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Rheinmetall “Gladius”: state-of-the-art soldier systems

Pedites pugnas decernent. Infantry decide the battle!

Experiences and lessons learned from recent conflicts once again underlined the importance of well trained and equipped, highly flexible and mobile infantry forces, being capable of operating in joint and combined scenarios in order to set the “boots on the ground” most often required to decisively and ultimately achieve the operational goal.

Rheinmetall was tasked by the German Army to develop a modular soldier system in order to meet those requirements and to enable the German Infantry to gain and maintain the decisive advantage in order to counter any challenge ahead.

After having spent 5 years in developing the new system, at that time named as “Infanterist der Zukunft-Erweitertes System” (IdZ-ES or IdZ-2), “Gladius” met all requirements. The procurement programme began in 2012 with an initial order of thirty systems, enough to equip 300 troops. As planned, the Bundeswehr is currently taking delivery of those thirty systems which will be deployed in Afghanistan in mid-2013. Just recently Rheinmetall has been awarded an order to supply a further sixty systems. This follow-up order is worth €84 million, and encompasses equipment for 60 infantry sections with a total of 600 soldiers.

“Gladius”, named after the trusty Roman “*pedites*” sword, will be displayed at Rheinmetall’s IDEX 2013 stand in Abu Dhabi: et al. demonstrating the interaction between the dismounted soldier and the C4I-System of a “Boxer” command post vehicle.

Operational requirements

“Gladius” had to meet the operational requirements of a variety of highly specialized units; ranging from Ranger and Airborne forces to mechanized and Navy and Air Force security units.

Rheinmetall’s approach to meet those requirements and tactics, techniques and procedures of the specific infantry units was to integrate every single component, starting with battle dress uniform and ending with laser range finders, in order to merge its specific, individual capabilities into the overall system, generating a reliable, integrated soldier system instead of an array of components.

“Gladius” improves significantly the capability of

- command and control (C2),
- combat effectiveness,
- survivability and protection,
- sustainment and mobility,

within the infantry squad, while being mounted or dismounted, in any terrain and any climate – at any time.

Features and Functions of “Gladius”

“Gladius” is the first soldier system that directly connects the infantry squad to the next higher echelon, enabling the exchange of voice and data communication and assuring the link to the German Army’s Battle Management System.

This requires a comprehensive array of technical equipment. The components that are combined to create the system fall into three basic subgroups:

- Battle dress, body armour and personal load carrying equipment,
- Weapons, optics and optronics, and
- C4I = command, control communication, computers, information.

The entire C4I-system is integrated into the “electronic backbone”, including the core computer, which is based on the Linux operating system, and various interfaces necessary to operate the GPS, the UHF squad radio, the head-set, as well as the power supply, the soldier’s control unit, the helmet system with a digital magnetic compass and the helmet mounted display / night vision device with augmented reality. Additional sensors and devices, such as e.g. a laser range finder or the push-to-talk buttons on the assault rifle, can easily be adapted into the system.

Through the control unit the rifleman can easily and intuitively access the main menu in order to change or adjust the system’s settings or to display e.g. maps, waypoints, the Blue Force Tracking or Enemy Threat Reporting. All relevant information can be displayed in the helmet mounted display or the night vision goggle “Lucie II D”.

The current tactical situation is continuously and automatically updated, helping the squad leader and his superiors to take quickly decisions as well as making it easier to coordinate the deployment of own forces. An integrated Blue Force Tracking function indicates the position of every single rifleman, enabling the squad leader to visualize and evaluate the situation of his unit. In order to facilitate movement and manoeuvre “Gladius” provides the squad leader as well as his deputy an additional command and control computer and a VHF radio: it enables the squad leader to accelerate the distribution of orders by providing a sketch tool for graphical orders on the digital map or by distributing pre-formatted messages within the squad and the platoon.

An audio headset with built-in hearing protection not only enables direct voice communication, but also filters harmful impulse noises while still permitting to hear quieter ambient sounds.

Key advantages of “Gladius”

The considerable operational added value of “Gladius” results in part from bridging previous capabilities gaps, especially with regard to C4I, network-enable warfare and combat effectiveness. Examples include:

- Improved situational awareness and expanded command and control capabilities due to Blue Force tracking and Red Force visualization;
- Augmented reality day and night with integrated C2 information for enhanced combat performance;
- Real-time transmission of information from soldiers to the command post;
- Rational harmonization of uniforms, body armour and load carrying system. This enables soldiers to adjust to ambient temperatures ranging from -32°C to +45°C. They offer protection from optical detection and the elements, and can be upgraded from German protection level (SK) 1 (an inconspicuous, normal battle dress uniform) to protection level SK4, which features modular body armour inserts. The latter can also be worn in tactical vehicles, which makes exiting the vehicle under fire considerably less hazardous;
- Optimized ergonomics (easy to use under field conditions, comfortable to carry, etc.), coupled with high mobility: “equipment tailored to mission”. The innovative ventilation shirt makes a significant contribution to sustainment.

Combining a high degree of modularity and flexibility with the systematic use of standard interfaces assures fast, economical retrofitting and reconfiguration in response to changing tactical requirements, making “Gladius” a reliable, future-proof investment. “Gladius” tremendously enhances the combat effectiveness of infantry units.

Compared to competing future soldier systems, “Gladius” is the leading soldier modernization programme worldwide!

Visitors to IDEX 2013 can find out all about the new “Gladius” soldier system and its components.

For more information, please contact:

Oliver Hoffmann

Head of Public Relations

Rheinmetall AG

Tel.: +49-(0)211-473 4748

oliver.hoffmann@rheinmetall.com