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## **Rheinmetall Air Defence – comprehensive, next-generation air defence solutions for short- and very-short range applications**

Successful air defence demands a holistic approach. As Europe's foremost maker of military systems and equipment, Rheinmetall's approach involves networking all relevant sensors, effectors and C4I assets into a single, scalable "system of systems". This creates a highly effective, modular and flexible ground-based air defence system covering the full mission spectrum. Here the Düsseldorf-based high-tech group is cooperating closely with America's Raytheon.

Effective short-range air defence (SHORAD) requires a total system concept. As an experienced SHORAD supplier, Rheinmetall's approach calls for a mix of automatic cannons and guided missiles, soon to be augmented with high-energy laser weapons as well as directed energy (high-power microwave). At IDEX 2019, Rheinmetall – the world's leading supplier of state-of-the-art air defence systems – is showcasing its new total system concept.

Forming the basis here is the Oerlikon Skynex, the Rheinmetall Group's ground-based, fully networked future air defence system. It features open, modular architecture, forging a wide array of sensors and effectors into a highly effective, extensively automated system. Centralized and decentralized operation and command are equally possible, and the system can be configured for either a tactical or an operational role. Highly mobile, Skynex is ready for action in very short order. This makes it ideal for defending sensitive infrastructure and areas from virtually every form of aerial threat, both symmetric and asymmetric – around the clock and in all weather conditions. It instantly detects incoming rockets and artillery and mortar (RAM) rounds and even very small drones, engaging them with scalable intensity.

The core element of Skynex is the Oerlikon Skymaster command and control system, which stays in contact with the other subsystems via a tactical communications network. This means that Rheinmetall can integrate assets such as Skyshield or Skyguard fire units, guided missile launchers or even high-energy laser (HEL) effectors into the system.

At IDEX 2019, Rheinmetall is presenting its innovative Skynex air defence system teamed with the X-TAR3D search radar, the Oerlikon Revolver Gun Mk3, a Cheetah guided missile launcher and a HEL effector.

The Oerlikon Revolver Gun Mk3 is designed first and foremost for short- and very short-range ground-based air defence. Remotely operated and network-capable, the system can receive and process target data from both 2D and 3D search radars and is equipped with tracking sensors such as an X-band tracking radar as well as electro-optical sensors and electronic warfare components. This assures fast, autonomous processing of externally assigned target data and enables swift, autonomous engagement of such targets. Furthermore, the integrated search sensor technology gives the gun system an autonomous sector-monitoring and target engagement capability. The tried-and-tested cal. 35 mm x 228 revolver gun delivers massive firepower and excellent precision. Teamed with Rheinmetall's proprietary Ahead airburst ammunition, the Oerlikon Revolver Gun Mk3 is extremely effective

against low altitude aerial targets of virtually every type. It can neutralize incoming rockets as well as mortar rounds – but also unmanned aerial systems, including the low, slow and small (LSS) kind, e.g. quadcopter drones and it is also highly effective against low-flying aircraft. It can be deployed in a multitude of ways. At IDEX 2019, visitors can see it mounted on a high-mobility HX77 hook lift truck.

Owing to its innovative warhead, the Cheetah short-range guided missile is capable of countering RAM and LSS threats even at very short distances – as well as a wide variety of other aerial targets. The Cheetah is fired from a multiple launcher with a capacity of sixty guided missiles. Controlled from the system, several guided missiles can be launched at the same time, enabling simultaneous engagement of multiple targets at ranges of up to six kilometres.

Rheinmetall's HEL effector is a scalable, high-precision, silent weapon system, with a virtually inexhaustible supply of ammunition.

Electronic warfare components and other sensors (for example against LSS targets) can also bolster the system's performance. Moreover, the Oerlikon Skynex can be connected via interfaces to higher echelon command levels or other air defence systems.

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