

Army Guide monthly



2 (137) February 2016

- Casspir Eland Joins Denel's Impressive Vehicle Stable
- Rheinmetall creates Europe's leading producer of military vehicles
- iRobot Announces Sale of Defense & Security Business to Arlington Capital Partners
- MTL Advanced signs multi-million pound contract with NIMR Automotive
- CONTROP'S Compact Day/Night Observation Systems Chosen by a NATO Army
- Rheinmetall wins major order from Latin American customer for logistic vehicles
- RE2 Robotics Awarded \$1 M to Develop Biomechanical Exoskeleton Simulator System
- Oshkosh Continues Work Under JLTV Production Contract
- RE2 Robotics Awarded \$1 Million to Develop Biomechanical Exoskeleton Simulator System
- FNSS Awarded New Contract To Deliver Pars Wheeled Armoured Vehicles
- Oshkosh Corporation Clears Legal Challenge Related To The \$6.7 Billion JLTV Production Contract
- Arotech Power Systems Division receives \$8.5 million in new order from the Israel Ministry Of Defense
- Rheinmetall to upgrade 128 Polish Leopard 2 main battle tanks

Defence Industry

Casspir Eland Joins Denel's Impressive Vehicle Stable



Denel has expanded the range of its recovery vehicles based on the well-known Casspir mine resistant system and is responding to keen interest shown by clients on the African continent.

The latest addition to the Mechem vehicle line-up is the Casspir Eland – a heavy duty recovery vehicle. The Eland is a 6X6 configuration based on the well-known Casspir NG2000 series – a vehicle that has gained a global reputation for protection, power, manoeuvrability and comfort for passengers and crew.

The Eland with its monocoque design is larger and heavier than the 4X4 wheel variant, the Casspir Gemsbok. Two of these recovery variants have recently been ordered by the Angolan Defence Force.

The General Manager of Mechem, Ashley Williams says there is considerable international interest in the Casspir series of vehicles and Denel recently concluded a long-term agreement to supply various mine-protected variants to an important international client.

Mechem is also busy with the production of the Casspir 6X6 Stallion – a recovery vehicle based on a truck chassis with a protected cab and the ability to perform heavy duty recovery duties. The Casspir Stallion is also available in 4X4 and 8X8 variants providing clients a range of recovery vehicles – from light to heavy duty – based on the same vehicle model.

Williams says a number of African countries are showing interest in the complete Casspir family of mine-protected vehicles. Mechem hosted delegations from three countries in December and demonstrated the full spectrum of Casspir variants.

The advantages of acquiring different variants of the same trusted vehicle are quite obvious. Prospective clients in Africa can use the Casspir variants in different conditions and applications and they are suitable for both military operations and peace support missions.

Denel is a trusted defence manufacturer with a long-standing reputation for quality, maintenance and after-sales service. The vehicles are designed in Africa keeping in mind the unique requirements of the continent in terms of geography and weather conditions.

The Casspir range is regarded as a force multiplier and Denel has stock in hand that can be sold and handed over to the client at very short notice.

Mechem also shipped a batch of 10 Casspir personnel carriers to a client in December 2015. Williams says these vehicles were equipped with special mine roller attachments to be used in the clearance of land mines and unexploded ordnance.

The long-term agreement with the client also includes the future supply of five Casspir Stallion recovery vehicles while a further order for five more vehicles is in the planning stage as well as orders for other special Casspir variants.



Defence Industry

Rheinmetall creates Europe's leading producer of military vehicles

Rheinmetall AG has decided to consolidate its Defence unit's extensive military vehicle activities in a new division called "Vehicle Systems". As a first step, Rheinmetall Landsysteme GmbH (RLS) and Rheinmetall MAN Military Vehicles GmbH (RMMV) have been placed under joint management effective from 1 January 2016. Ben Hudson (CEO) and Michael Wittlinger (CFO) will lead the new division.

Starting on 1 January 2016, Mr Hudson has also been appointed to the Executive Board of Rheinmetall Defence where he will represent the new Vehicle Systems division.

The resulting unit is poised to be a comprehensive supplier of tracked and wheeled military vehicles and turret solutions, capable of meeting the complete ground mobility needs of the world's armed forces – all from a single source. Under the new structure, Rheinmetall Defence will consist of the following three divisions: Vehicle Systems, Electronic Solutions and Weapons and Ammunition.

The united competencies of RLS and RMMV create a leading European systems supplier and the world's most robust platform for tactical land mobility solutions, with annual sales expected to reach €1.4 billion in fiscal 2016.

The portfolio ranges from main battle tanks and wheeled armoured vehicles to state-of-the-art trucks, and features such technological triumphs as the Puma infantry fighting vehicle*, the Kodiak armoured engineering vehicle*, the 8x8 Boxer*, the 6x6 Fuchs/Fox, the 4x4 AMPV*, as well as the new division's TG, HX and SX truck families. Rounding out the portfolio is Rheinmetall's unsurpassed expertise in turret systems, exemplified by products like the Lance turret and the turret structure for the UK's new Scout reconnaissance vehicle.

The two management companies – RLS and RMMV – will pull closer together organizationally in the new division and present a common front, while still maintaining their own corporate seats and locations. The ownership structure of RMMV, in which MAN Truck & Bus AG holds a 49% stake, remains unchanged.

Clear market trends explain the need for the new division: customers today are more interested in systems than platforms. Large, highly complex procurement programmes are placing ever-greater requirements on the defence sector. Rheinmetall Defence is responding to these changes in a proactive way, presenting a bold, confident face to customers around the globe: hence the new Vehicle Systems division.

Up until now, Mr Hudson has headed Rheinmetall's

Combat Platforms business unit and served as the CEO of Rheinmetall Landsysteme GmbH. Prior to coming to Rheinmetall he held a variety of executive posts at General Dynamics, BAE Systems and served in the Australian Army. Mr Wittlinger has been with Rheinmetall since 2007, first as head of Group Controlling, then as the commercial Managing Director of Rheinmetall MAN Military Vehicles GmbH.

manufacturer NIMR Automotive.



Robots

iRobot Announces Sale of Defense & Security Business to Arlington Capital Partners



BEDFORD, Mass. -- iRobot Corp., a leader in delivering robotic technology-based solutions, today announced that it has signed a definitive agreement to sell its Defense and Security business to Arlington Capital Partners for up to \$45 million in total consideration, including a contingent payment based on achieving certain milestones. This transaction enables iRobot to solidify its position as the leader in diversified Home Robots and focus on technologies for the connected home.

"In the spring of 2014, we engaged Blackstone Advisory Partners LP, now known as PJT Partners, to review strategic alternatives for our Defense and Security business," commented Colin Angle, iRobot chairman and chief executive officer. "After a thorough and deliberate process, we've concluded the sale of the business to Arlington Capital Partners will maximize shareholder value by allowing us to focus on our much larger Home segment."

The transaction is expected to close in the next few months. The anticipated financial impact of the divestiture, including one-time costs, will be disclosed in iRobot's fourth-quarter and full-year earnings press release and investor call on February 10 and 11, 2016.

Contracts

MTL Advanced signs multi-million pound contract with NIMR Automotive

MTL Advanced is pleased to announce it has received its largest order to date for supply of armoured cabs to UAE armoured vehicle

MTL Advanced, part of the WEC Group is currently supplying armoured cabs for NIMR and this new contract reflects the quality and delivery performance achieved to date on the existing project With supply commencing in 2016 the new contract will run for 18 months and utilise MTL Advanced state-of-the-art factory. The cabs will be manufactured using dedicated 6 axis twin robot welding systems, complete with glass and a weapon mount system, before being painted in its new paint facility.

Karl Stewart, Commercial Director says the new contract confirms MTL Advanced as a leading manufacturing partner to global defence equipment suppliers.

"We are delighted to work with NIMR on this major project which demonstrates the strong partnership between the two companies and highlights NIMR's role in supporting economic growth of SMEs in the UK." MTL Advanced export sales are growing rapidly as it builds on its reputation for contract manufacturing in the defence sector. Stewart continues: "Our exports continue to grow and we are now exporting to five continents. We have an impressive facility that is ideal for contract manufacturing high volume quality products. Our defence division also offers design optimisation and vehicle survivability solutions."

The end of 2015 brings an J8m investment scheme to MTL Advanced starting with the purchase of its 13 hectare facility. A new state-of-the art 6m x 2.5m Trumpf laser with an automated handling system will also be installed and ready for use in January 2016, alongside a shot blast and wet paint facility that will follow in March.

Defence Industry

CONTROP'S Compact Day/Night Observation Systems Chosen by a NATO Army

CONTROP Precision Technologies Ltd., a global leader in EO/IR defense and homeland security solutions, today announced that the company has been chosen to supply 90 advanced SHAPO systems for a NATO army's patrol vehicles during the course of 2016.

SHAPO is a unique ultra-lightweight gyro-stabilized EO/IR Day/Night Observation system especially designed for flexible EO payload deployment on multi-mission patrol vehicles. The high performance low

weight system delivers the benefits of a built-in thermal imaging camera with a continuous zoom lens, advanced image enhancement, automatic target tracker, picture-in-picture and more, all offered in one compact integrated package.



“That SHAPO has been chosen by a leading NATO army is a validation of the system's superior performance,” said Mr. Johnny Carni, CONTROP's VP Marketing. “SHAPO won this highly competitive tender thanks to our in-house developed technologies that deliver outstanding operational capabilities relative to its low cost. The system maintains low SWaP (Size, Weight and Power) and superb gyro-stabilization, which are crucial factors when dealing with patrol vehicles on rough terrain since the vehicles are typically overloaded with various sensors and other systems. These features make the SHAPO payload the most cost effective option when compared to other similar systems on the market”.

SHAPO offers a wide range of communication interfaces to host platform (including RS-422 and optional ARINC 429 and MIL-STD-1553), its operating Control Unit has been specially ruggedized to survive the harshest environmental conditions, and its advanced ergonomics provide maximum comfort for extended use. “We are also in the final stages of evaluation of this system with remote control guns,” Mr. Carni added, “and we hope to announce the signing of similar contracts in the near future.”



Contracts

Rheinmetall wins major order from Latin American customer for logistic vehicles



A Latin American customer placed a major order with Rheinmetall today for logistic vehicles. Worth over €53 million, the contract encompasses an initial lot of 338 logistic vehicles for the army and

navy. The order also includes support services.

From March 2016 to May 2017, Rheinmetall MAN Military Vehicles will supply the customer's army with 92 TGS-MIL and 216 TGM MIL vehicles. In addition to these, a further 30 TGS-MIL will go the navy. Moreover, the contract features an option for 337 more vehicles.

The TGM and TGS model series are based on the globally proven MAN Trucknology generation. At the cutting edge of commercial truck technology, they set the international standard for robust design and innovative engineering. Originating in large-scale production runs, they have already put in millions of development kilometres. Vehicles destined for the world's armed forces and security services are hardened to stand up to even the most extreme conditions. TGM and TGS both offer an excellent price-performance ratio and are superbly well suited for civil use and military operations alike.

The versatile TGM-MIL and TGS-MIL vehicles can operate in all climatic zones at temperatures ranging from -32°C to +49°C. As NATO mobility class 'C' logistic vehicles, they combine excellent off-road performance. Tried and tested, their engines can run not only on diesel but also a variety of other battlefield fuels, such as aviation turbine fuel (F-34).

Their heavy carrying capacity enables a wide array of different build-ons. Most of these are commercial off the shelf systems, and thus safe and easy to operate. Possible configurations include hook-lift/interchangeable pallet carriers, cargo vehicles, dump trucks, mobile cranes, fire-fighting vehicles, tankers for fuel or water, troop carriers maintenance vehicles and recovery systems. All of these configurations have proven highly effective in all climatic zones. The current order consists of vehicles configured as troop carrier/cargo trucks as well as water and fuel tankers and mobile repair shops. They are therefore extremely well equipped to serve in a disaster relief role in response to the El Nino phenomenon, meeting the full range of requirements for dual use vehicles.

Last but not least, TGM and TGS vehicles are economical to operate. Today the armed forces of over fifty nations armed forces place their trust in these trucks, more than 80,000 of which are in service worldwide.



Robots

RE2 Robotics Awarded \$1 M to Develop Biomechanical Exoskeleton Simulator System

RE2 Robotics, a leading developer of mobile robotic manipulator arms, announced today that the company has been awarded a \$1 Million Phase II Small Business Innovation Research (SBIR) program with the U.S. Army to develop the Biomechanical Exoskeleton Simulator System, a software tool to assess the impact of load carriage and body-wearable robotic devices on musculoskeletal health and performance. The simulator will allow the Army to more accurately predict musculoskeletal stress on military personnel

while wearing assistive devices, such as robotic exoskeletons.

According to the American Journal of Preventive Medicine, injuries among warfighters have increased significantly over the past few decades, with a majority of musculoskeletal injuries attributed to overuse and excessive load carriage. Specifically, back and lower extremity injuries due to overburdening account for 65% of the reported musculoskeletal injuries to military personnel from boot camp to discharge.

The goal of the Phase II effort is to develop a simulation tool capable of producing validated biomechanical data on muscle forces, stresses, joint loads, and metabolic load that a human subject would have produced during load carriage with and without the use of a robotic exoskeleton. This data will help the Army analyze the benefits of exoskeletons and develop injury predictions.

“By directly modeling the interaction between a human user and the exoskeleton, our simulator will help to identify potential injury mechanisms and issues before any large-scale deployment of the device – ultimately reducing injuries while saving the Army time and money,” stated Jorgen Pedersen, president and CEO for RE2.

RE2 is partnering with biomechanical exoskeleton experts at Ekso Bionics™ (OTCBB: EKSO), neuromusculoskeletal simulation leader, Dr. Scott Delp and Dr. Jennifer Hicks, faculty at Stanford University, and the Human Engineering Research Laboratories at the University of Pittsburgh to design and test the Biomechanical Exoskeleton Simulator System.

This work is supported by the US Army Medical Research and Materiel Command under Contract No. W81XWH-14-C-0002. The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

Federal Claims’ decision to deny Lockheed Martin’s request for a preliminary injunction while its protest is being heard. The JLTV program, which is cited among the Department of Defense’s highest modernization priorities, is charged with providing greater protection and off-road mobility for American troops as they perform future combat operations virtually anywhere in the world.

“This decision is another indication that the U.S. Army conducted a thorough, methodical procurement process, and we are confident that the original JLTV contract award to Oshkosh will be upheld,” said Wilson R. Jones, Oshkosh Corporation president and chief executive officer. “The Oshkosh JLTV team, including our employees and hundreds of suppliers, is pleased to continue our work to deliver JLTVs to our nation’s Soldiers and Marines.”

The JLTV program fills a critical capability gap for the U.S. Army and Marine Corps by replacing a large portion of the legacy HMMWV fleet with a modern light vehicle that provides unprecedented protection and off-road mobility, as well as transportability via air, land and sea. The \$6.7 billion JLTV production contract calls for Oshkosh to deliver a total volume of nearly 17,000 vehicles, as well as kits and sustainment services over an eight-year period.

On December 15, 2015, the U.S. Government Accountability Office (GAO) dismissed Lockheed Martin’s protest just days before the GAO was expected to issue its decision. The U.S. Army promptly lifted the stop work order and instructed Oshkosh to resume performance on the JLTV contract. On December 17, 2015, Lockheed took its objections to the U.S. Court of Federal Claims and the next day requested an injunction to stop work on the JLTV program. On February 11, 2016, the U.S. Court of Federal Claims denied the injunction, permitting Oshkosh to continue working under the JLTV contract.

Defence Industry

Oshkosh Continues Work Under JLTV Production Contract



Oshkosh Defense, LLC, an Oshkosh Corporation (NYSE: OSK) company, will continue to perform work on the Joint Light Tactical Vehicle (JLTV) production contract based on the U.S. Court of

Robots

RE2 Robotics Awarded \$1 Million to Develop Biomechanical Exoskeleton Simulator System



PITTSBURGH, PA -- RE2 Robotics, a leading developer of mobile robotic manipulator arms,

announced today that the company has been awarded a \$1 Million Phase II Small Business Innovation Research (SBIR) program with the U.S. Army to develop the Biomechanical Exoskeleton Simulator System, a software tool to assess the impact of load carriage and body-wearable robotic devices on musculoskeletal health and performance. The simulator will allow the Army to more accurately predict musculoskeletal stress on military personnel while wearing assistive devices, such as robotic exoskeletons.

According to the American Journal of Preventive Medicine, injuries among warfighters have increased significantly over the past few decades, with a majority of musculoskeletal injuries attributed to overuse and excessive load carriage. Specifically, back and lower extremity injuries due to overburdening account for 65% of the reported musculoskeletal injuries to military personnel from boot camp to discharge.

The goal of the Phase II effort is to develop a simulation tool capable of producing validated biomechanical data on muscle forces, stresses, joint loads, and metabolic load that a human subject would have produced during load carriage with and without the use of a robotic exoskeleton. This data will help the Army analyze the benefits of exoskeletons and develop injury predictions.

“By directly modeling the interaction between a human user and the exoskeleton, our simulator will help to identify potential injury mechanisms and issues before any large-scale deployment of the device – ultimately reducing injuries while saving the Army time and money,” stated Jorgen Pedersen, president and CEO for RE2.

RE2 is partnering with biomechanical exoskeleton experts at Ekso Bionics™ (OTCBB: EKSO), neuromusculoskeletal simulation leader, Dr. Scott Delp and Dr. Jennifer Hicks, faculty at Stanford University, and the Human Engineering Research Laboratories at the University of Pittsburgh to design and test the Biomechanical Exoskeleton Simulator System.

This work is supported by the US Army Medical Research and Materiel Command under Contract No. W81XWH-14-C-0002. The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

Contracts

FNSS Awarded New Contract To Deliver Pars Wheeled Armoured Vehicles

Turkey’s leading land based defence systems company FNSS, has achieved another success with its PARS Wheeled Armoured Vehicle (WAV) family. Recently FNSS was awarded a contract to supply the PARS WAV to a new customer.

The contract is already effective and FNSS has started to fulfill its obligations under this new contract which includes delivery of a series of vehicles in various

configurations. The exact customer, vehicle types, total budget and additional details will remain confidential.



In 2011 FNSS has achieved the highest export value among the Turkish defence industry based on a single contract with the Malaysian AV8 program.

“This latest success for the PARS vehicle family, which has become a world standard in 8x8 and 6x6 wheeled armoured vehicles, has once again highlighted the status already achieved by FNSS on the international market. In competition alongside the world’s other top companies, FNSS has once again demonstrated the real quality and value of its vehicles, securing the highest scores in both the technical and value domains. We will continue to maintain our customer’s satisfaction at the highest level by meeting the contract requirements in terms of the schedule, budget, and quality”, says K. Nail Kurt, General Manager and CEO of FNSS.

About FNSS

FNSS Savunma Sistemleri A.Ş. (FNSS), a joint venture owned 51 percent by Nurol Holding and 49 percent by BAE Systems, is a leading company in the design and production of tracked and wheeled armoured vehicles and weapon systems for use by Turkish and allied armed forces.

FNSS, established in 1988 for the production of Armoured Combat Vehicles, has achieved the status of a global company, capable of designing and producing a broad range of land systems and including training and integrated logistic support for these systems.

FNSS will continue to be the number one land combat systems provider for the Turkish Armed Forces and the regional supplier of choice for other armies throughout the world.

Defence Industry

Oshkosh Corporation Clears Legal Challenge Related To The \$6.7 Billion JLTV Production Contract



OSHKOSH, Wis. -- Oshkosh Defense, LLC, an Oshkosh Corporation company, is clear of the legal challenge related to its Joint Light Tactical Vehicle (JLTV) production contract award after a competitor withdrew its protest from the U.S. Court of Federal Claims. Last week, the Court of Federal Claims denied the competitor's request for a preliminary injunction, which allowed Oshkosh to continue work under the \$6.7 billion JLTV contract. The JLTV program is cited among the Department of Defense's top modernization priorities.

"Throughout this protest process, we have remained confident that Oshkosh provided the most capable vehicle and best overall value in the JLTV competition," said Wilson R. Jones, Oshkosh Corporation president and chief executive officer. "Because the U.S. Army and Marine Corps' JLTV testing and evaluation process was extremely thorough, our nation's Soldiers and Marines can rest assured they will be receiving the most advanced light tactical vehicle ever built."

The JLTV program is a top priority for the Department of Defense, filling a critical capability gap for the U.S. Army and Marine Corps by replacing a large portion of the legacy HMMWV fleet with a modern light vehicle that provides unprecedented protection and off-road mobility, as well as transportability via air, land and sea. The JLTV production contract calls for Oshkosh to deliver a total of nearly 17,000 vehicles, as well as kits and sustainment services over an eight-year period.

Defence Industry

Arotech Power Systems Division receives \$8.5 million in new order from the Israel Ministry Of Defense

Arotech Corporation today announced that its Power Systems Division has recently received \$8.5 million in a new order for rechargeable batteries from the Israel Ministry of Defense (IMOD). The IMOD also has an option to order an additional \$8.5 million of rechargeable batteries on the same terms.

The order for 70,000 rechargeable batteries to operate radios and other systems will be manufactured by an Arotech subsidiary located in the town of Sderot in southern Israel. Delivery is not expected to begin until the fourth quarter of 2016.

"We are proud that the Israel Defense Forces, famous for their cutting-edge technology, have once again chosen to rely on Arotech-produced hardware," commented Arotech's President and Chief Executive Officer, Steven Esses. "This was an extremely competitive tender, and I am proud of our team, which won this tender against the substantial competition of five well-regarded companies, four Israeli and one American."

"Israel's Ministry of Defense is proud of the fact that more and more of the advanced technology used by the IDF is produced by factories in the periphery of Israel," said Eliezer "Iko" Hasson, Senior Director for C4I Procurement at the IMOD Directorate of Procurement and Production. "The purchase of batteries and charging

systems tailored to the modern battlefield will bring a quantum leap in the command and control capabilities of the IDF's combat units. This acquisition is in addition to orders of tens of thousands of batteries recently produced by Epsilon's operating facility in Dimona," concluded Hasson.

Contracts

Rheinmetall to upgrade 128 Polish Leopard 2 main battle tanks



Poland has just awarded the Düsseldorf-based Group a contract for overhauling 128 Leopard 2 MBTs.

In cooperation with Poland's Polska Grupa Zbrojeniowa (PGZ) and ZM Bumar-Łabędy S.A., Rheinmetall will serve as a strategic partner, supplying crucial key capabilities, including electronics and weapon technology. The project represents roughly €220 million in sales volume for Rheinmetall.

During the course of modernization, the 128 Leopard 2 A4 main battle tanks purchased in 2002 by the Polish Army from surplus Bundeswehr stocks will be upgraded to Leopard 2 PL standard, which corresponds to the German Leopard 2 A5 and A6.

Following Canada and Indonesia, Poland is now the third Leopard user nation to turn to Rheinmetall as the technology partner of choice for a major modernization programme. Besides the Bundeswehr, the armed forces of 17 countries now have Leopard 2 tanks in their inventories.

Value added in Poland too

Rheinmetall's willingness to share technology and operate in tandem with local industry proved decisive in prompting the Polish government to select Rheinmetall as its strategic partner. For Poland, the contract will mean the creation of highly skilled jobs as well as obtaining valuable defence technology know-how.

On 28 December 2015, the Armament Inspectorate of the Polish armed forces awarded PGZ (as general contractor) and ZM Bumar-Łabędy S.A. (as integrator) a contract to upgrade the combat effectiveness of the Leopard 2 A4. Rheinmetall played a key role in preparing the upgrade package, having already established itself as a strategic partner by this point. Just signed, the contract lays out the details of Rheinmetall's role in the modernization package.