

11 June 2012

“Gladius”: infantry technology on the cutting edge Rheinmetall supplies the Bundeswehr with state-of-the-art soldier systems

Pedites pugnas decernent: the infantry decide the battle! Experience gained in current deployments shows that having “boots on the ground” is as important as ever. On behalf of the German Armed Forces, Rheinmetall has developed the “Gladius” modular soldier system. Formerly known as the “Infanterist der Zukunft-Erweitertes System” (IdZ-ES and IdZ-2), it is currently in the procurement phase. This innovative system is on display at the Rheinmetall pavilion at Eurosatory 2012.

Operational requirements

Like its namesake, the trusty Roman short sword, Gladius is intended to give the infantryman a decisive edge on the modern battlefield. The system enhances the performance of dismounted forces in the following capabilities categories: command and control, combat effectiveness, survivability and protection, sustainment and mobility. It brings infantrymen on the ground directly into the network-enabled warfare loop.

The operational requirements for a soldier system vary from one branch of the military to another. Paratroopers, for example, traditionally have to be able to operate independently behind enemy lines, or – the more likely scenario today – deploy to rescue civilians stranded in crisis zones abroad. Other infantry units – those specializing in mountain warfare, for example, or mechanized operations – have other requirements.

Gladius thus had to meet the operational needs of a variety of highly specialized units. Moreover, the soldier system was expected to enhance command and control capabilities, mobility and survivability.

In order to meet these requirements, Rheinmetall pursued a holistic approach in which the individual system components interoperate in optimum fashion, in turn assuring a significant improvement in the efficiency of each individual component.

Extensive components

Rheinmetall’s system approach seeks to integrate the “complete infantry system” – i.e. the 10-man infantry section or squad with its vehicle – into the network-enabled warfare loop.

Gladius is the first soldier system that directly connects the infantry section to the next higher echelon, enabling exchange of voice and data communication and assuring the link to the German Army's Command Information System (FülInfoSysH).

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 harness,
- Weapons, optics and optronics (WOO), and
- C4I = command, control communication, computers, information.

The core system and helmet system constitute the heart and soul of Gladius. They include the "electronic backbone" into which the chief components are integrated. The core computer is based on the Linux operating system; via various interfaces, it controls all the different devices and sensors the soldier carries with him. The soldier operates the core computer with the control unit with integrated display. Using this device, he can also access tactical information. Alternatively, he can make use of the helmet display (SVGA), which displays all the relevant data concerning the situation, the position of friendly forces (GPS and inertial navigation are both available), his mission and the status of the system.

The current tactical situation is continuously and automatically updated, helping commanders to make decisions as well as making it easier to coordinate the deployment of friendly forces. An integrated Blue Forces tracking function indicates the position of friendly troops, enabling the section leader to visualize and evaluate the situation on the ground. Via the command system, the individual troops receive precise movement orders from the section leader, which are simultaneously displayed on the map. Particularly when the section is spread out over a large area, it is also possible to issue additional graphic orders to support communication inside the section. The section leader has the option of quickly sketching graphic orders or positions on the operations map. Alternatively, he can also issue abbreviated orders or pre-formatted messages via the command system. This saves precious time in critical combat situations.

For night operations, it is possible to exchange the helmet display for Lucie IID night vision goggles, which offers obvious advantages. This enables the infantryman to access and exploit all the command information described above while operating in full night-fighting mode. In conditions of reduced visibility, the command system greatly facilitates target allocation, identification of other soldiers from the section or finding orientation points.

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

Wireless concept

The section leader and deputy section leader are both issued with an additional leader's set that essentially consists of a portable command computer and command radio for long range communication.

In order to enable communication within the section, the current solution concept envisages using broadband UHF, supplemented with a VHF link. The section is linked to the external command system via the vehicle. The current version of Gladius makes this possible for the first time.

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 class (SK) 1 (an inconspicuous, normal battle dress uniform) to protection class 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. By using the Gladius the infantry achieves a tremendous enhancement of their operational effectiveness in combat missions.

Compared to competing Future Soldier Systems, the Gladius is the leading Soldier Modernization Program worldwide!

Visitors to Eurosatory 2012 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