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MBDA: THE LATEST GENERATION MISTRAL ATLAS RC

By ELISABETH GOSSELIN-MALO

Over the years, the European missile manufacturer, MBDA, has greatly expanded and come to perfect the Mistral family of products it offers. The Mistral has existed since the 90s and since then different versions have been developed. However, the historical MANPADS firing station continuously remained the same. The Mistral family's standard advantages are notably the fire-and-forget capacity, the ease of operation and high-kill probability. In addition, the Mistral missile can be integrated on different vehicles- its turret either fitted on a platform or directly mounted on the vehicle itself as well as it can be used in the air, on land, and at sea. The company recently launched the Mistral ATLAS RC- the latest generation system with even stronger capabilities, where the high-kill probability is now 98 percent and the intercepting range has risen from 7.5 kilometers to 8. Almost no other twin launchers on the market can match this. Remote-controlled by a 360° revolving and motorized turret, the Mistral ATLAS RC can be equipped with 2 or 4 Mistral missiles and possesses an effective thermal sight useful against aerial targets. It is vehicle mounted, offering the possibility to be set up on

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ROBOTICS

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several types including both light and armored (ARCUUS Sherpa, NIMR Abjan 440, URO VAMTAC ST5, etc.). However, it is also easily deployable to be used on the ground or on the top of a building for more static operations, for long-term deployment. The latest-generation twin-launcher can also be easily transported by almost any military aircraft (A400, C130, C17, etc.) and was specifically designed to fit in them. If required the system can be dismounted in order to allow greater transport flexibility.

When asked about what sets this newest system apart from the standard Mistral ATLAS, an MBDA representative pointed to 3 primary factors: its mobility and simplicity; its greater protection for crew; and it being a VSHORAD adapted missile. Firstly, the representative explained that it only takes about 15 minutes to train operators to use it which is incredibly fast and can allow to save crucial time in a combat environment. Secondly, as the Mistral ATLAS RC can be operated remotely from the vehicle's cockpit via a mobile workstation, in comparison to the standard version, which is only manually operable, it can better protect troops. Lastly, it is specifically designed to be employed against aerial targets at shorter ranges including tactical aircraft, helicopters, unmanned aerial vehicles, cruise missiles, and others. It must also be emphasized that one of the most notable developments on the ATLAS RC is its near perfect high-kill probability, which MBDA states now stands at 98 percent (increase of 2 percent) which the company has said showcases a "higher reliability than any other low-level air defence missile" and its new maximum intercepting range is 8 kilometers (increase of 0.5). Similarly to the older models, the ATLAS RC also has a minimum intercepting range of 500 meters, allowing it to be capable of stopping moving targets that are at a shorter distance. As such, it can effectively hold an anti-drone role. It must also be noted that the Mistral ATLAS RC is compatible with all the versions of the combat-proven Mistral missiles, including the Mistral missile 2 and 3. In 2019, MBDA showcased this latter destroying a Mirach 40 drone, where the overall installation also featured Saab's Giraffe 1-X radar system, a Licorne control unit and the ATLAS RC launcher.

The ATLAS RC was also designed to be integrated into a command and control system (within a wider defence architecture) and shares the interesting feature of being able to operate with any communications system chosen by the client, offering great flexibility. The ground-based air defence is operable by a single soldier as well as being combat-tested, as its effectiveness has been demonstrated in several live demonstrations with success. The missile integrates a full imaging seeker system, allowing for a higher resistance against IR countermeasures and better engagement of low-IR signature targets. It has a very long service life, 20 years without any intermediary maintenance constraints. It is also equipped with a large, 3 kilograms warhead with a laser proximity fuse. The system, which was put on the market in 2019, was said by the MBDA representative to have already been sold to customers. ■

BRI: THE IMSI-CATCHER IN ACTION

By GILES EBBUTT

The Paris Brigade Recherche Intervention (BRI) demonstrated its skills in hostage rescue in a CBRNE environment at Eurosatory.

In a scenario that involved a terrorist bomb factory and a hostage, the BRI unit deployed snipers, canine support, communications technology and minimum force to neutralise the bomb threat and rescue the hostage.

A basic BRI assault unit consists of eight operators plus a technical expert, a negotiator, a specialist doctor and a commander. They are routinely equipped to deal with the most demanding environments including CBRNE. Where necessary additional capabilities include dog handlers, snipers, and more extensive individual protection equipment. The unit also has its own armoured vehicles.

Chief Superintendent Simon Riondet, Paris BRI Commander, explained that the aim of the unit is always to use minimum force and less lethal weapons where possible to complete the mission. During the demonstration the unit used an international mobile subscriber identity (IMSI)-catcher to distract a sentry, enabling him to be arrested unharmed, while a second terrorist was hit with a disabling rather than lethal shot by a sniper.

The IMSI-catcher enables an operator to identify and target a specific mobile phone in order to make contact. In this case an amusing video was sent to the sentry in order to distract him.

Riondet said that because BRI snipers are predominantly employed in an urban environment and operate at short ranges, they have to be able to hit a target the size of a fingernail at 100m range with a cold weapon. ■

EPSILOR OF ISRAEL UNVEILS ITS LAST 6T BATTERY WITH SUPERIOR ENERGY AND SAFETY PERFORMANCES

By VALERIO DEL GRANDE

Epsilor, the Israeli company specialised in smart batteries, charging systems and wearable power and communication systems, is unveiling at Eurosatory the latest iteration of its Lithium-Ion 6T batteries. Named ELI-52526-DM, it is designed to cope with the latest safety requirements, specified in the MIL-PRF-32565C.

Compared to previous batteries for similar use the new one, developed by Epsilor, has a stainless-steel protective case, which slightly increases its weight, up to 29 kg, while remaining within the limits that allow a single person to carry it.

The ELI-52526-DM is based on the NCA chemistry (Nickel Cobalt Aluminium oxides), nominal capacity being 144 Ah while stored energy is 3.6 kWh. This means an energy density of over 125 Wh/kg or over 206 Wh/liter. Epsilor declares a life of 1,200 reloading cycles. According to the company no other batteries exist with the same performances.

Compared to Lead-Acid batteries, the ELI-52526-DM can store nearly four times more energy. Epsilor considers that the market is moving towards Li-Ion batteries for armoured vehicles, as these allow considerable weight and volume saving on conventional diesel-powered systems. Stretching silent watch capabilities is another key issue, a modern Li-Ion battery providing up to 10 times the endurance. Looking at the advent of hybrid powered armoured vehicles, this would become even more important, considering the high voltage needed.

At Eurosatory, Epsilor exhibits the first prototypes of the new ELI-52526-DM battery. The R&D work is completed, the proof of design validated, and safety trials at the firing range confirmed design parameters. Serial production will start before year-end at the company premises, the ELI-52526-DM becoming available in Q1 2023.. ■

HALL 6 STAND H 492

HALL 6 STAND J 70

PHOTONIS INTRODUCES MICROCUBE640

By MARC CHASSILLAN

With a size similar to a one-euro coin, the new uncooled MicroCube-640/640E VGA thermal core from Photonis features the smallest SWaP ever. This European made technology is the ideal candidate for all applications where consumption and footprint are key factors, namely micro-drones, small drones, hand-held devices and UGVs. The sensor uses a micro-bolometer technology and it provides a 640x480 pixels resolution. The spectral bandwidth is 8-12µm. The MicroCube640 can be part of the new HYBRID Fusion Core system which provides a plug-and-play solution to OEM and system integrator. HYBRID supports armoured vehicle electro-optics system thanks to its patented zero latency technology. A key performance for the situational awareness and panoramic vision equipment. HYBRID comprises a thermal camera core, a low light camera core and a smart interface module. HYBRID is especially suited to AFVs driving station but it can meet a wide range of applications. As an example, the RSAS video surveillance system use this solution onboard law enforcement speedboats operated by the French police special units. Oil spills, illegal traffic on sea, smuggling and terrorist boats can be easily detected and neutralized thanks to outstanding detection capabilities provided by HYBRID. ■

AERONET : UNE INTÉGRATION HARNAIS-PROTECTION BALISTIQUE JUDICIEUSE

HALL E STAND E 688

Par MURIELLE DELAPORTE

Créé voici quarante ans dans sa configuration actuelle, Aeronet travaille dans le secteur de la défense et de la sécurité depuis une quinzaine d'années. Les deux métiers de la société bretonne sont l'arrimage des charges en transport aérien militaire d'une part, la mise à terre ou la récupération de forces à partir d'hélicoptère, lorsque celui-ci ne peut pas se poser.

« Notre client principal pour le développement du matériel d'aérocordage est l'armée française : il est utiliée par les commandos des forces spéciales, mais aussi par les les forces de sécurité RAID et GIGN. Un exemple concret est celui de la lutte contre les orpailleurs en Guyane, la gendarmerie utilisant ce type de matériel et de technique de cordes pour mettre en place et récupérer leurs équipes, dans la mesure où il est impossible de se poser en raison de la canopée », explique Jean-Noël Vanacker, responsable du design des matériels de défense et de sécurité d'Aeronet.

Pour la descente on utilise des cordes rapides – dites de *« fast drop »* - : il s'agit là de cordes rapides telles que celles utilisées en montagne. La récupération se fait quant à elle par grappe : *« nous équipons les opérateurs avec des harnais : la spécificité des harnais modernes est qu'ils peuvent être portés sous la protection balistique. Notre dernier modèle permet de fait d'intégrer directement les protections balistiques »,* souligne-t-il.

A titre informatif, une seule plaque de protection balistique peut peser jusqu'à 3,5 kilos, tandis que le harnais conçu par Aeronet pèse 600 grammes, ce qui est négligeable et évite aux opérateurs d'avoir des sur-épaisseurs.

Il est possible de porter la partie haute de protection individuelle au combat et d'ajouter les cuissardes en cas d'aérocordage et/ou d'extraction de l'hélicoptère. Les cuissardes peuvent être enlevées dès que la mission reprend son cours normal : *« elles permettent d'être transportées en grappe sans disconfort et sans couper la circulation pour une durée pouvant aller jusqu'à trente minutes. Pour un vol prolongé justement, il est possible d'aménager des cousins ».*

En cas de récupération ou d'exfiltration sur une zone où l'hélicoptère ne peut pas se poser pour des raisons géographiques ou des raisons tactiques (exfiltration de personnel d'ambassade dans une zone à risque par exemple), on peut mettre jusqu'à douze équipiers sur la même corde et les transporter en zone sûre avant de les embarquer à bord de l'aéronef.

Basé à Glomel en Bretagne, Aeronet est concepteur-fabricant et a à cœur de privilégier une supply-chain de proximité : *« nous concevons et fabriquons nos matériels à partir de textiles et matériaux français. Seuls les mousquetons viennent d'Angleterre et la partie bouclerie d'Autriche. »* ■

Pour en savoir plus
http://www.aero-net.com

MICHELIN LAUNCHES ITS TWEEL AIRLESS TIRES

By VALERIO DEL GRANDE

HALL 6 STAND K 71

Michelin is one of the key players in the defence pneumatics world, its tyres being fitted to thousands of combat and logistic vehicles.

The French-based company recently launched the development of airless radial tyres, aiming of course at the huge civilian market, but with an eye also on other market segments, one of them being defence. Named Michelin X Tweel, they made their appearance on an Unmanned Ground Vehicle, Eurosatory 2022 definitely marking their launch on the military market.

Tweel tyres feature a deep open tread that easily cleans in mud, while zero degree belts under the thread ensure great lateral stiffness. This comes on top of a semi-rigid shear beam made with Michelin's proprietary Comp 10 Cable. Between the external wheel and the heavy gauge steel hub we find high-strength polymer spokes, that carry the load and absorb impacts helping dampening the ride, increasing comfort and allowing higher cross-country speed.

Airless tyres are more robust, last longer, and do not fear punctures, hence small arms fire, but no specific details were yet provided on specific tests in military environment. ■

VTOL CAPABILITY ADDED TO AERONAUTICS ORBITER 4

By VALERIO DEL GRANDE

Catapult launched and net recovered, the Orbiter 4 designed and produced by Aeronautics of Israel is a 50 kg MTOW airframe capable to carry a 12 kg payload and fly a 24 hours mission thanks to its internal combustion low fuel consumption engine. With a 5.4 m span wing with downward winglets, it has a canard configuration and can reach a 70 knots speed. Line of sight data-link has a 150 km range, but a SATCOM link can be installed to stretch the operational range.

Aeronautics was asked by some customers to find a solution that allows landing in very specific areas. A vertical take-off and landing kit was developed that, can be installed on the field, transforming the Orbiter 4 into a hybrid air vehicle, capable to fly at speed and to take-off and land on small surfaces. The plug-and-fly kit is made of two booms that carry rotors at their extremities, batteries being contained in the boom body. The end-user can decide which configuration adopting before the flight according to take-off and landing constraints; this allows to maintain full performances when VTOL performances are not needed, while when pinpoint accuracy, especially in landing, is required the kit is installed, the ground control station understanding that the Orbiter 4 is in VTOL configuration, and switching to the right software. To compensate for the kit weight fuel load must be reduced, while the kit itself generates drag, hence endurance is cut at about half. The VTOL kit has been available for some years now, but Aeronautics is showing it publicly for the first time at Eurosatory. ■

HALL 6 STAND E 752

TRACKING DRONES WITH NETLINE DRONENET DF

HALL 6 STAND D 634

By VALERIO DEL GRANDE

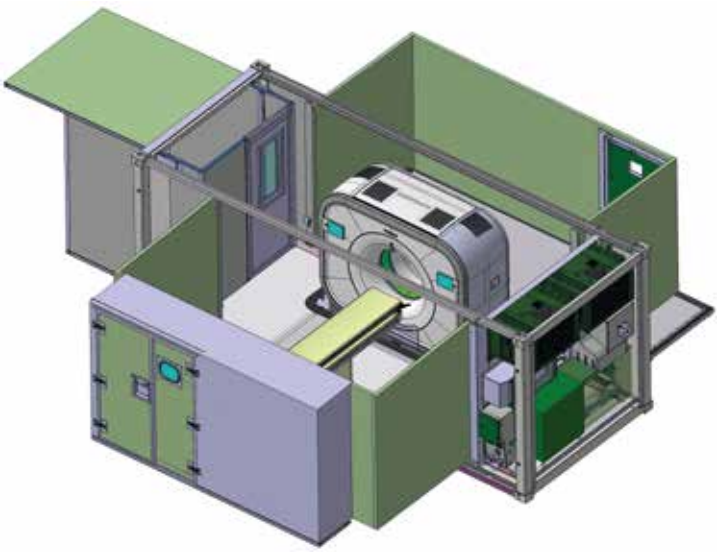
Controlling the airspace, providing situational awareness, and if a threat shows up ensuring identification and then the ability to prevent the threat from entering the protecting area, this is the mission for Netline when talking Counter-UAS. The Israeli company identified a gap in the market, as there is no real military standard tactical counter-drone solution in the direction finding (DF) and jamming domains. There is therefore a need for a very fast deployable, reliable and easy to use system capable to work in harsh environments, those for which military standards are required.

The new DroneNet DF that is being unveiled at Eurosatory is pretty different from previous models; while in the past three units had to be installed on a mast, the new one has a single head that is quickly connected to power and communications, and to the computer where data are shown. Overall the whole system weighs around 16 kg, which means a 50% reduction compared to the previous. The new DF doesn't need calibration and covers a wider range of frequencies; the older models had detection in the 400, 800 and 900 MHz bands, and direction finding and detection in the 2.4 and 5.8 GHz bands, while the new one ensures all functions including identification in all five bands, the lower ones being the most used by do-it-yourself drones. Thanks to new algorithms accuracy and range performances were also improved by around 30%, depending on the drone. It is also fitted with an API (Application Programming Interface) allowing interfacing it with a third party command and control system. Netline has produced a small number of DroneNet DF for field tests, and will be ready to deliver its new product before year-end. ■

MARSHALL REVEALS NEW DEPLOYABLE CT SCANNER

By GILES EBBUTT

HALL 5 A STAND DC801



Marshall Land Systems has announced the launch of its industry-leading Next Generation CT Scanner at Eurosatory.

The Marshall Next Generation CT (NGCT) scanner, developed in partnership with Philips Healthcare, provides military medical organisations with a rapidly deployable full body scan capability, manufactured to handle the most demanding operational environments.

Housed inside Marshall's 20 foot ISO expanding container the NGCT houses the latest and most advanced Philips Incisive CT technology. Marshall has drawn on 12 years' experience providing field deployable CT scanner systems to armed forces around the world in designing the NGCT.

Using an innovative expansion method the layout of the container has been reconfigured to provide sufficient space for full body scanning while simultaneously improving access between clinician and patient.

It provides full body scan capability, has enhanced airflow management, anti-vibration technology and reduced setup and deployment times. As well as the scanner the container includes a technical area and an operator refuge for radiological protection.

The launch comes shortly after Marshall Land Systems was awarded a 30-year framework contract with the French Defence Central Health Service or Service de Santé des Armées (SSA) for the development, production and support of a wide range of medical modules for use by its Defence Health Service. ■

EVACOPS

Par LAETITIA BLANDIN

HALL 6
STAND G 567

Prix de l'innovation Milipole 2019, le sac d'évacuation de victime NRBC de la société Ouvry reste l'unique solution légère de gestion de personnes contaminées ou suspectées de l'être jusqu'à une zone médicalisée. EVACOPS, déjà en dotation dans les Forces spéciales françaises, permet de gérer très rapidement une victime. Le sac compact (70x40x20 pour 2,5 kg pour le modèle adulte) peut se ranger dans n'importe quel moyen de transport (hélicoptère, véhicules sanitaires ...) et ne demande aucune maintenance, ni consommable.

EVACOPS permet surtout de confiner immédiatement la victime et d'assurer une auto-décontamination de cette dernière à l'intérieur du sac notamment grâce à l'expertise d'Ouvry dans le domaine des textiles et du NRBC. Ainsi, les vapeurs comme les liquides sont directement absorbés par les tissus à l'intérieur du sac, et permet également de maintenir la victime « au sec ».

Autre atout de ce sac, l'accessibilité à la victime pour effectuer les premiers soins d'urgence est complète. Grace à des poches et des passes câbles, il est possible d'apporter des soins comme par exemple la pose de garrot, et d'effectuer des perfusions, sans provoquer une rupture d'étanchéité. Au niveau de la tête, les voies ORL sont complètement accessibles, ce qui n'est pas le cas avec les bulles classiques d'évacuation des victimes. Enfin, le positionnement d'un collier cervical peut-être réalisé.

EVACOPS est une solution duale qui est aujourd'hui utilisée en France comme à l'étranger, par des militaires comme des services d'urgence civils. Il peut surtout être déployé à large échelle et permettre de gérer les conséquences d'accidents ou d'attaques NRBC dans le cadre de conflits militaires ou d'actes terroristes. ■

CORVUS TICKS ALL THE CEMA BOXES

By GILES EBBUTT

HALL 5A STAND C 657

L3Harris is displaying CORVUS, its latest multi-role, multi-domain Cyber and Electromagnetic Activity (CEMA) solution at Eurosatory.

CORVUS, the successor to L3Harris's successful Broadshield and SmartScan MEWS products, can meet the requirement to provide electronic countermeasures (ECM) force protection, offensive cyber capabilities, electronic attack (EA), and spectrum monitoring and surveillance in a single hardware solution, removing the need for different equipment for each role. A direction-finding (DF) capability is under development.

The open architecture, open component portability infrastructure (OpenCPI) system is application based, which makes it simple to use. In addition to L3Harris applications it can host third party software, and users are also able to create their own applications.

There are two versions. The small form factor Individual CEMA Node (ICN) provides a manpack capability. It weighs less than 2kg without a battery and can be used with a variety of antennas. The CORVUS Configurable CEMA System (CCCS) can be vehicle mounted or dismounted for use in a static location, again with different antennas as required for the task.

The system is configured and controlled using the CORVUS Mission Support Suite (CMSS) which can be hosted on a laptop, tablet or smartphone. Missions can be loaded using these or via a physical field deployable fill gun.

Pete Hodinott, Managing Director for Intelligence & Cyber International at L3Harris explained that the attraction of CORVUS is that it is a "single multifunctional box that provides multi-role capability against multiple threats", with lower power requirements, a lower logistic footprint and a lower training burden.

CORVUS CCS and ICN are in operational service with UK and other customers for use in the land domain. The ICN has been integrated into L3Harris ASV's autonomous maritime unmanned surface platform for experimental use in the littoral. L3Harris has also been downselected for the British Army Warfighting Experiment (AWE) 22 later this year for a demonstration of the capability of the ICN when integrated with a drone, either as an airborne asset or for remote deployment within the area of operations. ■

HALL 5A STAND F 851

NORINCO, THE CHINESE BIG INDUSTRIAL COMPLEX WITH BIG APPETITE

By MARC CHASSILLAN

Norinco is by far the biggest player in the land defence systems in China and Asia. It is also in the top five of world land armament domain. It features one of the most comprehensive range of products, not to say the most. At Eurosatory, Norinco exhibits a small fraction of its portfolio in three segments, artillery, combat and air defence. Norinco plays in all niches of fire support with the CS/SM-5 120 mm mobile mortar, the SH-15 truck mounted 155 mm gun, the AH-4 155 mm light gun and the PLZ-45 self-propelled howitzer. As regards MLRS, SR-5 and AR-3 can fire a wide range of rockets from 122 to 750mm with range in excess to 290 km. The bigger calibre rockets are all fitted with satellite or inertial guidance unit for a better accuracy on the target. Norinco delivers almost all combat vehicles to the PLA. The VT-5 is a light tank especially suited for operations in mountainous zones while VT-4 is an MBT designed to carry out high intensity battles in the open field. Both are promoted and sold on the export market. The MRAP VP-11 carries a squad of infantry in safe conditions and the VN-22 is a 6x6 infantry fighting vehicle. Both can integrate a team of tank killers equipped with Red Arrow ATGMs. To protect the mechanised unit against air threats, the SW-52 air-defence mobile system is fitted with a 35 mm gun able to fire programmable rounds at a rate of 1,000 rounds per minute. In addition four MANPADS missiles deliver firepower against high performances aircraft. ■

HALL 5A - STAND C 523

COLLINS AEROSPACE INTRODUCES FIRST COMPATIBLE M-CODE NAVIGATION SYSTEM FOR MILITARY GROUND VEHICLES IN EUROPE

By ELISABETH GOSSELIN-MALO

At the 2022 edition of Eurosatory, Collins Aerospace- a Raytheon Technologies subsidiary and one of the world's largest suppliers of aerospace and defence products-launches the first M-Code compatible navigation system for military ground vehicles available in Europe. Previously, this technology was solely available to the United States. The NavHub-200M, the first non-ITAR vehicular navigation system, was introduced to the international market as to provide operators of ground platforms with assured positioning, navigation and timing (APNT) capability as well as data fusion with other sensors. The solution is fundamental today and represents a revolutionary step forward from the GPS-based Selective Availability Anti-Spoofing Module receivers era. As the latter is now obsolete, the NavHub-200M is the system of tomorrow allowing ground forces to rely on overall increased resistance against jamming and spoofing threats. According to a Collins Aerospace representative, the system will become exportable by 2023 and has already received interest from a number of customers. The representative adds that the system will be beneficial for operating customers as the M-Code signal being significantly stronger than the GPS and more difficult to penetrate by unauthorized access, allows for troops to be much better at hiding their position and ultimately increases their protection. In addition, the next-generation NavHub system offers an internal Inertial Measurement Unit (IMU), advanced timing solutions, an odometer feed and integrated Anti-Jamming antenna which all work together to provide stable and accurate timing solution during any potential loss of GPS/GNSS time. ■

ELBIT'S LEGION-X TAKES THE STAGE

By GILES EBBUTT

Elbit has revealed several new capabilities at Eurosatory across the spectrum of technology.

The DAiR is an X-band Active Electronically Scanning Array (AESA) software defined tactical multi-mission radar system capable of detection of "any land-based and airborne threat", according to Elbit. This is achieved with a multi-beam radar panel with electronic beam steering up to 80° in elevation. It has multiple focused beams, capable of detecting small and slow targets with very high resolution, and target information can be shared using the standard ASTERIX protocol. The system comes with a range of adaptors which enable flexible installation on masts, buildings or vehicles. It can be offered as a sector antenna covering 110° in azimuth, with a smart rotator covering 360° in azimuth, or with four panels giving full staring 360° coverage.

The DAiR radar is offered in several configurations. High and standard power options determine the range of the radar. It can be set to detect ground targets only or operate as a full multi-mission radar which can detect ground and airborne targets simultaneously.

Elbit also hosted a live demonstration of its Legion-X autonomous heterogeneous unmanned platform swarm capability. A real-time operational scenario was broadcast live to attendees from a trial area in Israel. The swarm included seven UAVs and two UGVs equipped with five sensor types and a strike capability.

Based on Elbit's E-CIX open architecture C4I framework and connected using the E-Lynx communications system the demonstration showed the use of an artificial intelligence (AI) driven management application to plan and execute open area and urban warfare missions.

On display at Elbit's stand is the BLR-2 Medium Robotic Combat Vehicle (MRCV), a joint development by the Israeli MoD and a number of Israeli companies. The technical demonstrator includes a new robotic platform from BL, a 30 mm autonomous turret developed for the "Eitan" APC, Elbit's "Iron Fist" Active Protection System, fire control and mission management systems, and robotic autonomous kit, in addition to situation awareness systems.

The vehicle also features a capsuled drone for forward reconnaissance missions, and a passive sensing kit developed by Elbit Systems and Foresight. It includes advanced manoeuvring capabilities, the ability to carry heavy and varied mission loads, and a built-in system for transporting and receiving UAVs.

The BLR-2 has been developed as part of an Israeli MoD autonomous battlefield concept, implementing an open architecture for integrating future capabilities and integrating the robot alongside other tools and capabilities. Field testing will begin in 2023.

Elbit is also showing its "Sabrah" light tank solution, which it has sold to the Philippines; the COAPS-L, a miniaturised variant of the Company's Commander Open Architecture Panoramic Sight (COAPS) for platforms such as light tactical vehicles, UGVs and surface vessels with AFV-level ISTAR capabilities; and a new Range Extension and Smart Tail (REST) kit for air-ground munitions. ■

HALL 6D STAND B 767

SOLDIER SYSTEM BY SAAB BARRACUDA: THERMAL STEALTHNESS FOR SOLDIERS

By VALERIO DEL GRANDE

HALL 6 STAND H 368

It has been produced by Saab Barracuda in small numbers, part of them being under test with eight undisclosed western Special Forces units and is named Soldier System. The company developed this new system to provide the single soldier with a flexible and effective camouflage item allowing to hide from sensors operating in various spectrums, visible, ultraviolet, near infrared, short wave infrared, thermal sensors at day and night. Purposely designed as a one-fits-all system, it can be used as a poncho, thanks to snap buttons allowing to use it while on the move, or open it up completely to hide under it when static. The Soldier System is provided in a square shape, 2 x 2 meters, for the single soldier; coupling two these can hide an antitank team, four being enough to cam up a small quad while six are sufficient to deny the vision of an all-terrain vehicle.

When packed the size becomes 300x150x150 mm, the weight of the single system being 600 grams. The day side can be provided in many different colours, woodland, winter, desert, etc. and ensures blending the soldier in the surrounding scenario, hiding his visual and thermal signatures. At night, temperature difference between ambient and body is much higher; reversing the Soldier System night side has a much higher thermal screening effect, albeit it is glossy and dark, but at night visual camouflage is not an issue. Being a woven materiel, the Soldier System will not rip, the camo surface being however pretty strong, as strong as a parachute canopy, according to the company. ■

MAIN BATTLE TANKS PAY ATTENTION, HORNET AKERON IS THERE!

By VALERIO DEL GRANDE

Visiting the Arquus stand at Eurosatory visitors can step into the Arquus Scarabee 4x4 scout armoured vehicle fitted with a new version of the Hornet remotely controlled weapon station. Beside the main weapon, usually a 12.7 mm machine gun, an Akeron MP missile, the name recently assigned to the MMP (Missile Moyenne Portée, medium range missile) was added, which gives a much greater capacity to the system, the scout vehicle being now able to hit and neutralise an MBT at over 4 km distance, the advanced warhead of the missile ensuring maximum effectiveness even with a single shot. The add-on weight proved to be compatible with turret actuators, while detection, recognition and identification ranges provided by the Safran optronic package were also well in excess of the missile range. The missile human-machine interface is integrated with that of the RCWS with the exception of the screen, a second display being added. The main reason for this is that it makes much easier the retrofit of the missile system onto existing Hornets. The integration of the Akeron MP was made in close cooperation with MBDA, the European missile company that produces the missile. As said, weight is not considered an issue by Hornet engineers, hence a two-missile solution is already being studied, which will further enhance the RCWS antitank capabilities, the turret being proposed for 4x4 light armoured vehicles and above. ■

HALL 5A STAND F-F 181-281

BIRD LAUNCHES HYBRID-EYE AND MMPR

By GILES EBBUTT

BIRD Aerosystems formally launched two new products on Day 3 at Eurosatory: Hybrid-Eye, an advanced hybrid detection system that enhances the protection of armoured vehicles, and µMPR, a miniature airborne radar for ground and maritime border surveillance.

Hybrid-Eye integrates a C-band phased array radar, multiple infra-red warning detectors in different frequency bands, and a laser warning detector into a rugged 16x16x11cm enclosure weighing less than 4kg. Bird's fusion software combines the information from all the sensors to provide a multi-band solution that can detect, alert, confirm and track multiple threats and cue the response in a cluttered environment.

Ronen Factor, BIRD Aerosystems co-CEO, said that the result is a system "that is greater than the sum of its parts." Hybrid-Eye can cue both hard and soft kill responses. It is light enough to be fitted to small and medium-size vehicles and it can be used for perimeter protection. It provides detection through 90°, so four are required for all-round vehicle coverage.

The µMPR (Micro Maritime Patrol Radar) has been designed as a lightweight solution to provide surveillance at medium ranges. Operating in the Ka Band it provides moving target indication (MTI) of maritime platforms at ranges up to 40km, tracking up to 50 targets simultaneously. It can be installed in conjunction with AIS and an EO/IR payload to provide automatic cross-cues between the sensors

Weighing less than 7kg the µMPR can be installed in UAVs, helicopters or small fixed wing aircraft and can be controlled using BIRD's radar control and display interface. ■

HALL 6 STAND D 681

FIOCCHI: DEFENCE AMMUNITION REQUESTS ON THE RISE

By VALERIO DEL GRANDE

The current situation has led to an increased demand for small arms ammunition in the defence sector, and Fiocchi of Italy is answering numerous demands within the NATO community proposing its range of military products. Many countries realised that if confronted to a conflict their stocks of munitions might not be sufficient, and are therefore in the need to fill up their warehouses.

The most requested is of course the NATO qualified 5.56x45mm ammunition, which is the most needed, the company production line working at full steam. However also requests for specialised ammunition for snipers are increasing. Fiocchi is answering those with the rounds from its Perfecta line, more specifically the .308 with a 175 grains bal, and the .338 Lapua Magnum with two different balls, respectively 250 and 300 grains.

As for the Police market, the Lecco-based company is seeing a constant rising of the requests for green ammunition, especially for training, with full metal cased lead balls and ZP heavy-metal free primers, lead-free balls being also proposed as option. ■

HALL 6 STAND B 430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HALL 5A STAND C 330

CURTISS-WRIGHT SHOWS NEW MOSA HARDWARE

By GILES EBBUTT

Curtiss-Wright has revealed three new products at Eurosatory, two of which are based on the important modular open systems approach (MOSA). These open architecture solutions eliminate proprietary interfaces through the use of widely supported consensus-based standards for the major system interfaces between systems and components.

The new fibre-optic XMC-E01 module (VITA 42) speeds and eases the integration of four channels of 10 Gb Ethernet (GbE) into OpenVPX and VME based embedded systems, without the need for any chassis modification. The XMC card is based on Intel's popular XL710 Ethernet converged network adapter and as well as the GbE channels delivers a range of other advanced features.

The newest addition to Curtiss-Wright's range of fully integrated rugged mission computers is the MPMC-9337 which is purpose-built for deployed platforms that need additional on-board processing power but must limit their size, weight and power (SWaP) burden. The MIL-grade, rugged three-slot 3U OpenVPX mission computer comes ready "out-of-the-box" to support compute intensive GPGPU driven applications, including cognitive signal and image processing.

The system uses advanced coldplate and thermal management technology removing the need for fans, vehicle supplied air, liquid, or other demands from the vehicle. Designed for operation in harsh military environments, the MPMC-9337 chassis includes heaters to support cold-starts in temperatures rated as low as -50C. IInput/output provided by the system includes a dual channel CAN/MilCAN offload controller, as well as USB and video ports accessible at the front of the unit.

The new Modular Airborne Telemetry System (MATS) is a secure modular telemetry system designed to bring advanced performance and ease of configuration to missile test telemeter solutions. It provides telemetry program engineers with a lower-cost, flexible and modular alternative to custom telemeter designs.

The MATS total solution approach also supports integrated transmitter and transponder modules, eliminating the need to deploy a separate unit on the test platform.

The standard MATS configuration features data encoder, encryption, transmitter, transponder, and Tactical Time-Space Position Information (TiSPI) modules. Curtiss-Wright's 2nd generation approach helps to reduce system size and weight by moving most functions into a single chassis. Fewer power supplies are required resulting in lower power consumption and a more reliable system, while fewer wires result in a less complex, more reliable, and lower weight system.

From the initial configuration the MATS chassis can be easily and rapidly expanded. The modular approach enables simplified changes for different phases of platform development, testing and deployment with additional modules and/or subsystems added as needed, such as a data recorder. Additional modules for power interface unit (PIA) and flight termination receiver (FTR) functions will be added at a future date. ■

HALL 6 STAND D 368

ARX200 DMR: THE BERETTA MARKSMANSHIP SOLUTION

By VALERIO DEL GRANDE

The need to have a member of the infantry firing team providing selective fire at medium ranges was identified years ago. Three years ago Beretta of Italy decided to develop a Designated Marksman Rifle (DMR), leveraging the work done on the ARX200 assault rifle in 7.62x51 mm calibre.
Compared to the standard ARX200 the DMR version operates only in semi-automatic mode, and while many features remain the same, a number of elements were newly developed or modified. The ARX200 DMR has a longer barrel, a 20-inch (508 mm) one, slightly heavier and with an optimised profile to increase accuracy. The trigger has been replaced by a double-stage one with a 2-2.3 kg pull. To ensure maximum comfort to the shooter the Beretta DMR is fitted with a fully adjustable folding stock, the latter feature allowing bringing the rifle within the limits for parachuting.

The stock can be adjusted in length (60 mm), check rest being adjustable in height and position, the butt-stock being also adjustable in height, all this without using any tool. A monopod can be installed at the bottom of the stock.

A full length Picatinny rail on top allows installing day optic and night vision clip-on systems, while M-Lok slots are located at 3, 6 and 9 o'clock. Six flush-cup swivels allow installing the three-point sling according to the shooter's preferences.
The ARX200 DMR maximum length is 1,040 mm, it is 215 mm high with magazine and folded iron sights, and 88 mm wide. It weighs 4.8 kg without magazine; 10- and 20-round SR-25 type magazines can be used with an adaptor, the standard magazine being the Beretta 20-round polymer proprietary magazine. ■

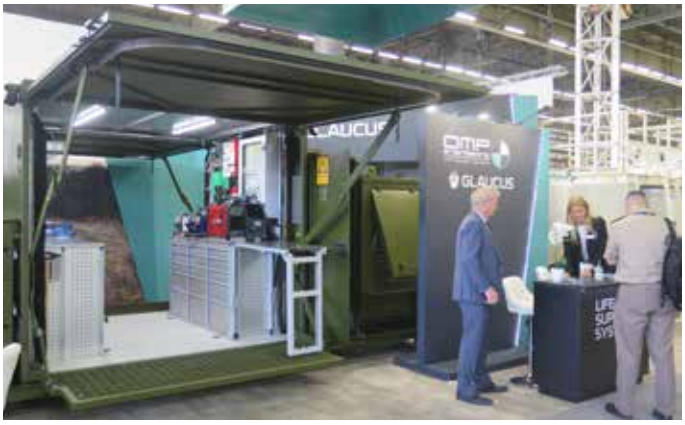
CNIM EXHIBITS ITS LATEST ADVANCES IN ENGINEERS VEHICLES

By VALERIO DEL GRANDE

HALL 5A STAND H 327

First appearance at Eurosatory for CNIM's ROCUS Route Clearance Unmanned System. Engineer equipment is definitely one of the specialties of CNIM Systèmes Industriels; this tracked unmanned ground vehicle can move at 20 km/h for 10 hours, ensuring route clearance ahead of convoys. It can be easily towed to augment its endurance, and deployed only when required, such as on roads considered particularly dangerous. The ROCUS is based on MILREM Robotics' THeMIS platform and is fitted with a robotic arm able to lift up to 100 kg at 4 m, and the UGV optronic suite allows it to operate day and night. Highly mobile, thanks to the low ground pressure, it is remotely operated, and can be used under the protection of a vehicle fitted with the control station. The ROCUS demonstrator has been tested in difficult conditions, and is visible on the CNIM stand at Eurosatory.

Two other items, both related to military engineers, were the main subjects of the CNIM participation to Eurosatory, however those were present only as models or virtually. One exists, for the time being, only on computer screens; it is the EGC, Engin du Génie de Combat or combat engineering vehicle. An 8x8 wheeled vehicle it features a well protected operator's cabin at the centre and is fitted with a front bucket and a rear excavator arm. The programme for the French Army is proceeding at slow path, a Request for Information being expected however in the very near future. The PFM, the motorised floating bridge, is entering service in the F2 version with the French Army, while the F3 version capable to withstand MLC 90 Tracked and MLC 100 Wheeled loads should soon find its launch customer. ■



GLAUCUS AND OMP ENGINEERING: FRSN, A SELF-CONTAINED REPAIR SOLUTION FOR FOBS

By VALERIO DEL GRANDE

Maintenance and repair duties at Forward Operating Base level is not an easy task, especially when the FOB hosts a limited number of forces. Leveraging the work done on legacy repair and maintenance systems Glaucus further evolved the concept of this deployable workshop and versatile multi-tool, developing what is now the Forward Repair System NATO or FRSN along with its partner OMP Engineering.

The system is based on a reinforced 20' NATO STANAG flat-track, with a customised 70 kVA generator at the front and a 7-ton capable crane at the rear. It is fitted with two stabilising jacks and can lift the maximum load at 5 metres distance and 4 metres height, on 360°. This allows replacing main battle tanks (MBTs) powerpacks; as for turrets, it can cope with those of most armoured vehicles and of some MBTs too. The crane is powered by the multifuel generator, which is fully silenced. The workshop hosts all needed tools, including welder, cutting and full range of diagnostic.

The whole system, including workshop, generator, air compressor, welding equipment and crane, falls within a 20' foot container dimension and has a maximum gross weight of 12,000 kg, being thus easily transportable by an 8x8 truck fitted with a palletised loading system. The FRSN is manufactured by Glaucus of Denmark along with its partner OMP Engineering of Italy, and represents the result of a tight collaboration with the end user community. The launch customer has been the Danish Army and the system was tested by with the French Army during spring this year. ■

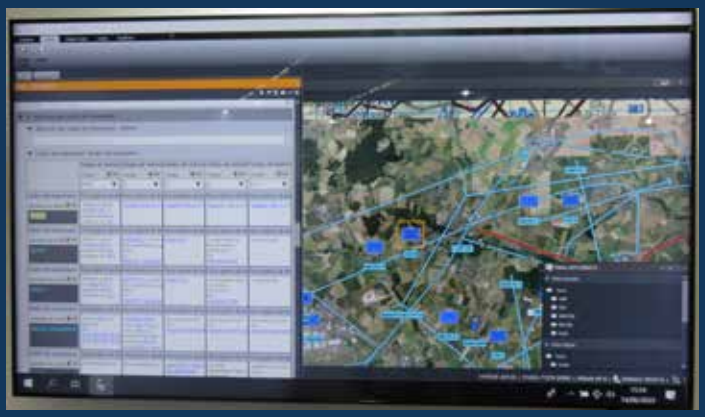
HALL 6 STAND C 351

METRAVIB DEFENCE: THE PILAR V EVOLVES TO COUNTER NEW THREATS

By VALERIO DEL GRANDE

Situational awareness is probably one of the most used wordings in the defence community, and knowing where the enemy is firing from falls exactly within that definition. For many years, Metravib Defence has been one of the key players in acoustic systems providing the warfighter, mounted or on foot, with a clear indication on the source of fire.
Advanced solutions are shown at Eurosatory 2022, the company aiming at improving its products in order to satisfy its customers, providing effective operational solutions, together with numerous partners.
One of the latest additions to the Pilar V capabilities it's the big calibre detection, the system having been tested for 105 mm and 120 mm tank ammunition. This means contributing to the protective layer as well as to collaborative combat, the Pilar V being able to provide data to the battle management system that shares them with all surrounding actors. This new capacity was implemented exploiting the considerable data base acquired by Metravib Defence along the years, as well as Artificial Intelligence-based algorithms, that allowed developing new software releases. No AI elements are part of the system itself, however these are used to improve system performances.
Interoperability with in-service systems and other sensors is considered key, the end game being to improve situational awareness. As an example, Metravib Defence tested the Pilar V on a vehicle while a Novadem NX70 was overflying the area; the acoustic sensor sensed a gunshot allowing the drone to immediately point its optronics on the shooter's area. The miniaturised version, the Pearl, was used on board unmanned ground vehicles in the same way. Metravib Defence is also cooperating with the French DGA on a series of cutting-edge programmes. ■

HALL 5A STAND E 168



SCORPION'S SICS REACHES MATURITY

By GILES EBBUTT

HALL 6 STAND K 198

ATOS is displaying and demonstrating a full suite of the new Système d'Information du Combat Scorpion (SICS) battle management system (BMS) which is now in operational service with the French Army.

Under development since before 2016, SICS is a key part of the Scorpion transformation programme. The BMS covers all tactical levels from battlegroup to the dismounted soldier with three variants of the software.

At the highest level is a version designed for command posts with full functionality including collaborative planning. The next level is a mobile version intended for use by commanders mounted in vehicles, mainly using COTS ruggedised hardware form Panasonic and Getac.

The dismounted version, hosted on a ruggedised smartphone, is used by company and platoon commanders when they dismount from their vehicles, and by infantry squad leaders. The system is not provided to individual soldiers although their positions are tracked and displayed in the tactical picture. The French Army's dismounted version is known as Dismounted Soldier SICS but the export version is called the Digital Soldier System.

Central to the system is the graphical map display which provides Blue Force Tracking (BFT) and the tactical picture including graphical operational orders. Information is shared using data radio communications, currently using the Thales PR4G F@stnet although this is due to be replaced by the Thales Contact software defined radio starting in 2023. SICS is compliant with both and will be able to operate if the two radios are used in parallel.

Sylvain Gonnet, ATOS SICS programme lead, explained that a significant advantage of the system is its low bandwidth capability, as it can operate over networks with a capacity of only 1.2 kb/s.

All SICS users are on the same flat network and exchange data through tactical communities of interest (COI). A user can be a member of a number of different COI. A platoon commander, for example, would be a member of the platoon COI and that of the company commander. All members of a COI see the same tactical picture and information is automatically shared across the community when a member adds it.

The exception is BFT, which is filtered on a geographical basis, so that all friendly tracks in a particular area are visible to all users.

Coalition interoperability is achieved through the use of the NATO Friendly Forces Information (NFFI) data protocol.

Latency is generally no more than 5-10 seconds unless the network is exceptionally busy and is usually less. It has been successfully tested with a network of more than 500 vehicles.

The system has been designed in close conjunction with the user, and Gonnet said it is easy to use and configure and has only required one week of training. "A lot of thought has gone into making it simple, reliable and trustworthy" he said. When the Show Daily spoke to a member of the CP vehicle crew at the Army's live demonstration at Eurosatory he was full of praise for the system's speed and ease of use.

Gonnet said that the system has been operationally deployed in the Sahel for the past 12 months in operations over an area of 2.7m sq kms, with six CPs and more than 500 SICS installations. The version in use is V1.1 which was delivered in December 2021. V1.1.1 will be fielded shortly with V1.2 following in January 2023. This will add new functionalities such as fire support.

He explained that the early focus has been on developing a generic system, but future versions will increasingly add specific applications for individual warfighting functions such as combat engineering or logistic support. This will be a continual process.

Work on developing the version for the French Army Light Aviation (l'Aviation Légère de l'Armée de Terre: ALAT), SICS-ALAT, has commenced and this will be fielded in the 2024-25 timeframe. The programme will require user input from aircrew to define their needs as well as integration with the various platforms

The French Army is the principal customer for the system although ATOS had an early sale of an export version to an unspecified Middle East customer. Belgium, which is acquiring Scorpion vehicles, is also adopting SICS and will install it in both the new and legacy vehicles with a 50% split. Luxembourg is another likely customer.

Gonnet noted that the focus for the export version, known as Digital BMS, is on central and eastern Europe. "We intend to participate in all the European competitions" he said, adding that an attraction of the ATOS solution is its low bandwidth requirement which makes it attractive for use on legacy communications networks. He noted that while the export version is based on SICS many potential customers wanted elements of customisation, which he said could be achieved. ■

FIRST APPEARANCE ABROAD FOR TELEDYNE FLIR B330 BIO DETECTOR AND COLLECTOR

By VALERIO DEL GRANDE

HALL 5A STAND A 277

With its IBAC bio-detection sensor in service worldwide and selected for the NBC Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU) programme for the US Army, Teledyne FLIR has further developed the concept, considerably reducing size and weight, giving birth to the B330, a continuous biological detector and collector purposely designed for unmanned aerial systems. The company identified the need for a system capable to carry out the mission faster and be more mobile, so weight and size reduction was of primary importance.

Compared to the IBAC, which has a weight of around 4.5 kg, the B330 is less than one third, its weight being declared at 1.44 kg. In fact Teledyne FLIR did not created new sensors, it leveraged the well-proven instruments and managed to produce them in a much smaller form factor and at a smaller weight. The other key element is that the B330C is fully integrated into the UAS control software that allows providing real-time data to the ground operator. Biological agents are relatively big, in the 0.7 – 10 µm range, and are protein-based thus they absorb light within a specified wavelength, so combining those two metrics the B330 can detect spores, vegetative bacteria, viruses, and toxins. When an agent is detected the sampling system is triggered, samples being then brought back to base to be analysed in a laboratory.

The B330 integrated into Teledyne FLIR R80D SkyRaider UAS is part of the NBCRV SSU programme of record, however the company is considering it for integration onto other flying platforms, either free flying or tethered, the system first appearance outside the United States marketing the debut of its export marketing campaign. ■

DES DÉFENSES DE TÊTE HISTORIQUES EXPOSÉES PAR LE MUSÉE DE L'ARMÉE, INVALIDES

Par MARC CHASSILLAN

HALL 5 A STAND H 30

C'est la première fois que le musée de l'Armée participe au salon Eurosatory, où il expose cette année une sélection exceptionnelle de défenses de tête datant de la Renaissance à nos jours. Elles témoignent de l'évolution des savoir-faire français dans ce domaine, alliant la recherche de l'esthétisme et celle de la maniabilité, de la protection et de l'appréhension de l'environnement. Conservatoire des arts et techniques appliqué au monde militaire, la présence du musée de l'Armée amène de la profondeur historique au salon Eurosatory, comme un miroir pluriséculaire de la capacité d'innovation au service des armées et des évolutions technologiques de nos industries françaises d'armement.

Le musée de l'Armée est situé au cœur de l'Hôtel national des Invalides, l'un des monuments emblématiques de Paris, célèbre pour son prestigieux Dôme, abritant le tombeau de Napoléon Ier. Avec 1,2 million de visiteurs annuels, le musée de l'Armée est l'un des musées parisiens les plus fréquentés. Il conserve et présente au public l'une des collections d'histoire militaire les plus riches au monde, soit près de 500 000 pièces (uniformes, armes, armures, dessins, peintures, photographies, etc.), de l'âge du bronze au XXIe siècle. ■

TRA-C INDUSTRIE - UNE PERFORMANCE SOUDURE

By JEAN-PIERRE HUSSON

TRA-C Industrie, une pépite française du Rhône, est le leader européen de la soudure par friction malaxage (FSW - Friction stir welding). Cette PME est la seule à proposer des solutions complètes clé en main dans ce domaine. Fin 2021, ils ont ainsi livré la plus grosse machine de soudure en Europe à Nexter Systems, sur le site de Roanne. L'étude, la conception et la fabrication avaient été 100% réalisées par TRA-C.

HALL 6 - STAND G 687

Cette machine sert à la fabrication des Serval du programme SCORPION et permet notamment de réaliser les soudures de quelques pièces du véhicule. Le SFW révolutionne la réalisation de certaines pièces, non seulement parce que leur fabrication ne serait pas possible avec des procédures traditionnelles, mais aussi pour le surcroit de performances apporté. En effet, le FSW permet de souder plusieurs variants d'alliage léger et de tailles différentes. C'est aussi la seule manière de traiter des épaisseurs d'aluminium jusqu'à 40 mm. Cette capacité apporte plusieurs gains : de masse, de productivité, de résistance aux explosions et notamment aux effets de blast.

TRA-C est aujourd'hui l'unique entreprise à proposer l'ensemble des opérations lié au FSW en Europe. Son innovation lui a permis de gagner deux contrats RAPID de la Direction Générale de l'Armement. ■

SENOP AFCD TI: A SMART SIGHT FOR THE CARL-GUSTAF M4

By VALERIO DEL GRANDE

HALL 6 STAND G 300

Thanks to the new Firebolt protocol Saab's Carl-Gustaf M4 recoiless gun is capable to use smart sights that can dialogue with newest generation ammunition. Currently only the HE 448 84 mm is "smart", a galvanic contact on the guiding ensuring a two-way dialogue between the round and the sight, which of course must also be "smart". Saab developed its FCD 558 as standard issue device. Should customers require a more comprehensive sight, Senop of Finland developed in close cooperation with Saab its Advanced Fire Control Device Thermal Imaging (AFCD TI), which allows exploiting all M4 capabilities. It includes a night channel, with an uncooled 640x480 thermal sensor, a day channel, with an over 1 MP resolution, both with the same x3 magnification with a 12.5° x 9.4° field of view, and fitted with electronic zoom. The gunner can selected day, night, or a fused imaged from both channels, the image being shown on an 800x600 colour display.

The AFCD has a 3 km laser rangefinder (LRF), and is fitted with sensors providing terrain and cant angles, ambient temperature and barometric pressure, and a gyroscope providing the angular rate. Its computer contains all ballistic tables, and can be easily updated. All data are entered automatically in the computer, the LRF also allowing to get the lead angle; the gunner follows the target for a couple of seconds pressing the LRF button, the system then moving the crosshair in order to consider both the lead angle and the ballistic drop.

The AFCD TI weighs 1.5 kg with its AA batteries, pre-production systems having already been provided to some NATO nations for trials. ■

FRESTEMS LAUNCHES ITS NEW, REVOLUTIONARY MILITARY MAIN STRETCHER AT EUROSATORY

HALL 6 STAND H 300

By ELISABETH GOSSELIN-MALO

Frestems, the leading manufacturer of military ambulance solutions, launched at this year's edition of Eurosatory its latest, revolutionary ProMIL Wheels military main stretcher. By bringing this product on the market, the company was looking to combine the civilian level care and ergonomics to the hard, highly volatile combat environment. What sets apart this stretcher from others on the market, is not only its lightweight but also the size of its wheels, which are some of the largest in the industry and allows an easier transport of the wounded on the most difficult terrains out there.
The functional design of military stretchers is a fundamental factor to consider in terms of the level of efficiency of care available on the ground. As such, ergonomics is at the core of what the company focused on while developing their ProMIL Wheels. Designed to fulfil MIL-STD 1472H, it is built in a way that reduces the time it takes for medics to move and transport injured patients and can easily be loaded in higher vehicles. While it was designed to be employed by 2 medics, it is also more than possible for only 1 to carry and operate it if the situation required it. The ProMIL Wheels is compatible with all new Frestems stretcher places and adapters, while also being adaptable to NATO platforms as well. Similar to the rest of the ProMIL family of products, it can be customized and modified based on customers' needs and requirements. ■

TRAUMAFX - LA SIMULATION MÉDICALE

Par LAETITIA BLANDIN

La société française EMD (Equipements des Métiers de la Défense) expose sur son stand son simulateur mannequin TraumaFX plus réel que jamais. Pourtant, toutes les options de ce simulateur ne sont pas possibles sur Eurosatory, et tant mieux pour les âmes sensibles.
En effet, ce simulateur permet à n'importe quel militaire, du rang jusqu'à l'officier, qu'il soit médecin ou non, de gérer des blessés graves lors d'opération. Si visuellement, les blessures du mannequin sont assez impressionnantes, ce simulateur peut également saigner ou uriner (certaines odeurs sont reconstituées), émettre des sons (souffle, réaction à un pneumothorax, etc.), ou même parler (un instructeur utilise un casque pour s'exprimer à la place du mannequin et interagir avec le militaire en formation). En cours de test, un système de réalité virtuelle permettra demain de se former en ayant une vision parfaitement réaliste des effets des blessures sur la peau du visage du mannequin par exemple. Ce simulateur permet donc aux militaires de non seulement se former à répondre à plusieurs soins, mais aussi à la gestion du stress.

Ce simulateur mannequin permet de traiter un très large spectre de blessures et d'implémenter à l'infini des scenarios. EMD livre son simulateur avec des scenarios pré-enregistrés, et les instructeurs peuvent réaliser eux-mêmes les leurs. Une façon de s'adapter sans cesses aux conséquences des différentes opérations militaires. Parmi les blessures qui peuvent faire l'objet d'une formation, il y a notamment celles de la gestion des hémorragies lourdes avec la nécessité d'une pose de garrot, de pansement compressif et/ou hémostatique.

Six TraumaFX sont en dotation dans les forces françaises, au sein des Hôpitaux d'Instruction des Armées (HIA) de Bordeaux et Lyon, du Val-de-Grace et de la CEFOS. Le Service de Santé des Armées (SSA) gère les simulateurs après avoir été formé par un instructeur de EMD. ■

HALL 6 STAND K 61

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EUROPEAN DEFENCE AGENCY

WE MUST SECURE ACCESS TO FINANCE FOR OUR DEFENCE INDUSTRY

By Jiří Šedivý, Chief Executive of the European Defence Agency (EDA)

These are truly dramatic and turbulent times for our continent's security and defence, with many uncertainties and challenges laying ahead. Russia's unjustifiable aggression war in Ukraine, with all its human suffering and potential repercussions on Europe's security and defence architecture, is at the centre of attention. Meanwhile, in the shadow of the headlines, a more sober debate is ongoing at EU level, one that could also massively impact the EU's future defence clout: the defence industry's future access to finance. Many companies, especially small and medium-sized ones, testify that they struggle to access finance on capital markets and, in some cases, even other financial services, such as insurances. Access to finance and services is, as we all know, critical for the industry's financial viability and competitiveness. There has been much focus recently on certain legislative and policy proposals by, and from within, the European Commission concerning Environmental, Social and Governance (ESG) criteria in the context of the EU's Green Deal. These proposals would have significant negative consequences for Europe's Defence Industrial and Technological Base (EDITB), although efforts have already been made to lessen their impact on the defence sector. Besides the risk of setting a stringent regulatory framework that would effectively bar the EDTIB's access to finance on capital markets, these proposals would also have a normative effect in the sense that the regulator, in this case, the European Commission, would send a clear signal to financial markets on the undesirability of investments in the defence industry. For many years, banks and other financial institutions have already had restrictive investment policies in place concerning the defence industry. The proposals in question from the European Commission would thus risk exacerbating the EDTIB's already restricted access to finance.

POLITICAL COHERENCE

Nobody questions the importance of the EU's Green Deal and the urgent need to tackle climate change, quite the opposite. The EDTIB is since long committed to the green and sustainable transition of our societies. But with a war raging in Europe and a broad political consensus that EU Member States' Armed Forces urgently need to modernise and strengthen their defence capabilities with the help of a strong, vibrant, and competitive European defence industry, it would be careless and even dangerous to jeopardise this industry's access to finance.

The bottom line is that EU policies must be coherent. We cannot, on the one hand, aim to strengthen European defence with the help of new initiatives such as the Coordinated Annual Review on Defence (CARD), the Permanent Structured Cooperation (PESCO) and the European Defence Fund (EDF) while, at the same time, adopting EU legislation that excludes the defence industry from the financial markets and jeopardises its overall competitiveness. This is particularly true at a time when the EU's ambition is to move towards strategic autonomy. In addition to that, there are serious long-term strategic risks involved. Because to build a stronger European defence and guarantee a secure and stable future for our citizens, we need a sovereign and competitive defence industrial and technological base able to deliver state-of-the-art technologies and defence capabilities. In other words: EU citizens and financial investors should realise that the defence industry, too, plays an essential role for safeguarding free and sustainable societies in Europe.

EUROPEAN DEFENCE TAKES ACTION

Against this background, the European Defence Agency cannot remain idle. At EDA's Steering Board meeting of National Defence Directors in March, Member States agreed to address the issue of ESG and its impact on the EDTIB's access to finance. Member States agreed to adopt a short- and mid-term as well as a longer-term approach, which will serve to address the challenges relating to access to finance for the defence industry, but ultimately also to the overall perception of the sector. Apart from the essential role that defence and security play in progressing towards to a sustainable and secure society, the defence sector needs to be recognised for what it already does in terms of transitioning to greener and more sustainable operations. At the same time, it must also identify areas and activities in which it can further develop its contributions towards said transition.

COORDINATION BETWEEN MEMBER STATES ON ESG-ISSUES

EDA will launch a network of Member State experts, including the European Commission, to discuss and coordinate ESG-related issues and the industry's access to finance. Industry will play an important role in this newly launched coordination effort, by providing critical input to the work of the network. It will be important for industry to demonstrate the concrete impact of ESG-criteria and restricted access to finance, and the longer-term impact on the industry's ability to design, develop and deliver innovative capable technologies and systems to support the development of EU defence capabilities.
The defence industry needs on the one hand to better communicate on what it already does to contribute towards the green and sustainable transition. On the other hand, additional efforts need to be made by the defence sector in this respect. Here, existing platforms such as the Consultation Forum for Sustainable Energy in the Defence and Security Sector (a European Commission initiative managed by EDA to assist Ministries of Defence to move towards green, resilient, and efficient energy models) or the EDA-managed Incubation Forum for Circular Economy in European Defence (IF CEED) should be fully used to launch new collaborative projects supporting sustainability.

WAY AHEAD

The Agency now has a clear mandate for moving ahead with concrete actions addressing the concerns of industry relating to access to finance and ESG. The Russian invasion of Ukraine was an unwelcome and tragic wake-up call across Europe that our efforts in defence and security have not been adequate. Most Europeans recognise the challenges in front of us in terms of developing the necessary defence and security capabilities necessary to protect our democratic and free societies from external threats. The defence industry plays an essential role in meeting this common European challenge. Addressing the issue of access to finance and ESG is, therefore, a necessary component of the overall effort.

Only a vibrant, innovative, competitive, and well-funded European defence industry can underpin the EU's defence ambitions with the capabilities and equipment our Armed Forces need, now and in the future. ■

CHRISTIAN CAMBON : “IL S’AGIT DE CONSTRUIRE PAS À PAS L’EUROPE DE LA DÉFENSE”

PROPOS RECUEILLIS PAR JULIEN CHABROUT

A l’occasion de sa venue à Eurosatory, le sénateur du Val-de-Marne Christian Cambon (Les Républicains), président de la commission des Affaires étrangères, de la Défense et des Forces armées du Sénat a accordé mercredi une interview exclusive au quotidien du salon.

En quoi est-ce important pour vous et pour la commission des Affaires étrangères, de la Défense et des Forces armées du Sénat de se rendre à Eurosatory ?

Il est normal que les membres de la commission que j’ai l’honneur de conduire viennent en nombre afin de découvrir le matériel militaire, de voir le *made in France*… C’est très utile. Nous avons la chance inespérée d’avoir dans un espace contraint tout ce que l’industrie d’armement est en mesure de faire. Il est donc important de voir concrètement et physiquement les innovations à un moment où, plus que jamais, la France va devoir se réinterroger sur son dispositif de défense.

Nous sommes au milieu de la loi de programmation militaire (LPM) 2019-2025 (NDLR : qu’Emmanuel Macron veut “réévaluer” à l’aune de la guerre en Ukraine). Par ailleurs, on voit bien que le contexte de la guerre en Ukraine change beaucoup le logiciel. Cette visite de terrain à Eurosatory et cette réflexion alimentent les décisions qui vont devoir être prises. Le but est notamment de rendre de l’épaisseur à nos forces armées, alors qu’elle est insuffisante, comme en matière de munitions. Nous prélevons sur nos propres stocks de quoi alimenter la défense de l’Ukraine. Notre commission a été l’une des premières à évoquer l’insuffisance des munitions et les trous qu’il peut y avoir dans la défense aérienne, par exemple.

Emmanuel Macron a appelé lundi à «tirer les conséquences» du bouleversement géopolitique provoqué par la guerre en Ukraine. Parmi ces conséquences, celle « d'une entrée dans une économie de guerre dans laquelle nous allons durablement devoir nous organiser » a-t-il estimé. Ce sont des sujets sur lesquels le Sénat compte également s'investir ?

Il va falloir que politiquement, avec le gouvernement et sous les indications du président de la République, le Parlement s'interroge sur le moyen de retrouver ses marges de manœuvre, de retrouver ses capacités et de retrouver un moyen de pouvoir se renforcer car c'est bien le sujet. Les forces françaises sont des forces extraordinaires mais, quand nous sommes confrontés à un conflit, nous manquons d'épaisseur.

Il faut que le gouvernement ait le courage de tenir les engagements pris dans le cadre de la LPM actuelle, qui va consacrer trois milliards de plus chaque année entre 2023 et 2025. Je pense qu'il faut aller plus loin, en réfléchissant à l'utilité de tous les matériels et en réfléchissant aussi à la question de la coopération européenne car ces matériels efficaces coûtent cher.

De nombreux pays européens, inquiets pour leur sécurité, ont annoncé l'augmentation de leur budget de défense. La réponse doit-elle être européenne ?

Avec la commission des Affaires étrangères, de la Défense et des Forces armées du Sénat, nous avons profité de la présidence de l'Union européenne par la France pour recevoir en grand nombre les ministres de la Défense et les chefs d'état-major des puissances européennes.

L'un des effets de la guerre en Ukraine est de faire mieux prendre en compte à l'ensemble des pays européens la nécessité de renforcer leurs défenses. Quand l'Allemagne annonce mettre 100 milliards sur la table pour moderniser sa défense, c'est un exemple spectaculaire et un événement sans précédent quand on connaît la tradition allemande. La France a un rôle tout à fait particulier à jouer afin d'essayer de fédérer autour d'elle les pays européens qui souhaitent se renforcer. Il faut que l'on aille dans cette voie, non pas pour faire des économies mais en termes d'efficacité parce que c'est ce qu'on appelle l'interopérabilité.

L'Europe de la défense telle que je la conçois est celle d'une Europe de briques empilées les unes au-dessus des autres qui finissent par faire un mur. Ce n'est pas une Europe des mots d'ordre comme "armée européenne", un terme qui effraient nos voisins. Il s'agit de construire pas à pas cette Europe de la défense : on l'a fait avec la Grèce sur les avions, avec la Belgique sur les blindés légers et on va continuer à le faire avec un certain nombre de pays. A chaque fois que nos amis européens nous font confiance, quelque part, c'est l'Europe de la défense qui avance. ■

OCCAR GAINS MOMENTUM, THE ORGANIZATION DIRECTOR SAYS

By LUCA PERUZZI

The Organisation Conjointe de Coopération en matière d'Armement/Organisation for Joint Armament Co-operation (OCCAR) will register an important growth in 2022 with the addition of new programmes and customers after a previous year rather challenging due to the recurring pandemic. "In 2022, our portfolio will increase to more than twenty programmes including two related to the land domain: the Light Armoured Vehicle (also kwown as Véhicle Blindé d'Aide à l'Engagement or VBAE) and the CAMM ER (Common Anti-Air Modular Missile – Extended Range), being this latter a project to be managed within the FSAF (Famille des systèmes Surface-Air Futurs – Famiglia dei sistemi Superficie-Aria Futuri) Programme. By mid 2024, we also expect the integration of the Wide Wet Gap Crossing (WWGC, formerly known as Triton) programme", the OCCAR-EA Director, Matteo Bisceglia told the Eurosatory Show Daily.

"Our operational budget will steadily increase as new programmes are integrated and new contracts are signed. I estimate that by late 2022 we will reach a total cap of over € 100 billion. A structural reorganisation will be needed to cope with our growth, to continue ensuring the highest level of efficiency in managing programmes, while limiting our administrative overhead cost", he continued.

The VBAE programme covers a feasibility study for the preparation and definition phase for the acquisition of an innovative light armoured vehicle, with France and Belgium as participating States.

Being procured by Italy for the Army and Air Force air defence system projects and being considered by other potential customers, the CAMM-ER missile procurement and in-service support (ISS) programme is planned to be integrated within the existing FSAF-PAAMS air defence missile Programme Division.

The WWGC programme will regard the development, production and initial ISS for a river crossing capability that goes beyond actual systems currently on the market in favour of Germany and UK with France having expressed interest.
"The current seven on-going programmes connected to the land domain will continue to provide work to the organisation through new developments, production and mid-life upgrades", the OCCAR Director explained. Last May, the Slovenia joined the Boxer Programme and signed an order for 45 vehicles including an ISS package. The first deliveries are expected in 2023 from Artec, the Joint Venture of Krauss-Maffei Wegmann, Rheinmetall Landsystemes, Rheinmetall Defence Nederland.

"The Boxer programme now has five participating states, other nations being Germany, Netherlands, Lithuania and the United Kingdom. The latter recently ordered 100 vehicles for a current total of 623 units, with the first prototype and the first vehicle deliveries expected respectively in 2022 and 2023 following a design and verification phase and production transferring to UK. Australia maintains an observer status", the OCCAR Director explained.

In March 2021, on behalf of Italy and France, OCCAR and the Eurosam consortium including MBDA and Thales signed the Amendment 7 to the three-national (France, Italy and UK) FSAF-PAAMS Sustainment & Enhancement (S&E) programme by launching the SAMP/T NG (New Generation) air defence system

including the new Aster 30 Block 1NT EC (Enhanced Capability). Thales GF-300 and Leonardo Kronos GM HP radar sensor variants for the SAMP/T NG were contracted last December, while the three national Aster munition Mid-Life Upgrade continues.
Initiated as an European Defence Agency (EDA) technology demonstrator to develop a Software Defined Radio (SDR) architecture and a military High Data Rate Networking Wideband Waveform (HDR WF) and subsequently selected as a PESCO project, the Participating States including France, Germany, Italy, Spain, Finland and Poland, launched two new projects (ESSOR New Capabilities and ESSOR Multifunctional Information Distribution System) in 2021 to extend the application field from ground systems to air and space, enforcing the ESSOR scope and community.

In March 2022, OCCAR signed on behalf of France and Spain with Airbus Helicopters and MBDA, the Mk III contract for the mid-life upgrade of the combat helicopter Tiger concerning not only a new electronic mission suite but also the new MHT air-to-ground missile, which is under development for France under the separate MAST-F programme also managed by OCCAR.
The Cobra (Counter Battery RAdar) programme with Germany and France as Participating countries continues in a series of maintenance and already-contracted or under preparation mid-life activities in addition to a new ISS multi-year contract to be signed in 2022.
OCCAR also manages the Belgium and German Night Vision Capability (NVC) programme concerning the procurement and in-service support for the new generation Mikron night vision goggles (NVGs).

"OCCAR is looking at creating a "Small Programmes" Programme Division to manage such programmes while ensuring the lowest overhead ratio", the OCCAR Director added. ■

A PART OF THE FRENCH DELEGATIONS

By ELISABETH GOSSELIN-MALO

Among the notable visits at this year's Eurosatory 2022, was Mr. Christian Cambon, Chairman of the Foreign Affairs, Defense and Armed Forces Committee. Mr. Cambon visited the international defence and security exhibition to find out more information about the latest industry trends and the new products being featured by the exhibitors. EDR got the opportunity to have exclusive interview with him.

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KEY EVENTS OF THE DAY 4

DO NOT MISS THESE IMPORTANT EVENTS OF THE DAY

CONFÉRENCES

Join international land and airland Defence & Security domain players in their reflection on the current and future challenges of the sector. The conference programme is available on the Eurosatory website or at the exhibition's official Web App

	BALARD HALL 5A	ÉLYSÉE HALL 5B	BEAUVAU HALL 5B	ORSAY HALL 6
10:00AM – 11:00AM	**Fight against on–fly UAV** The laser weapon, a game changer against drones **CILAS**	**Geostrategy & Geopolitics** EDTIB : how to strengthen the resilience of European land defence industry in light of the current return to high–intensity conflict?" **IRIS**	**Logistics** How to ensure logistics in high density conflicts? **AIR & COSMOS**	**Military Helicopters** NGRC, vertical lift innovations to enhance operational capabilities **NATO – NSPA**
11:00AM – 12:00PM	**NRBCe** CBRNe Sensors: Detection Systems **IB CONSULTANCY**	**Cyber** Digital Sovereignty: Essay for a reconquest **ANSSI, AGORA41 & Cercle de la donnée**	**11:30AM Public Safety** Horizon Europe Open calls on the new uses of Artificial Intelligence **PCN CLUSTER 3**	**Funding D&S** Funding of Defense industry **ARTCHER**
12:00PM – 1:00PM	**Foresight – French Army Staff** Future airmobile capability			**Countertrade and Offset** Offsets- A worldwide panorama **ECCO OFFSET / ADIT** **30 minutes**
2:00PM – 3:00PM	**Military Helicopters** French military helicopters, an excellence in the field of aerocombat **GICAT**	**Maintenance, Repair, and Overhaul** Future Industry - Additive Manufacturing | Production and Maintenance **French Army Staff , GICAT & DGA**		**High intensity** Command and control in high intensity combat thanks to laser communication **AIRBUS D&S**
3:00PM – 4:00PM	**European Defence** European Defence Fund – support for collaborative defence R&D with focus on disruptive technologies and cyber category **European Commission** **DG DEFIS**	**Public Safety** Fire fighting Foams: regulations, challenges and solutions **FFMI**	**Infrastructure protection** The new uses of Artificial Intelligence in audio and video analytics **AN2V**	**Geostrategy & Geopolitics** The war in Ukraine and the changing face of Defense geoeconomics in the post–Soviet region **EASTERN CIRCLE**
4:00PM – 5:00PM		**UAVs & Robotics** Military robotics on the field: either now or later? **NEXTER**	**Security Forum** Smart, Safe & Sustainable Big events? **S&D MAGAZINE**	**Defence, Security and Sustainable development** Air, Sea, Land : the French defense industry answer to energetic transition **ARQUUS**

AGORA INNOVATION HALL 5A

10:00AM – 10:30AM
KEYNOTE
Sten ALLIK, CD&E Director, Milrem Robotics

10:45AM – 11:30AM
MASTER CLASS
GAI4A
GAI4A, a UFO in an innovation sky. But is it the only one on the international stage?

12:00PM – 12:30PM
START–UP TROPHY OF THE DAY
Public vote of the day before for the start–up of the day

2:00PM – 5:00PM
START–UP PITCHES

EXHIBITOR PITCH CORNER HALL 6

10:00AM – JERLAURE
Local datacenters: a challenge for security too

10:30AM – THALES
Making collaborative combat a reality

11:00AM – TECHWAY
Electronics solutions: Raise up your embedded systems with innovative COTS products

11:30AM – ALEPH-NETWORK
The Internet as a source of information for Cyber Threat Intelligence

12:30PM – ARQUUS
Light Armoured Vehicles in renewed peer-to-peer combats

2:00PM - SPHEREA
SPHEREA, a french mid cap committed alongside Defense

2:30PM BACHMANN RDS
Bachmann RDS: because innovation is key

3:00PM – THALES
Opportunities to complement military systems with 5G

3:30PM – AIRBUS
AIRBUS HELICOPTERS - The unique helicopters range matching the governmental requirements for modern warfare and public services

4:00PM – GUARDIARIS
Innovative Laserless Training Solution SAMT and Revolutionary VSHORAD Tactical Approach BANS

4:30PM – CENSUS
The role of 0day vulnerabilities in the development of defense systems

LIVE DEMONSTRATIONS

9:45am-10:30am	EUROSATORY Live Demonstrations
11:00am-12:00am	Live Demonstration of RAID
12:30am-1pm	Live Demonstration of the Prefecture of Police - BRI
2:30pm-3:00pm	Live Demonstration of the French gendarmerie intervention squad (GIGN)
4:00am-4:45pm	EUROSATORY Live Demonstrations
Industries participating in EUROSATORY Live Demonstration	ARQUUS, FN HERSTAL, ICARUS SWARMS, INTERNATIONAL ARMORED GROUP, TSD International, MILREM, SIDES, TECHNAMM

12:00AM AWARD OF THE START-UP OF THE DAY - EUROSATORY LAB - HALL 5A

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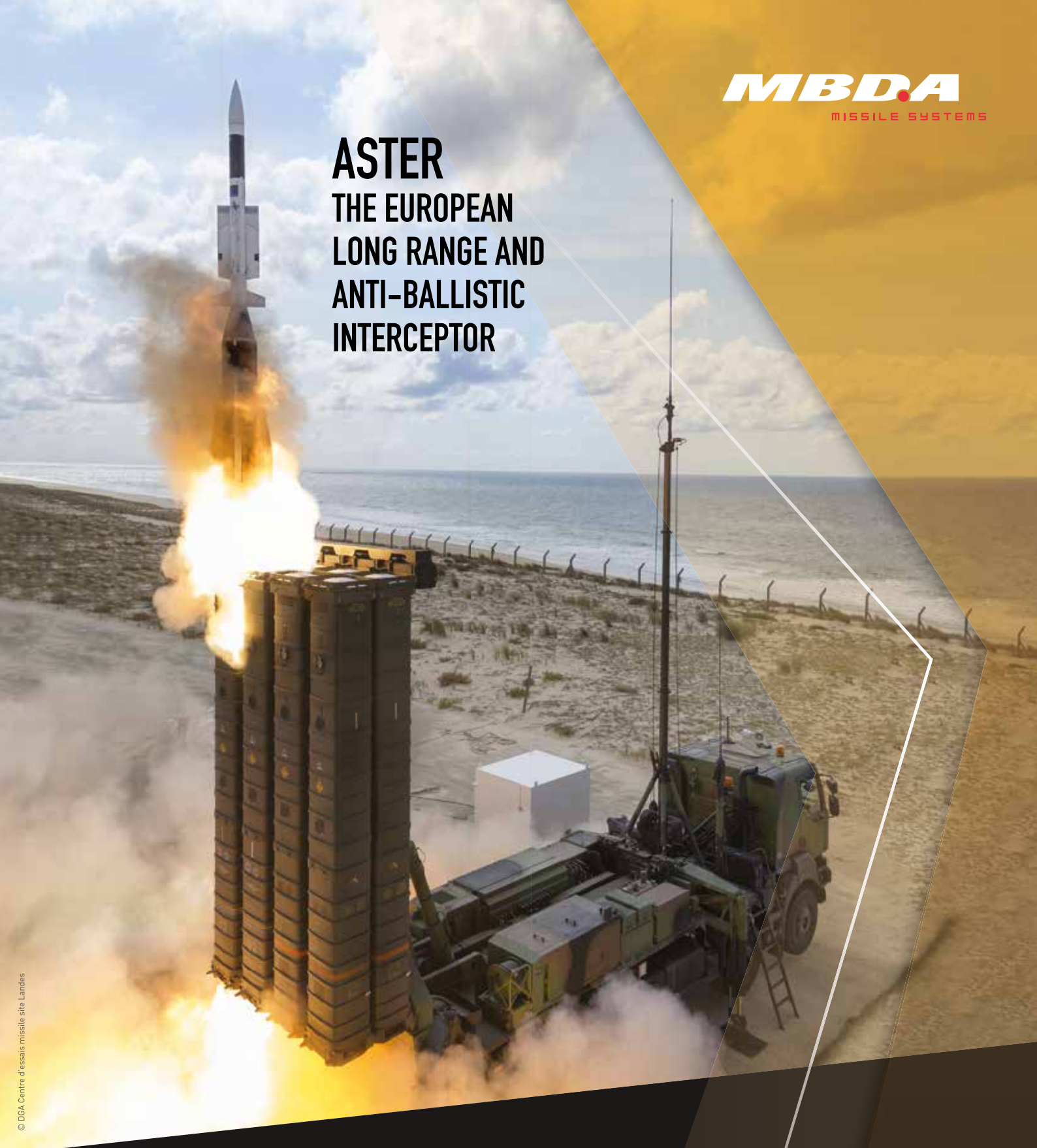

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