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## **Rheinmetall's advanced air defence systems: Countering the threat from above**

Aerial attacks continue to pose a major threat to troop concentrations, military bases, civilian population centres and critical civilian infrastructure. Modern air defence systems have to be able to ward off attacks by fixed wing and rotary aircraft, cruise missiles and unmanned aerial systems. Rheinmetall has the necessary solutions for this, including the Oerlikon Skyshield and the Oerlikon Skyguard Air Defence Systems.

In March 2014 the Republic of South Africa tasked Rheinmetall with modernizing its air defence systems. Including logistics and training services, the complete package is scheduled for completion by 2017.

Among other items, the contract encompasses the supply of Oerlikon Skyshield fire control units, which will substantially improve the performance and accuracy of South Africa's current twin-gun systems as well as significantly expanding the operational spectrum of its air defence capabilities. In this context, a number of guns will also be retrofitted with upgrade kits to accommodate Rheinmetall's state-of-the-art Ahead airburst ammunition.

The new Skyshield technology will enable the South African armed forces to protect sensitive installations such as the House of Parliament, power plants, stadiums and other critical military and civilian assets from a wide array of aerial threats, including asymmetric terrorist-type attacks. Because Skyshield air defence systems can be transported without much effort, they can basically be deployed anywhere depending on the evolving threat situation. Ever since the 1980s, South Africa has fielded air defence technology from the former Oerlikon Contraves, which Rheinmetall took over in 1999.

At African Aerospace & Defence 2014 Rheinmetall is displaying its Oerlikon SkyChamp Enhanced Mission Simulator, the training system for the Skyshield and the Skyguard air defence systems. Also on show are cutaway models of the company's Ahead ammunition.

### **Excellent combat effectiveness**

Based on the company's battle-tested Skyguard Air Defence System, the Skyshield is characterized by excellent combat effectiveness – around the clock and in all weathers; it is also impervious to electronic countermeasures.

The need for a 35mm gun-based air defence system able to meet current and coming requirements led to the recent development and manufacture of the Oerlikon Skyshield air defence system. Lightweight and compact, it is the world's most advanced and effective system for low-level air defence. The German Bundeswehr has procured the Oerlikon Skyshield MOOTW/C-RAM (military operations other than war/counter rocket, artillery, mortar) system under the project name "Mantis" for defending its forward operating bases.

The Skyshield fire control unit can use the Oerlikon Twin Gun GDF007 as its effectors. Coupling high precision with a high rate of fire the Twin Gun GDF007 is designed to fire conventional 35mm rounds as well as Rheinmetall's proprietary Ahead airburst ammunition, which features a programmable ejection point of its sub-projectile payload. It is also possible to upgrade the combat effectiveness of older Twin Gun GDF005 or Mk V gun systems.

The heart of Rheinmetall's proprietary Ahead technology is a high-precision time-delay projectile. At the optimum moment, it ejects a lethal cloud of heavy metal pellets, reliably neutralizing small and even very small projectiles, such as rockets, artillery and mortar (RAM) rounds, much the way a shotgun shell destroys a clay pigeon.

Furthermore, Rheinmetall's air defence technology is by no means limited to static defence roles. Mobile applications are equally feasible. For short-term missions, a truck-mounted version is available which can be deployed without unloading the system from the truck. This is particularly useful if the mission involves protecting a succession of different sites for short periods. Mounting an Oerlikon Skyshield air defence system on an all-terrain vehicle ensures maximum operational flexibility.

Existing Skyguard systems can also be retrofitted with Ahead technology. Furthermore, thanks to the modularity of its systems, Rheinmetall is able to bring additional components into play, readily creating multi-mission capabilities tailored to the needs of individual clients.

### **Rheinmetall Defence: totally oriented to today's military**

With its Combat Systems, Electronic Solutions, and Wheeled Vehicles divisions, Rheinmetall Defence supplies the world's armed forces with systems and equipment systematically designed to assure successful outcomes in complex modern military operations.

In the domain of VSHORAD technology, Rheinmetall's Air Defence division is the global leader and the sole single-source supplier of battle management systems, fire control systems, automatic cannon, integrated missile launchers and Ahead ammunition. Its core competencies include the development and manufacture of complete air defence systems as well as simulators and training equipment.

Rheinmetall also maintains an extensive network of international partnerships for serving new markets as well as enabling technology transfer that will substantially benefit both the industry and the military of customer nations. This makes Rheinmetall the ideal industrial partner in the quest to supply today's armed forces with advanced capabilities.

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