

Single-shot resurgence: Disposable shoulder-launched weapons evolve to face new threats

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The evolution of various calibre lightweight pre-loaded single-use shoulder-launched weapon systems offers the advantage of firepower overmatch and increased survivability for lower echelon ground forces. Robin Hughes examines developments in the domain

The diverse spectrum of emerging and shifting threats on the battlefield – where ground forces are as likely to face lightly equipped irregulars in complex, urban, or similar asymmetric combat environments as they are armour in higher-tempo peer-to-peer conflicts – requires infantry units to be increasingly agile in manoeuvre, and self-sufficient in firepower.

In such environments, where heavy fire support is either logistically unavailable or unfeasible, the utility of a man-portable/shoulder-launched assault weapon can deliver tactical advantages.



The prototype RGW 110 single-use shoulder-launched 110 mm weapon system: initial firings of the new system are anticipated for 2020. (Dynamit Nobel Defence)

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While they offer significant fire-support capability, re-loadable/crew-served shoulder-launched systems – recoilless rifles and anti-tank guided weapons – are, in terms of an individual weight burden, comparatively heavier systems, and are principally intended to deliver an anti-armour capability at platoon/company-level and above.

Lighter, more compact, single-use shoulder-launched weapon systems, offering improved tactical flexibility, are now seen as a higher load-out, individual firepower overmatch weapon option for smaller section/squad units facing an array of new and complex asymmetric targets, or re-emerging and significantly enhanced conventional armoured threats. The driver behind these systems is that they are comparatively low cost, effective, and expendable.

M72 LAW unguided weapon system

Developed initially by the Hesse-Eastern Division of Norris Thermadore in the early 1960s, the 66 mm M72 lightweight anti-armour weapon (LAW), with its revolutionary telescoped tube design incorporating a pre-loaded high-explosive anti-tank (HEAT) rocket, first entered operational service with US forces during the Vietnam War. Now manufactured by Nammo in the United States, the M72 LAW unguided weapon system has since been considerably evolved and redesigned in a family of variants to address new and emerging target sets.

“The only thing that remains with the M72 from the Vietnam [War] era is the name and the calibre of the system: the rocket has changed, the fuzing has changed, the warhead has changed, the launcher has changed. We’ve taken the same system over the years and continued to improve its capabilities and design; as technology has evolved so have the capabilities of the system,” Tim Clawitter business development manager, Shoulder Fired Systems at Nammo, told *Jane’s* .

“However, the main reasons why the M72 LAW has endured is because of its size, its weight, its ease of use, and the fact that it’s a very easy system for spiral development. Between all the different variants, with systems ranging in weight from 3.6 kg to 5.8 kg, we are the lightest shoulder-fired disposable munition – with systems ranging in weight from 3.6 kg to 5.8 kg [the new M72E8 and M72E10, respectively]. Our carry length is 775 mm, and our ready-to-fire length is 980 mm, so you can carry multiple rounds, and maintain mobility,” said Clawitter.

“What has primarily changed is what target we are going against,” added Dominic Jezierski, technical director, Shoulder Fired Systems at Nammo. “During Vietnam it was anti-armour, then during the late 1990s NATO countries began to identify the need to increase small-unit effectiveness against structures, personnel, light armoured vehicles, and defensive positions. Realised as an enduring threat, design went more towards anti-structure, complex urban environment target sets,” Jezierski said. “So the threat has evolved, and therefore, our drive to change the system has also been modified – meaning we are now developing rounds that are tailored to what the user needs: anti-structure, air-burst, and those types of applications – as well as new fire-from enclosure [FFE] propulsion technology, which is going away from the traditional rocket, and is going to revolutionise the way this system is going to be used.”

In-production and operational M72 variants include the A5, A6, and A7 anti-armour rounds, and the M72 RC (reduced calibre) anti-structure munition (ASM). The later variant M72A9 ASM and M72 EC Mk1 (an enhanced capacity, anti-heavy armour round, developed by

Nammo Raufoss in Norway, and able to penetrate up to 45 cm of rolled-homogenous armour [RHA] at ranges out to 350 m), which were developed in the early 2000s, have been instrumental in the M72's continued sales.

“In the last five years, spiral development of the M72 system has really taken off. We are now in development of what we call the ‘advanced M72 systems’ – those systems we have just started generating for production, or are now in the cycle of qualification and development,” said Clawitter.

The company has leveraged advances in fuzing and explosive technology, including combined-effects explosives, and wave-shaped technology within a shaped charge, to inform the development of, and significantly enhance the lethality and effects in, its new rounds.

The new M72E12, for example, is a 4.3 kg ASM round, furnished with a 0.6 kg high combined effects explosive warhead and a compliant dual-safe autonomous impact sensing fuze. “This round features a self-discriminating fuze, which essentially allows the warhead to autonomously determine what the target is upon impact. During that very short time it can sense whether the target is RHA or something very hard like double-reinforced concrete, and detonate on the face of the target, or determine if it is a softer target, like single brick, adobe, sand, or a bunker, in which case and will go into a delay mode, and detonate inside that structure,” said Clawitter. Still in development, Nammo is positioning the M72E12, with its expanded capability against common urban targets, as a replacement for the A9 round.

[Continued in full version...]

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