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“Force protection is our mission”: Rheinmetall’s comprehensive, made-to-measure protection technology

Small arms fire, guided missiles, explosively formed projectiles and improvised explosive devices are among the most serious threats facing troops during deployed operations today.

Whether the object is preventing optical, optronic or electronic detection, or developing components for individual body armour, innovative vehicle systems or even safeguarding large-scale critical infrastructure, Rheinmetall supplies cutting edge systems and total solutions.

A great strength of Rheinmetall is its unsurpassed ability to integrate new and existing technology into highly effective systems.

In recent years, the Rheinmetall Group has been systematically adding to its portfolio of advanced protection technologies through a strategy of well-targeted corporate buyouts. With Rheinmetall Chempro GmbH, Rheinmetall Ballistic Protection GmbH, Rheinmetall Protection Systems Nederland BV and ADS Gesellschaft für aktive Schutzsysteme mbH, the Group has a unique range of sophisticated protection technologies at its disposal – all from a single source.

A growing number of defence contractors and end-customers place their trust in Rheinmetall’s force protection expertise. The Group is currently taking part in performance upgrade programmes for a wide variety of vehicles and vessels in countries around the globe.

At Land Forces 2016 Rheinmetall is displaying its comprehensive force protection concept, highlighting systems and components such as the Integrated Armour Cabin (IAC) for the RMMV logistic vehicle family, various add-on armour elements and spall liners, mine protection concepts, the ROSY smoke/obscurant system and the ADS Active Defence System.

Protection in accordance with the “Onion Principle”

Rheinmetall’s comprehensive protection concept involves a multi-layer approach.

The Protection Systems business unit is responsible for the Group’s passive protection products. These are made of lightweight, high-performance materials. From ballistic protection level 1 to level 5 and more, everything is possible. The

products are designed for applications in tactical vehicles, helicopters and ships to protect troops and crewmembers. On show at Land Forces 2016 is a protection kit demonstrator for an infantry fighting vehicle.

Because they can be integrated into an overarching, sophisticated protection system, the wide variety of protection solutions offered by Rheinmetall maximize synergies. The system is tailored to required specifications. In a process that takes place hand in hand with the OEM, its modular architecture allows integration into existing platforms. An outstanding example is the Armoured Rescue Crane, developed by Liebherr-Werk Ehingen GmbH for the German Bundeswehr. Rheinmetall jointly developed the STANAG 4569 / AEP 55-qualified driver's and operator's cabs with global leader Liebherr.

High-performance "soft kill" solutions offer excellent active protection by making vehicles harder to detect and hit. Here, too, Rheinmetall supplies solutions for ground vehicles as well as fixed-wing aircraft, helicopters and ships. Smoke/obscurant systems like "ROSY" make vehicles invisible to the enemy in the event of an ambush, etc. A new version of ROSY, "ROSY_mod" ("mod" stands for modular), is specifically designed for small weapon stations and light vehicles of the kind used by special operations forces. Moreover, ROSY_mod can be integrated directly into the vehicle without a launcher, making it undetectable.

Though these are not on display, Rheinmetall also supplies 66mm and 76mm smoke/obscurant systems and ammunition. In its capacity as subcontractor to Finnish vehicle maker Patria, in 2012 Rheinmetall booked an order for the first serially produced "Light Vehicle Protection System LVPS 66mm". Moreover, a total of 113 armoured modular vehicles (AMVs) are being equipped with the system on behalf of the Swedish armed forces. Additional orders, likewise for Swedish end-customers, have come from BAE-H for the BvS10, and from Patria for the upgrade of the XA203S. The armed forces of Sweden and the Netherlands already deploy the system in Afghanistan.

Constituting the last line of defence, "hard kill" standoff systems such as Rheinmetall's ADS neutralize incoming projectiles before they reach their target, making them an especially innovative and effective solution.

Active Defence System (ADS)

Successfully tested in all environments and against a vast number of different threats, the ADS is now in production and available in both customized and off-the-shelf versions. This globally leading product is a state-of-the-art hard-kill system that can be installed in military vehicles of all weight classes, providing reliable protection of personnel against common operational threats. ADS assures total situational awareness thanks to sensor systems that continuously scan for incoming projectiles such as shaped charge warheads or antitank guided missiles. When the sensors detect a threat the system reacts within milliseconds by automatically activating a protective sector and then neutralizing the incoming threat. ADS is the only high-performance near-field active protection system that employs a countermeasure which intercepts the threat in the immediate proximity of the vehicle, thus significantly reducing and containing the risk of collateral damage.

Thanks to ADS's system architecture, threat or tactical information can be instantly shared with the built-in battle management system (BMS) and various effectors (e.g. remote weapon stations, smoke/obscurant dispenser, etc.), providing the crew with full situational awareness. Furthermore ADS is capable of receiving information from platform sensors (e.g. optical sensors, sniper location systems, laser warning systems, etc.) directly or via the BMS to ensure optimum protection and survivability at all times.

ADS Gesellschaft für aktive Schutzsysteme mbH, in which Rheinmetall AG of Düsseldorf holds a 74% share, with the remainder owned by two private shareholders, is now engaged in full-scale production of the ADS.

With the increased focus on self-defence, survivability, peacekeeping operations and support missions as well as force protection in general, armies around the globe appreciate the need for an active protection system, and specifically Rheinmetall's ADS technology – proven, qualified and successfully fielded.

For more information, please contact:

Oliver Hoffmann
Head of Public Relations
Rheinmetall AG
Tel.: +49-(0)211-473 4748
oliver.hoffmann@rheinmetall.com