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## **No need to scrap! Rheinmetall retrofit programmes give land systems added punch and greater protection**

Modern main battle tanks and infantry fighting vehicles offer high mobility, excellent crew protection, compelling firepower as well as impressive reconnaissance and C4I capabilities. In future, too, mechanized forces will continue to form the steel core of fast-paced, hard-hitting, flexible military operations – even in asymmetric conflicts.

Two combat vehicles that have proven indispensable in recent decades are the Leopard 2 MBT and the Marder infantry fighting vehicle. They formed the backbone of NATO's mobile defence strategy in the Cold War. Confounding the sceptics, numerous Leopard 2 user nations have successfully deployed the tank well beyond the borders of Europe, for example in Afghanistan. Moreover, the Germany's tried-and-tested Marder continues to give the Bundeswehr the edge in the Hindu Kush, combining high mobility, massive firepower and superb protection.

With the Leopard 2 and Marder likely to remain in military inventories for at least another twenty years, investing in mission-oriented performance upgrades makes good sense. New technologies for enhancing the survivability, lethality, C4I capabilities and reconnaissance and vision systems can significantly improve the vehicle's overall combat performance. Sustainment, especially for operations in hot climates, can be substantially enhanced as well.

Owing to its expertise as a systems integrator, Rheinmetall is able to modify legacy systems to make them more than a match for current challenges and threats. On view at its pavilion at Eurosatory 2012 are some of Rheinmetall's high-tech solutions for upgrade programmes.

Here, new protection technologies, improved drives and innovative build-ons based on tried-and-tested platforms can result in new, cost-effective vehicle families ranging from armoured personnel carriers (APC) to medium-weight main battle tanks (MBT). To demonstrate this, Rheinmetall is displaying two thoroughly overhauled infantry fighting vehicles, the MBT version of which is mounted with an Oto Melara turret with 105mm main armament.

The systems on show feature add-on armour, spall liners and anti-mine seats decoupled from the floor of the vehicles, designed and retrofitted by Rheinmetall Chempro. These features provide the crew with reliable protection from RPG attacks, APFDS-T rounds, antitank guided missiles with a tandem shaped charge, and landmines. All of these components can be retrofitted into existing systems without impairing the vehicle's mobility.

This protection system also includes ROSY, Rheinmetall's unique new 360° smoke/obscurant system. Standing for "Rapid Obscuring System", it offers excellent protection from TV-, EO-, IR-, IIR-, LASER- and SACLOS-guided weapons. Unlike conventional smoke/obscurant systems, ROSY not only produces an instantaneous, large-scale, multispectral interruption of the line of sight in just 0.6 seconds, but also generates a dynamic screen of smoke/obscurant that provides a moving vehicle with sustained protection from multiple attacks.

Moreover, by integrating state-of-the-art technologies, components and subsystems, Rheinmetall is also able to offer high-end solutions. An outstanding example of this is the MBT Revolution.

The **MBT Revolution** at a glance:

- Protection concept: Comprehensive protection from all current threats, including RPG 7, landmines, IEDs, bomblets, large-calibre KE ammunition and EO-, IR- and
- laser-guided weapons.
- Digital turret core system: Fully integrated network capabilities, fully interoperable subsystems and components, with significantly shorter reaction times and smaller additional space requirements.
- Fire control technology: An improved first round hit probability, especially when firing on the move.
- New commander's periscope: Night fighting and observation capabilities, improved range and higher elevation angles (up to 70°).
- Situational awareness system: 360° day and night near-field view of the vehicle's immediate surroundings, with automatic alarm and target-tracking functions.
- Command and control system: New capabilities include real-time blue force tracking and red force visualization, augmented reality and MIP-DEM-based interoperability.
- Commander's brake: A revolutionary innovation that enables the commander to stop the tank if the driver is incapacitated.
- Secondary armament: State-of-the-art remote control weapon station, fully stabilized and flexibly configurable.
- Ammunition: The world's first temperature-independent KE tank round and the latest generation of programmable HE ammunition.
- Climate control: High performance air conditioning coupled with a new insulation concept in the fighting compartment, improved ventilation and thermal protection for the magazine.
- Auxiliary power unit: High electric power generation (17 kW) and optimised intelligent energy balance of the vehicle.
- External two-way communications system: Enables the crew to communicate with persons outside of the tank.
- Embedded logistics: Provides comprehensive monitoring of vehicle- and weapon system-relevant logistical data; linked with a central logistical information and evaluation system.
- Weight class: MLC 70.

## **About Rheinmetall**

As Europe's largest supplier of systems and equipment for ground forces, Rheinmetall offers a full range of tactical vehicles as well as a unique portfolio of C4I, fire control and reconnaissance systems, weapons and ammunition, and force protection technologies. The Group's core competencies also encompass service and maintenance as well as a wide spectrum of simulation and training systems, including highly advanced major combat training centres.

Deriving from a single source, these capabilities are crucial to the success of upgrade programmes, assuring optimum interplay of the respective components. Rheinmetall maintains an extensive network of international partnerships.

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