Tried and true: the Rheinmetall Kodiak

Specifically designed to meet the needs of modern combat engineers, the Armoured Engineering Vehicle (AEV) 3 Kodiak is currently the world’s sole newly developed, Leopard 2-based armoured engineering vehicle. Powered by a 1,100-kW engine, the well-balanced Leopard 2 chassis delivers outstanding mobility.

Form follows function: the middle arm concept

The Kodiak’s most prominent feature is its middle arm concept. Mounted in the centre of the front of the vehicle, the boom is the combat engineering vehicle’s design-determining element, vital in enabling the vehicle to meet the functional and operational requirements of today’s combat engineers. The middle arm concept offers the great advantage of allowing the crew a better overview during engineering operations, as well as allowing the vehicle to operate in narrow spaces. Furthermore, it couples maximum reach with minimal dependency on vehicle orientation. This simplifies and expedites operations, thus contributing to the safety and security of the soldiers. The Kodiak’s powerful hinge-armed excavator has a large bucket volume, enabling it to shift some 200 cubic metres of heavy earth per hour without moving the vehicle. In addition, the boom is capable of lifting loads of around 3.5 tons at its maximum extension of nine metres.

In the field, operations often require rapid switching of excavator tools – preferably without having to leave the protection of the armoured fighting compartment. As a standard feature, the Kodiak is equipped with two additional excavator tools: a universal gripper and a concrete breaker. Stowed on the vehicle, they can be switched semi-automatically with the aid of a camera without the crew having to exit the fighting compartment. This tried-and-tested tool-swapping concept is operationally proven. Moreover, the fast tool-swapping device can be used for mounting other combat engineer-specific and standard commercial tools.

Bulldozer blade

The Kodiak also features a bulldozer blade with adjustable cutting and tilt angles whose width can be expanded. It can be locked in place when the vehicle is on the move, contributing significantly to the system’s overall safety.
If required, the bulldozer can be replaced with a mine plough like the one employed by the Dutch armed forces. An automatic minefield lane marking system with marker poles complements the mine-clearing equipment, enabling follow-on combat troops to traverse the minefield safely. All of the switchable tools and mine-clearing systems can be loaded for transport on multi hook-lift exchangeable pallets.

**Versatile winch equipment**

The Kodiak’s versatile double-winch system is equipped with two 9-ton capstan winches made by Rotzler, each of which can be used independently of the other. They combine maximum operational flexibility with absolute reliability. A single soldier can quickly attach the comparatively light winch cables to an object without additional means of assistance or tools, minimizing the time spent outside of the vehicle. The fact that the winches feature a freewheel further reinforces this, meaning that the Kodiak can back up with fastened cables, thus easily attaining the safety distance. The simultaneous use of two winch cables makes the controlled removal of barricades and obstacles possible, for example, as well as enabling one cable to be used to secure the vehicle when operating on an incline, for instance, while using the other to move an object. These capabilities are particularly useful in confined spaces, e.g. in urban terrain. When both of the 9-ton winches are employed, it is possible to tow objects weighing over sixty tons provided pulleys are used. This obviates the need to use a heavier, harder-to-handle cable, while simultaneously keeping utilization costs to a minimum.

**Excellent ergonomics and outstanding operational utility are Kodiak hallmarks**

Mounted on the boom, the bulldozer blade, and the front and rear of the vehicle, six cameras support the two- or three-person crew while on the move as well as when conducting combat engineering tasks during daylight hours and in conditions of limited visibility. At all times, each crewmember can access whichever camera image he needs on his monitor. As a result, tasks can be individually assigned or carried out on a team basis. The cameras make it possible to switch tools and perform the full range of combat engineering-specific tasks without exiting the vehicle. When necessary, an auxiliary power unit supplies electricity as well as simultaneously powering the air conditioning unit in the fighting compartment.

Of course, the Kodiak also lends itself to disaster relief operations. Only recently, the Dutch armed forces deployed the PiPz 3 Kodiak to fight forest fires and underground peat fires on the Dutch-German border.

Rheinmetall jointly manufactures and markets the AEV 3 Kodiak in a consortium with RUAG MRO Schweiz, the Swiss Army’s strategic technology partner. Besides Switzerland, the armed forces of Sweden, the Netherlands and Singapore now deploy the Kodiak and Büffel/Buffalo 3 Armoured Recovery Vehicle (ARV) to support their Leopard 2 main battle tanks, making them true brothers in arms.

**The BPz 3 Büffel/Buffalo – a genuine recovery specialist**

Just as the Kodiak is a true combat engineering vehicle, the Büffel/Buffalo 3 is a genuine armoured recovery specialist. Moreover, it can facilitate repair operations in the field with its crane. Rheinmetall Landsysteme (RLS) developed the BPz 3 Büffel/Buffalo on behalf of the armed forces of Germany and the Netherlands. In the meantime, nine nations field a total of 200 BPz 3 Büffel/Buffalo armoured recovery vehicles. In addition, more than 300 Büffel/Buffalo kits have been installed on variants of the Leclerc main battle tank and the K1. The BPz 3 Büffel/Buffalo has demonstrated its outstanding effectiveness in diverse operations extending from the Balkans to the Hindu Kush, including in combat.
Likewise based on the Leopard 2, the Büffel/Buffalo excellent mobility and crew protection. Mounted on the right-hand side of the vehicle, the boom has an operating reach of up to 7.9 metres and can lift loads of up to thirty tons. Here too, Rheinmetall cooperates with Rotzler for the winch system. The special recovery winch makes it possible to recover even the most seriously damaged and badly stuck combat vehicles. In modernization work currently being carried out for the Bundeswehr, the battlefield recovery device has been moved from the front of the vehicle to the back. This means that the Büffel/Buffalo can hook up with a stricken vehicle without the crew having to leave the safety of the fighting compartment, towing it from the battlefield in forward drive at high speed.

**Brothers in arms**

With their advanced, mission-oriented design, high level of protection, excellent mobility and versatile array of purpose-built equipment, the Kodiak and Büffel/Buffalo have become veritable force multipliers for the modern military. In addition to military operations, their special capabilities mean that they can provide multifaceted support in disaster relief operations as well as in civil-military cooperation contexts. Belonging to the Leopard 2 family results in extensive synergy effects with regard to training, operation and logistics: these tracked systems are true brothers in arms. Both vehicles – the Kodiak and Büffel/Buffalo – are the right tools for the job, giving commanders, combat engineers and repair personnel a critical edge in critical situations.