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Exhibitions

Mobile, versatile, agile: the LYNX family of next-generation combat vehicles

From 31 May to 2 June 2017, Rheinmetall is showcasing its new family of LYNX combat vehicles at the IDET 2017 defence and security technology fair in Brno in the Czech Republic. Highly protected yet extremely agile, these tracked armoured fighting vehicles are destined to dominate the modern battlefield, with a versatile array of capabilities ranging from peace enforcement operations to high-intensity combat.

Developed by Rheinmetall Landsysteme GmbH, this combat vehicle family comes in two different versions: the KF 31 and KF 41. KF stands for “Kettenfahrzeug”, which is German for ‘tracked vehicle’; the number refers to the military weight class. Both versions can be configured in a multitude of ways – e.g. as infantry fighting vehicle, armoured reconnaissance, forward observer, command post, ambulance, armoured engineering or recovery variant.

Configured as an IFV, the KF 31 is on display at the stand of the German-based defence and mobility Rheinmetall Group in Hall P039. It features a two-man LANCE turret armed with a medium-calibre, airburst-capable Rheinmetall MK30-2/ABM machine cannon, which serves as the vehicle’s main armament. In addition to this, it is equipped with a double launcher for the SPIKE anti-tank guided missile.

Based on tried-and-tested technologies and components, the LYNX is the world’s most advanced mid-weight armoured vehicle. It could thus serve as a plausible successor to the Czech military’s current fleet of BMP-2 IFVs, which is due to be replaced.

Rheinmetall has already integrated Czech contractors – RayService and Quittner & Schmieck – into its production and supply chain for defence projects. In addition, the Group is eager to expand cooperation with Czech enterprises in both the public and private sector. Initial talks have already taken place and agreements reached with VOP CZ.

The Group’s Automotive half is already well established in the Czech Republic, with three subsidiaries: KS Kolbenschmidt Czech Republic, a.s., Pierburg s.r.o., and KS CZ Motorservice s.r.o. Located in Trmice and Chabarovice, these companies together employ around a thousand people.

Rheinmetall is very interested in cooperating with the Czech government, military and industry in implementing the BMP-2 successor programme as well as other projects, fully in line with the Czech Republic’s defence and economic policy imperatives.

Future Technologies

BAE Systems Teams with QinetiQ to Pursue Electric Drive on Combat Vehicles

BAE Systems has signed a teaming agreement with QinetiQ to incorporate the latest technology for electric drive mobility systems on combat vehicles. This agreement combines BAE Systems’ capabilities as a vehicle designer, developer, manufacturer, and systems integrator with the electric drive expertise offered by QinetiQ, a leading UK science and engineering company operating primarily in the defense, security, and aerospace markets.

The technology offers improved fuel efficiency, reliability, and mobility performance, as well as reduced life-cycle costs and unmatched electrical power available to the platform. This combination allows for advanced weaponry, communications, radar, and field power generation on vehicles.

“This strategic partnership with QinetiQ in the electric drive field ensures we are offering our customers a mature, low-cost technology that can enhance the performance of current and future combat vehicles,” said Dean Medland, vice president of combat vehicle programs at BAE Systems. “This positions us to be a leader in the market as more platforms across the world move toward an electric drive architecture.”

QinetiQ’s E-X-Drive transmission for tracked combat vehicles was first conceived in 1999 as an alternative to more complex and limiting traditional drive systems. QinetiQ has worked in partnership with BAE Systems since 2004 to evolve E-X-Drive into a mature technology, successfully demonstrated in U.S. programs covering the tracked combat vehicle range from 18 to more than 70 tons. Additionally, QinetiQ’s counterpart for wheeled vehicles, the Hub-Drive Unit, is currently being explored by the U.S. Defense Advanced Research Projects Agency as part of its Ground X-Vehicle Technologies program.

Dr. David Moore, campaign director for Electrical Propulsion and Drivetrains at QinetiQ, said: “This agreement marks a significant step toward wide-scale adoption of electric drive systems for combat vehicles. More than 18 years of research and development at QinetiQ has led to a range of highly advanced technology that will improve survivability and performance by enabling radical new vehicle architectures. These could save lives by placing the crew in a safer position within the vehicle, or improving its agility and mobility to reduce its exposure to danger. Our strategic partnership with BAE Systems creates new opportunities for customers globally to exploit the huge

potential of this game-changing technology and demonstrates QinetiQ's commitment to achieving international growth through collaboration and innovation."



Defence Industry

BAE Systems Australia selects Victorian SMEs for \$200 million of work on Land 400



BAE Systems Australia announced agreements with Victorian defence industry worth more than \$200 million as part of its bid for LAND 400, the Australian Army's largest land vehicle acquisition program.

Should BAE Systems Australia be the successful tenderer for the Land 400 contract, the agreements for the build phase of the project will create more than 100 supply chain jobs in Victoria. This will have a multiplier effect creating downstream employment and economic benefits for the state.

Australian industry will also participate in the upgrade and maintenance of the vehicles during their decades of service in the Australian army. Companies included in today's announcement include Marand, MOOG Australia, Motec, AME Systems, RUAG Australia, DVR Engineering, Milspec and APV.

LAND 400 teaming partner Marand will manufacture the hulls of the combat proven AMV35 while the other Victorian suppliers will contribute specialist manufacturing expertise including heavy fabrication, electronic systems and complex assemblies.

BAE Systems has committed to producing the AMV35 locally and will invest 20,000 hours to transfer the advanced manufacturing knowledge and capability to the Australian workforce, ensuring long lasting employment and enduring Sovereign capabilities.

BAE Systems Australia Chief Executive Glynn Phillips said:

"Victoria's defence industry is recognised for its world class capabilities and the companies that we have selected as partners have proven experience and leading edge manufacturing capabilities. Australian production, future upgrades and support of these world class vehicles will create long-term jobs and deliver strong, sustainable economic benefits throughout the community."

The Company has not yet made a decision regarding the location of the vehicle manufacturing facility. Further announcements about partnerships with leading SMEs in other states and territories will be made soon.



Defence Industry

Navistar Defense Awarded \$18.8 Million To Provide Medium Tactical Vehicles For Iraq



The U.S. Army recently awarded Navistar Defense, LLC a foreign military sales contract valued at \$18.8 million to provide 115 International® 7000-MV Medium Tactical Vehicles (MTV) to Iraq.

Navistar Defense MTVs are based on the highly multipurpose International® WorkStar® severe-duty platform designed for both off and on-road operation, and is the backbone for the company's MaxxPro® Mine Resistant Ambush Protected vehicle.

"Since 2004, Navistar Defense has delivered nearly 7,000 trucks and buses to Iraq through foreign military sales contracts," said Kevin Thomas, president of Navistar Defense. "As a proven partner, we're proud to supply the Iraq Army with a highly versatile and easy-to-maintain 7000-series tactical military support truck that offers greater efficiencies in support, spare parts, training, and operations."

The majority of the work will take place at the company's West Point, Mississippi assembly plant. Delivery is planned to be completed in January 2018.



Defence Industry

The amphibious testing of Patria AMV28A completed successfully



Patria AMV28A armoured wheeled vehicle completed successfully the swimming tests organised in the end of May in Finland. With a total weight of 28 tonnes the vehicle swam without difficulties, as expected. Patria AMV28A, where 28A stands for 28 tonnes GVW amphibious (sea-stage 3) vehicle, is the latest member of Patria AMV product family, introduced at IDEX 2017 event earlier this year.

In the swimming tests, two different Patria AMV28A vehicles were tested - one in test configuration with full amphibious weight of 28 tonnes and the other one equipped with Kongsberg PROTECTOR MCT-30 turret

with some payload capacity available. Both vehicles had no difficulties completing the various amphibious tests at the Hanko area in southern Finland during rather strong wind conditions, constant wind speed being 10-13 m/s, in gusts more than 17 m/s.

Features of Patria AMV28A

- Bolt-on marine environment amphibious kit to 28 ton GVW, sea-stage 3
- Automatized amphibious mode, protected and continuous fighting capacity
- Modular amphibious kit, easy to detach and rearm when needed.
- Full operational capacity on land. Max. width 2.85 meters without amphibious kit
- Extended hull for larger size IFV turrets and crew of 8 dismounting soldiers
- Protectable for against modern threat levels
- Marine environment protective coating
- Superior firepower also on an amphibious operation
- Desert powerpack
- Desert AC

Patria is the undisputed market leader in the product segment of modern armoured wheeled 8x8 vehicles with deliveries to seven different customer nations. The armoured wheeled vehicles developed by Patria represent the latest technology in the industry. Patria's expertise is based on decades of experience and major investment in product development. Patria works in close cooperation with its customers and its extensive network of international industrial partners. All the products and services are NATO-compatible and are customised on an individual, customer-by-customer basis.



Future Technologies

Orbital ATK Demonstrates MK44 Bushmaster Chain Gun in 30mm and 40mm Configurations



Dulles -- Orbital ATK, a global leader in aerospace and defense technologies, provided its customer and partner base a live demonstration of its MK44 Bushmaster® Chain Gun® firing a variety of both 30mm and 40mm ammunition during the company's Bushmaster User Conference at Big Sandy Range, Arizona. The gathering of domestic and international attendees watched as the MK44 guns hit targets before and after a rapid changeover from a 30mm to a 40mm configuration. The MK44 Chain Gun will be featured on the 2017 season premiere episode of "GunnyTime with R. Lee Ermey" on Outdoor Channel beginning Wednesday, June 28, featuring Ermey firing the MK44 Chain Gun with Orbital ATK's 30mm and 40mm Airbursting Ammunition.

"The MK44 is quickly becoming the most sought after medium-caliber cannon," said Dan Olson, Vice President and General Manager of the Armament Systems Division of Orbital ATK's Defense Systems Group. "Today's

battlefield call for greater standoff and increased firepower is driving new combat vehicle platforms to include larger guns and advanced ammunition types. The same is true for upgrade programs."

Attendees of the live-fire demonstration saw the MK44 Chain Gun, mounted to a Kongsberg Protector Turret and General Dynamics Land Systems Light Armored Vehicle, engage a variety of adobe, concrete block and steel panel targets in 30mm configuration using high-explosive incendiary ammunition. Additionally, the MK44 was set up with Orbital ATK's proprietary air-bursting munition fuze-setting equipment to demonstrate the gun's ability to precisely fire several rounds in rapid succession with point-bursting accuracy, both horizontally and vertically across the target.

In addition to the air-bursting capability, Orbital ATK is developing other precision technologies for its medium-caliber ammunition, including proximity detonating and command guidance that are compatible with its medium-caliber cannons. These two new advanced capabilities will be demonstrated at the Bushmaster Users Conference in 2018 and 2019, respectively.

The MK44 Bushmaster Chain Gun is available new as a 30mm or 40mm weapon. At the completion of the 30mm demonstration, the system was easily "upgunned" in about an hour's time and readied to fire 40mm ammunition. The demonstration in the 40mm configuration showed the increased firepower that the 40mm cannon and ammunition provided engaged against similar target panels. The weapon also fired Orbital ATK's newly developed 40mm Programmable Air Burst Munitions (PABM) with dramatic effects on a replicated target set in a combat-defilade position.

Industry partners General Dynamics Land Systems, Kongsberg and Orbital ATK are upgrading the U.S. Army's Second Cavalry Regiment's Stryker fleet with a similar system integrating the Protector MCT-30 turret and a variant of the MK44 30mm Bushmaster Chain Gun, designated the XM813. Once fielded, the complete Stryker system will offer combat crews greater protection as they will be able to fight under armor with a leap ahead in firepower, reliability and effectiveness through the addition of a vehicle main gun.

Orbital ATK is developing and qualifying an entire Super 40mm family of ammunition to include Target Practice with Tracer, High Explosive Incendiary with Tracer and an Armor Penetrating Fin Stabilized Discarding Sabot with Tracer round, as well as the PABM showcased during the Bushmaster User Conference.

Orbital ATK's Defense Systems Group is an industry leader in providing innovative and affordable precision and strike weapons, advanced propulsion and hypersonics, missile components across air-, sea- and land-based systems, ammunition and related energetic products.

