

27 March 2012

## **Rheinmetall: One of the world's leading suppliers of advanced infantry weapons and ammunition**

Despite all the talk of automation and unmanned systems, it is clear that “boots on the ground”, i.e. infantrymen, are as important as ever and will continue to play a decisive role in future military scenarios. Particularly in modern asymmetric conflicts, ground troops have to be able to respond in a scalable manner to multiple threats worldwide.

At FIDAE 2012, Rheinmetall is displaying a variety of weapon systems and ammunition for infantry and other forces operating in dismounted mode.

### **40mm ammunition**

Rheinmetall's array of 40mm ammunition – along with quite a few other products – serves as a veritable combat multiplier for the infantry and other dismounted troops. It bridges the gap between hand grenades and mortars. Widely used today, the Group's 40mm x 46 low-velocity ammunition (LV, velocity: 78 m/s) is available in a wide variety of versions, including HE/fragmentation, shaped charge with fragmentation jacket (HEDP/high explosive dual purpose) as well a number of other service and practice rounds, together with non-lethal payloads such as kinetic impact munitions or irritant.

Rheinmetall's 40mm x 53 high-velocity ammunition reaches a speed of 240 m/s and has a maximum effective range of 2,200 metres. Here, too, the Group supplies a wide assortment of different cartridges, including newly developed HE and HEDP airburst ammunition which is programmed by an infrared programming unit.

At present, Rheinmetall is the leading maker of new 40mm x 46 medium-velocity ammunition (MV, velocity: approx. 100 m/s). It can be fired by individual infantrymen equipped with handheld or platform-mounted grenade launchers, attaining an enhanced range of 400 to 700 metres, and enabling rounds with a higher payload, greater lethality, a first shot kill probability and modified fuse technology to be fired. Rheinmetall's programmable airburst ammunition constitutes another important new capability, allowing troops to engage targets taking cover in trenches, behind stonewalls, etc. The company's MV ammunition will be available in service and practice versions. It is currently undergoing NATO qualification.

Rheinmetall's 40mm-LV Ammunition can be fired from all standard stand-alone and underslung grenade launchers such as the M79 “Blooper”, the XM320, the M203 or the SCAR EGLM/ Mk13 Mod 0. Rheinmetall is also developing the GL Cerberus grenade launcher (as an underslung- or standalone system) and the magazine-loaded AGL Hydra automatic grenade launcher. The latter in particular gives the

grenadier enormous firepower, since it can fire three-round bursts. Moreover, the 40mm rounds pack more punch than the XM25 weapon system.

Both grenade launchers feature a built-in self-regulating hydraulic shock absorber, ensuring that they can fire medium-velocity 40mm x 46 in particular without subjecting the weapon or its firer to greater stress than LV ammunition.

The Düsseldorf-based Group also offers the Vingmate fire control unit as an ideal way of maximizing the effectiveness of HV ammunition. For instance, Rheinmetall recently supplied the Canadian armed forces with the “Close Area Suppression Weapon System (CASW) C16”, consisting of a Heckler & Koch grenade machine gun (GMG) with an integrated Vingmate.

### **The FeLVis fire control unit**

Rheinmetall developed the FeLVis fire control unit in order to optimize the accuracy of ammunition with a strongly curved trajectory, e.g. 40mm cartridges and panzerfaust rounds. Effective in all light conditions and weighing less than 700 grams, the device is attached to a Picatinny rail mounted on the side of the weapon and can carry a wide variety of optical aiming devices. The gunner aims at the target using either the aiming device or the built-in red light laser marker, measuring the exact distance to the target with the laser. At night, the integrated infrared laser marker is used for aiming, supported by an infrared target illuminator.

Taking into account various parameters – distance, temperature, air pressure and ammunition type – the fire control unit calculates the required launch angle as well as automatically aligning the optics. In addition, it informs the gunner if the weapon is at an incline. The gunner then aims again using the fire control unit, adjusts the weapon to the required angle, and engages the target. Furthermore it is already possible to integrate the FeLVis into new individual modular soldier systems. In the future, moreover, combining the FeLVis with airburst ammunition and friend-foe recognition/dismounted soldier identification devices will offer additional options.

### **Fly-K Mortar**

Rheinmetall has also developed a quick-mounting digital aiming device for the Fly-K mortar, a system successfully deployed by the French armed forces in Afghanistan. The device measures the incline and elevation angle of the tube, while showing the range of the cartridges on a display. Light, compact, quiet and with a very low operational signature, this indirect fire weapon can of course also be used without an aiming device to engage targets at distances of up to 800 metres.

### **Ordnance**

In the ordnance field, Rheinmetall is displaying its new generation flash-bang grenade, which features bottom-top venting (BTV) technology. Its new chamber system is designed for different decibel levels: 180 dB for military applications and 170 dB for law enforcement operations. For added flexibility, the new generation can be used either with a conventional flash-bang charge or with a newly developed perchlorate-free one, which also produces less smoke.

Rheinmetall has also improved the performance of the classic SPIRKO rapid smoke/obscurant grenade. In addition, its new red phosphorous smoke/obscurant

grenade, known as ISIS (standing for “Infrared Smoke Instantaneous Spread”), creates a smokescreen in the space of a second that is impenetrable to optical, night vision and infrared devices.

Designed for illumination and signalling, the Group’s handheld MITHRAS rockets make it possible to engage hostile forces around the clock. They feature ranges of 300, 600 and 1,000 metres, and come in normal and IR versions. The British armed forces have already introduced this innovative signalling rocket.

### **Rheinmetall – Partner to the Infantry**

As one of the world’s leading suppliers of defence technology systems, Rheinmetall is an increasingly important partner of the infantry. The Group’s array of infantry-oriented products extends far beyond the equipment outlined here, ranging from pyrotechnics and explosive charges to mortar systems, and from add-on devices for small arms such as laser light modules to other electro-optical equipment for crew-served weapons. Rheinmetall also makes the cutting edge “Future Soldier – Expanded System” (IdZ-ES, now IdZ-2), which is destined to bring war-fighters on the ground directly into the network-enabled operations loop.

Highly characteristic of the Rheinmetall approach is the company’s continuous dialogue with users. The Rheinmetall Infantry Symposium, for example, is now a fixture in the ground forces community calendar.

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