMMUNITION

- Tank artillery
- Mortar rounds

120 mm IM HE-T

Insensitive Munition High Explosive-Tracer

Mission

The 120 mm IM HE-T complements the tank's current main gun ammunition with an IM compliant full bore HE – Multipurpose warhead capable of defeating a target set that includes bunkers, fortifications, light armor, technical vehicles and personnel. The IM HE-T will increase the flexibility and capacity of using the main battle tank in current and future combat environments.

Cartridge weight	Approx. 26.7 kg
Projectile weight	Approx. 15.9 kg
Muzzle velocity	1 030 m/s
Target accuracy	Typical at 2 000 m ≤ 0.30 mils
Fuze	Dual-mode. Superquick and delay
Tracer	Burning distance > 3 500 m
Service temperature	-46°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified. The round is in service in several countries.

120 mm IM TP-T

Insensitive Munitions Target Practice-Tracer

Mission

The IM TP-T is a cost effective full bore inert round with a ballistic match to the IM HE-T. It has an inert fuze, but with the possibility of setting it in delay or superquick mode. The IM TP-T is a perfect round for realistic training and target practice.

Cartridge weight	Approx. 26.7 kg
Projectile weight	Approx. 15.9 kg
Muzzle velocity	1 030 m/s
Target accuracy	Typical at 2 000 m ≤ 0.30 mils
Tracer	Burning distance > 3 500 m
Service temperature	-46°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified. The round is in service in several countries.

120 mm KE-TP

Kinetic Energy Target Practice

Mission

The KE-TP is a cost effective round which fulfills modern training needs for the crews operating main battle tanks. The round meets the strict requirements for a training round regarding ballistic match, dispersion and safety range.

Cartridge weight	18.3 kg
Projectile weight	6.1 kg
Muzzle velocity	1 700 m/s
Max. dispersion	< 0.30 mils
Tracer	Burning distance > 3 000 m
Safety range	< 8 000 m
Service temperature	-40°C to +51°C
Safety temperature	-40°C to +63°C

Status

Qualified. In serial production.
Produced under license
from Nexter.

120 mm IM Canister

The 120 mm Close Combat round

Mission

The 120 mm Canister is effective against multiple targets in close combat terrain. It was originally designed for close-in defense of tanks against assaulting infantry and as an anti-structure round with limited collateral damage. In current operations, it has also shown its superiority on other targets. The Canister round makes the main battle tank more flexible in current and future combat environments.

Cartridge weight	22.9 kg
Muzzle velocity	1 410 m/s
Tungsten balls	Approx. 1 100
Effective range	500 m
Service temperature	-46°C to +63°C
Safety temperature	-54°C to +71°C

Status

Qualified. Based on GD-OTS's M1028.

155 mm IM HE-ER

Insensitive Munition High Explosive Extended Range

Mission

A verified range of more than 40 km from a modern L52 JBMoU gun system. Low round to round dispersion, combined with an enhanced blast and fragmentation effect, optimizes the impact on semi-hard targets at long firing ranges. The round is designed to defeat light armor and soft targets, and for increased flexibility incorporates an interchangeable base bleed and hollow base.

Projectile weight with fuze	44.4 kg
Muzzle velocity	935 m/s (6 DM72/& in L/52)
Max. range with base bleed	L52 gun: 41 km/L39 gun: 30 km
Max. range with hollow base	L52 gun: 32 km/L39 gun: 24 km
Dispersion (20 km w/hollow base)	PE length < ± 50 m/width ± 10 m
Explosive	> 10 kg MCX-6100 IM Explosive
Service temperature	-46°C to +63°C

Status

Qualified.

155 mm HE-ER

High Explosive Extended Range

Mission

A verified range of more than 40 km from a modern L52 JBMoU gun system. Low round to round dispersion, combined with an enhanced blast and fragmentation effect, optimizes the impact on semi-hard targets at long firing ranges. The round is designed to defeat light armor and soft targets, and for increased flexibility incorporates an interchangeable base bleed and hollow base.

Projectile weight with fuze	44.4 kg
Muzzle velocity	935 m/s (6 DM72/& in L/52)
Max. range with base bleed	L52 gun: 41 km/L39 gun: 30 km
Max. range with hollow base	L52 gun: 32 km/L39 gun: 24 km
Dispersion (20 km w/hollow base)	PE length < ± 50 m/width ± 10 m
Explosive	9 kg TNT/Comp B
Service temperature	-46°C to +63°C

Status

Qualified.

155 mm Illum-ER/IR Illum-ER

Illumination Extended Range/ IR Illumination Extended Range

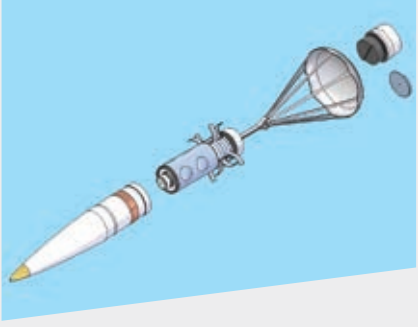
Mission

Long range illumination shell that precisely delivers the illumination payload at long distances (up to 40 km), giving instant and intense light over a large area. Available in two versions; white and IR-light with interchangeable base bleed and hollow base.

Projectile weight with fuze	44.4 kg
Muzzle velocity	935 m/s (6 DM72/& in L/52)
Max. range with base bleed	L52 gun: 41 km/L39 gun: 30 km
Illumination time	White light: 60 s/IR light: 90 s
Illuminating area	White light/IR: > 1 500 m
Intensity	2.2*10^8 cd
Service temperature	-46°C to +63°C

Status

In development.



155 mm RP Smoke-ER

Red Phosphorus Smoke-Extended Range

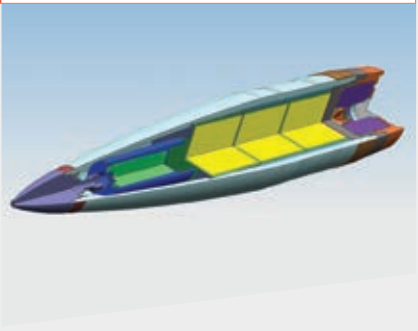
Mission

Long range smoke shell that precisely delivers the smoke canisters at long distances (up to 40 km), effectively establishing a multispectral smoke screen. The smoke canisters have braking flaps, making them effective in deep snow and marsh. The shell also incorporates interchangeable base bleed and hollow base.

Projectile weight with fuze	44.4 kg
Muzzle velocity	935 m/s (6 DM72/& in L/52)
Max. range with base bleed	L52 gun: 41 km/L39 gun: 30 km
Effective smoke time	> 120 s
Smoke composition	Red phosphorus
Smoke canisters	3 with braking flaps
Service temperature	-46°C to +63°C

Status

In development.



155 mm TP-ER

Training Practise Extended Range

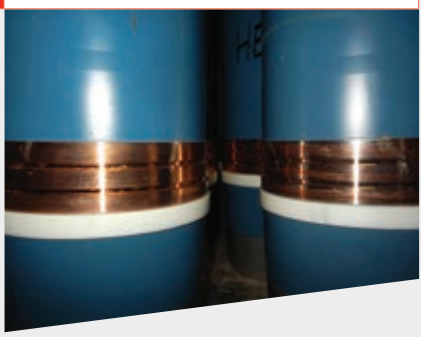
Mission

Cost effective training round with ballistic match to IM HE-ER/HE-ER. Available in two versions: inert (no energetics) or with a small explosive spotting charge. Modular design: interchangeable base bleed and hollow base.

Projectile weight with fuze	44.4 kg
Muzzle velocity	935 m/s (6 DM72/& in L/52)
Projectile length	906 mm
Small explosive charge	DPX 3, Type 2 (Optional)
Max. range with base bleed	(L52) 6 x DM72 > 40 km
Max. range with hollow base	(L52) 6 x DM72 > 30 km
Dispersion (20 km w/hollow base)	PE length < ± 50 m/width ± 10 m
Operating temperature	-46°C to +63°C
Storage temperature	-54°C to +71°C

Status

Qualified.



155 mm HE

High Explosive round with hollow base

Mission

The 155 mm High Explosive (HE) round is a cost effective solution for maximum performance against light armored and soft targets as well as for training purposes. The round is compatible with all fuzes according to STANAG 2916. The shell is also available with inert filling with ballistic match to a live shell.

Projectile weight without fuze	42.5 kg
Muzzle velocity	380 m/s to 800 m/s
Max. range with hollow base	24 km
Probable error (of range)	≤ 0.5% (range) / ≤ 0.1% (deflection)
Explosive	9 kg TNT
Service temperature	-40°C to +52°C

Status

Qualified in K9 Thunder (L52), 155 GH 52 APU/155 K 98 (L52) and 155 K 83-97 (L39).

Propelling Charges

Nammo offers a wide and comprehensive range of products for field artillery and mortar systems. Product portfolio also includes training propelling charges for safe and easy mortar training. Propelling charge production in Nammo is consolidated at the Vihtavuori Plant. The Nammo products are a result of long experience, continuous development in close cooperation with Nammo customers and modern, flexible manufacturing processes.

Status

All artillery propelling charges are qualified.

Mortar Practice Ammunition

Full Range and Short Range
for 60 mm, 81 mm and 120 mm

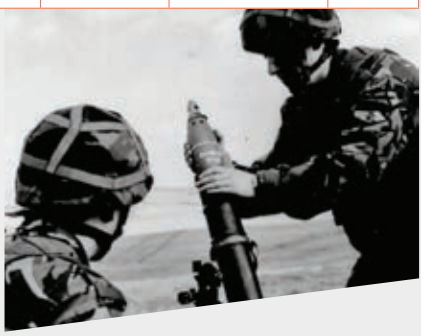
Mission

Provides safe, realistic and low cost training for mortar crews, forward observers and fire direction control personnel. This ammunition is full caliber (not a sabot) and is ready to fire in all weather conditions. Pyrotechnic impact signature does not cause fragments and provides excellent fire adjustment training. The short range rounds can be reused for additional cost savings.

Caliber	Range scale	Max. range	Min. range	No. of ranges	Reuse
120 mm	Full	7 200	200	5	No
	Short	850	130	5	No
81 mm	Full	5 600	70	5	No
	Short	500	50	4	Yes
60 mm	Full	3 500	70	5	No
	Short	530	50	4	Yes

Status

Qualified for use in all 60 mm, 81 mm and 120 mm smooth bore mortar systems.



81 mm Mortar High Explosive Round

Mission

The 81 mm Mortar High Explosive (HE) round is a fin-stabilized, naturally fragmenting round intended to be fired from muzzle loading smooth bore mortars. The round is provided with point-detonating fuze and it is delivered as a ready to fire in resealable multi-round containers, equipped with fuze and charge system.

Explosive filling	TNT (0.8 kg)
Shell body	Cast iron
Flying mass	4.2 kg
Number of charges	0+6
Muzzle velocity	75-310 m/s
Min./Max. range	150 m / 6 500 m
Gas pressure max.	135 MPa (Charge 6)

Status

In production and qualified. Compatible with all standard smooth bore muzzle loaded 81 mm mortar systems.

120 mm Mortar High Explosive Round

Mission

The 120 mm Mortar High Explosive (HE) round is a fin-stabilized, naturally fragmenting round intended to be fired from muzzle loading smooth bore mortars or modern breech loaded mortar systems. The round is provided with proximity or point-detonating fuze and is delivered as a ready to fire in 2-round containers, equipped with fuze and charge system.

Explosive filling	TNT (2.0 kg)
Shell body	Cast iron
Flying mass	13.0 kg
Number of charges	0+5
Muzzle velocity	114-370 m/s
Min./Max. range	300 m / 7 710 m
Gas pressure max.	188.5 MPa (Charge 6)

Status

In production and qualified. Compatible with all standard smooth bore muzzle loaded 120 mm Mortar Systems and Patria's Turreted Mortar Systems (AMOS® and Nemo®) when equipped with stub case.

120 mm Extended Range High Explosive Round

Mission

The 120 mm Mortar Extended Range High Explosive (MERHE) round is a fin-stabilized, naturally fragmenting round intended to be fired from muzzle loading smooth bore mortars or modern breech loaded mortar systems. The round is provided with proximity fuze and is delivered as a ready to fire in 2-round containers, equipped with fuze, charge system and stub case (if required).

Explosive filling	Comp B (3.4 kg)
Shell body	Streamlined forged steel
Flying mass	15.3 kg
Number of charges	0+6
Muzzle velocity	128-500 m/s depending on weapon system
Min./Max. range	300 m / 9 800 m
Gas pressure max.	225 MPa (Charge 6)

Status

In production and qualified. Compatible with all standard smooth bore muzzle loaded 120 mm Mortar Systems and Patria's Turreted Mortar Systems (AMOS® and Nemo®) when equipped with stub case.

120 mm Mortar Infra-Red Smoke Round

Mission

The 120 mm Mortar Infra-Red Smoke (IR-SMK) round provides visual and infrared screening for several minutes over a wide area. The round functions by way of a time fuze, in a height from 400 m to 500 m wherein the front and rear body are split, ejecting burning smoke pots containing red phosphorus. Round is delivered as a ready to fire in 2-round containers, equipped with fuze and charge system.

Payload	Red phosphorus
Front and rear body	Forged steel
Flying mass	14.0 kg
Number of charges	0+5
Muzzle velocity	128-391 m/s
Min./Max. range	300 m / 8 300 m
Gas pressure max.	162 MPa (Charge 5)

Status

In production and qualified. Compatible with all standard smooth bore muzzle loaded 120 mm Mortar Systems and Patria's Turreted Mortar Systems (AMOS® and Nemo®) when equipped with stub case.

120 mm Mortar Illuminating Round

Mission

The 120 mm Mortar Illuminating (MILL) round is used for illumination of target areas during night missions or low visibility conditions. The round functions by way of a time fuze, in a height from 500 m to 700 m wherein the front and rear body are split, ejecting the parachute and illumination kit. Round is delivered as a ready to fire in 2-round containers, equipped with fuze and charge system.

Front and rear body	Forged steel
Flying mass	14.0 kg
Number of charges	0+5
Muzzle velocity	128-390 m/s
Min./Max. range	300 m / 8 300 m
Gas pressure max.	139 MPa
Luminosity	1 000 000 Cd
Illuminating duration	Min. 50 s

Status

In production and qualified. Compatible with all standard smooth bore muzzle loaded 120 mm Mortar Systems and Patria's Turreted Mortar Systems (AMOS® and Nemo®) when equipped with stub case.

SHOULDER FIRED SYSTEMS

- Close combat weapons
- Lightweight assault weapons (LAW)

M72A5 LAW

Mission

The Nammo M72A5 LAW combines decades of innovation and Nammo expertise to deliver a world-leading close combat weapon. The system is disposable, easy to operate and extremely lightweight. The M72A5 LAW offers precision, power and capability in a single system, and is effective against armored vehicles, concrete walls and light armored personnel carriers.

System weight and caliber	3.6 kg, 66 mm
Carry/extended length	780 mm/980 mm
Warhead type (explosive)	Light-Armor, Shaped Charge/ Multipurpose (315 g Octol)
Fuze	M412A1, single safety, point impact w/graze
Muzzle velocity	200 m/s (21°C)
Dispersion	< 1.5 mils at 250 m
Penetration	300 mm RHA, > 200 mm Reinforced Concrete/Earth
Minimum, effective and maximum range	15, 350 and 1 200 m
Service temperature	-40°C to +60°C

Status

NATO qualified:
NSN 1340-25-150-1250.
Combat proven and in production.

M72A6 LAW

Mission

The Nammo M72A6 LAW combines decades of innovation and Nammo expertise to deliver a world-leading close combat weapon. The system is disposable, easy to operate, extremely lightweight and powerful. The M72A6 LAW is used by the warfighter as a Multipurpose weapon and is effective against concrete walls, light armored personnel carriers and technical vehicles.

System weight and caliber	3.6 kg, 66 mm
Carry/extended length	780 mm/980 mm
Warhead type (explosive)	Light-Armor, Shaped Charge/ Multipurpose (315 g Octol)
Fuze	M412A1, single safety, point impact w/graze
Muzzle velocity	200 m/s (21°C)
Dispersion	< 1.5 mils at 250 m
Penetration	150 mm RHA, > 200 mm Reinforced Concrete/Earth
Minimum, effective and maximum range	15, 350 and 1 200 m
Service temperature	-40°C to +60°C

Status

NATO qualified:
NSN 1340-25-143-0596.
Combat proven and in production.

M72A7 LAW

Mission

The Nammo M72A7 LAW combines decades of innovation and Nammo expertise to deliver a world-leading close combat weapon. The single soldier system is disposable, easy to operate, extremely lightweight, powerful and cost effective. The M72A7 variant is used by the warfighter as a Multipurpose weapon and is effective against technical vehicles, concrete walls and light armored personnel carriers.

System weight and caliber	3.5 kg, 66 mm
Carry/extended length	780 mm/981 mm
Warhead type (explosive)	Light-Armor, Shaped Charge/ Multipurpose (PBXN-9)
Fuze	M412A1, single safety, point impact w/graze
Muzzle velocity	200 m/s (21°C)
Dispersion	< 1.5 mils at 250 m
Penetration	150 mm RHA, > 200 mm Reinforced Concrete/Earth
Minimum, effective and maximum range	15, 350 and 1 200 m
Storage temperature	-45°C to +70°C

Status

US Type Classified:
NSN 1340-01-497-7630 –
DODIC HA29.
Combat proven and in production.

M72A9 LAW

Mission

The Nammo M72A9 LAW combines decades of innovation and Nammo expertise to deliver a world-leading close combat weapon. The single soldier system is disposable, easy to operate, extremely lightweight, powerful and cost effective. The M72A9 variant is an Anti-Structure Munition (ASM) suitable for defeating brick, adobe, solid core and steel fire doors as well as earthen fortifications and technical vehicles. This variant offers more payload on target with optimized blast effects.

System weight and caliber	4.3 kg, 66 mm
Carry/extended length	780 mm/981 mm
Warhead type (explosive)	Anti-Structure/Fragmenting Case (Aluminized HE)
Fuze	Electronic, single safety, preset detonation delay time with dud-safe logic
Muzzle velocity	130 m/s
Minimum, effective and maximum range	15, 200 and 600 m
Storage temperature	-45°C to +70°C

Status

Limited Release:
NSN 1340-01-538-4308 – DODIC-HA48.
Combat proven and in production.

M72 ASM RC

Mission

The Nammo M72 ASM RC combines decades of innovation and Nammo expertise to deliver a world-leading close combat weapon. The system is disposable, easy to operate, extremely lightweight and powerful. The M72 ASM RC variant is an Anti-Structure Munition Reduced Caliber (ASM RC) suitable for defeating brick, adobe, earthen fortifications and technical vehicles. The carbon fiber warhead gives low collateral damage. The dual safe fuze and on-axis trigger equip the warfighter with an improved weapon system that is both safe and effective.

System weight and caliber	3.7 kg, 42 mm
Carry/extended length	780 mm/980 mm
Warhead type (explosive)	Anti-Structure (415 g DPX-6, Aluminized HE)
Fuze	Electronic piezo fuze, dual mode (short and long delay), dual safe with graze function
Muzzle velocity	170 m/s (21°C)
Dispersion	< 1.5 mils at 150 m
Minimum, effective and maximum range	14, 350 and 1 000 m
Service temperature	-40°C to +60°C

Status

NATO qualified:
NSN 1340-25-152-8309.
Combat proven and in production.

M72 EC LAW

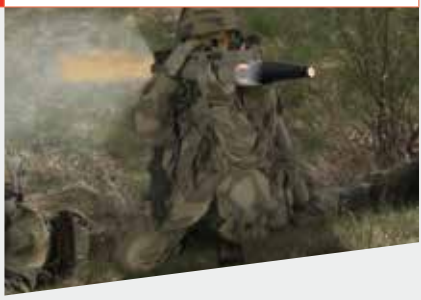
Mission

The Nammo M72 EC LAW combines decades of innovation and Nammo expertise to deliver a world-leading close combat weapon. The system is disposable, easy to operate, extremely lightweight and powerful. The M72 EC LAW is an Enhanced Capacity variant which may penetrate up to 450 mm RHA. The dual safe fuze and on-axis trigger equip the warfighter with an improved weapon system that is both safe and effective.

System weight and caliber	3.4 kg, 66 mm
Carry/extended length	780 mm/980 mm
Warhead type (explosive)	Heavy-Armor, Shaped Charge (315 g PBXW-11)
Fuze	Electronic piezo fuze, dual safe with graze function
Muzzle velocity	200 m/s (21°C)
Dispersion	< 1.5 mils at 250 m
Penetration	450 mm RHA (M72 EC LAW MK1), 300 mm RHA (M72 EC LAW MK2)
Minimum, effective and maximum range	20, 350 and 1 200 m
Service temperature	-40°C to +60°C

Status

NATO qualified:
NSN 1340-25-152-8486 (MK1).
NSN 1340-25-160-4778 (MK2).
Combat proven and in production.



M72 Training System

Mission

The M72 training system with the 21 mm subcaliber rocket gives a truly similar experience to the live round. The new on-axis trigger launcher may be adapted to use the 21 mm training rocket. The training system has the same weight as the combat system. This type of training is extremely cost effective and safe for the user. The training launcher is reloadable multiple times.

System weight and caliber	3.5 kg, 21 mm
Projectile weight	0.16 kg
Carry/extended length	780 mm/980 mm
Warhead type	Steel rod with tracer
Muzzle velocity	220 m/s (21°C)
Dispersion	< 1.5 mils at 150 m
Training range	50-700 m
Maximum range	1 000 m
Service temperature	-30°C to +60°C

Status

NATO qualified: Legacy Launcher
NSN 1055-25-148-0378.
New Launcher (EC/RC) NSN
1055-25-160-4775.

Reflex Sight

Mission

The newly developed reflex sight improves day and night operability. It can be used by both right- and left-handed operators, and with standard night vision goggles. Easy to operate, it has a ballistic reticle with a moving target aim point.

Weight	240 g
Length, height, width	80 x 80 x 36 mm
Field of view by 120 mm eye distance	Min. 50 mils
Service temperature	-40°C to +71°C
Waterproof	1 m
Reticle illumination	Thritium gas source Total activity 40 G.Bq/1 081 Mci Option: Battery source

Status

For M72 EC LAW MK1 and MK2: NATO qualified with stock no. 1055-25-160-4775. For M72 ASM RC: NATO qualified with stock no. NSN 1240-25-160-5032.

Laser Sight

Mission

The Rocket-aiming Laser and accompanying SFL-100 IR-aiming Laser System Kit are designed to military standards for the Nammo Talley M72 and A7 LAW Rocket. The laser offers improved first shot accuracy of over 60 percent and is available in IR and Visible Red. The system kit is quick and easy to attach and detach, and is attachable to M72 without removing the sling.

Weight (Laser System Kit)	170 g
Dimensions (Laser System Kit)	3.66" width, 1.31" height
Battery life	IR laser: over 12 hours Visible laser: over 12 hours
Adjustable ranges	50-200 m in 25 m increments

Status

Laser System Kit:
NSN 5855-01-627-6187.

Bunker Defeat Munition (BDM) M141

Mission

BDM is the first lightweight shoulder fired weapon system with true Multipurpose effectiveness, and uses the same High Explosive Dual Purpose (HEDP) rocket as in the USMC SMAW. The HEDP rocket is packaged in a rugged, compact telescoping, disposable launcher that has all gunner controls needed to aim and fire the weapon. The BDM is highly effective against double reinforced concrete, triple brick, solid adobe, earthen fortifications, caves and technical vehicles.

System weight and caliber	7.2 kg, 83 mm
Carry/extended length	812 mm/1 372 mm
Warhead type (explosive)	Anti-Structure/Anti-Fortification (Aluminized HE)
Fuze	M420, dual safety, self-discriminating at impact (delay or impact)
Muzzle velocity	220 m/s
Minimum, effective and maximum range	15, 250 and 2 000 m
Service temperature	-45°C to +70°C

Status

US Type Classified:
NSN 1340-01-443-5477 DODIC HA08. Combat proven and in production.

SMAW Ammunition

Mission

Nammo SMAW ammunition has combat proven performance, providing accuracy and reliability to demolish bunkers, breach fortifications and defeat armored vehicles. Ammunition variants include High Explosive Dual Purpose (HEDP), Novel Explosive (NE), High Explosive Anti-Armor (HEAA) and the Common Practice Round (CPR). The crew served, man portable, reusable launcher weapon system is lightweight, versatile and effective.

Ammunition variant	HEDP	NE	HEAA	CPR
Encased rocket weight	5.9 kg	8.6 kg	6.3 kg	6.0 kg
Encased rocket length	746 mm	812 mm	842 mm	749 mm
NSN 1340-01	-158-0577	-503-0809	-227-8870	-227-8871
Caliber	83 mm	83 mm	83 mm	83 mm
DODIC	HX05	HA34	HX06	HX07
HEDP target set	Self-discriminating fuze defeats bunkers, reinforced concrete, brick walls, light armor			
NE target set	Enhanced blast explosive charge designed to penetrate solid brick, brick faced hollow block and other light clad walls to detonate on the backside of the target			
HEAA target set	Heavy armor penetrator			

Status

US Type Classified, in production.
Combat proven.

OTHER PRODUCTS AND SERVICES

- Combat and training systems
- Military and sports ammunition
- Rocket motors for military and space applications
- Demilitarization
- Powders
- Ammunition concepts

Fragmentation Hand Grenades (HGF)

HGF165-3,5

Mission

HGF are meant for defensive use and provide a dense cloud of fragments with a nearly even 360° distribution. The steel bodies are uniformly pre-fragmented to provide optimized penetration performance with a distribution of near equal sized fragments. With a compact size and weight, HGF165-3,5 is designed to be used in urban areas.

Dimensions	Height with fuze approx. 93 mm steel body diameter approx. 63 mm
Weight	Approx. 450 g
Explosive filling	Comp B (heksotol 60/40) or PBXN-110 approx. 165 g
Delay	3.5 ± 0.5 s
Total number of fragments	2 500
Service temperature	-40°C to +63°C
Storing temperature	-54°C to +71°C

Status

HGF165-3,5 is qualified with the Finnish Defence Forces.
NSN 1330-58-000-1750.

Fragmentation Hand Grenades (HGF)

HGF60-3,5

Mission

HGF are meant for defensive use and provide a dense cloud of fragments with a nearly even 360° distribution. The steel bodies are uniformly pre-fragmented to provide optimized penetration performance with a distribution of near equal sized fragments. With a compact size and weight, HGF60-3,5 is designed to be used in urban areas.

Dimensions	Height with fuze approx. 85 mm steel body diameter approx. 40 mm
Weight	Approx. 190 g
Explosive filling	Comp B (heksotol 60/40) or PBXN-110 approx. 60 g
Delay	3.5 ± 0.5 s
Total number of fragments	900
Service temperature	-40°C to +63°C
Storing temperature	-54°C to +71°C

Status

HGF60-3,5 is not qualified.

Offensive Hand Grenades (HGO)

HGO225-3,5

Mission

HGO provide an intensive shock effect with a very limited number of fragments. These grenades are also used for light wall and door breaching and clearing of IEDs.

Dimensions	Height with fuze approx. 135 mm body diameter approx. 53 mm
Weight	Approx. 350 g with fuze
Explosive filling	Comp B (heksotol 60/40) approx. 225 g or PBXN-11, approx. 260 g
Delay	3.5 ± 0.5 s
NSN	1330-58-000-9637 with composite handle
Service temperature	-40°C to +63°C
Storing temperature	-54°C to +71°C

Status

HGO225-3,5 is qualified and used in several countries.

Offensive Hand Grenades (HGO)

HGO115-3,5 and HGO50-3,5

Mission

HGO provide an intensive shock effect with a very limited number of fragments. These grenades are also used for light wall and door breaching and clearing of IEDs.

Dimensions	Height with fuze approx. 85 mm module body diameter approx. 53 mm
Weight	Approx. 205 g with fuze
Explosive filling	Comp B (heksotol 60/40), 115 g or PBXN-11, 130 g
Delay	3.5 ± 0.5 s
NSN	N/A
Service temperature	-40°C to +63°C
Storing temperature	-54°C to +71°C

Status

HGO115-3,5 is qualified and in service in several countries.
HGO50-3,5 is not qualified.

Scalable Offensive Hand Grenades (SOHG)

Mission

SOHG provide overpressure effects for a variety of uses by connecting one to three body modules together. Each module can be fuzed and grenades can be used either separately or by attaching two to three modules together.

SOHG (1-3 modules can be attached together)	
Dimensions	Height with fuze approx. 85 mm/ module body diameter approx. 53 mm
Weight	Approx. 205 g/module with fuze and 140 g/module without fuze
Explosive filling	Comp B (heksotol 60/40) 115 g/module or PBXN-110, 130 g/module
Delay	3.5 ± 0.5 s
NSN	1330-58-000-9744 with Comp B filling 1330-58-000-9745 with IM filling
Service temperature	-40°C to +63°C
Storing temperature	-54°C to +71°C

Status

SOHG are qualified and in use.

Training Hand Grenades

Training grenades for all tactical grenades

Mission

Training Hand Grenades provide a low cost and realistic option for instructing soldiers in the proper and safe handling of hand grenades. These training grenades use production parts and inert fill to match tactical grenades with the correct weight and balance. Training fuzes use all production parts and the same 3.5 second delay element plus a small pyrotechnical charge to produce a sound signal when thrown. Training grenades arrive in tactical packaging and include a User Manual in their safe and proper use. These modules are reusable multiple times by replacing the training fuze assembly. Training grenades are safe for use on size restricted training ranges.

Status

Training Hand Grenades
are qualified with the
Finnish Defence Forces.
NSN 1330-58-001-1099
with metallic fuze handle;
NSN 1330-58-001-1098
with composite fuze handle.

TTC Smoke Hand Grenade

Mission

The TTC Smoke Hand Grenade creates instant smoke and is less toxic compared to the conventional Smoke Hand Grenade. A rapid smoke screen is developed in less than one second from the burst.

Diameter	66 mm
Length	155 mm
Weight	600 g
Time delay	1.5 sec
Service temperature	-35°C to +63°C
Safety temperature	-46°C to +71°C
Packaging	6 grenades in M2A1 steel box
Danger area	Within 10 m from point of burst

Status

Qualified and in service.
NSN 1330-25-160-1549.

Diver Recall Signal (DRS)

Mission

DRS is a safe and simple one-shot device for underwater signaling. It is to be used by diver support personnel on the surface to create an acoustic pulse underwater in the event of an incident that requires divers to exit the water.

Diameter	20 mm
Length	150 mm
Weight	185 g
Time delay	5 sec
Operating depth	5-8 m
Audible range	Up to 400 m
Service temperature	-46°C to +71°C
Safety temperature	-46°C to +71°C
Packaging	12 pcs. in M2A1 steel box

Status

Qualified and in service.
NSN 1370-25-160-9804.

Shock Tube Systems

Mission

The Shock Tube System is a non-electric, self-sufficient initiation system, insensitive to electrical and electromagnetic influence. The ST Starter can, without any preparation, be directly combined with other types of Shock Tube Units for many different kinds of blasting operations, including EOD, cutting, demolition, fortification work and rock blasting operations.

Single charges are initiated directly by the ST Starter, while charges connected in parallel or in series are initiated via a connector unit that maximizes the number of combinations.

Products

ST Starter – ranging from a couple of meters up to 320 meters.
ST Detonator – available with a variety of delay times and lengths.
Rapid Firing System (RFS 10 m) – a rapid firing system with a 10 meter Shock Tube integrated into a spool. Can easily be extended by inserting a detonator from another RFS unit into the spool barrel.

Aircraft Ejector Release Cartridges

Cleaner burning release cartridges CBC 1 and CBC 4

Mission

Cleaner Burn Cartridges, CBC 1 and CBC 4 for Aircraft Store Ejector Release Units have been specially developed in conjunction with the UK MoD to replace the ARD 446 with a cleaner, more compliant 1a-1w cartridge. The CBC 1 and CBC 4 cartridges are cleared for use on the Tornado and Typhoon and earlier on the Harrier and Jaguar to give a consistent release pressure with less debris in the release unit, leading to a reduction in maintenance.

	CBC 1	CBC 4
Ignitor	1A-1W	1A-1W
Compliance with EM.	Yes	Yes
Time to ignition	< 10 ms	< 10 ms
Peak pressure, mean	60 MPa	71 MPa
Service temp range	-54°C to +93°C	-54°C to +93°C

Status

In service with the UK RAF and other Air Forces on the Tornado and Typhoon fast jets. Direct replacement for the ARD 446.

70 mm Warheads

Mission

Nammo has proven technology to develop, qualify and manufacture advanced Warheads for different applications. The current product portfolio includes a family of 70 mm (2.75 inch) Rocket Warheads – Multi Purpose Penetrator (MPP) – which is offered in different configurations with both pyrotechnic and electronic fuzes adapted to either the conventional unguided system or the new generation of guided 70 mm rocket systems. Inert practice Warheads can also be offered. MPP represents a product evolution from Nammo's legacy RA79 Warhead, but with even better penetration capabilities and significantly improved Insensitive Munitions (IM) response. IM will be increasingly important for all modern weapon systems, and Nammo has developed and qualified unique technologies which significantly improve IM properties for Warheads according to the applicable NATO standards. Nammo's 70 mm Rocket Warhead family has proven excellent penetration capabilities in heavy targets and MPP is capable of penetrating up to 1 m (40 inches) of reinforced concrete, 25 mm steel (1 inch) or 2 m (80 inch) earth and timber bunker target. MPP is also highly effective towards a broad range of lighter targets, including vehicles, due to the sensitivity of the fuze.

Status

NSN No 1340-01-562-1680. Combat proven and in production.

Rocket Motors

Mission

Nammo has developed and produced advanced Rocket Motors, primarily for the NATO market. Since the early 1960s Nammo's main niche products (within tactical propulsion technologies) are Rocket Motors for short and medium range Air-to-Air missiles and Boosters for medium to large size Naval Missiles, both with and without Thrust Vector Control (TVC) systems. Nammo's product line contains a broad range of propulsion systems for advanced tactical missiles as well as Rocket Motors for space applications. Next generation propulsion for long range and high speed applications, both missiles and artillery extreme ranges, are technologies in development. Nammo is currently responsible for the Rocket Motor design/production in the following programs:

- **AMRAAM** (Advanced Medium Range Air-to-Air Missile) – Raytheon
- **ESSM** (Evolved Sea Sparrow Missile) – Raytheon
- **IRIS-T** (Air-to-Air Missile with TVC) – Diehl BGT Defence
- **IRIS-T SL** (Ground Based Air Defence Missile with TVC) – Diehl BGT Defence
- **IDAS** (Interactive Defence and Attack for Submarines) – Diehl BGT Defence
- **EXOCET MM40 Block 3** (Anti-Ship Missile with TVC) – MBDA
- **Sidewinder AIM-9L** (Air-to-Air Missile) – Diehl BGT Defence
- **Penguin MK2/Mod7** (Anti-Ship Missile) – Kongsberg
- **NSM** (Naval Strike Missile) – Kongsberg
- **ARIANE 5** (Separation and Acceleration Boosters) – Airbus Defence and Space
- **LMM** (Light Multi-role Missile) – Thales
- **Hybrid Rocket Motors for Space Applications** (utilizing H_2O_2) – ESA

Demilitarization

Services

Nammo specializes in destroying excess, outdated and obsolete conventional ammunition including cluster bombs. The processes used by Nammo encompass the highest standards of safety and environmental consideration which comply with, and in many cases exceed, European Union laws and regulations.

Our services also include turnkey demilitarization plant/process/equipment projects including consultancy, design, planning, delivery, supervision, start-up and on-site project management, as well as operator training and through life operational support.

Know-how

Disposing of stockpiled obsolete, aged or surplus ammunition in a responsible manner is a principle that is shared by many countries. Nammo is able to rapidly, safely and cost effectively dispose of such products while avoiding any damage to the environment. Unquestionably Nammo has both the industrial know-how and capacity to solve all of your demilitarization opportunities, either at one of our core sites in Germany, Norway or Sweden or through supplying and supporting ammunition disposal plants or equipment and processes in other countries.

Approach

Nammo's philosophy in processing the ammunition is to remove the explosive content and then where possible recycle and/or reuse materials including the energetics. Known as the R3 (Resources, Recovery and Recycling) and R4 (Resources, Recovery, Recycling and Reuse) philosophies within Nammo's business, this is in most cases the most cost effective approach for Nammo's customers.

The Lapua® Brand

www.lapua.com

Nammo Group Small Caliber facilities in Lapua, Finland and Schönebeck, Germany manufacture premium small caliber centerfire and rimfire ammunition under the Lapua® brand.

For sport shooters, hunters, defense forces and law enforcement

The Lapua® brand is focused primarily on manufacturing premium quality small caliber ammunition for sport shooters, hunters, defense forces and law enforcement authorities. Lapua® cartridges and cartridge components have been on the market for over nine decades, and are world renowned for their superb quality and consistency. Lapua® ammunition has won numerous Olympic and World Championship medals for competition shooters around the world.

Not just according to toughest standards

Lapua® is a pioneer in the development and manufacture of sniper ammunition. All Lapua® tactical ammunition is produced to the same match grade requirements as Lapua® target ammunition. Lapua's much-copied paragon of quality and accuracy is the .338 Lapua© Magnum, the preferred choice of professionals.

Lapua® quality is appropriately certified as well as approved by several special forces and armies worldwide. Long-term cooperation with various defense organizations helps Lapua understand the special requirements of the military and other professional users. The goal is not to meet requirements but to exceed them.

Vihtavuori® Powder

VIHTAVUORI
www.vihtavuori.com

Nammo Vihtavuori is a well-known manufacturer of propellants for both civil and military use since 1922. Vihtavuori® military powders cover medium and large caliber purposes and provide excellent performance, fulfilling the toughest professional needs and military specifications.

Within the civilian area we recommend the Vihtavuori® powders for reloading. The selection covers more than 20 different types – the right choice for all disciplines, guns and shooting styles.

The Vihtavuori reloading powders

- Are manufactured by highly qualified employees
- Ensure clean burning and repeatable shooting properties in all weathers and conditions
- Have uniform and superb quality based on full control of the whole production chain, beginning from the production of nitrocellulose to the bottling of the end product
- Strict quality acceptance limits have helped reloaders and cartridge manufacturers to achieve similar loads regardless of the production lot for more than 90 years
- Have achieved a strong position among top class shooters around the world
- Are available with 26 different powder types, which can be divided into 4 different product families

Plastic Short Range Training Ammunition Concept (PSRTA)

The PSRTA is intended for use in scenario and target practice training with fewer requirements for safety distance, due to reduced maximum range. The PSRTA is designed to give military and security forces the following possibilities in training:

- Ballistically matched with standard combat ammunition to a certain distance.
- PSRTA is designed to be used for complex scenario training of tactics, techniques and procedures for squad, platoon and company level with minimum possibility of ricochet injuries. Due to short safety distance, it is possible to conduct training outside established firing ranges.
- Target training possible in areas with environmental restrictions, because the whole cartridge is made of entirely non toxic and lead free materials.
- PSRTA inflicts less or no damage to infrastructure and targets in built-up training areas.
- Reduced transportation costs of units because training is possible nearer barracks.

NOTE: PSRTA is lethal and must not be used in force on force training.

Status

Qualified and in service
for the following calibers:

- 5.56 mm x 45
- 7.62 mm x 51
- 12.7 mm x 99
- 30 mm x 173

Infrared Tracer Concept

Standard Tracer – Visible

IR Tracer – Invisible to the naked eye

Standard Tracer – Burst towards target

IR Tracer – Burst towards target

Standard Tracer – Burst over a field

IR Tracer – Burst over a field

To a large extent, today's combat units are using Night Vision Devices [NVDs] to enable stealthy night combat operations. This requires adapting traditional visible tracer ammunition to new operational scenarios. Nammo has met that requirement with the development of the latest IR Tracer technology. This tracer is totally invisible to the naked eye which solves several operational combat obstacles, giving the user clear advantages in stealth combat scenarios.

- Not visible to enemies without NVDs
- No tracking of own firing position
- No disturbance in friendly forces NVDs
- Maintain target location and observation after opening of fire
- No backwards illumination by your own tracers
- Reduced muzzle flash
- Minimal exposure of own units, reducing the possibility for enemy to judge your numbers or see the size of attacking force
- Optimal aiming aid in night combat at short distances

Programmable Ammunition Concept

H&K AGL with Fire Control Unit

In combat situations, troops struggle to neutralize an enemy that is hiding behind obstacles to avoid direct fire. Something more than artillery and mortar was required. Nammo has developed an airburst technology that is reliable, secure and effective that will help solve this tactical challenge with an excellent product on 40 mm AGL systems.

The Nammo Programmable Ammunition incorporates a radio frequency to program the ammunition which has proved to be a reliable concept and easy to integrate on existing weapon platforms in the modern battlefield.

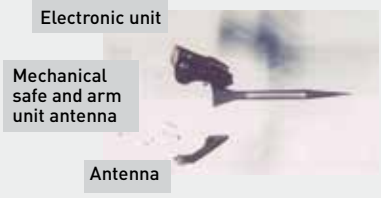
The advantages of Nammo's airburst technology are:

- Very easy to integrate on existing weapon platforms and fire control systems as well as a cost effective solution
- Reliable programming
- Accurate airburst position
- Multiple possibilities for a string of pearls
- Very low dud rate

Status

40 mm Programmable Ammunition is qualified and in operational use.

30 mm, M72 and 120 mm airburst technologies are in the early stages of development.



Multipurpose (MP) Concept

20 mm Multipurpose M70 was developed and qualified for the RNAF F-5 Aircraft in 1970. Thereafter, Nammo developed a range of ammunition for air force, navy and army applications ranging from 12.7 mm up to 40 mm. The last caliber to enter the MP family was 30 mm x 173 MPT/SD.

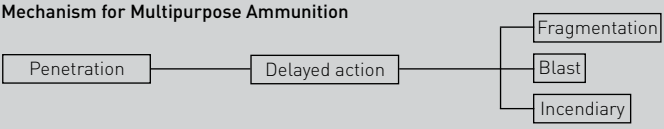
The MP concept (pyrotechnical ignition train instead of traditional mechanical Safe & Arm device) is extremely effective as well as relatively inexpensive to manufacture.

Burning of the MP ammunition

The pyrotechnic ignition train results in a deflagration (not detonation) of the round, creating larger fragments than a detonation.

- Low burning propagation velocity of both the pyrotechnic charges and the explosive gives the delayed action of the MP round.
- Slow pressure buildup gives the characteristic MP fragmentation pattern which is a 20-30 degree cone along the line of fire.

Mechanism for Multipurpose Ammunition



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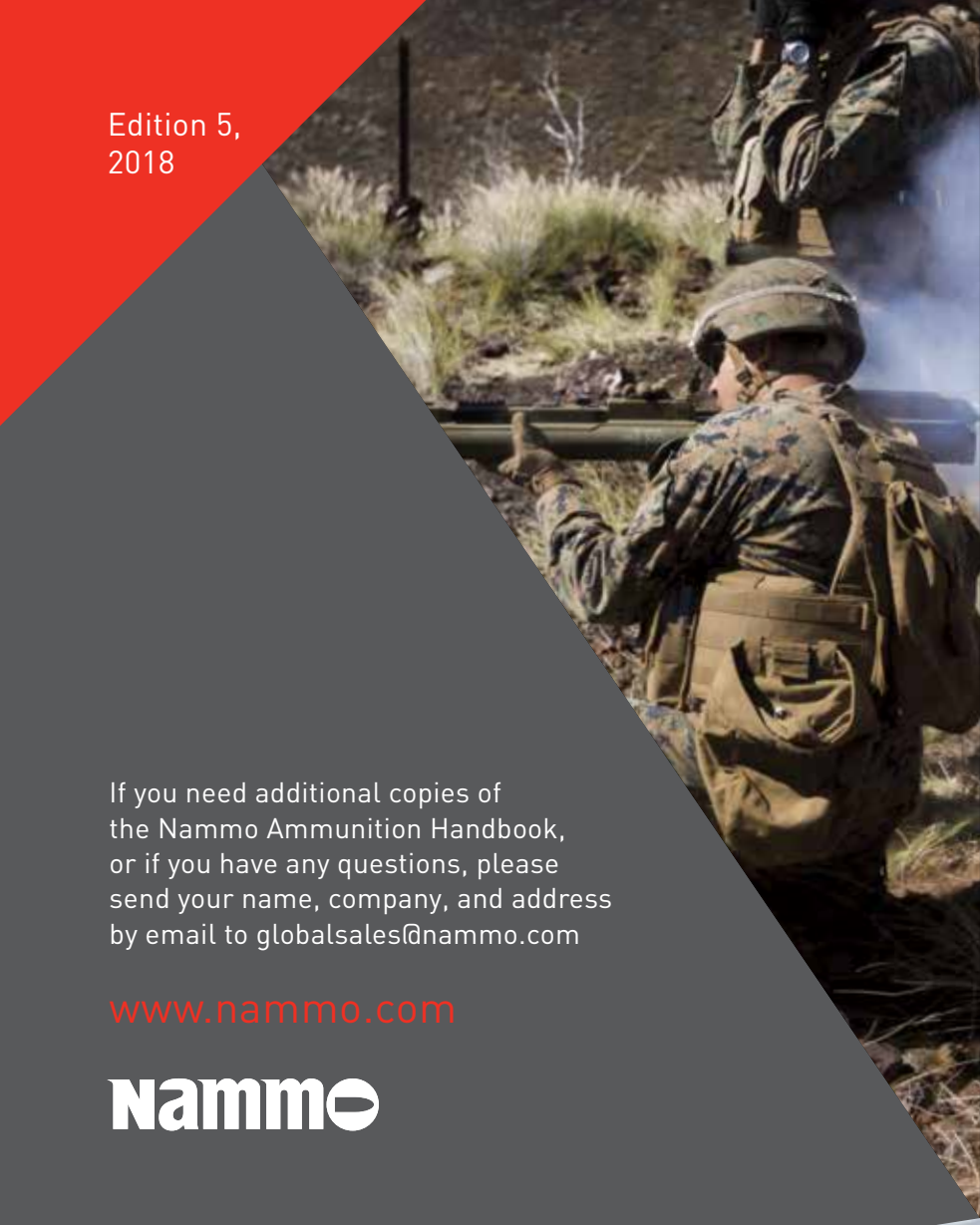

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