



MAV'RX, THE NEW 4X4 FIRST LINE VEHICLE FROM ARQUUS

BY VALERIO DEL GRANDE

Not all Eurosatory visitors will be able to see the brand new vehicle proposed by Arquus at the Villepinte exhibition; as in the past editions, the newest prototype developed by the company is being exhibited in a screened section of the stand, reserved for selected guests: Show Daily brings some insights on this new 4x4 armored vehicle.

Looking at its portfolio Arquus realised that there was a gap in the high end of the spectrum, which is becoming key considering the current geopolitical situation. While operations other than war required mine protected ambush vehicles, the well known MRAPS,

peer-to-peer operations need vehicles with higher performance vehicles in all three typical armoured vehicles domains: mobility, protection and firepower. These must be capable not only to bring an infantry section close to the combat area, but also to support it with integral direct firepower.

Leveraging its experience in wheeled vehicles and in armour packages, Arquus designed the MAV'Rx, a 19 tonne gross vehicle mass 4x4 vehicle with full independent suspensions that carries a two-man crew plus eight dismounts. The vehicle is 6.98 m long, 2.55 m wide and 2.73 m high without turret.

continues p 3



Interview avec le général
PIERRE SCHILL

p 8



Armée Européenne : une
impérieuse nécessité

p 18



FN Herstal Improves the
FN Evolys Ergonomics

p 34



Rheinmetall unveils its
Keiler Next Generation

p 39



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As in many Arquus vehicles the engine is located at the front, under a bonnet, ahead of the crew compartment; the front axle position inherently reduces the danger should the vehicle hit a mine or an IED. The 400 hp engine is coupled to a 7-speed automatic transmission, ensuring a 21 hp/t power-to-mass ratio. The MAV/Rx can overcome a 60% gradient, move on a 30% side slope and overcome a 1 m trench and a 0.5 m vertical obstacle. The roof is able to withstand the mass and recoil of remotely controlled turrets armed with up to 30x173 mm cannon, which mass can reach up to 1.5 tonnes; depending on the turret installed, the vehicle can move on a 30% side slope. The MAV/Rx is not amphibious, most armies not considering it a top priority, but it can ford a water obstacle 1.2 metres deep without preparation.

As already mentioned, the MAV/Rx is fitted with a double wishbone suspensions with coil spring and shock absorber, which ensures a smooth ride in cross-country terrain. To maximise off-road mobility the new Arquus 4x4 combat vehicle is fitted with a central tyre inflation system, its 14.00 R20 tyres being equipped with run-flat inserts.

The MAV/Rx is fitted with the

company's Battlenet digital architecture that provides full modularity and scalability for system integration throughout the vehicle life cycle. The new vehicle is equipped with a digital cockpit, for software was developed in order to lower as much as possible the cognitive load for both driver and commander. Both are able to retrieve all required data, on individual screens, depending on the current situation. Here all data provided by on-board sensors are fused and presented thanks to a human-machine interface purposely designed to decrease reaction times while improving tactical awareness.

A second screen providing the tactical situation can be installed at the rear to also allow the infantry section commander to gain full awareness of the tactical situation. This depends very much on army doctrine, therefore this type of arrangement is studied on a case-by-case basis, according to customer needs, the Battlenet architecture ensuring full flexibility.

In a vehicle that has to operate on the frontline protection is of course a top priority. Arquus declares a payload capacity ranging from 2.5 to 4 tonnes, depending on the protection level. What is certain is that

the company's R&D division has been constantly working on armour package solutions and is therefore capable to provide designers and production engineers with optimal solutions. The MAV/Rx has limited transparencies, a front windscreen split in two and two small side windows in the two front doors. The windscreen solution recalls that of other Arquus vehicles and certainly leverages the experience acquired with them. Protection can be further increased adopting an active protection system, no more details being unveiled, this probably being part of customisation. Survivability is increased by the adoption of a CBRN filtration unit and a fire extinguishing system.

Beside the three key functions, a fourth one is of importance when operating on the battlefield: maintainability. This has been taken into consideration since the first design phase, most critical subsystems being easily accessible for repair or replacement. The main one, the powerpack, being under the front bonnet is inherently easily accessible and replaceable. A diagnostic case is available on board, and production vehicles will be fitted with HUMS sensors that in perspective will allow preventative maintenance.

The MAV/Rx fitted with a medium-calibre turret is proposed as an armoured personnel carrier with combat capabilities, therefore something much more capable than the standard "battle taxi". However the MAV/Rx can be provided in many other variants, such as antitank vehicle, counter-UAS and/or VSHORAD platform, remaining within armed vehicles. Of course, it can also be fitted as a command post or CASE-VAC/MEDEVAC vehicle.

For some of those variants Arquus foresees the adoption of an auxiliary power unit, that might also become of use on combat variants, allowing long silent watch periods with the main engine cut. Until now the prototype unveiled at Eurosatory has conducted limited mobility trials, which are to be resumed after the exhibition.

The company considers as possible customers NATO nations that, due to the current situation, need to increase their forces, by acquiring light units with a solution representing a good compromise between operational capabilities and cost. ■

EUROSATORY 2024 - EXOSENS

BY TIM MAHON

Photonis, a legacy brand of Exosens Group, is highlighting the capabilities of its range of advanced 4G and 4G+ image intensifier (II) tubes on its booth at Villepinte (Hall 6, booth K51). As night vision becomes a more and more integral part of operations for military and security forces, Photonis has dedicated significant resources to developing innovative and reliable solutions that directly address the stringent requirements of the operational environment. Enhancing tactical situational awareness and improving operator agility and mobility, the II tubes provide greatly improved capabilities at the individual level, ranging from superior vision

and targeting to vastly improved driving skills at night and in low light conditions. In addition, the company's range of digital cameras cover the spectrum from ultraviolet (UV) to long-wave infrared (LWIR), offering superior abilities in applications ranging from vehicle missile warning and self-protection systems to improved surveillance-derived decision-making. In summary - Photonis provides reliable solutions to improve mission effectiveness in challenging conditions.

The company will be referring visitors to two recent contracts that prove the efficacy of their solutions. The DGA has increased by a further

HALL
6
STAND
K 51



10,000 units its order on behalf of the French Army for Thales NV goggles under the Bi-NYX programme, resulting in a requirement for Photonis to deliver 40,000 advanced 4G II tubes. The devices offer users a 47° field of view (FoV) - a significant and enabling improvement over more traditional devices that provide an FoV of 40°. They more than double the useful range of the goggles currently used in the FELIN infantry combat system.

OCCAR and Theon Sensors are to supply an additional 20,000 Mikron NV goggles to the German and Belgian armed forces in 2024-2025, resulting in a requirement for 40,000 II tubes. These devices are 16mm in diameter - a significant space and weight saving over traditional 18mm devices but offering the same level of quality performance as the larger units. Photonis was the first company to offer 16mm devices at this performance level. ■

VIPER SHIELD ON SHOW

BY GILES EBBUTT

L3Harris is highlighting the AN/ALQ-254(V)1 Viper Shield all-digital electronic warfare (EW) suite which is custom designed for advanced F-16 Block 70/72 aircraft to make the most of the aircraft's new sensor suite and maximize survivability and mission success. According to the company this advanced EW system, which consists of 10 line-replaceable units, will provide a virtual electronic shield around the aircraft, enabling operators to complete missions safely in increasingly complex battlespace scenarios. Its modern, all-digital architecture using commercial-off-the-shelf technology enables enhanced system performance, a smaller

form factor, reduced weight and easier future upgrades. Viper Shield's software-defined technology components provide digital radar threat warning and robust digital countermeasure capabilities in a fully integrated, internally mounted system. A new pilot and vehicle interface provides the pilot with improved situational awareness and easier interaction with the system, and the new technology prevents EW interference to and from a wingman.

The system's advanced digital radar warning receiver technology is integrated with the aircraft's new APG-83 active electronically scanned array

(AESA) radar, providing earlier threat alerting to the pilot. The complex agile waveforms used by the APG-83 create a challenge to the harmonious operation of both systems. The Viper Shield system has implemented a sophisticated radio frequency compatibility scheme to seamlessly integrate with the APG-83.

The multiple digital radio frequency memory-based jamming system provides enhanced capability against advanced threats.

Viper Shield is designed with fewer critical components than previous generation EW systems. This not only results

in a smaller form factor and reduced weight, but also a higher mean time between failure and lower lifecycle costs. Its technology and software-defined architecture will simplify future upgrades, enabling affordable modernisation with new capabilities and technologies, minimising obsolescence.

The system successfully passed its critical design review in early 2023 and complex integration tests with the APG-83 at the end of that year. Several air forces have already committed to Viper Shield, which can either be provided as part of an F-16 platform upgrade to Block 70/72 standard or in a new build procurement. ■

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SURVIVABILITY SOLUTIONS FROM MUSTHANE

BY MARC CHASSILLAN

Musthane, a French SME, located in Willem in the outskirts of Lille, north of France, has designed two protection technologies for AFVs.

The first one is a new device to increase the survivability of military vehicles by protecting the sidewalls of tyres while preserving their camouflage properties.

The sidewall of a tyre is the most fragile area on a wheel. In conflict zones, the tearing of tyre sidewalls is the cause of the majority of punctures, potentially leading to vehicle immobilisation.

Seven years of research and development have been necessary to design a high-performance composite device that provides effective protection and camouflage for military tyre sidewalls. This solution can be set up in less than five minutes by two people without dismounting the wheel. The patent pending Mustmove Tyre Sidewall Protection automatically eliminates any foreign bodies that might get between the tyre and the device. This self-cleaning is enhanced by the robustness of the innovation conferring greater resistance to external aggression. The shape memory property of this new product allows it to deform in extreme situations and then return to its initial shape by even pushing obstacles such

as heavy stones. Finally, this innovative device improves the camouflage of the vehicle by reducing the thermal signature of the wheels. The second innovation is a new generation ballistic protection for hydrocarbon tanks (oil and fuel). It is based on an innovative formulation of polymers designed by company engineers. Three years of research and development have been necessary to reduce by 50% the thickness and weight of the protection whereas the efficiency (Time to Seal) has been improved. For instance, a 762 mm calibre round has no effect on the reservoir. The protection covers all type of calibers up to 14.5mm. Musthane is very successful on the export markets since almost 80% of its products are sold abroad. ■



HALL 6
STAND G5 6

KNDS CBRN, A FULL RANGE OF CBRN SOLUTIONS FOR MILITARY AND CIVILIAN APPLICATIONS

BY MARC CHASSILLAN

KNDS CBRN, a subsidiary of KNDS France located in St Chamond, central France, has a long track record in CBRN protection solutions since its industrial activities have roots back in 1916 when it delivered individual masks for French soldiers during WWI.

Developed in less than eight months, the Essential DECON, a truck mounted decontamination system, leverages ruggedised civilian technologies adapted to both military and civilian concerns. Essential DECON can be delivered in seven months and it is platform and decontamination agent agnostic. It is currently mounted on a Mercedes Unimog 4x4 chassis, but any tactical truck of that class is eligible. A unique capability of the system is to deliver a decontamination foam that prolongs the interaction time between the hazard agent by sticking on the contaminated surface. This reduces the quantity of decontamination agent to be sprayed and increases the decontamination efficiency vis-à-vis the most resistant agents such as anthrax. Many patents protect the solution. KNDS CBRN has already achieved an export contract

for the system. With the war in Ukraine, CBRN threats are back in the list of major concerns all over the world and KNDS CBRN is betting on a growing market. In partnership with the CEA (Commissariat à l'Energie Atomique or Atomic Energy Directorate), KNDS CBRN developed the KDTB solution for biohazard detection. It consists of a field portable biological detection briefcase and a set of PCR strips able to identify virus or toxins. The system is simple and easy to use. ■



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“LA TENTATION DE LA GUERRE DEMEURE UN MODE DE RÉOLUTION DES DIFFÉRENDS”

PAR JULIEN CHABROUT

Entretien exclusif avec le Chef d'état-major de l'armée de Terre française, le **Général d'armée Pierre Schill** pour le quotidien du salon Eurosatory 2024.

Cette interview a été réalisée fin mai 2024.

En tant que chef d'état-major de l'armée de Terre, quel est votre principal objectif ?

J'ai été nommé chef d'état-major de l'armée de Terre en juillet 2021 quelques mois avant l'attaque russe en Ukraine. Cet événement est déterminant. Il renforce ma conviction que la priorité absolue est l'efficacité opérationnelle.

Nous sommes la composante terrestre d'armées en opérations permanentes. Notre rôle est de produire des effets opérationnels. Dès que nous sommes en manœuvre, sur le territoire national comme à l'étranger, nous envoyons un signal à nos alliés et à nos adversaires. Il s'agit là d'une préoccupation permanente. Nous sommes convaincus qu'il n'existe plus de situation de paix durable. Nous manœuvrons sur l'échelle de la compétition, de la contestation, et de l'affrontement avec l'ambition de nous montrer suffisamment forts et crédibles pour empêcher une montée aux extrêmes de nos adversaires ; nous devons produire des effets au quotidien en ayant conscience que rien n'est anodin.



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Des nouvelles menaces font craindre un retour des conflits dans le monde. Comment décrivez-vous la nouvelle ère stratégique qui s'ouvre ?

Conflit prévisible depuis l'annexion de la Crimée en 2014 ou « surprise stratégique » qui remet la guerre aux marches d'un continent qui s'en croyait prémuni, « l'opération militaire spéciale » revendiquée par la Russie nous fait entrer dans une nouvelle ère stratégique. En agressant l'Ukraine, la Russie remet en question l'ordre international sur lequel étaient fondés à la fois notre sécurité et notre prospérité. Mis en perspective avec l'actuelle intervention d'Israël contre le Hamas à Gaza, mais aussi avec les conflits de Géorgie en 2008 et du Haut-Karabagh, en 2020 et 2023, voire avec les déclarations martiales du Venezuela au sujet de l'Esequibo, territoire du Guyana revendiqué par Caracas, le conflit ukrainien joue le rôle de révélateur en rappelant des réalités implacables : la tentation de la guerre demeure un mode de résolution des différends ; la guerre de conquête territoriale n'appartient pas au passé ; la crise paroxystique que constitue la guerre culmine dans l'affrontement de ce que les nations ont de plus précieux : leur population et en particulier leur jeunesse ; la victoire à distance (stand off) est un mirage ; les alliances sont aussi indispensables que fragiles.

La guerre en Ukraine offre des retours d'expérience riches pour l'armée de Terre. Quelles leçons reprenez-vous ?

Efforçons-nous de distinguer ce qui est conjoncturel de ce qui est structurel. Trois enseignements me paraissent importants.

Le premier, fondamental, est l'emploi de la force. Ce conflit, montre qu'il est redevenu une réalité, y compris en Europe. Le droit international qui avait été bâti depuis la Seconde Guerre mondiale est contesté. Le recours à la force est considéré comme un mode acceptable de résolution des conflits par un certain nombre d'États.

Le deuxième enseignement est celui du caractère



fondamental de la force morale. L'homme est le premier outil du combat ; les matériels les plus performants et les stratégies les mieux conduites ne produisent pas les effets attendus si les soldats ne font pas preuve de valeurs martiales, si les chefs de tout grade ne sont pas déterminés à vaincre, si la Nation ne soutient pas ses combattants. Les forces morales sont aussi liées à la conviction de la légitimité de l'action. Les soldats d'aujourd'hui sont plus connectés ; ils ont un meilleur accès à l'information. Ils ont besoin d'être convaincus que leur cause est juste. Entamer la légitimité de l'adversaire, c'est le priver d'un élan et d'un soutien, c'est entraver sa liberté d'action. Dans l'armée de Terre, nous cultivons cet « esprit guerrier » indispensable pour vaincre.

Le troisième enseignement que je tire est tactique. Le combat moderne possède une nouvelle grammaire qui impose de porter notre effort dans des domaines nouveaux : disposer de moyens de commandement rapides et résilients, acquérir la transparence du champ de bataille, renforcer la létalité des armements, se protéger des menaces aériennes. La transparence du champ de bataille est sans doute le facteur le plus déterminant. Les progrès technologiques, notamment en termes de guerre électronique, de drones et de satellites, rendent plus difficile de cacher les intentions, les dispositifs et les mouvements. Associée à la létalité croissante des

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feux, elle modifie les procédés tactiques sur le champ de bataille : les concentrations de force sont plus risquées ; les dispositifs s'étalent ; les fronts se figent ; les PC et les zones logistiques sont plus vulnérables ; la mobilité, la discrétion, la dispersion et le camouflage sont remis au goût du jour.

Faut-il choisir entre la masse et la haute technologie ?

Il n'y a pas de tabou au sein de l'armée de Terre sur la problématique de la masse qui s'inscrit dans un débat ancien. La France considère que son modèle d'armée complet reposant sur la dissuasion nucléaire et combinant autonomie et aptitude à être Nation cadre en coalition est adapté aux menaces ; la loi de programmation militaire 2024-2030 (LPM) lui offre l'opportunité de consolider ce modèle. Ce modèle est adapté à la fois à son ambition de « puissance d'équilibres et d'entraînement », à son statut de membre permanent du Conseil de sécurité des Nations Unies, et à son projet européen en tant que membre fondateur de l'OTAN et de l'Union européenne. La France a fait le choix de n'abandonner aucune capacité. Elle continue de couvrir « tout le spectre » : c'est un atout considérable.

A mon sens, la priorité est celle de la cohérence. Celle-ci s'inscrit dans deux dimensions : l'une verticale, l'autre horizontale.

Cohérence verticale tout d'abord. Un équipement seul ne suffit pas à constituer une capacité. Pour être utilisé efficacement, un équipement majeur doit disposer de composantes additionnelles : la mitrailleuse qui assure sa défense rapprochée, son système de protection active (APS), ses munitions, son carburant, les pièces de rechange pour pouvoir le maintenir en condition, sans oublier l'entraînement de son équipage. Sans cet environnement, il n'est pas opérationnel. C'est un équipement de façade et de parade. La LPM prévoit le maintien en condition, les munitions, l'entraînement et l'activité liés à nos équipements majeurs.

Cette cohérence intrinsèque à chaque capacité concourt à une cohérence plus globale - horizontale- entre les diverses capacités qui composent une armée. Je pense aux capacités de mêlée, infanterie, cavalerie, hélicoptères, mais aussi celles d'appui - génie, artillerie, protection - de soutien et de logistique. Un équilibre entre ces capacités est indispensable.

J'ai la conviction que la cohérence est prioritaire sur la masse. Ce dont nous disposons doit être « bon de guerre ».



De quelle manière l'armée de Terre s'applique-t-elle à se prémunir d'agressions à son égard et à défendre ses intérêts ?

Face aux rapports de force qui s'installent et aux nouvelles formes de guerre, la France possède des atouts majeurs. Du fait de sa géographie et de l'état de prospérité au sein de l'Union européenne, aucun adversaire ne menace ses frontières métropolitaines. Pour l'instant, la contestation de la souveraineté des territoires français se cantonne à des manipulations et tentatives de subversion hors de l'Hexagone. La dissuasion nucléaire sanctuarise nos intérêts vitaux.

Pourtant, la France n'est pas à l'abri des tensions qui se manifestent partout dans le monde. Elle a des responsabilités internationales. Elle a des intérêts et des territoires dans toutes les aires géographiques. Elle est liée par des accords de défense à des États exposés à des

menaces majeures. Pour se prémunir d'agressions à son égard et défendre ses intérêts, l'armée française choisit de se préparer aux engagements les plus durs, de le faire savoir, et de le démontrer. Si vis pacem para bellum.

Vous avez récemment indiqué qu'en 2023, vous n'aviez pas atteint vos objectifs de recrutement ? Quelle est votre appréciation sur ce sujet et quelles sont les actions menées par l'armée de Terre afin de recruter ?

L'armée de Terre recrute plus de 16 000 jeunes par an. Recruter, former et entraîner un tel flux de soldats représente un défi considérable. Il permet de disposer d'une armée jeune dont la moyenne d'âge est de 30 ans. Nous sommes une des rares armées européennes à réussir à recruter les jeunes dont nous avons besoin. « Fais de ta vie une aventure », c'est ce que nous leur proposons. Les jeunes Français savent que l'armée française, en particulier l'armée de Terre, est une armée d'emploi, que leur engagement est porteur de sens car il est en appui

d'une volonté d'emploi bien réelle. Nous avons la volonté et la capacité d'agir dans le monde.

Nous atteignons désormais nos cibles de recrutement. Les efforts produits en matière de fidélisation contribuent également à la réalisation des effectifs. Nous devons maintenant consolider ces effets dans la durée car le recrutement demeure un combat quotidien.

Certains soldats recherchent des contrats plus courts. Nous expérimenterons les volontaires découverte de l'armée de Terre (VDAT) durant les Jeux olympiques et paralympiques de cet été. Il s'agit d'offrir à des jeunes l'occasion de découvrir l'armée de Terre pendant quatre mois avant de décider de rejoindre nos rangs ou ceux de la réserve. Nous diversifions aussi les modalités d'engagement à travers les préparations militaires, la réserve, les contrats courts, les contrats un peu plus long. Notre but est de nous adapter à chaque profil et de donner à tous ceux qui le souhaitent la possibilité de servir leur pays sous les armes. ■

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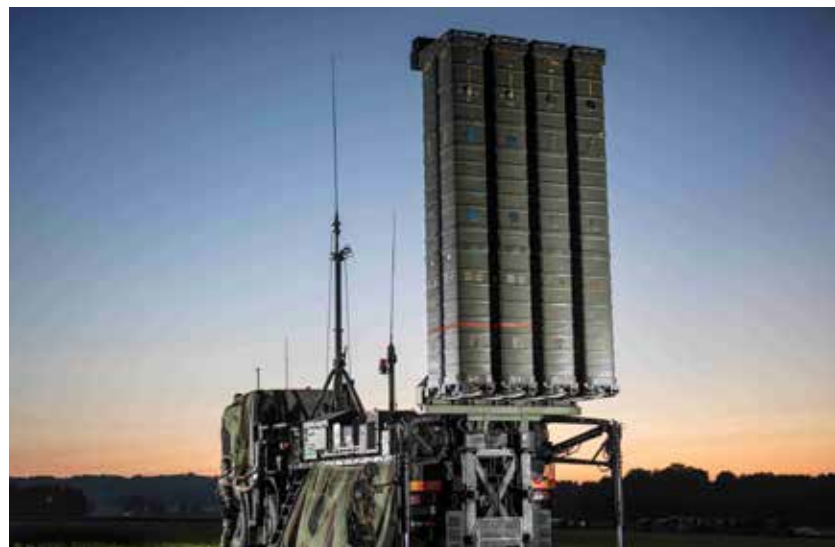
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EUROSAM SHOWCASE THE AMP-T NG AT EUROSATORY

TIM MAHON

The 35-year-old Franco-Italian joint venture EUROSAM will showcase the SAMP-T NG (new generation) long range ground-based air defence systems in both current variants: the version destined for the French Air & Space Force, featuring a Thales Ground Fire 300 radar, and the model to be operated by the Italian Army and Air Force, which deploys a Leonardo Kronos Grand Mobile High-Power sensor. Highly mobile and interoperable, the system can be

brought into action within 30 minutes, with the radar needing only two operators to be up and working in half that time. SAMP-T NG is the latest development of the well-established and mission-proven SAMP-T programme, already in service with 13 armed forces. Intended to provide both force protection and national/critical infrastructure protection as well as defending territorial integrity, the system detects airborne threats at over 350 km (tracking over 1,000 potential targets simultaneously)

and intercepts them with Mach 4.5 Aster missiles at more than 150 km. The missile employs the company's unique 'Pif-Paf' technology, which combines aerodynamic control with direct thrust vector control to enable high-G maneuvering, thus significantly enhancing system hit-to-kill potential.

Fully integrated with existing air defence networks and designed from the outset to be able to operate in dense civil air environments in time of

crisis, SAMP-T NG offers users an advanced anti-access/area denial (A2/AD) capability and will be available for delivery from next year. A typical operational battery consists of a single multi-function radar, a command-and-control engagement module and up to six launchers, each capable of firing eight Aster effectors. ■

S&W SD9 2.0 (SMITH AND WESSON - USA)

BY JEAN-PIERRE HUSSON

Offered in 9mm Luger (9×19mm) the new Smith & Wesson SD9 2.0 hand gun combines compact design and power and incorporates multiple performance upgrades. The enhanced Self Defense Trigger sports a flat-face design, which the company says provides better tactile feedback during pull, break and reset, allowing for more controlled and accurate shots. Besides the new trigger design to give better feedback for the shooter, additional features of the SD9 2.0 include a satin-finished slide with aggressive front serrations that provide the user more surface area for easier manipulation, texture on the front, sides and back of the grip for improved control, a 4×/101mm stainless steel barrel, Picatinny-style rail, plus white-dot front and rear sights to aid for quicker target acquisition and sight picture clarity. The SD9 2.0 platform is available in 16+1 and 10+1 capacities and is compatible with existing SD9 lights, lasers, holsters and other accessories. Weighing 1.42lbs/642g, the SD9 2.0 offers an ideal balance between portability and stability. Further, its overall length of 7.2in/182mm allows for ease of handling without compromising performance. ■



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A NEW GATLING GUN FROM DILLON AERO

BY GILES EBBUTT

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The Dillon Aero M134D Modern Minigun, a completely re-engineered version of the 1960s-era M134 Gatling rotary machine gun which itself was derived from the original concept invented in the 1860s, entered service with US special operations forces (SOF) in 2003. In different versions it is now in service with all branches of the US military and in over 30 countries.

Based on the combat-proven M134D design, Dillon Aero has now developed the 503D Ground/Naval .50 calibre (12.7mm) crew-served weapon which it is highlighting at Eurosatory. The 503D is powered by the same electric drive and gun control architecture that

runs the M134D, providing commonality of system-critical parts which already have a recognised track record of reliability, such as the drive motor, batteries, clutch components and gun control unit electronics.

According to the company the weapon system "minimises recoil forces and allows the operator to manipulate the weapon effectively through azimuth and elevation ranges specific to the platform." The dual trigger grip interface features a backlit, dimmable and night vision goggle (NVG) compatible display to track specific mission and cumulative round counts. An integrated ammunition boost button in the grip simplifies

and speeds ammunition loading from the magazine to the feeder.

The 503D has a muzzle velocity of 2800 ft/s (853 m/s), a cyclic rate of fire of 1500 rounds per minute (25 rounds per second) and an effective range of 2000m. The weapon mount is compatible with the Dillon Aero MMC turret system, and other MK16 type and G3 type pintle interfaces.

The weapon system is fielded as a complete system with a versatile ammunition magazine, feed chutes, power supply, cables, and multiple provisions for mounting Machine Gun Reflex Sights (MGRS), Lasers and other accessories on Picatinny or M-LOK Rails. ■

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BY MARC CHASSILLAN

The Irish company Timoney Technology provides 4x4, 6x6 and 8x8 drivelines solutions to vehicle designers. Taking over 50 years of off-road driveline and vehicle design experience and combining this with state-of-the-art modelling and simulation developed in-house, Timoney provides solutions tailored to the customer's specific vehicles. Through virtual prototyping and performance simulation, the development cycle is accelerated, while removing risk. Timoney's expertise in heavy-duty vehicle mobility ensures that it provides the best mechanical, electric and hybrid-electric driveline solutions.

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netary drive wheel ends, the T9000E provides superior performance for off-road vehicles, ensuring best in class safety, mobility, and driveability. Compatible with any fuel source that can be used to generate electricity, the T9000E provides the ideal means of electrifying any vehicle.

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ARMÉE EUROPÉENNE : UNE IMPÉRIEUSE NÉCESSITÉ SI DIFFICILE À METTRE EN ŒUVRE

PAR FRÉDÉRIC MAURO

Avocat au barreau de Bruxelles - Chercheur associé à l'IRIS

La guerre d'agression déclenchée par le président de la Fédération de Russie le 22 février nous a fait prendre conscience que la paix en Europe n'était pas un « trésor acquis à tout jamais ». Moralement et juridiquement indéfendable elle procède de la décision aventureuse d'un seul homme et pourrait conduire à terme la Russie dans l'une de ces impasses historiques dont elle a le secret pour s'enfermer d'elle-même.

Mais surtout cette guerre fait chavirer l'idée d'un droit international pacificateur et consacre la guerre comme le moyen naturel de régler les différends entre nations. C'est l'exact opposé de la philosophie qui a présidé à la mise en place des Nations unies au lendemain de la seconde guerre mondiale par les puissances victorieuses et selon laquelle : "la guerre n'est pas un moyen judicieux de résoudre les conflits internationaux" (Dwight. D. Eisenhower).

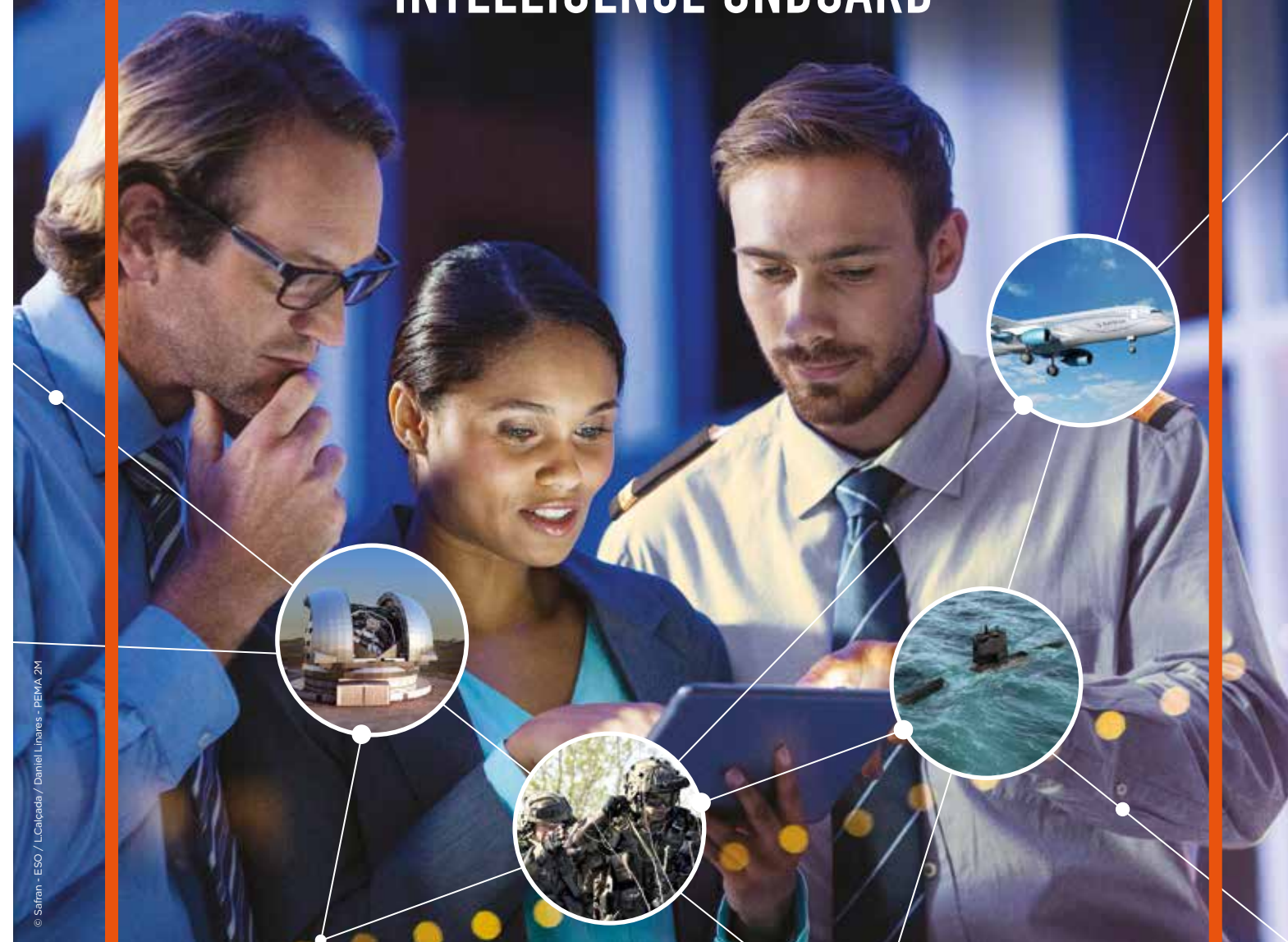
Enfin, elle redistribue les cartes de la politique internationale. Une ligue des États illibéraux se consolide progressivement dont le ciment est le rejet de l'Occident. Ses leaders

entretiennent leur peuple dans des rêves de puissance, ils leur fabriquent de faux souvenirs, entretiennent leurs vieilles plaies et les conduisent au délire des grandeurs ou à celui de la persécution. Ses membres sont bien connus. Ils ont pour leader incontestable la Chine, et regroupent autour d'elle la Russie, l'Iran et la Corée du Nord.

Une nouvelle guerre froide a donc commencé qui pourrait très bien être un avant-guerre. Mais cette guerre est bien différente de la précédente car cette fois les colonialistes, les envahisseurs, les impérialistes et les ultra-conservateurs sont du côté des ennemis de l'Occident. Elle est mondialisée et divise l'humanité au moment où les défis auxquels celle-ci est confrontée exigerait une collaboration sans faille. De grands acteurs tels l'Inde, le Brésil, l'Arabie saoudite, l'Afrique du Sud, l'Indonésie, et même la Turquie, peu soucieux de venir au renfort d'un Occident auquel ils ne pardonnent ni ses fautes ni ses hypocrisies attendent de choisir leur camp. Ce sont les Swing States géopolitiques qui peuvent faire basculer l'équilibre du monde.

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Pour faire face à un ennemi commun, l'idée d'une armée européenne est bien la plus simple et la plus immédiatement compréhensible par les citoyens européens.

Dans ce contexte, les États européens ne peuvent pas rester spectateurs de leur propre destin et ils l'ont désormais bien compris. Un sursaut a eu lieu et plus de tabous sont tombés depuis 2022 que depuis les trois décennies qui nous séparent de la signature du traité de Maastricht et de l'évocation, pour la première fois, d'une « défense commune ».

La Commission européenne s'est progressivement emparé des sujets de recherche de défense, puis de politique industrielle de défense. Tout cela était impensable il y a encore dix ans. Une stratégie industrielle de défense a même été élaborée qui demande à être concrétisée par les instances qui sortiront des élections européennes de juin 2024.

Mais construire à plusieurs un avion de chasse ou un char de combat ne fait pas une défense commune. L'idée qui s'impose tout naturellement pour faire face à un ennemi commun, la plus simple et la plus immédiatement compréhensible par l'ensemble des citoyens européens, est bien celle d'une armée européenne, c'est-à-dire une armée dirigée par les Européens pour défendre le territoire de l'Europe et ses intérêts.

Qu'on l'appelle « armée » ou « défense » ou encore « autonomie stratégique » c'est bien de la même chose qu'il s'agit : la défense de l'Europe, par l'Europe et pour l'Europe. Car il n'y a aucune raison au monde que 450 millions d'Européens qui dépensent ensemble plus de 250 milliards d'euros par an pour leur défense craignent la Russie qui ne compte que 140 millions d'individus et dépense beaucoup moins pour sa défense, même s'il s'agit là d'une partie substantielle de ses richesses. Il est évident que l'Union ne peut rester un géant économique si elle dépend d'autres puissances pour sa protection ou pire, si elle est incapable de défendre son territoire et ses intérêts.

Les défenses nationales des États membres se sont rabougries au point de devenir quasi-insignifiantes et la coopération industrielle ne suffit pas à faire une défense commune.

Cela est d'autant plus vrai que les défenses nationales de ses membres se sont rabougries au point de devenir quasi-insignifiantes. Elles n'ont ni les volumes, ni les réserves nécessaires pour soutenir une guerre de haute intensité. Faute d'une taille critique et d'un marché intérieur suffisant leurs industries ont les pires difficultés à rester compétitives ;

quant à leurs armées, elles ont soit des lacunes capacitaires criantes (cas britannique) soit une épaisseur insuffisante (cas français). On parle désormais pour les décrire d'armées « bonsaï ».

C'est pourquoi, bien conscient de l'impérieuse nécessité de s'unir, le mot d'armée européenne avait été prononcé par le président de la Commission européenne, Jean-Claude Juncker, dans la foulée de l'invasion de la Crimée en 2014, puis par le Premier ministre hongrois, Victor Orban, en 2016, non sans arrières pensées. Mais ce n'était qu'un mot.

En novembre 2018, le président de la République française, Emmanuel Macron, avait évoqué l'idée d'une « vraie armée européenne » et avait été suivi quelques jours plus tard la chancelière allemande, Angela Merkel, qui avait appelé, devant le Parlement européen à Strasbourg, à « élaborer une vision nous permettant d'arriver un jour à une véritable armée européenne » en « complément à l'OTAN ». Le 22 janvier 2019, lors de la signature du nouveau traité franco-allemand à Aix-la-Chapelle, les deux leaders avaient réaffirmé cette perspective.

Au demeurant, sondage après sondage, les peuples européens plébiscitent l'idée d'une défense commune. Le dernier eurobaromètre de 2022 montrait que la grande majorité des citoyens de l'Union (81 %) étaient favorables à une politique de défense et de sécurité commune à tous les États membres, ce point de vue étant partagé par les deux tiers au moins des répondants dans chaque pays. En outre, 93 % estimaient que les États membres devraient agir conjointement lorsqu'il s'agit de défendre le territoire de l'Union et 85 % pensaient que la coopération en matière de défense au niveau de l'Union devrait être renforcée.

Lors de la conférence sur l'avenir de l'Europe, toujours en 2022, les nombreux citoyens participants ont réclamé une « armée commune à des fins d'autodéfense ». Enfin, un sondage Elabe de mai 2024 montrait encore récemment que 67 % des Français sont favorables à ce que l'Union européenne joue un plus grand rôle dans le domaine de la défense. Même s'agissant de la mutualisation de la dissuasion nucléaire française avec les autres pays de l'Union européenne, point sensible s'il en est, il est remarquable que 50 % des Français y soient favorables. Mais paradoxalement, et malgré l'invasion de l'Ukraine par la Russie, plus aucun leader d'opinion européen en France ou ailleurs n'a repris l'idée de l'armée européenne. Le président Macron semble désormais hésiter et le Haut représentant de l'Union, Josep Borrell écrit dans la préface d'un ouvrage à paraître¹ que « renforcer la défense européenne ne signifie pas que nous serions sur le point de créer une armée européenne. La défense est et restera dans un avenir prévisible une compétence exclusive de nos États membres ».

1- « La défense européenne à l'heure de la guerre en Ukraine. Des tabous tombent », Nicolas Gros-Verheyde, 252 pages, 25 euros, Éditions du Villard, collection Manuel.

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Alors pourquoi ce recul est ces hésitations ? Les dirigeants des États membres seraient-ils comme l'orchestre du Titanic, préférant continuer à jouer la symphonie de la souveraineté sur le pont d'un navire qui fait eau de toutes parts, plutôt que de mettre les chaloupes à la mer ?

Les dirigeants européens préfèrent continuer à jouer la symphonie de la souveraineté alors que le navire de la défense européenne fait eau de toutes parts.

La première raison pour laquelle l'idée d'une armée européenne a reculé dans les discours des dirigeants serait d'ordre « pragmatique » et tiendrait à la nécessité, face à une crise immédiate et contingente, de faire prévaloir l'urgence sur le long terme. En d'autres termes, face à l'agression russe, le plus important est bien de fournir des armes et des munitions aux Ukrainiens plutôt que de s'engager dans des débats théoriques sur un objectif de long terme. Mais pourquoi diable serions-nous incapables de faire les deux en même temps ? Ne peut-on à la fois agir pour le présent et penser le futur ?

La seconde raison est d'ordre idéologique. L'idée même d'une armée européenne irrite au plus haut point tous les eurosceptiques qui y voient une atteinte insupportable à la conception qu'ils se font de la souveraineté nationale. Or, dans la situation politique européenne actuelle marquée par le regain des idées nationalistes et le repli identitaire, porter l'idée d'une armée européenne est un combat difficile qui peut vite valoir à ceux qui le mènent le reproche de trahir les intérêts nationaux.

A cette première catégorie d'opposants de principe s'ajoutent tous ceux qui, nombreux encore, préfèrent abandonner la défense de l'Europe aux États-Unis ainsi que le reliquat des pacifistes qui, en dépit de tout, rejettent une quelconque militarisation de l'Union européenne. Il faut encore leur ajouter la proportion, certes déclinante mais toujours influente, de ceux qui se nomment eux-mêmes les « frugaux » et pour qui toute augmentation du budget européen serait insupportable, sauf à réduire d'autres dépenses, ce qui ne leur semble pas souhaitable non plus.

Enfin, parmi les opposants de principe, l'opposition constante des milieux dirigeants américains à l'idée d'une défense européenne a certainement pesé très lourd et ce depuis très longtemps. Tous ces opposants ne changeront probablement jamais d'opinion et il serait vain de vouloir s'y essayer.

Il n'en va pas nécessairement de même pour les milieux les plus concernés par la défense, à savoir les industriels et les forces armées.

Les choses peuvent changer très vite à condition d'y mettre les moyens financiers et d'en avoir la volonté politique.

Beaucoup de grands industriels européens ont jusqu'à présent manifesté peu d'enthousiasme vis à vis de la construction européenne, surtout lorsqu'ils se retrouvaient vis à vis de leur propre État en position de monopoleur, situation qui comme on le sait est génératrice de rentes.

Certes il est naturel - même si cela peut parfois se révéler dangereux - que les États confondent leurs intérêts avec ceux de leurs industriels de défense. C'est le cas depuis longtemps dans les États de l'Europe continentale qui font partie de l'accord cadre sur la lettre d'intention (FA-LOI), à savoir la France, l'Allemagne, l'Italie, l'Espagne et la Suède. Une telle symbiose s'est opérée entre les appareils étatiques et les industries de défense à tel point qu'il est difficile pour les premiers de sortir d'une approche transactionnelle et de faire prévaloir l'intérêt général européen sur leurs intérêts nationaux, c'est-à-dire ceux de leurs industriels.

Or, l'incitation de ces grands industriels à participer à des contrats de coopération est d'autant plus faible que la coopération est beaucoup plus compliquée à mettre en œuvre, surtout lorsqu'elle suppose un partage des responsabilités, qu'elle expose les industriels à des transferts non désirés de savoir-faire et enfin qu'elle pose les délicates questions des droits de propriété intellectuelle et de liberté d'exportation.

Néanmoins, ces industriels pourraient changer d'avis à condition que les perspectives en termes de débouchés soient supérieures au niveau européen qu'au niveau national, en d'autres termes qu'ils gagnent plus d'argent en coopérant grâce à un accroissement de la taille de leur marché qu'en restant sur leur marché national condamné à se réduire en volume et en qualité.

C'est ce qu'a bien compris la Commission européenne avec les différents programmes de recherche de défense qu'elle a lancés et en particulier le Fonds européen de défense. Elle a mis en place des mécanismes qui visent tout à la fois à effacer les surcoûts de la coopération et à impliquer les États dans des programmes dont ils ont réellement besoin. L'étude d'impact à mi-parcours reste encore à mener, mais il est malheureusement à craindre que les sommes consenties par les États qui ont réduit de moitié les propositions budgétaires initiales de la Commission (de 13 milliards à 8 milliards) se révèlent insuffisantes pour convaincre les industriels nationaux de s'engager corps et âme dans la coopération européenne. D'autant que les procédures mises en œuvre pour assurer une équitable « coopération transfrontière », autre nom de ce que l'on appelait autrefois le « juste retour industriel » ne soient tellement complexes qu'à la fin elles découragent les plus favorables à ce type de coopération.

C'est pourquoi la Commission européenne, à la demande même des États membres réunis au sommet de Versailles en mars 2022 s'est efforcée de mettre en place de nouveaux programmes qui visent cette fois à agir non plus seulement

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sur les industriels, mais directement sur les États en les incitant à acheter des équipements et des munitions en commun. Mais là encore, les propositions budgétaires de la Commission ont été réduites à la portion congrue, du fait des États membres qui n'acceptent la coopération européenne qu'à condition qu'elle bénéficie à leurs propres industriels. Nous en sommes là.

Pour les armées, la vraie question est de savoir qui commande, qui dessine l'outil de défense, qui le met en œuvre et qui conduit les opérations.

Concernant les forces armées, le problème est à la fois plus simple et plus complexe que pour l'industrie. Il est plus simple car les forces armées de tous les pays européens ont depuis longtemps appris à coopérer et à être « interopérables » au sein de l'alliance atlantique, alliance qui au demeurant pourrait devenir elle-même de facto une armée européenne si les dirigeants américains décidaient subitement de s'en retirer.

Mais que vaudrait la somme des armées européennes sans commandement capable de les unir et de les diriger et sans les catalyseurs stratégiques (défense sol-air, transport à longue distance, renseignement, planification opérationnelle, etc.) dont disposent les forces américaines ? Sans doute pas grand-chose.

D'autant plus que l'idée d'armée européenne suppose une intégration à minima des forces et donc une spécialisation des outils qui induit à son tour une interdépendance opérationnelle, ce dont les états-majors nationaux sont très peu friands pour de multiples raisons dont la plus forte est certainement l'absence de confiance réciproque des uns envers les autres.

En effet, sans intégration point d'armée européenne. Pour la réussir, il faudrait tout d'abord une planification de défense qui permette, en fonction des ambitions et des menaces de dessiner l'outil de défense désiré, outil de défense qui prendra nécessairement plusieurs décennies à construire compte tenu des spécificités propres à la fois à la recherche et à l'industrie de défense. On ne peut faire converger la définition des besoins opérationnels qui vont dessiner les outils militaires si on ne s'entend pas au préalable sur les missions assignées à cet outil : guerre expéditionnaire, défense conventionnelle, dissuasion nucléaire, liberté de passage dans les espaces communs etc...

Il faut ensuite, pour qu'il y ait une armée européenne, une planification opérationnelle, c'est-à-dire un commandement unique avant la guerre et pendant la guerre. Quand on pense aux polémiques qui ont surgi tout récemment en France lorsque le porte-avions Charles de Gaulle a été placé pour quelques semaines sous commandement du quartier général de l'OTAN, force est de constater que nous en sommes loin. On peut certes dire que pour l'instant il y a bien un « commandant suprême des

forces alliées » - le SACEUR. Mais celui-ci est Américain. De surcroît son adjoint est britannique et fait partie d'un État qui ne fait plus partie de l'Union. S'il fallait que ce commandant soit européen, et qu'il dispose de véritables pouvoirs de commandement, la question de sa nationalité se poserait sans doute avec plus d'acuité.

Toutes ces questions qu'il faudrait résoudre ramènent à un point focal qui constitue un véritable nœud gordien que peu souhaitent évoquer et que personne n'ose trancher : qui décide ? Qui déciderait de dessiner l'outil de défense ? Qui déciderait de conduire les armées ? Qui déciderait d'engager le feu nucléaire si tant est que l'on veuille bien admettre, après la guerre en Ukraine, que la défense du territoire européen doit nécessairement intégrer la dimension nucléaire ?

La constitution d'une armée européenne prend la forme d'une équation assez facile à résoudre... sur le papier.

Sur le papier, l'équation de la défense européenne, autre nom de l'armée européenne, est facile à poser. Elle n'a pas changé depuis la déclaration de Saint-Malo le 4 décembre 1998 entre Britanniques et Français : « Afin de pouvoir jouer tout son rôle sur la scène internationale (...) l'Union doit avoir des capacités d'action autonome, appuyées par une force militaire crédible, les moyens d'y avoir recours et la volonté de le faire afin d'agir dans les crises internationales ». Ce que l'on peut résumer sous la forme d'une multiplication : Défense Européenne = Volonté politique X Aptitude à Décider X Capacité Autonome d'action.

Si l'un seulement de ces éléments est égal à zéro, le produit de cette équation sera lui aussi égal à zéro. Il est donc impératif de les réunir simultanément, car il ne servirait à rien de disposer d'une capacité autonome d'action sans la volonté de s'en servir, ni les moyens de décider de son emploi. Il faut donc répondre à trois questions fondamentales : qui veut faire quoi (volonté politique), comment (aptitude à décider) et avec quels moyens (capacité d'action).

La vertu de cette équation est d'expliquer pourquoi vingt-quatre ans après la déclaration de Saint-Malo et le sommet d'Helsinki, treize ans après l'entrée en vigueur du traité de Lisbonne, l'Union européenne ne dispose toujours pas d'une véritable politique de sécurité et de défense lui permettant de gérer des crises dans son voisinage qui l'impactent directement, telles que la Syrie ou la Libye.

En effet, l'Union européenne s'est toujours concentré sur la « capacité opérationnelle », dans toutes ses dimensions (industrielle, capacitaire, programmatique, institutionnelle) sans s'assurer que les États membres en avaient la volonté réelle et surtout sans résoudre l'épineuse question de l'aptitude à décider.

La difficulté vient du fait que cette équation est impossible à résoudre dans un cadre intergouvernemental, marqué par



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la prédominance des intérêts nationaux, car elle suppose l'abandon du droit de veto que confère l'unanimité et un partage des décisions jusqu'à présent inacceptable pour la majorité des États membres, au premier rang desquels la France.

Or, si l'armée européenne doit exister un jour ce ne sera pas en empilant des capacités communes, des forces d'intervention, des programmes capacitaires communs ou en faisant du mécano industriel entre grands groupes ni même en mettant en place des programmes complexes d'incitations à la coopération.

L'armée européenne verra le jour - ou pas - lorsque tout ou partie des États européens accepteront d'établir entre eux une authentique « coopération structurée permanente » dans le domaine de la défense, c'est-à-dire une « intégration » de leur forces et de leur industrie, sous une autorité politique commune. Nul n'est besoin pour cela, de réaliser un État fédéral. Mais il nous faut à tout le moins une machine décisionnelle qui soit à la fois pérenne, légitime et efficace, c'est-à-dire capable de produire des ordres clairs dans une chaîne de commandement politico-militaire robuste.

Et c'est bien parce que les dirigeants européens ne veulent pas renoncer à ce qui leur reste de pouvoir dans le domaine de la défense que cette armée européenne n'est jamais évoquée par eux autrement que comme un repoussoir ou au mieux comme un inaccessible rêve. Au lieu de se poser la question de savoir si elle est souhaitable et nécessaire, ils écartent l'idée d'une armée européenne d'un revers de la main en disant qu'elle n'est pas possible.

Pourtant l'intégration des forces européennes semble absolument indispensable si les Européens veulent - ou se retrouvent dans la nécessité de - être en état de se défendre par eux-mêmes en cas d'agression extérieure sous sanctuarisation nucléaire. Ce que la Russie a fait en Ukraine, elle pourrait très bien le refaire dans les pays baltes. D'autant que les dirigeants américains pourraient très bien dans un futur proche ne pas être aussi motivés à défendre l'Europe qu'ils l'ont été par le passé. Dans ces conditions que faire ?

La mise en œuvre d'une armée européenne supposerait un saut quantique politique que nous ne sommes pas encore prêts à franchir malgré la gravité de la situation.

La voie d'une révision par les traités semble impossible, car elle requiert l'unanimité. De même que le passage à une « défense commune » qui est pourtant prévu par l'article 42.2 du Traité sur l'Union européenne, car là encore, cette déclaration qui ouvrirait toutes les possibilités, sans révision des traités, devrait se faire à l'unanimité. Cela rend pour

l'instant peu crédible l'idée d'une « Union européenne de défense » telle qu'évoquée à maintes reprises par la présidente de la Commission européenne, Ursula von der Leyen, ou même tout simplement un « marché unique de la défense » proposée par l'ancien président du conseil des ministres italien, Enrico Letta.

L'idée d'un « Eurogroupe de défense » avancée par le Sénat français en 2012, ou d'un « Conseil de sécurité européen » tel qu'évoqué par le président Macron et la chancelière Merkel au sommet de Meseberg en juin 2018 semble s'être évaporée tant les relations entre l'Allemagne et la France sont à un plus bas historique.

Il n'en reste pas moins que la France pourrait explorer d'autres voies possibles, en particulier avec l'Italie qui est son principal partenaire industriel dans le domaine de la défense. C'est ce que recommande, entre autres pistes, un récent rapport parlementaire des députés Louis Thériot et Jean-Charles Larssonneur. Pour l'instant il faut bien reconnaître que le traité de coopération renforcée dit traité du Quirinal, signé en novembre 2021, qui aurait pu ouvrir la voie à un rapprochement de type intégratif, n'a pas produit les fruits que l'on pouvait attendre.

Hormis l'Italie, le gouvernement français pourrait trouver avantage à se rapprocher des dirigeants polonais, baltes, nordiques, roumains et tchèques pour explorer l'idée d'une intégration plus importante de leurs forces armées, sur le modèle de ce que l'Allemagne avait tenté dans le cadre de l'OTAN en utilisant le concept de « Framework Nation concept » (nation cadre) et qui semble, là aussi ne pas avoir produit de résultat tangible, faute d'intégration politique.

En l'absence d'initiative des États membres, il est probable que les instances européennes reprennent la main après les prochaines élections européennes. C'est d'ores et déjà ce qu'a fait le Parlement européen en votant des résolutions prévoyant la création d'un Commissaire européen à la défense qui pourrait être également le chef de l'Agence européenne de défense et disposer de certaines compétences en matière de politique de sécurité et de défense commune pour ce qui est des missions militaires non exécutives. Le risque est que cette sorte de bricolage institutionnel n'alimente les fantasmes d'un fédéralisme caché et ne serve encore davantage à discréditer l'idée d'une armée européenne.

Cette armée européenne, si elle advient un jour, doit être décidée dans la clarté, avec le consentement des citoyens européens, qui y semblent y être favorables depuis longtemps, tant la nécessité de l'instrument est manifeste. Sa mise en œuvre nécessitera de passer d'une approche graduelle, petit pas par petit pas, faits dans l'urgence et dans la crise, à une approche plus réfléchie, plus structurante et plus permanente, un saut quantique. ■



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ELECTROMAGNETIC SPECTRUM DOMINANCE FROM ROHDE & SCHWARZ

BY GILES EBBUTT

German electronics company Rohde & Schwarz (R&S) has a wide-ranging portfolio across the electronic spectrum and is showcasing its solutions and capabilities for multi-domain operations.

This covers activities in four areas. Firstly, the capability to measure and monitor the electromagnetic spectrum with monitoring solutions designed for military use, such as the PR200 portable monitoring receiver and the new R&S GCASM satellite communications monitoring software.

Second, to contribute to information security with high-performance signals intelligence (SIGINT)/electronic warfare (EW) sensor systems which can detect, locate and coun-

ter all radio frequency (RF) signals including RF-controlled drones in military operations. This includes products such as the UMS400 lightweight universal monitoring system, the ARDRONIS counter-drone family and RAMON analysis software.

Thirdly, the provision of secure, reliable and interoperable communications with SOVERON, the software defined radio family from R&S that can provide advanced voice and data connectivity for all branches of the armed forces. SOVERON radios have been selected by the Bundeswehr for its Digitalisation of Land-Based Operations (D-LBO) programme and according to the company "a significant number of communications devices have already



HALL
6
STAND
K279

been selected by Canada, Australia, Portugal and an unspecified Asian country.

Lastly, the use of artificial intelligence (AI) enriched data to support sensor fusion and signal analysis. At Eurosatory R&S is showcasing its TARAN Suite which combines fragmented and contradictory sensor data into a full situational picture. By leveraging cloud-based technology, this fusion capability processes large amounts of data and enriches it with open source information and intelligence, providing users with a detailed overview of their environment in real time.

from various sources. This enables users to make informed decisions and improve supervision, examination and investigation in any intelligence domain.

TARAN also offers scalability and security. It provides a secure information exchange platform and presents special connectivity options for heterogeneous or decentralised analytics scenarios. With configurable data replication and synchronisation over secure network links, extensive offline processing capabilities for mobile teams, and adaptable resilience for low-bandwidth or high-latency data links. ■

HK437 IN .300 BLK (HECKLER UND KOCH - GERMANY)

BY JEAN-PIERRE HUSSON

Heckler & Koch continues to expand its latest assault rifle family with the HK437 model in .300 Blackout/BLK calibre (7.62×35 mm), considered an alternative to the previously standardized NATO 5.56×45 mm and 7.62×51 mm calibres, especially for law enforcement and special operation forces. The HK437 has basically the same receiver as the HK433, but the gas block is slightly further back. Furthermore, it has a modified HK433 bolt and a new barrel with 9in/229mm length, although 7in/178mm is also available. In addition, there is a new magazine and appropriate safety features to prevent the accidental insertion of 5.56 magazines into the gun. The HK437 can use both supersonic and subsonic ammunition. With a compact Rotex suppressor and a 9in barrel, it comes in at nearly identical dimensions to the HK MP5SD. However, it achieves significantly better performance in both the supersonic and subsonic ranges. The HK MP5SD fires a supersonic DM41 cartridge to 285 metres per second and provides a muzzle energy of 380 joules. In contrast, a .300BLK subsonic fired from a compact assault rifle with a 9in barrel already reaches about 320 metres per second and almost double the muzzle energy, with about 742 joules. This results in higher operational ranges and better effectiveness on target with virtually the same size. ■



HALL
6
STAND
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SURVEY COPTER REVEALS DETAILS OF CAPA-X - THE NEXT GENERATION OF UAS

BY TIM MAHON

Survey Copter is coming from its Rhône valley home, between Avignon and Valence, to exhibit its UAS expertise at Villepinte this year. The company has been developing, manufacturing and supporting light tactical UAS for both civil and military applications since 1996, and in the interim has developed considerable expertise in both domains - as well as in systems certification. Since 2011, the company has been a 100% subsidiary of Airbus.

Over the last 15 years or more,

Survey Copter has delivered - and maintained in operational condition - over 250 UAS to the French Army under the Drone de reconnaissance au contact (DRAC) programme. In 2020 the company was selected for the Système de mini drone pour la Marine (SMDM - Naval Mini-drone system) for the French Navy, for which it is also assisting with operational support. Known as the Alia-ca UAV, the platform is now being integrated onto 2nd-rank patrol boats and frigates, further extending their operational reach.

At Eurosatory 2024, Survey Copter will be focusing some visitor attention on the Capa-X development project. A response to the rapidly escalating market demand for flexible, multi-mission platforms with modular capability as far as missions, configuration and airworthiness are concerned, the Capa-X UAS spearheads a new generation of highly capable light tactical UAS: weighing in at 120kg (and therefore a Cat III platform), with a useful payload of around 10kg, it addresses developing needs for modu-

lar configuration (fixed-wing or jump VTOL, short or long wingspans) and mission flexibility.

Capa-X is a logical consequence of Survey Copter's detailed attention to the provision of reliable, relevant and robust capability - witness the fact that its platforms are in service with multiple armed forces in Europe, the Middle East and Africa. The company supports its customers throughout the anticipated operational lifespan of the platforms. ■



HALL
5A
STAND
C 79

STEYR DMR (STEYR ARMS – AUSTRIA)

BY JEAN-PIERRE HUSSON

The new Steyr DMR (Designated Marksman Rifle) is a full metal semi-automatic sniper rifle weighing less than 4kg and delivering sub-MOA accuracy, available in a variety of calibres, including the 308 Winchester/7.62x51mm NATO, 6.5 Creedmoor/6.5x48mm and new 277 FURY/6.8x51mm. The piston-driven system features a reversible charging handle making the Steyr DMR much easier to adopt for both left- and right-handed shooters. The rifle doesn't require a buffer tube to operate and therefore it features a folding stock, that is compatible with any off-the-shelf AR stock (the DMR can also be fired with the stock folded). Equipped with 113mm barrel (13") the rifle has four different gas settings for normal conditions, adverse conditions, off-gassing, and then a silencer setting which is also intended for use with subsonic ammunition. It also has a quick-change barrel system that only requires a torque wrench to replace. The rifle features four different gas settings for regular conditions, adverse conditions, gas-off, and then a silencer setting that is also meant to be used with subsonic ammunition. It



also features a quick-change barrel system that requires only a torque wrench to swap out. Thanks to the push through safety, the ambidextrous magazine release and bolt release, the rifle is fully ambidextrous. Lastly, the Steyr DMR use of regular AR-10/SR-25 pattern magazines and features long Picatinny guide and handguard with M-LOK slots at 3, 6 and 9 o'clock to allow mounting of various attachments. ■

HALL
5A
STAND
H 189

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DIEHL DEFENCE FOCUSES ON GBAD SOLUTIONS

TIM MAHON

Capitalising on the interest in ground-based air defence (GBAD) systems that is accelerating as the next generation of drone warfare continues to unfold in the skies above Ukraine, Diehl Defence is bringing its extensive credibility and experience in this arena to the fore at Vilpinte this year.

Exhibiting on Booth G280 in Hall 6, the company will showcase, among a host of others, the IRIS-T SLM system, combat proven and already ordered by Germany and several other nations participating in the European Sky Shield programme, recently successfully launched by the German

government. On display will be a 1:12 scale model of an IRIS-T SLM fire unit, protected by the complementary 'Guardion for GBAD' system, that addresses threats from unexpected, unauthorised or hostile drones, and a full-scale mockup of the IRIS-T SLM missile.

Also on prominent display will be the IRIS-T SLX, the latest iteration of the successful GBAD product line, still under development, enabling Diehl Defence to offer operators GBAD capability out to ranges of 80 kilometres.

Other products and services from the extensive range



HALL 6
STAND G 280

of company capabilities on display include the IRIS-T FCAAM, an air-to-air weapon currently under development and designed for the demanding requirements of future air combat. The IRIS-T air-to-air systems, already integrated onto or in service on platforms such as the Gripen, Eurofighter, F-16 and F-18, will also be available for visitors to gain greater insight on.

The extensive range of Diehl Defence munitions will not be neglected. Visitors will be able to see at first hand and discuss the capabilities of 40mm infantry ammunition, MIND76 naval ammunition in both high explosive and training round formats, and both 127mm and 155mm versions of the VULCANO systems, developed in conjunction with partner Leonardo. ■

SAFRAN ELECTRONICS AND DEFENSE REVEALS NEW PNT CAPABILITIES

BY GILES EBBUTT

Safran Electronics and Defense is showcasing new developments in its position, navigation and timing (PNT) products at Eurosatory 24.

NAVKITE is a resilient PNT system developed for the French Navy Commandos. Evolving from a solution envisioned by FUSCOLAB, the French marine corps innovation laboratory, NAVKITE combines Safran's GEONYX M inertial navigation system (INS) with its VersaSync time/frequency server and interference detection and mitigation capability.

It provides a fully integrated and autonomous navigation solution, can provide accurate PNT in global navigation satellite system (GNSS) -denied or -degraded environments and provides protection against GNSS jamming and spoofing. NAVKITE measures 538 x 415 x 300mm and weighs 29kg including batteries, which provide 12 hours of autonomous operation. It supports both GPS and GLONASS navigation.

NAVKITE was first integrated into the Embarcation Commando à Usage Multiple Embarquable (ECUME), a trans-portable, multirole, semi-rigid



HALL 6
STAND G 25

boat designed for commandos and other special forces. It has since been supplied to at least one customer in versions designed for ground forces, although Safran declined to provide further details.

On Tuesday Safran revealed an upgrade to GEONYX, the NavWar Option. GEONYX NavWar is based on Safran's

patent crystal hemispherical resonator gyro (HRG) which has been widely used in a range of applications in multiple domains, such as in missile guidance and space navigation. The system is now being upgraded to increase the capability to detect jamming and spoofing and improve its size, weight and power. ■

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FN HERSTAL IMPROVES THE FN EVOLYS ERGONOMICS

BY VALERIO DEL GRANDE

In May 2021 FN Herstal introduced what can be defined as a new category of machine guns, at least in the modern era, the FN EVOLYS. This new ultralight machine gun (ULMG), designed to bridge the gap between the rifle and the light machine gun, is produced in two calibres, 5.56x45 mm and 7.62x51 mm, ensured a weight saving of around 30% compared to the FN MINIMI Mk3 in the same calibres.

To date no contracts have been announced by the company, however this does not mean that none have been

inked. What is certain is that the ULMG has been tested by several armed forces and special units, and according to FN Herstal positive comments were made regarding the reduced weight, ease of handling, long one-piece top rail allowing in-line mounting of optics, its reliability, and above all the intensive firepower of a belt-fed weapon.

While most of the feedback was positive, users identified two areas in which improvements might be adopted.

Firstly, the buttstock; the suggestion was to adopt an M4-



HALL
6
STAND
F 95

type buttstock, which is familiar to numerous customers who already have in their small arms inventories M4-like weapons. The M4 buttstock selected by FN Herstal has six positions adjustable length of pull and two heights interchangeable cheek rest. The other item that was improved following customers' com-

ments is the optional bipod; in order to obtain a more stable and robust support the attachment interface was reinforced, and stronger aluminium legs were adopted.

From now on the company will provide its FN EVOLYS with the M4 buttstock and the improved bipod. ■

EDGE GROUP'S FIRST PARTICIPATION AT EUROSATORY

BY VALERIO DEL GRANDE

EDGE, the UAE's defence champion, is taking part for the first time at Eurosatory. Eight companies of the Emirati group are displaying over 50 of their systems. The group has recently grown thanks to the consolidation of several defence companies within EDGE, as well as to the acquisition of international companies providing key technologies.

With its participation in the Paris exhibition, the UAE group looks not only at the European market, but also at strengthening ties with existing partners as well as forging new collaborations in Europe and worldwide.

Among the products showcased at Eurosatory, auto-

nous air systems play a key role; loitering munitions of the HUNTER and QX- families, respectively from ADVANCED CONCEPTS and ADASI entities, are promoted, as well as the SHADOW 25 and 50 also by ADASI. The latter company also displays its rotary wing GARMOOSHA and its logistic AIR TRUCK UAS.

In the missile domain HALCON exhibits its THUNDER and DESERT STING air-to-surface precision guided munitions and the SKYKNIGHT air defence missile, while other air-launched precision munitions of the RASH family are proposed by ADASI.

NIMR, the EDGE armoured vehicle company, exhibits its AJBAN MK2 4x4 and HAFEET-



HALL
5A
STAND
E 416

MK2 6x6, as well as the SF light LRSOV vehicle, land robotics being represented by THEMIS and Type-X UGVs, that are part of the EDGE portfolio since the acquisition of the majority of Milrem Robotics by the UAE group.

LAHAB large, medium and small calibre ammunition, and KATIM secure communication systems complete the products showcased by EDGE at its first Eurosatory participation. ■

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BAE SYSTEMS

TRAINING IN ALL DOMAINS

BY GILES EBBUTT

Already a major provider of air combat training systems and a leading player in the development of synthetic-inject-to-live, live-virtual-constructive (SITL LVC) technology, **Cubic Defense** also offers LVC solutions which support realistic training and objective analysis, on display at Eurosatory.

The Air Combat Manoeuvring Instrumentation (ACMI) solution includes the P5 Internal Subsystem, instrumented on over 800 F-35s. It is interoperable with the P5 Combat Training System (CTS) ACMI, of which over 2,000 are in use globally. Both offer advanced weapons flyout simulations and

real-time kill notifications. The P5 System Security Update, a field modification of the CTS to be delivered to the USAF this year, meets all the service's encrypted ACMI requirements at 7% of the cost of a replacement ACMI system, the company says. Cubic is also contracted to the US Navy under the Secure LVC Advanced Training Environment (SLATE) programme, for a demonstration in Guam during Valiant Shield 24.

The Simplified Planning Execution Analysis Reconstruction (SPEAR) software platform is an advanced, multi-domain, multi-environment common data model - an analysis and archi-



ving tool for air training. It can be used for real-time integration of platform, weapon, sensor, and kinetic or non-kinetic effects that are real or modelled in live, virtual, and blended environments to optimise training and rapidly advance proficiency in use of the OODA Loop. On land, Cubic offers an integrated portfolio of systems. Ins-

trumented soldier, vehicle and weapon systems enable scalable force-on-force training; secure and open architecture and training networks cover all environments with curated performance measures and analytics; and training solutions replicate the tactical complexities of urban warfare, CBRN effects and medical treatment. ■

BREN-TRONICS LAUNCHES THE U-HUB, AN INNOVATIVE POWER CONVERTER FOR MILITARY VEHICLES

BY VALERIO DEL GRANDE

For over 50 years, Bren-Tronics has been a global leader in designing and manufacturing innovative energy solutions for military applications. In accordance to its commitment to innovation and reliability, the company is now launching a revolutionary new product: the U-HUB.

The U-HUB is a power converter specifically designed for military vehicles. It stands out for its ability to recharge any USB-C compatible device with its Power Delivery function, offering a versatile solution for powering laptops, tablets, and other equipment compatible with USB-C Power Delivery 3.0 standard. Additionally, it can also charge any USB-A compatible device, making it even more flexible and suited to the varied needs of armed forces.

In terms of technical specifications, the U-HUB accepts a wide range of voltage DC input. It features four USB Type-C PD 3.0 compatible ports, as well as four USB Type-A ports. Each port is equipped with an LED status indicator for easy management. The U-HUB is designed to be extremely compact, taking up minimal space in the vehicle. Made from aluminum, it merges strength with a military design. The U-HUB offers complete protections against short circuits, overcurrents, overvoltages, overheating, and reverse polarity input.



Compliant with military standards MIL-STD-810H, MIL-STD-1275E, and MIL-STD-461G, as well as REACH, RoHS, and CE regulations, the U-HUB is built to withstand the most demanding conditions.

With the U-HUB, Bren-Tronics strengthens its position as a pioneer in military power solutions, providing an essential tool for modern soldiers' equipment in the field where reliability and flexibility are essentials. ■

HALL
5A
STAND
C 179

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BITTIUM'S FOCUSED COMMUNICATIONS

BY GILES EBBUTT

With Finland having joined NATO, Bittium expects interest to be high in the four areas it will highlight at Eurosatory 2024. The Tactical Wireless IP Network (TAC WIN) is a mobile, modular, scalable backbone network already supporting C2 for Finnish, Estonian and Austrian armed – a single system for MANET), point-to-multipoint, point-to-point and link use that offers up to 50Mbps data throughput with the TAC WIN waveform, and a range of up to 45km per hop in link and point-to-point use. The system has robust ECM capabilities and can operate independently of GNSS using Bittium Air Interface Synchronisation. Bittium Tough software defined radios (SDR) provide resilient, high-performance communications and interoperability with the TAC WIN network and waveform. They are field-tested with the ESSOR High Data Rate Waveform for interoperable communications between coalition troops. In handheld and vehicle-mounted variants, they cover

the 20-2500MHz frequency range and also support a wide range of company and national proprietary waveforms, providing an 'application sandbox' to facilitate flexible integration of C2 applications. The Bittium Tough VoIP Service can be used to create a distributed VoIP network that is combat-resistant and adapts quickly to network changes, making it possible to create a resilient, distributed digital voice service for the tactical IP network that integrates seamlessly into Bittium's tactical networks. Other VoIP products include the Bittium Tough Comnode, the Tough Field Phone 2 and the Tough VoIP Softphone. The Bittium Tough Mobile 2 C smartphone provides privacy and security. The company describes it as having a unique hardware-based and multilayered security structure, running two completely separate, hardened operating systems on a single platform. It is designed to be certified up to Confidential level by national security authorities. ■

HALL
6
STAND
H 144



CUMMINS SHOWCASES POWERTRAIN CAPABILITY

BY SHAUN CONNORS

At Eurosatory this year Cummins will be showcasing for the first time in Europe the diverse capability of their product portfolio. Established in 1919 and originally developing then emerging diesel engine technology, in more recent years Cummins has expanded its product portfolio with the acquisition of a selection of additional powertrain related technologies. Leveraging the strengths of several of these product lines to demonstrate Cummins' ability to offer a complete vehicle powertrain, the exhibition display features the L9 and V903 diesel engines which have a power rating up to 544 and 760 horsepower (406 and 567 kilowatt) respectively, Cummins-Meritor's ProTec Independent Suspension Axle System (ISAS) 3400 series, and the RTC60 transfer case which features a diverse catalogue of three shaft, two speed models with precision ground gearing for maximum durability and torque capacity. "Cummins' portfolio of defense solutions has been bolstered by the addition of the Cummins-Meritor ProTec brand of drivetrain components," said Jim Keane, Executive Director, Global Product Solutions, Cummins-Meritor. "Meritor Defense, now Cummins-Meritor, has a storied history of serving the defense



market since the early 1900s. This legacy has long established these solutions as the leading drivetrain components available to defense applications. Combined with Cummins' equally historic presence as the leading power supplier in the industry, we're now able to offer our customers the most comprehensive portfolio of power generation and power distribution solutions available." ■

HALL
5A
STAND
B 309

OPENING THE PATH FOR COMBAT UNITS: RHEINMETALL UNVEILS ITS KEILER NEXT GENERATION BREACHING VEHICLE

BY VALERIO DEL GRANDE

With the western world back to conventional military confrontation, the need to open breaches into enemy layered defences is back, and to do so Rheinmetall has designed the next generation of its armoured breaching vehicle.

The new Keiler NG Armoured Breaching Vehicle (ABV) being unveiled at Eurosatory is based on a Leopard 2 chassis, and is fitted with a Pearson Engineering Route Opening Mine Plough, able to open 4.2 m wide breach into a mine-field ploughing soft terrain at a speed of 250 m per minute, such an operation being conducted under the protection of an artillery smoke screen as the mine clearing vehicle would immediately become the top priority target

for defenders. Should the terrain be hard, full of stones or made of clay, another system would be used; at the back of the vehicle two huge containers host each one a Plofadder 160AT MkII mine clearing line charge which, at detonation, will open a 160 m long and 9 m wide path, with a 90-95% reliability. The terrain will then be ploughed, a magnetic signature duplicator ensuring that any field-sensing mine left would detonate ahead of the vehicle. While passing through the breach opened with either system, the Keiler NG will mark the cleared lane using Pearson's Obstacle Marking System. Both the plough and the detonating line allow the opening of a 300 m long breach in less than 10 minutes, a time consistent with artillery maintaining the smoke

screen protecting the operation. Should the need arise to destroy concrete blocks, the Plofadder can also be used for that purpose.

The Keiler NG is also fitted with a crane that allows quick replacement of the mine clearing system with a dozer blade to clear non-explosive obstacles, and to replace expended Plofadder boxes. Rheinmetall Natter RCWS and ROSY smoke screening systems ensure self-protection.

The new ABV proposed by Rheinmetall has a combat mass of 63 tonnes, and therefore can use MLC80 class bridges. In operating conditions, with extended mine plough, it is 13.5 m long and 5.63 m wide. Height is 3.5 m including the Natter RCWS.

Fully developed with company funds, the Keiler NG should be the best candidate for replacing obsolete Keilers in German Army service, export opportunities being also considered, also considering the number of nations fielding the Leopard 2 as their main battle tank.

Looking at the future, the Keiler NG has mass and power margins to add an active protection system to further improve the two-man crew safety, a remote/autonomous package being also considered to further reduce risks, a mesh network communication system being a possible solution to ensure the link between crew and remotely controlled vehicle even in electromagnetic contested scenarios. ■



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PANASONIC DÉBUTS THE TOUGHBOOK 40 TACTICAL

BY TIM MAHON

Significant digital transformation in the defence and security sectors continues to race ahead in response to escalating threats from increasingly sophisticated adversaries. Frontline military vehicles are swiftly being digitised, necessitating heightened connectivity with command and control centres. This connectivity often relies on robust, military-grade commercial-off-the-shelf (COTS) notebooks and tablets. Not all COTS solutions are created equal, however. The efficacy of military network connectivity hinges on the reliability of the devices and connectors facilitating data transfer. Panasonic Connect offers a robust

solution to ensure constant connectivity for military vehicles.

Debuting at Eurosatory 2024, the new TOUGHBOOK 40 TACTICAL seamlessly integrates into general and unit-specific command and control systems in both wheeled and tracked military vehicles operated by NATO and other European forces. It boasts a specialised module accommodating up to three military-grade connectors, offering users a choice of interfaces. Additionally, it incorporates an embedded port control protocol (PCP) to guarantee enhanced, dependable data connections with military networks and devices.



HALL
5A
STAND
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Recognising the challenge of balancing budgets and resources to implement new in-vehicle solutions, particularly when considering deploying costly custom-built rugged solutions for a variety of platforms, TOUGHBOOK provides a distinct advantage. The company maintains the form factor and peripherals ecosystem of its devices across generations,

ensuring consistency in in-vehicle interfaces and docks for the TOUGHBOOK 40 TACTICAL in future iterations. This ensures that upgrades remain straightforward throughout the vehicle's lifecycle, which can span 10 years or more. Explore how the TOUGHBOOK 40 TACTICAL is optimised for military vehicle use at stand K351. ■

TEXELIS UNVEILS CELERIS 6X6, ITS TURNKEY MOBILITY SOLUTION FOR NEW 6X6 VEHICLES

BY VALERIO DEL GRANDE

French specialist of mobility solutions in armoured vehicles, Texelis launched in 2023 CELERIS, its mobility solution for 4x4 vehicles. CELERIS was based on the development of the Serval 4x4 multipurpose vehicle, conducted for the French Army and currently in production.

The next logical step was 6x6, which is being unveiled at Eurosatory 2024, and is now available for new customers.

CELERIS 6x6 is derived from CELERIS 4x4, retaining its philosophy and the main compo-

nents. This enables commonality between both architectures, creating synergies and a comprehensive fleet approach between the two solutions.

CELERIS 6x6 comprises the CUMMINS ISL9 engine developing 275kW, the ALLISON 3200SP transmission, the POWERLINE transfer case, as well as three Texelis T750 axles. The rear axles are available with trailing arms and double wishbones options, with rear axle steering possible in the double wishbone configuration. CELERIS 6x6 is an enabler for new 6x6 vehicles in several



HALL
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STAND
C 116

variants ranging from 18 to 26 tonnes.

The CELERIS logic is retained at the production level, with a system of base, option and industrial kits to fit all the needs and adapt to all demands.

The 6x6 is aimed at OEMs or military arsenals willing to develop their capabilities and

create new ranges of vehicles for their national army or for export markets. Electing Texelis' CELERIS 6x6 ensures that mobility – arguably the most difficult part of a vehicle to qualify – will be developed as per the exact requirements, on an already proven, developed, qualified and already in production technical base. ■

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INFLATABLE ANTENNAS REDUCE SWaP

GILES EBBUTT

Reducing the size, weight and power (SWaP) of expeditionary communications systems is a consistent aim for those seeking to provide the most effective solutions for vital long-range links. Cubic Defense's GATR portfolio includes several examples of these efforts which are being highlighted at Eurosatory. The GATR inflatable satellite antenna range, available in 1.2m, 2.4m, and 4.0m sizes, reduce the pack out weight and volume of comparable rigid antennas. The 1.2m reduces these by 50% and the two larger antennas by up to 80%. The company claims that the inflatable ball design provides greater stability in high winds and simplifies deployment and set up. An intelligent pressure

monitoring system maintains the pressure within the inflated ball to ensure the best possible signal strength. All variants are available in X-band, Ka-band and Ku-band, with the 2.4m also available in C-band. The inflatable concept has been extended to the GATR 2.4m troposcatter antenna, in tandem with software-defined radio technology from Comtech Systems, in a solution which provides support for C-Band or X-Band with automatic antenna pointing and link alignment. The system provides a high throughput tactical link capable of line-of-sight (LOS) and beyond-line-of-sight (BLOS) communications utilizing diffraction and troposcatter paths and delivers high throughput



HALL
5A
STAND
A 220

links up to 210 Mb/s.

The rugged low SWaP system is capable of being transported in a light tactical vehicle, and can be set up by three people in less than one hour.

Another use of the inflatable antenna system is GATR TRAC, a 2.4m tactical, mobile, sensor agnostic direct downlink terminal providing receipt of commercial imagery that can be integrated with data from other sources.

The terminal is compatible with commercial common imagery processors that process raw satellite data into standard formats and allow for near real-

time connectivity and distribution of imagery. It is currently operational and successfully retrieving and exploiting commercial MEO/LEO satellite imagery from sources such as WorldView 1-2, GeoEye-1, RADARSAT-2, and NASA earth observation satellites.

The terminal has been demonstrated in cooperation with the Army Geospatial Centre remote ground terminal, TITAN prototype, NRL's Coalition Tactical Awareness and Response (CTAR), and as the US Army Space and Missile Defense Command Kestrel Eye ground station. ■

SWEDISH SUCCESS FOR MARSHALL

BY SHAUN CONNORS

Eurosatory this year, Marshall of the UK is displaying a command and control (C2) configured example of its standardised base 20ft container range. Earlier this month the company announced that it had secured a contract valued at over £100 million to design and produce an extensive suite of command and control (C2) shelters, modular workspaces and ancillary equipment for the Swedish Defence Materiel Administration (FMV).

The Swedish contract will, over the next four years, see Marshall deliver up to 500 shelters as well as a range of ancillary equipment including power units, battery boxes and mast trailers. Production will be shared across facilities in the UK and Canada, demonstrating the efficiency and

capacity benefits made possible by Marshall's growing operational footprint around the world. The contract includes a three-year extension option.

To provide the full spectrum of C2 capabilities and support for personnel, Marshall will adapt its standardised base 20ft container range into a total of 16 shelter variants, each of which will feature a unique combination of equipment, modules and specifications for dedicated roles such as command, communications, mast operation, technical support and network support. Electromagnetic shielding will be standard across the C2 suite, most variants will feature HVAC and CBRN filtration systems, and one variant includes ballistic protection.



HALL
5A
STAND
D 387

In addition to the production and delivery of shelters and ancillaries, the contract awarded to Marshall also includes parts supply and ongoing technical and maintenance support for up to 10 years.

"Delivering and supporting a full range of C2 capabilities on this scale plays perfectly to Marshall's engineering strengths, global production capabilities, and pedigree of working with NATO partners," said Bob Baxter, Marshall's Chief Growth Officer.

Having formally joined NATO in March, Sweden is embarking on a rapid digital defence modernisation programme to support integration with alliance partners and enhance the overall readiness of its full-time and reserve forces.

"We are proud to be part of Sweden's next phase of investment in the readiness of its armed forces as it seeks to integrate into NATO, providing welcome stability in the challenging geopolitical climate," Baxter added. ■

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MOOG PRESENTS FLEXIBLE MISSION PLATFORM

SAMUEL CRANNY-EVANS

Moog is displaying its Flexible Mission Platform (FMP) that has been designed in Europe to provide armoured vehicles, trailers, containers, and naval vessels with a completely customisable system for armament and sensors.

The FMP is available as a yoke or pedestal and can be integrated with Moog's stabilisation system as well as a slip ring for high speed power and data transmission. The company also offers its Weapons Stores Management system for integration into the FMP, which

allows sensors and mission systems to be integrated with missiles to provide the crew with fire control solutions.

Without missiles the FMP weighs 350 kg and has a typical elevation range of -10° to +30° it can be traversed at a rate of 1 rad/second, and elevated at 0.5 rad/second. In the pedestal configuration the FMP can be fitted with air defence missiles as well as guided anti-armour missiles and ship-board rockets. The yoke configuration can be used for optical systems, directed energy and microwave systems. ■



HALL
5A
STAND
E 324

SOFRAME UNVEILS ITS FARDIER MKII MINE-CLEARING UGV

BY VALERIO DEL GRANDE

Opening a potentially mined itinerary is one of the riskier businesses in the military world. Many armies are considering deploying unmanned systems ahead of the clearing package to reduce that risk. The French Direction Générale de l'Armement launched a programme known as « Robin » that aimed at replacing manned Buffalo 6x6 vehicles in this role. SOFRAME has developed a versatile UGV, the Fardier MkII, that answers this requirement when fitted with engineering equipment. First tests have been carried out successfully in April 2024.

The Fardier MkII is a 4x4 unmanned ground vehicle powered by a thermal engine and fitted with four hydraulic wheels. This makes it easier to control the power, a critical issue when operating at very low speed. Fitted with independent suspensions, mobility is further enhanced by the all-steering wheels and the 4x4 configuration.

For long journeys the Fardier MkII can be safely towed by another vehicle at high speed. It has an endurance of 12 hours and is remotely controlled through an ergonomic portable command box.



OUTDOOR
STAND
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In the mine clearing version, the situational awareness and control command suite is provided by Exail, and it is fitted with a robotic arm at one extremity provided by Global Clearance Solutions (GCS). This includes hydraulic coupler for fast tool exchange and two outriggers that stabilise the system in operation.

The Fardier MkII is a multi-mission platform that can be used also in many other roles. The platform has a gross vehicle mass rating of 3,500 kg with a 1,000 kg payload. It is 4.3 m long, 1.8 m wide and 2.6 m high in the mine clearing version with the robotic arm at rest over the flatbed. ■

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TELEDYNE FLIR DEFENSE LAUNCHES ITS SUGV 325 MAN-PORTABLE MODULAR ROBOT

By VALERIO DEL GRANDE

Mobility and modularity, these are the key features that make the SUGV 325 robot a better system for several military uses, further widening the Teledyne FLIR Defense offer in the UGV domain.

The new tracked platform maintains the typical architecture, with front flippers allowing 305mm vertical obstacles to be overcome and 45° stairs, while the SUGV is able to climb a 45% vertical slope and move onto a 30% side slope. Most of those data, as well as the 11.3 km/h speed, represent an improvement over its predecessor, while the platform mass is kept at 8.1 kg, which becomes

9.1 kg adding the two batteries that power the electric motors. Two options are provided to the operator, BB-2257 batteries ensuring an autonomy up to 4 hours, while with the more capable BB-2590s it can reach up to 8 hours operational time.

The platform has a wholly new and more capable integrated situational awareness suite in the form of one daylight HD camera, one thermal LWIR uncooled camera, stitched cameras providing the 360° short range vision, and finally a two-way audio system.

The UGV is connected by the Wave Relay MANET and forms a node of the network.



The SUGV 325 is controlled via the uPoint multi-robot control system based on a touchscreen tablet.

The IOP-compliant architecture allows installing a variety of payloads. The company proposes its 5 degrees of freedom manipulator, capable to lift up

to 9.1 kg, and a 30x optical zoom module for reconnaissance purposes. However other systems can be added for EOD or CBRN recce missions.

Teledyne FLIR Defense is transitioning the SUGV 325 from the development phase into production, LRIP being planned for early next year. ■

HALL
5A
STAND
A 127

NEW KNDS ELECTRONICS PROGRAMMABLE ARTILLERY FUZES

BY VALERIO DEL GRANDE



KNDS unveils two new programmable fuzes and a new inductive fuze setter, all designed and developed by KNDS Ammo Italy. Compliant with the NATO standard AOP 22, the new fuzes can be programmed by all the existing setters that follow the same standard, while the setter can programme third party fuzes also designed according to the AOP 22.

The FB 22 fuze setter is a handheld device weighing 1.5 kg, that programmes the fuze by induction, putting the setter ring over the fuze. Battery powered, it can be operated for 8 years or 10,000 programming without replacing the battery. The setter is fitted with a plug and can receive programming data from the FCS via cable. Its qualification is expected before year end.

The FB375Mk2-IM multimode fuze, also known as FOX, can be used on 155 and 105 mm artillery ammunition. It has four programmable

modes, Height of Burst with three height settings, Point Detonation Super Quick (PD SQ) detonation occurring within 250 microseconds, Point Detonation Delay with up to 60 milliseconds delay, and Time up to 199.9 seconds. Tested on several types of standards, Extended Range and Base Bleed ammunition fired from the Caesar and PzH 2000 155/52 mm artillery systems and a 105 mm gun, the FOX is fully qualified and available.

The FB374 was developed from the FOX and is designed for illuminating, smoke and cargo ammunition, which need a fuze protruding less into the round. Considering the use only the Time mode has been kept, PD SQ being also present as a backup ignition mode in case of an impact of the projectile before the set time. It will reach full qualification by year end. ■

OUTDOOR
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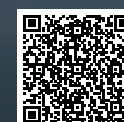


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NEW MEMS FROM LITEF

BY GILES EBBUTT

German navigation and sensor system developer and manufacturer LITEF has recently launched a new generation of micro-electro-mechanical system (MEMS) which it is showcasing together with other elements of its product portfolio.

The new Micro Coriolis Rate Sensor (μ CORS) family offers several advantages to the user, including excellent performance under high vibration and shock levels in an extended temperature range; high bandwidth; high dynamic range using a closed loop sensor; high scale factor linearity; and temperature compensated data output. The devices also offer low size, weight and power (SWAP). There are four

variants in the family, with two different measurement ranges and two different temperature rate biases. The asynchronous and synchronous interfaces, which are compatible with the LITEF fibre optic rate sensor (μ FORS) family, allow the output of temperature-compensated rotation rates, angle increments or accumulated angles, even in data-synchronised multi-sensor configurations. The variously configurable interface parameters also permit adaptation-specific adaptation.

The μ CORS technology allows production of smaller sensors at lower costs than comparable fibre optic gyro (FOG) sensors. LITEF says that



HALL
6
STAND
G 360

μ CORS is particularly suitable for price-sensitive applications in which a small size is required despite high accuracy and environmental requirements.

The wider LITEF product range includes sensors, inertial measurement units, attitude and heading reference systems, inertial navigation systems

and inertial reference systems. Working closely with customers, specific product solutions are developed for measurement and navigation tasks with maximum precision and reliability requirements. LITEF products are in use worldwide with applications ranging from civil and military aviation, land and marine applications to industrial solutions. ■

RMR HD AND RCR REFLEX OPTICS (TRIJICON -USA)

BY JEAN-PIERRE HUSSON

Specifically designed by Trijicon for the evolving needs of law enforcement and the military, the RMR HD follows the lineage of the RMR Adjustable LED model, as it features the same patented housing shape made from forged aluminium, a robust electronic system, and quality lenses. To further improve an already-winning combination, Trijicon added a long-lasting, top-loading battery compartment, a larger window for an expanded field of view and an innovative light sensor. The unit is available with either a 3.25 MOA and 1.0 MOA reticle red dot and can be switched between a single-dot reticle or a dot within a circle reticle. Both options include a new super-bright setting and an additional night vision setting compared to the original RMR models. That light sensor, for

example, was designed to gauge the brightness at target when set in the "AUTO" mode, adjusting reticle brightness for nearly any lighting scenario. Trijicon also added larger, more tactile illumination buttons than those found on the RMR Adjustable LED, to provide greater audible and tactile feedback. The RMR HD has the same optics footprint as the RMR, and the size and shape are similar enough that the new optic will fit most existing optics-ready duty holsters. Like Trijicon's flagship ACOG, the RCR can withstand direct impacts and survive in the harshest environments thanks to the same unique patented housing shape of the RMR but now in a closed emitter version. That build diverts the force of an impact away from the lens, greatly increasing drop survivability and one-handed slide ma-



nipulation. The new RCR works with the current RMR footprint, plus features a unique, patented mounting system, as well as easily adjustable elevation and windage controls (requiring no special tools), and a top-loaded battery compartment. Trijicon

has also upgraded the optic's electronics compared to previous models and ruggedized the battery contacts. For a reticle, the RCR currently is offered only with a single 3.25 MOA red dot. ■

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CIO UNVEILS CENTAURO II 105 MM VIDEOS AND EXHIBITS PRODUCTION CENTAURO II 120 MM

By VALERIO DEL GRANDE

When the Centauro II, the 8x8 mobile gun system developed by CIO, the consortium between Iveco DV and Oto Melara, now IDV and Leonardo, was unveiled it was abundantly clear that the 120 mm adopted by the Italian Army was one of the two armament solutions proposed. The HIT-FACT MkII can be fitted either with the 105/52 mm rifled or the 120/45 mm smoothbore low recoil force gun. Until now no images of the 105 version had been made available, while customers in some geo-

graphic areas have shown an interest for the smaller calibre gun. CIO switched therefore the gun on one of the company vehicles; the operation is simple, removing the front shield, removing trunnion mounts, removing the gun assembly, installing the new gun, reinstalling trunnion mounts, and installing the new shield. Of course, new data must be loaded into the Fire Control System. As for the ammunition autoloader, a diameter reduction kit is installed in the canisters, the same being true for spare



HALL 6
STAND B 176

ammunition magazines. The 105/52 mm gun produced by Leonardo is fully equivalent to the L7; it has however a higher safety coefficient, thanks to the use of advanced materiel. The muzzle brake is of the pepperbox type, like that of the 120 mm gun but with an added baffle.

The Centauro II 105 underwent a full series of firing tests in early 2024 at the Ita-

lian Army Nettuno test range to physically demonstrate the availability of this version.

At Eurosatory CIO is exhibiting the Centauro II 120; for the first time the vehicle on show is one of the latest serial production items, fitted with the programming system for airburst ammunition. ■

TEST, DIAGNOSE, VERIFY

By GILES EBBUTT

Astronics Test Systems offers automatic test expertise to electronics manufacturers in the aerospace, military, space and other industries.

At Eurosatory the company is highlighting its capabilities in tactical radio testing with two solutions on show: the benchtop/depot ATS-3100 RTS and the field portable CTS-6010.

The two software-defined platforms share a common test executive and software framework, so users have synergy and fluidity with the equipment from depot to field. They can be tailored to customer requirements and allow for future technology insertion. According to the company both legacy and modern airborne or ground radios from virtually any original equipment manufacturer (OEM) can be tested.

The CTS-6010 combines more than 16 synthetic instruments into one platform, offering fault detection and operational verifi-



cation of a range of radio components and ancillaries. Its small, lightweight, rugged form factor allow users to hand-carry it wherever needed for field testing and verification of critical communications equipment.

The solution for Astronics' 2023 USD40 million contract award to support the US Marine Corps Handheld Radio Test Set Program (HHRTS) will be based on the CTS-6010.

The ATS-3100 RTS allows for more in-depth testing and diagnostics and is capable of identifying failure root cause. Built using the ATS-3100 PXI Integration Platform, the RTS has a single PXIe module which contains the entire RF, analogue, and digital subsystems performing complex measurement and stimulus signal processing functions.

The ATS-3100 RTS is the basis of the solution that was downselected by the US Army TS-4549/T GRM-122 replacement programme in 2022. ■

HALL 5A
STAND AB 319

EMBERION FOCUSES ON CAMERAS

By GILES EBBUTT

Emberion manufactures visible to shortwave infrared (VIS-SWIR) cameras based on its sensors, using its inhouse designed nanomaterial complementary metal-oxide-semiconductor (CMOS) read-out integrated circuit (ROIC) and quantum dot technology. The company also offers camera cores with full hardware and software implementation for analogue-to-digital conversion, image pre-processing, thermal and power management, and a digital camera interface with IP rated housing integrated with its own image sensor components. All Emberion cameras are suitable for electro-optic integration and can be used for various defence applications in the land, sea and air domains.

At Eurosatory 24 Emberion is highlighting its VS20 Compact camera with size weight and power optimised housing, and its VS20 camera core for integration into high volume end applications. It is also launching a VIS-SWIR megapixel camera with super extended graphics array resolution (SXGA) 1280 x 1024 and a push broom sensor for hyperspectral imaging applications.

Emberion's nanomaterial ma-

nufacturing process creates unique benefits to the camera such as offering a wide spectral range of 400-2000 nanometers (nm) in one sensor. This compares to existing technologies such as indium gallium arsenide (InGaAs) based sensors which according to Emberion can extend only to 1700nm. The ease of manufacturing offers affordable sensors and cameras. Due to its monolithic integration process it can be scaled up to larger wafer sizes.

Weighing 450g the Emberion VS20 Compact offers a full camera functionality with implementations for sensor readout and control, analogue-to-digital signal conversion, calibration, image pre-processing, thermal control, power management and standard digital camera interface. A stable performance over a wide environmental temperature range is ensured with a thermo-electric cooling (TEC) element built in the image sensor package.

The camera also has a high dynamic range (HDR) (>120dB). The performance of the HDR sensor incorporated in the VS20 is ideal for large variations in brightness level with a single exposure. It can han-



dle large variations in irradiance level, providing better contrast, and bright spots, such as headlights in low-light conditions, do not obscure neighbouring dark objects. The VS20 Core offers the same functionality while weighing only 102g. The camera core circuit boards can be built into a stand-alone housed camera or integrated into a hosting imaging system.

Emberion's QD sensor-based cameras can be used for surveillance in harsh environments and when obscured by snow, haze or smoke, making them particularly suitable for defence and security applications. They can detect all the laser wavelengths (905nm,

1064nm, 1550nm and beyond 1700nm) for laser range finding and designation.

They are also appropriate for use in uncrewed systems, where employing a single compact high performance camera system to resolve all bands is critical, which using UAV based drone applications are becoming more prevalent and using one camera system to resolve all bands are critical.

Emberion is now developing creating ultrabroad band cameras (Vis-SWIR-thermal) in one focal array (FPA) as well as non-cryocooled MWIR sensors (3-5um) for defence, military and machine vision applications. ■

HALL 5A
STAND C 397

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MILREM DISPLAYS FURTHER THEMIS EVOLUTIONS

SAMUEL CRANNY-EVANS

Milrem is displaying a SATCOM-equipped evolution of its THeMIS uncrewed ground vehicle (UGV) at its stand in Hall 6 at stand K145.

The new THeMIS variant has been developed in cooperation with AEC Skyline and can be controlled from thousands of kilometres away through a Starlink control link. The THeMIS variant on display is the CASEVAC vehicle, which has also been deployed to Ukraine alongside a route clearance variant. The use of Starlink enables the real time transmission of data to and from the UGV during operations

and can help keep users at a safe distance from dangerous situations such as casualty extraction or during logistics deliveries.

There are a total of eight THeMIS variants on display at Eurosatory, the newest configuration is the THeMIS combat UGV armed with the FZ602 2-tube rocket launcher by Thales Belgium. It is showcased together with KONGSBERG's PROTECTOR RS4 remote weapon system (RWS). It is also the first public display of the THeMIS equipped with Leonardo's HITROLE light RWS, which includes AI-assisted target recognition and



tracking. A THeMIS fitted with the Kongsberg PROTECTOR RS6 armed with the 30 mm M230LF cannon can also be found at the Kongsberg stand.

The THeMIS variants are displayed alongside two of the Type-X robotic combat vehicles. The Type-X weighs 12,500 kg and is provided with STANAG level 4 protection against kinetic threats. It is available with a medium calibre cannon or as a launch

vehicle for UVision loitering munitions.

Milrem believes that UGVs can provide a vital reconnaissance by force function through exposing an enemy's frontline positions and providing commanders with the ability to assess an opponent's disposition before committing forces. This can create momentum for human forces to exploit. ■

eGEN FORCE AND MORE...

BY SHAUN CONNORS

Allison Transmission is showcasing its eGen Force electric hybrid propulsion system, the newest product in its extensive armoured vehicle portfolio, meeting requirements across a wide spectrum of applications, including the IFV and MBT markets. eGen Force extends beyond the capabilities of a traditional transmission by functioning as a power distribution system with an electric motor and inverter. This provides power for the vehicle and allows for parallel hybrid operation, enabling engine-off mobility and reducing risk of acoustic and thermal detection.

The solution features fully integrated autonomous-enabling drive, steer and braking systems and benefits from Allison's 20+ year electric hybrid system experience, as well as 70+ years of tracked vehicle system knowledge. The high-efficiency range pack uses eight forward and three reverse gears, providing efficient 12:1 ratio coverage, with a 220kW electric motor and asso-



ciated inverter providing on-board power and parallel electric hybrid operation. The solution offers enhanced mobility performance and efficiency, a significant reduction in fuel consumption and reduced thermal and acoustic signatures.

Allison is also presenting its 3040 MX cross-drive transmission, as well as the 9-speed and 4000 Series fully automatic transmissions. The former, designed for medium-tracked

combat vehicles, provides propulsion, steering and braking functionalities of the vehicles and has been designed to accommodate future control platform evolutions, enabling advances in system performance over the vehicle's life cycle.

The 9-speed fully automatic transmission derives from the proven 2000 Series and features nine forward and three overdrive gears, reduced fuel consumption and a deeper first gear ratio, improving performance and potentially eliminating the need for a two-speed transfer case. ■

HALL
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NORA B-52 NG

SELF-PROPELLED GUN-HOWITZER 155 mm



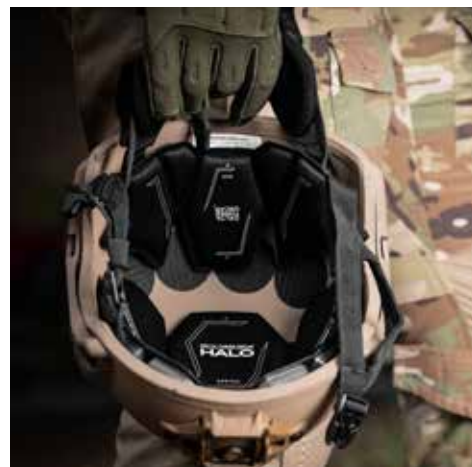
D3O OFFERS NEW PROTECTION SOLUTIONS

GILES EBBUTT

US firm D3O, specialist producers of impact protection solutions, is displaying the latest protection innovations developed by its ballistic arm Delta Three Oscar. The personal protective equipment engineered by Delta Three Oscar offers ultra-light body protection against ballistic threats and features advanced bespoke trauma reduction materials. Eurosatory is the first occasion that a newly developed ballistic grade foam called D3O Ballistic, developed specifically for body armour, is being shown in public. Constructed from high energy absorbing, closed-cell foam this low weight and low-bulk material offers reduced back face deformation, while maintaining flexibility and comfort, providing an essential layer of comfortable torso protection for frontline personnel.

The material is available in four densities, accommodating different ballistic plate designs and enabling tailored protection according to operational needs. It is thermoformable, allowing it to be easily shaped and customized to fit with various body armour designs. By minimising bulk and weight the material reduces wearer fatigue and improves overall manoeuvrability. The company is also showcasing its complete series of Halo helmet liner pad systems which are engineered to provide light weight, comfortable head protection in demanding environments. These are available in 3, 7 and 9-pad configurations and leverage D3O's proprietary technology to mitigate the effects of impact, reducing the risk of head injuries and enhancing operational effectiveness. The Halo liner systems feature

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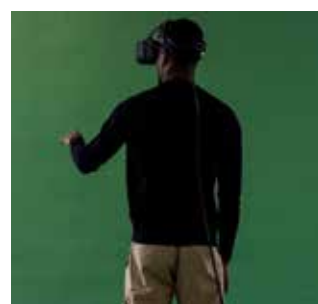
dual-density cushioning and impact-resistant layer construction and accommodate different helmet designs and wearer preferences. The central oblong pad in the 9-pad configuration is removable, allowing for easy wearability of communication headsets. Additionally, the Halo 3-pad system offers versatile sizing. It is available in two different thicknesses (0.75" and 1") and there are two liner sizes (S/M/L and XL) available to accommodate all shell sizes. It also has integrated air channels to provide ventilation and moisture management. Finally, Delta Three Oscar is presenting its latest innovations in protective gear, including new

shock absorbing insoles and P12 limb protectors. The new insoles feature D3O's impact-resistant, adaptive materials, designed to buffer repetitive stress and fatigue, adding extra comfort and performance to any footwear. The P12 knee and elbow pads have an ergonomic design and are moulded to form accurately to the body for easy movement whilst providing vital cushioning for limbs. The TriVent technology provides enhanced ventilation and the use of flexible, low-profile, lightweight material aids stealthy movement. ■

ALLEN-VANGUARD/HYPERION TEAMING SCORES MIDDLE EASTERN SUCCESS...

BY SHAUN CONNORS

Allen-Vanguard, best known for providing customised technology solutions for defeating radio frequency (RF) based terrorist and extremist threats, has partnered with Hyperion, developers of innovative technology-based defence solutions, to deliver a mixed reality Joint Terminal Attack Controller (JTAC) trainer for an unspecified Middle Eastern customer.



Allen-Vanguard has considerable experience in creating successful partnerships to drive forward complex technology integrations to deliver novel capability and they also have a wealth of experience in the Middle East. Hyperion has deep expertise in Joint Fires support and training, simulation and the establishment and delivery of modern training solutions for defence organisations. Together, they have developed a cutting edge accreditable JTAC training solution that provides a fully immersive mixed reality training environment to efficiently and effectively deliver complex joint fires training for JTAC students. The solution is a mobile, trailer-based system, incorpora-

ting Varjo's XR-4 Focal Edition headset allowing the trainee to be fully immersed in the virtual environment, whilst being able to interact with their real equipment. This innovative system provides a more effective training solution, than live or dry controls alone. Bobby Strawbridge, Director Business Development for Allen-Vanguard said, "We at Allen-Vanguard are increasingly finding ourselves working alongside other sector experts to help deliver the best possible in-theatre capabilities to meet the needs of our customers. Whether defeating the RF threat or countering other capabilities, maximizing the benefits of rapidly advancing technology is vital to maintain the battle

winning edge. We are extremely pleased to be working with Hyperion on this project and very impressed with the JTAC training capability we have produced together."

Chris Derbyshire, Co-Founder and Director at Hyperion said, "Working with Allen-Vanguard has been an excellent experience and collectively we have produced a supremely flexible mobile training facility which using ARMOR software allows instructors and students to draw upon accurate worldwide data to generate terrain for anywhere on earth in minutes; thus providing the user with the greatest possible flexibility to train where and when they want in all possible scenarios." ■

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MKU TO SHOWCASE DEFENCE INNOVATION FOR EUROPE AT EUROSATORY 2024

MKU, a global leader in defence and homeland security solutions, is proud to announce its continued commitment to Europe's defence market and its participation in Eurosatory 2024, showcasing their latest innovation and technology.

With over four decades of experience, MKU has been at the forefront of innovation, MKU dedication to research and development and customer centric approach has helped MKU diversified into a full fledge autogenous optronic solution company, with its NETRO soldier optronic solutions, It has extended its range of night vision devices for situational awareness and surveillance, aiming solutions and airborne solutions to sighting systems for heavy machine guns and grenade launchers.

MKU has always been an innovative leader in advance ballistic protection by developing cutting edge KAVRO protection solution that covers ballistic helmet, body armour systems and ballistic shields. MKU's contributions to Europe's defence market have been significant, with their solutions widely used by armed forces and law enforcement agencies across the continent. Notable examples include supplying 2500 ballistic armor plates to the Spain border police, over 1000 body armors to the Estonian police force, and providing platform armor solutions for German Army containers, enhancing their protection against lethal

threats. MKU has also provided Norway and Sweden police forces with ballistic shields. MKU GmbH, a German corporation, played a key role in venturing into Platform Protection Solutions. MKU GmbH has a state-of-the-art ballistic testing facility that is well equipped to test soft armour, hard armour, ballistic helmets and platform armoring solutions. MKU offers commercial use of this armour testing facility to facilitate advanced armoring solution development around the globe.

Moreover, MKU has fostered partnerships within Europe, including a cooperation and development agreement with the French Major Thales to co-develop and market optronics devices. The alliance envisages manufacturing of optronics equipment, including weapon sights, night vision goggles, hand-held thermal imagers and thermal infrared sensor engine for soldier systems, and other image intensification and thermal imaging systems for soldiers and platforms.

As part of our ongoing efforts to showcase the latest advancements in defence technology, MKU will be displaying latest innovation at Eurosatory 2024. MKU is showcasing the



range of solutions for female soldiers, including a tactical body armour and a covert vest. These solutions are design for women soldiers who have to wear flat armours that hinder their movements and agility on ground and sometimes also lead to long term tissue injuries. Flat armours also hamper their ability to handle weapons and maneuver swift tactics and alertness. Along with that, the display will also include MW-5000 sighting system for grenade launchers and heavy machine guns, NM-3200 ultra-compact night vision monocular, Kavro Doma 360 the world's first ballistic helmet with uniform rifle protection across all 5 zones and platform protection solutions.

MKU has been a regular participant at Eurosatory since 2004 and remains committed to exhibiting at the event to showcase its latest innovations and engage with key stakeholders. «We are excited to exhibit at Eurosatory yet again,»

said Mr. Neeraj Gupta, Managing Director at MKU. «Our intent is to understand how we can do more for our heroes, discuss and work towards further strengthening defence and homeland security forces in the region for a safer future for the generations to come.» «At MKU, we are committed to empowering soldiers with the most advanced and reliable defence solutions,» said Karan Gupta, vice president International Sales at MKU. «Our participation at Eurosatory 2024 underscores our dedication to innovation and our unwavering support for those who serve on the front lines. We are proud to showcase our latest offerings, which not only protect but also empower soldiers with confidence to excel in their missions.»

Visit MKU at Eurosatory 2024 (HALL NO-6, k50) to discover first-hand experience of how our innovative solutions are reshaping the modern needs of defence. ■

**NH
90**

SAVING LIVES
PROTECTING HEROES



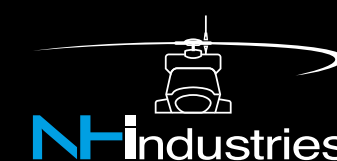
**COME TO VISIT US
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Airbus Booth
C79 Hall A**

NH90 NFH

The NATO Frigate Helicopter (NFH) is a state-of-the-art primary weapon system in the defense of a surface fleet. Operating from ships, as part of an integrated mission system, the NH90 allows autonomous and joint ASW, ASuW, SAR and C-SAR operations without major configuration changes.



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INOX CARBON WATCH (VICTORINOX - SWITZERLAND)

BY JEAN-PIERRE HUSSON

Subjected to a total of 130 extreme tests the Victorinox INOX Carbon watch features a 43mm grey reinforced carbon case, screw-down crown, anti-reflective sapphire crystal, Ronda 715 watch movement and black hands and indexes with SuperLuminova luminescent coating. The package includes two spare straps (black silicone and paracord camouflage green Nato), a black rubber protective cover and an Evolution 23 pocket knife. Water resistance to 200 metres/660 feet this watch is suitable for anyone who needs to rely on their watch in any situation. Thanks to the watch strap which turns into a 2.5m long rope when untangled. Just take the watch off your wrist, untangle the rope and you can use it for whatever you want. In case of an emergency, it's useful for first aid, making shelter, repairing gear and, thanks to a load capacity of up to 250kg, rappelling up to two people. These are the features behind the incredible durability the Victorinox INOX Carbon watch. ■

HALL
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H 112



DEFENDING THE DEFENDER

SHAUN CONNORS

OUTDOORS
STAND
B 54

At Eurosatory this year, MSI-Defence Systems (MSI-DS) of the UK is displaying an example of its mobile and deployable VSHO-RAD solution, the MSI-DS TERRAHAWK PALADIN.

The TERRAHAWK PALADIN is the company's flagship C-UAS system to detect and defeat hostile unmanned threats ranging from large tactical UAVs to fast incoming aerial, ground, as well as maritime surface targets such as drone boats and FIAC. TERRAHAWK PALADIN is based on a field-proven system with multiple recorded drone kills and was developed by the company in response to the recurring request and interest from armed forces around the world seeking a fully mobile and rapidly deployable solution to protect key assets.

The threat posed by class I and II UAS is increasingly becoming more common and widespread, especially with the proliferation of small, off-

the-shelf, jury-rigged drones for reconnaissance, surveillance, suicide and swarm attacks. Here, the MSI-DS TERRAHAWK PALADIN has been developed to capably fulfil critical threat defence requirements in a wide range of roles from protecting high value military targets and critical infrastructure to force multiplier for wider coastal and border protection.

A key feature of the TERRAHAWK PALADIN is its strategic and tactical mobility. In addition to ground deployment for conventional point defence roles, the system can be integrated into a wide range vehicles or vehicle types, and can also be trailer-mounted. Most recently the system has also been installed onto a NATO standard flatrack, this enabling transport by any DROPS/PLS-type truck. This installation style enables the rapid ground deployment of the system, and allows for timely 'pack-and-go' to re-deploy at another



location, when and where priorities change.

The inherent flexibility of the design concept allows it to deploy as a standalone unit, or to be integrated into a wider area layered defence network. The system is also inherently modular with a wide range of direct fire effectors up to 30mm and including C-UAS Missile and Rocket systems integration, ammunition (including air burst and proximity

fuse), radar, and tracking options. A remote hard wire or line-of-sight operator console can also be used, this increasing operator survivability with operator control separation up to 100m from the firing point

MSI-DS's TERRAHAWK PALADIN has been supplied to Ukraine as part of a £100m+ military support package announced by Grant Shapps in October 2023. ■

See Us at Hall 6, Booth H380

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FIRST EUROPEAN SHOWING OF STI STEYR'S MMV MK2

BY SHAUN CONNORS

At Eurosatory 2024 Austrian mobility solutions provider STI Steyr is showing publically in Europe for the first time the latest Mk2 iteration of its Multi Mission Vehicle (MMV). The vehicle is being shown in an armoured ambulance configuration.

The MMV Mk2 will be introduced during 2024, and as a progressive upgrade of the earlier MMV which entered production in 2012. While no sales details for the MMV have ever been made available, Show Daily sources suggest several thousand were produced, with the most sizeable sales having been made in the MEA region. The MMV Mk2 in armoured ambulance configuration is

being shown at Eurosatory 2024 as STI Steyr look to penetrate the wider European market with the product, a company official commenting that the product was being actively promoted for a number of requirements worldwide.

With the armoured ambulance, STI Steyr has introduced an innovative stretcher support system with a mono-rail that incorporates sliding, tilting, and central locking functions. This purely mechanical solution enables rapid loading, ensuring efficient deployment within seconds.

In addition to armoured ambulance, the baseline MMV Mk2 is available in a wide variety of configurations that include personnel carrier, trans-



port, command and control, and anti-riot/Police. Protection levels are 2/2a to STANAG 4569. The design is also available unarmoured, or with zoned protection options, and can be configured for a selection of light utility and open surveillance/reconnaissance and light strike-type roles.

Like the original MMV, the Mk2 iteration is based on designed for purpose box-section ladder frame type chassis and is available in two wheelbase options. Gross vehicle weight

(GVW) is up to 7,000 kg, this allowing for up to 3,000 kg of payload.

Driveline consists of a diesel engine developing up to 230 hp (172 kW) and up to 510 Nm torque, this coupled to an automatic gearbox and two-speed transfer case, with all-wheel drive selectable. Suspension is fully independent double wishbone with coil springs front and rear. Drive is via portal-type axles, and a central tyre inflation system is optional. ■

SPAIN'S BULL...

BY SHAUN CONNORS

Spain's UROVESA is showing a total of five light tactical vehicles at Eurosatory 2024. Over the last 40 years the company has supplied in excess of 4000 light tactical vehicles to Spain's armed forces, the current core product offerings being the VAMTAC and VAM TL.

At the Spanish pavilion, the company will be exhibiting two vehicles. The first is a VAMTAC ST5 armoured vehicle in a new NBC configuration, this designated PITON. The second vehicle is the smaller/lighter VAM TL in spe-

cial operations configuration (SOV). The unique roll-cage structure, which can mount up to four light weapons, features a purpose-designed collapsible assembly which permits quick preparation for air transport in smaller aircraft (C-295) and helicopters (CH-47), and without the time-consuming need to dismantle the roll-cage structure. This system also ensures the vehicle is ready for use almost immediately on leaving its transport.

Elsewhere at the show a pair of VAMTAC ST5s can be seen on the Thales Group



stand. The first example is a C2 vehicle, this a platform for Thales' ForceShield Ultra Mobile short range air defence capability that also includes a Command & Control System as well as a C2 system for surveillance, coordination and engagement operations. The second vehicle displayed constitutes a component of Thales RapidRanger capability,

a missile launcher platform for the Thales StarStreak and LMM systems.

Finally, a VAMTAC is located at the Rheinmetall booth in mortar carrier configuration. The platform mounts an ELMOS system, an onboard 81 mm mortar system, designed and developed by Rheinmetall EXPAL Munitions. ■

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COMMERCIAL LEVERAGING

BY SHAUN CONNORS

HALL
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STAND
B 281



Highlighting the manufacturing capabilities and advanced technologies of its commercial parent, General Motors (GM), GM Defense has returned to Eurosatory in 2024 to showcase the company's capabilities to deliver to the defence and security sectors modern, commercial based solutions.

At its booth (details...) GM Defense is showing an example of its Integrated Armored Vehicle (IAV). The IAV is the international variant of the Heavy-Duty Sport Utility Vehicle (HD SUV) a vehicle that supports protected missions featuring a high percentage of commercial-off-the-shelf parts, but with armour incorporated into the original design, and not added after manufacturing.

Late 2023 GM Defense was awarded a 10-year indefinite delivery, indefinite quantity (ID/IQ) full-rate production contract with the State Department to deliver HD SUVs for the Diplomatic Security Service. The HD SUV and IAV are based around General Motors' proven commercial full-size pickup and SUV vehicle architectures.

In addition to the IAV, GM Defense offers the air transportable Infantry Squad Vehicle (ISV). Designed to meet requirements for rapid ground mobility, the ISV is based on the Chevrolet Colorado ZR2 and features 90% commercial-off-the-shelf parts, including Chevrolet Performance components to enhance off-road capabilities. The US Army

placed an order for 649 ISVs in June 2020. The Army's overall requirement is for 2065 ISVs. GM Defense's booth features an ISV configurator, this enabling visitors to customise their own ISV. Alternatively, the ISV can be seen in the 'flesh' at the Michelin booth in Hall 6, K31. GM Defense is also showcasing a light tactical utility vehicle, this displayed with Thales' technology at their outdoor booth in C500. The utility vehicle, which is also based on the Chevrolet Colorado, features a cargo bed that can be adapted for a broad range of mission profiles, including fire support, com-

mand and control, electronic warfare, counter-unmanned aircraft systems, reconnaissance and logistics.

Finally, join GM Defense, in addition to other experts from defense, industry and a global think tank, for a compelling panel discussion on, 'Resilient Energy Ecosystems in the Forward Operating Environment' on Thursday 20 June at 1400 hrs in Hall 6 Conference Area C. Guests will discuss provisions for energy to and from electric vehicles and the challenges and opportunities of new forms of energy in the operational environment. ■

LRM 2K LASER RANGEFINDER (NEWCON OPTIK - CANADA)

BY JEAN-PIERRE HUSSON

HALL
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J 265



The state-of-the-art LRM 2K monocular laser rangefinder by Newcon Optik of Canada, combines excellent 7x magnification optics and a 75° field of view with the world's most advanced laser rangefinder. The Class 1 eye-safe laser works in 905nm wavelength, measuring distance range being 10-2,200 metres with minimum accuracy of ±2 metres at distances over 500 metres (output display in yards also), and features a bright TOLED display for round-the-clock operations. The LRM 2K connects via Bluetooth to the Android-based Newcron Cronus app, has a built-in inclinometer to measure the angle to the object and is waterproof according to IP67 standard. A pocket-size system, 106x76x39mm, its mass is 235 grams without the 3V 850 mAh CR2 lithium battery which ensures at least 5,000 measurements. With the LMR 2K, built to withstand the rigours of outdoor use and ensuring reliable performance in various weather conditions, you simply point and click for distance and elevation, all with the press of a single button. ■

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GLOCK 49 MOS (GLOCK - AUSTRIA)

BY JEAN-PIERRE HUSSON

The Glock 49 Gen 5 MOS is a new semi-automatic polymer-framed, short recoil-operated pistol with the «Safe Action» system of famous Austrian manufacturer that combines the compact Glock 19 grip frame with a Glock 17 sized slide, maximizing the established carry frame dimensions while incorporating a longer barrel and sight radius. Chambered in 9mm Luger (9×19mm NATO standard), it accommodates 15+1 rounds in its standard magazine, providing ample firepower in a wide

array of environments and ensuring ample ammunition for tactical use. This new model also features interchangeable grips for optimized comfort and control, catering to various hand sizes and preferences. The pistol features a 4.49» (114mm) Glock Marksman Barrel, incorporates Gen 5 attributes, and is equipped with the MOS system for optic attachments. The MOS (Modular Optic System) configuration offers shooters the flexibility to attach a variety of reflex sights directly to the slide, elevating accuracy and



HALL
5A
STAND
K 177

ensuring rapid target engagement. The nDLC finish on both the barrel and slide offers a sleek look and increased protection against corrosion and scratching. With the perfect balance of the Glock 19

grip and the Glock 17 size slide, the Glock 49 MOS offers the best of both. More than just a firearm; it's a tool designed for precision, reliability, and comfort. ■

SURVIVOR SURVIVING

BY SHAUN CONNORS

Achleitner of Austria is showing an example of their High Mobility Vehicle (HMV) Survivor 1 at Eurosatory 2024. Developed during 2011-2013, and optimised for police, para-military and associated internal security-type roles, HMV Survivor 1 has remained in production for ten years, with at least 35 units supplied to a variety of users. According to an Achleitner spokesperson, the next vehicle of the production line will be an example tailored to the needs of a central European Police Force.

As no OEM platform could meet the design requirements of the company, Survivor 1 was fully designed and developed in-house by Achleitner. The vehicle features an armoured body designed to protect against the full spectrum of

ballistic, mine, IED, and CBRN threats, with protection levels tailorable to individual user requirements and up to Level 2 ballistic and Level 2a/2b mine blast.

The body, a key design feature of which is an urban environment overall low-entry height, seats up to ten (2 + 8) and can be adapted to accept an assault ladder system, and swing-out personnel protecting anti-riot 'fencing' is an option. A ringmount can be fitted for defensive purposes, as can smoke grenade launchers and various fire extinguishing systems.

The chassis is also purpose designed, and will accept a front-mounting dozer blade or ramming/battering ram-type attachment. Automotives are selected to suit



HALL
5A
STAND
G 178

usage profile, with a standard package consisting of a diesel engine developing around 285 hp (210 kW), this coupled to an automatic transmission and two-speed transfer case. Suspension is proprietary fully independent coil springs, although the very first Survivor 1s did feature rigid axles. A central tyre inflation system (CTIS) and four-wheel steer are now options.

The complete in-house development of the Survivor included the vehicle electrics,

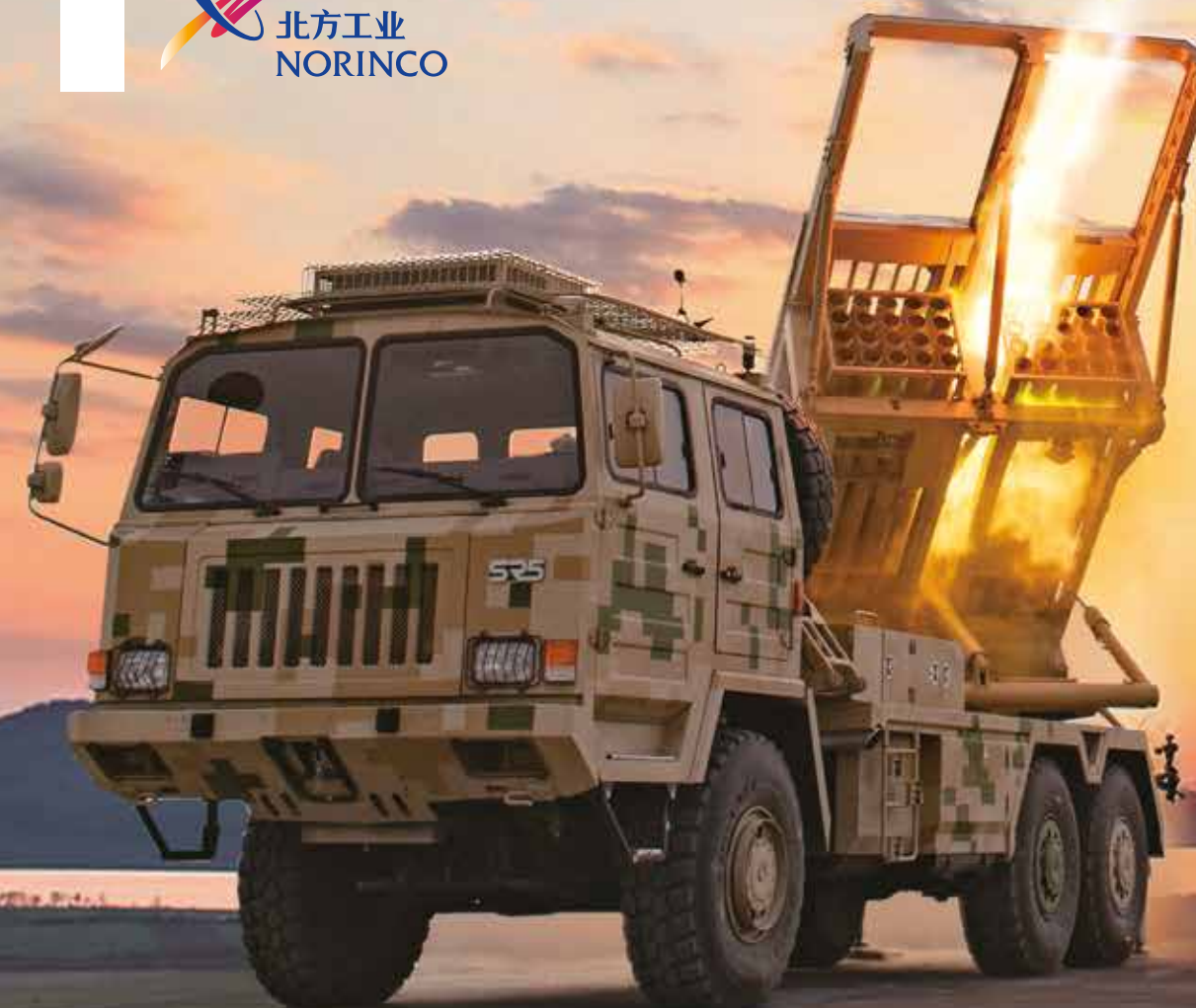
this enabling development ESP for the braking system, and as a preliminary stage to semi-autonomous driving, the integration of drive-by-wire technology.

The Survivor 1 has a GVW of 13,000 kg and a payload of up to 3,000 kg. Overall dimensions are 5.6 × 2.45 × 2.54 (L × W × H), and the vehicle can climb a 60% gradient, traverse a 40% side slope, climb a 400 mm vertical step, cross a 750 mm trench, and ford 850 mm of water. ■

King of Fire Strike

SR5 MLRS is a medium size high mobility firepower striking weapon system, which is mainly used by artillery regiments, battalions, border and coastal defense garrison forces to conduct fire suppression on clustered targets and precision strike on important targets. The system adopts integrated fire control system, which is capable of firing a variety of rockets such as 122 mm conventional / guided / precise terminal-guided rockets, 220 mm, 300 mm and 610 mm long-range guided / precise terminal guided rockets. SR5 MLRS is equipped with complete reconnaissance, meteorology detection, command & control, maintenance and support equipment, and can execute fire missions via battalion or battery acted as basic fire unit. The system can cover a firing range of 8 ~ 300 km, possessing both attack and defense, and conduct the combat mission of integrating warfare deterrence with warfare as the main focus.

Visit Us at Hall 5a K320



KEY EVENTS OF THE FIVE DAYS SHOW



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ANTI-TANK MISSILES



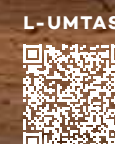
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