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a magazine dedicated to aerospace & defence industry  
**ASIA**

Middle East Edition

# ARABIAN DEFENCE

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Defence, Aerospace, Homeland Security News



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**RPG-32**  
**"NASHSHAB"**  
PORTABLE GRENADE LAUNCHER



**UAV**  
**"SHAHEEN"**



**QUAD-2**  
**"NASHSHAB"**  
ON PANTERA VEHICLE



**QUAD-1**  
**"NASHSHAB"**  
MULTIPURPOSE REMOTELY  
CONTROLLED QUAD-1 ON GROUND



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**RAPTOR**

PORTABLE GRENADE LAUNCHER



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**TERMINATOR-FM**

ATGM MISSILE SYSTEM

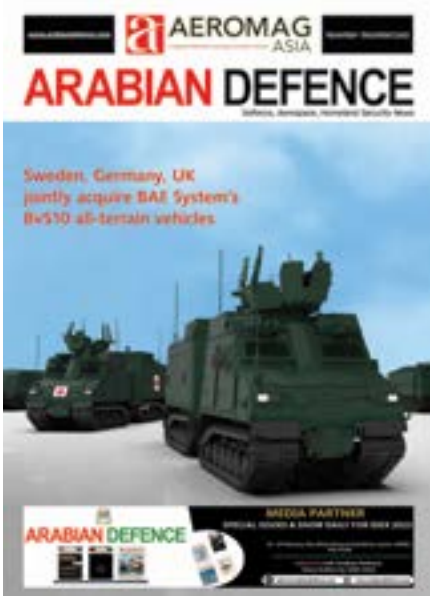
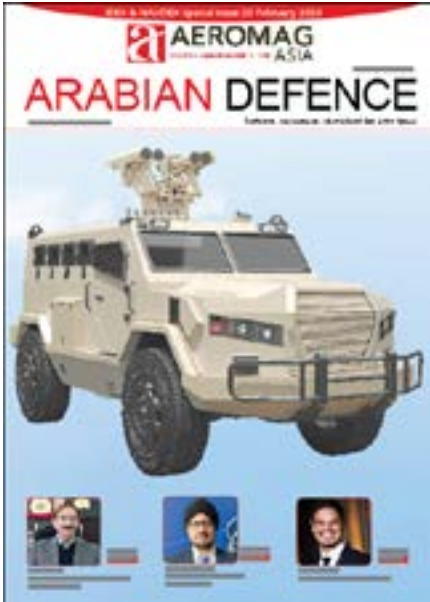


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AIR - TO - AIR  
MISSILES



सतह से हवा में मार  
करने वाली मिसाइल  
SURFACE - TO - AIR  
MISSILES



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मिसाइल  
ANTI - TANK GUIDED  
MISSILES



अन्तर्जल-अस्त्र  
UNDERWATER  
WEAPONS



हवा से सतह में मार  
करने वाले अस्त्र  
AIR - TO - SURFACE  
WEAPONS



लॉन्चर्स  
LAUNCHERS

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# IDEX, NAVDEX to boost defence spending in Middle East region



The defence expenditure of UAE was valued at US Dollars 22.5 billion in 2022 and the market is expected to grow at a rate of more than 4%. A similar situation exists in other Middle East nations. Meanwhile, UAE is hosting the latest editions of the defence exhibitions IDEX and NAVDEX in 2023 which are the biggest such events in the region

Countries in the Middle East are known to spend big on defence. In fact, the Middle East has the highest average military spending as a share of the GDP, compared to other regions. Owing to regional security and political issues, the situation is likely to persist in the future also. As most of these economies are dependent on income from oil and prices of the commodity are remaining high, countries in the Middle East possess sufficient funds to meet their defence requirements.

According to recent figures, the defence expenditure of major nations in the region was (in billion US dollars): Saudi Arabia 53.76; UAE 22.5; Israel 22.5; Iran 17.57; Qatar 11.27; Kuwait 8.67; Oman 5.51; Jordan 2.15 and Bahrain 1.37.

## UAE situation

The defence expenditure of the United Arab Emirates (UAE) was valued at US Dollars 22.5 billion in 2022. The market is expected to grow at a rate of more than 4%, owing to the need to modernize the UAE Defence and Security Forces, with specific emphasis on counterinsurgency and anti-terrorism measures. The threat of Iran is expected to compel the UAE to maintain its robust defence posture, thus ensuring defence spending.

The UAE's emphasis on maintaining a strong independent defence policy is reflected in its defence modernization initiatives over the last decade. The country has consistently ranked as one of the top defence spenders in the region and has procured a significant number of high-tech defence equipment. The country's defence

modernisation efforts are mainly centered around C4ISR, anti-ballistic missile systems, fighter aircraft, and armoured vehicles.

The UAE considers security alliances and strategic partnerships with Western global powers such as France, the UK, and the US to be the cornerstone of its security policy. Over the years, the UAE has signed different defence agreements with its Western partners. It has also allowed them to maintain a considerable military presence within the country. At the same time, in order to maintain strategic autonomy, UAE's reliance on security partnerships with Western countries has been evened out by its increased ambition to train a modern military force. This shift in strategic thinking is demonstrated by the rapid rise in UAE's military interventions in countries such as Libya, Afghanistan, Yemen, and Syria, which indicate a more assertive military posture.

The key sectors in the defence market in the UAE are missiles & missile defence systems, military infrastructure & logistics, military fixed-wing aircraft, military rotorcraft, military simulation & training, military UGV, and naval vessels & surface combatants.

Some of the key companies in the defence market in the UAE include Advanced PyroTechnics (APT), Beacon Red, EPI, ERS, Abu Dhabi Ship Building (ADSB), ADCOM Systems, Jaheziya, ETS, GAL, Halcon, Horizon, Knowledge Point, Lahab, Remaya, and SIGN4L.

## IDEX, NAVDEX

UAE also hosts the International Defence Exhibition & Conference (IDEX), a biennial arms and defence technology sales

exhibition which is the largest such event in the Middle East. The venue of IDEX is Abu Dhabi National Exhibition Centre. The first edition of the exhibition took place in 1993. The exhibition is organized through the state-run Abu Dhabi National Exhibitions Company (ADNEC). Under the patronage of His Highness Sheikh Mohamed bin Zayed Al Nahyan, President of the UAE, ADNEC Group is set to host the 16th edition of the International Defence Exhibition and Conference (IDEX 2023) and the 7th edition of the Naval Defence Exhibition and Conference (NAVDEX 2023), during February 20-24, 2023. Organized by ADNEC Group in association with the UAE Ministry of Defence, both events showcase a wide range of new features and attract leading participants and exhibitors from the international defence industry.

IDEX is organized by Capital Events in association and with the full support of UAE's Ministry of Defence. IDEX takes place biennially at the Abu Dhabi National Exhibition Centre (ADNEC), which is centrally located in Abu Dhabi, the capital of UAE. The IDEX exhibition takes over 100% of the state-of-the-art exhibition centre, utilising 155,000 sqm of event space.

IDEX In 2017 hosted 105,400 visitors and witnessed AED 19 billion worth of deals. It saw exhibitors bring out the best in innovation and truly marked a new era in defence.

2019 was the biggest year of IDEX in terms of visitors in over two decades. There were 124,000 visitors and 185 delegations took part in the exhibition.



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## HENSOLDT receives 100 Mn. Euro contract for Future Combat Air System programme

Sensor solutions provider HENSOLDT is developing essential core elements of the novel sensor network in the German-French-Spanish armament project FCAS (Future Combat Air System). As a member of the German FCMS GbR consortium, HENSOLDT has been awarded a contract worth approximately 100 million euros by the French procurement authority DGA for the development of demonstrators in the core competence fields of radar, reconnaissance and self-protection electronics, optonics and also the overarching networking of sensor technology.

"The next-generation air combat system requires an intelligent approach to a platform-independent, networked mission system, high-end sensors and AI-based data evaluation," explains Christoph Ruffner, head of the Spectrum Dominance business unit. "This is where Hensoldt will make the essential



*In the FCAS programme, Germany, France and Spain are developing a successor system for the Eurofighter and Rafale fighter aircraft and a novel system of networked sensors.*

contribution with the FCMS consortium."

In the FCAS project, the participating nations want to develop, among other things, a successor system for the Eurofighter and Rafale fighter aircraft as well as a novel system of networked sensors. By 2025, several technology

demonstrators will be developed to show the possibilities of a platform-independent networked solution. This sensor network with different platforms will then be further developed in the other FCAS demonstrator phases.

The respective technology leaders of the industry from the three countries are involved: Under the overall management of INDRA (Spain), Thales for France and the FCMS consortium for Germany, consisting of HENSOLDT, Diehl Defence, ESG Elektroniksystem- und Logistik-GmbH and Rohde & Schwarz, are working together in the so-called demonstrator phase 1b. HENSOLDT leads the FCMS consortium and therefore, in addition to its technical work packages, also takes on essential tasks in project management and in the central architecture work packages.

# Home-grown Solutions for Global Outreach



Having consolidated critical manufacturing capabilities in the land and naval divisions, Milkor UAE is moving towards aerospace and weapons divisions in their vision to offer turnkey defence solutions in Air, Land and Sea to all regions across the world. Julian Coetzee, Chief Executive Officer - Milkor UAE, says they have plans to demonstrate the Milkor IPC across the Arabian Gulf and North African region and reveals that the Milkor UCAV would likely be their next 'Make it in the Emirates' product to be completed. Excerpts from an interview in the context of IDEX 2023, Abu Dhabi.

**Julian Coetzee**  
Chief Executive Officer - Milkor UAE



## Milkor UAE was established in Abu Dhabi in 2020 with your official launch at IDEX 2021. What are the major achievements since?

We've established critical manufacturing capability in the UAE, more so in our Naval and Land Divisions. We have two manufacturing facilities in Abu Dhabi and one manufacturing facility in Dubai working on both of these divisions. So for us receiving our defence manufacturing licenses and being able to actually design and build Milkor UAE's own products here in our facilities for me is two of our major achievements this far.

## How important a market is the Middle East for Milkor? What are the highlights of your operations in the region?

All regions are important. I wouldn't give more importance to the Middle East, although we are established in the Middle East, the primary focus for us is to export our solutions to all regions across the world. Nonetheless, together with Milkor's global marketing team we are planning to demonstrate the Milkor IPC across the Arabian Gulf and North African region as soon as our customer trials are concluded within the UAE.

## Could you elaborate on the latest



## operations of your land division?

Stock, this is the most important thing. The factory is currently in production for our stock units of our MRAP Variant, this production cycle should be finished within the next couple of months.

## What are Milkor's products in the Naval division? What are the future plans in the sector?

The Milkor IPC is our focus right now. We've completed sea trials in the Arabian Gulf and it surpassed expectations. We've also installed unmanned capability, so it can currently be operated as a manned or unmanned system. Our future plans are to develop a range of USVs which we've already conceptualized.

## Could you talk about the company's participation at IDEX 2023?



This year for us it's about showing our progress as a local UAE company and the capability that we've built. Since day one we've vowed to create and develop home-grown capability in the UAE, which we've certainly achieved.

## What are the company's expansion plans? Could you talk about the immediate goals in the future?

Our immediate goals are to further extend our capability offering in the UAE. As mentioned we've established our land and naval divisions. We have yet to do this for our aerospace and weapons division which we are currently working towards. The Milkor UCAV program is in a very advanced stage and would likely be our next 'Make it in the Emirates' product to be completed.



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# Cairo to Host 3rd Edition of Egypt Defence Expo in December



The biennial Expo will showcase the latest military technology, equipment and systems across land, sea and air, with over 35,000 military and defence industry visitors expected to attend on 4-7 December 2023.

Set to take place under the patronage of H.E President Abdel Fattah El Sisi, President of The Arab Republic of Egypt and the Supreme Commander of The Egyptian Armed Forces, Egypt Defence Expo (EDEX) will once again play host to more than 400 international exhibitors to showcase the latest military technologies.

In addition, VIP delegations from over 60 countries are expected to attend alongside 35,000 other military and industry visitors.

The third edition of EDEX will be organised by Arabian World Events, with the full support of the Egyptian Ministry of Defence and the Ministry of Military Production.

CEO of Arabian World Events, Thomas

Gaunt stated, "We are proud to be working alongside the Ministry of Defence and Ministry of Military Production to put on another world-class event. EDEX has become a key hub for the defence industry and is now one of the most important defence exhibitions in the region. We are the only large-scale defence expo that





covers the Middle East and Africa, with attending delegations from both regions.”

Gaunt added: “There is a strong demand from companies to participate in the third edition of the expo and we fully expect the event to continue with its impressive growth.”

Several international manufacturers of

military equipment have already confirmed their participation in the exhibition including L3 Harris, General Dynamics, Leonardo, Naval Group, HENSOLDT, Fincantieri, Korea Aerospace Industries, Diehl Defence, ThyssenKrupp, Sig Sauer and John Cockerill. Further companies have shown their support by confirming major

sponsorships for EDEX including Dassault Aviation, Hanwha, MBDA and Amstone.

With 21 countries already represented on the exhibition floor, there are expected to be over 25 international pavilions which companies can join at the event on 4-7 December 2023.



# JADARA: Piercing Armour



Khaled Jafar, Vice-Chairman, Jadara Equipment and Defense Systems Co., a Jordanian military-industry venture, speaks about the outstanding features of their short and medium range anti-tank systems and their vision for development of longer range ATGM systems, longer range and more accurate RPG systems, electronic sights, and fire and forget rocket systems

## **Khaled Jafar**

*Vice-Chairman, Jadara Equipment and Defense Systems Co.*



**Jadara Equipment & Defence Systems has been a leader in the development, production and sale of various defence products. What are the major milestones in the company's success journey?**

The production facilities of Jadara Equipment & Defence Systems were inaugurated in Amman by His Majesty King Abdullah II of Jordan in 2013. The R&D Department and Opto-Electronics factory were established in 2017, followed by the rocket tubes factory in 2018. The final development of the Terminator AGM and the launch of its production took place in 2019. The warhead and rocket engines factory was set up in 2020. The development of longer range ATGM began in 2021, and the year 2022 marked the start of the development of the Raptor RPG.

**Could you talk about Jadara's excellence in the field of short and medium range anti-tank systems?**

Jadara is the manufacturer of the latest and most advanced RPG rocket system with a range of up to 350 m, which is equipped with a smart sight embedded with a ballistics calculator and a laser range finder. Jadara also produces a medium range ATGM with a very high hit probability at a range of up to 2500 m, which is laser guided beam riding rocket system.

The Twin JADARA-Terminator and the Quad JADARA-Terminator mobile

combat modules have been developed based on the JADARA-Terminator. Could you elaborate on its features?

Equipped with a machine gun, and four launchers, with day and night capabilities, and a very high hit probability due the stability of the vehicle weight, the system can be controlled from within the vehicle or at a distance of 300 m away from the vehicle.

**What are the company's products in Opto-Electronic, Night Vision, and Thermal sighting systems for various military applications?**

Jadara produces night vision sights for RPG grenade systems, which are used with the day aiming sight for RPG systems manufactured by Jadara, also Jadara produces the Guidance sight for

the Terminator system, which has an integrated uncooled thermal imager.

**How strong is Jadara's Scientific Research and Development Design Bureau, which has advanced test laboratories and a manufacturing complex?**

R&D of Jadara has design experts in optical, electronic, electrical, mechanical, chemical, materials and other technologies, with an unlimited budget, and equipped test labs with necessary test equipment.

**Could you talk about Jadara's sniper rifle J-9? Are there any plans to expand arms and ammunition business?**

Jadara has stopped producing rifle systems of any kind for now.

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**What are the company's operations in export sector? Could you talk about the main products on export and the clients?**

Jadara is still supplying the Customers with its products and modifications as an after-sale service since we are committed to our obligations towards the Customers.

**What are the company's objectives and vision for the next decade?**

Development of longer range ATGM systems, longer range and more accurate RPG systems, electronic sights, and fire and forget rocket systems.



# BOEING: Unparalleled Leverage



The Middle East, considered one of the world's fastest-growing commercial aviation sectors, is a priority market for Boeing in commercial, defense, and services. Boeing is committed to supporting the region's considerable potential for growth in the aerospace sector, including aircraft, infrastructure expansion, services, and financing. At IDEX 2023, Boeing will showcase its latest capabilities and discuss regional developments with its customers, says Kuljit Ghata-Aura, President of Boeing Middle East, Türkiye and Africa, in this wide-ranging interview

## **Kuljit Ghata-Aura**

*President, Boeing Middle East, Türkiye and Africa*

**Boeing shares more than 40 years of partnership with the United Arab Emirates and more than 70 years across the Middle East region. Could you elaborate on how strong Boeing's presence is in the region?**

Boeing is proud of its partnerships in the aerospace and defense industry in the Middle East that were established more than 70 years ago and continue to be an important part of Boeing's plans for growth. We are very excited by recent initiatives by regional governments, to expand their capabilities to become centers of advanced technology and industry and to develop the region into a modern aerospace hub. Boeing is pleased to participate in many of these development programs.

Boeing has established offices in Riyadh, Abu Dhabi, Dubai, Doha, and Kuwait. Boeing also has field service teams across the region, two distribution centers for airplane spare parts in Dubai, and a decision support center in Riyadh. Boeing's investments in the Middle East have helped strengthen the regional aerospace sector, creating jobs and driving innovation for mutual benefit.

Boeing is well-established as a valued partner to the defense forces of the region, which are using Boeing systems to secure their land and sea borders and to lead global humanitarian missions. At the same time, Boeing's satellite technology helps to connect the region with world-class communications. Customers across the



region operate Boeing's advanced suite of capabilities, including C-17 Globemaster III and CH-47 Chinook helicopters, F/A-18 and F-15S/SA/QA fighter aircraft, Airborne Warning and Control System (AWACS), AH-64 Apache combat helicopter, AH-6 Little Bird helicopter and tanker aircraft; as well as Boeing 376, 601 and 702 satellites operated by Thuraya Satellite Telecommunications.

**What are the latest products and services from Boeing that complement the Middle East region's existing defence capabilities and support its security requirements? Could you shed some light onto recent developments and deals involving Boeing Defense, Space & Security (BDS)?**

Boeing offers differentiating products

and services that meet the defense and security needs of the Middle East, and many are the backbone of armed forces across the region. From Vertical Lift platforms such as the CH-47 Chinook heavy lift dual-rotor helicopter to the AH-64 Apache attack helicopter and the light attack/reconnaissance AH-6 Little Bird. Our Air Dominance portfolio with armed forces in the Middle East is exemplified by the F-15 advanced jet fighter that is the vanguard of air defense supporting the security and stability of the region.

At IDEX 2023, Boeing will showcase its latest capabilities and discuss regional developments with its customers. In recent news, the U.S. Army awarded a contract to Boeing to produce 12 new CH-47F Chinooks for the Egyptian Air Force,





allowing them to start updating their existing fleet with the latest advanced technology to support Egypt's Heavy-lift requirements. Additionally, we continue to deliver for our customers in Qatar with the F-15QA fighter exemplifying Boeing's commitment to providing only the best products and services and overcoming challenges for our regional defense customers, offering superior speed, range, and payload capabilities.

**The Middle East is an important market for the commercial aviation sector, uniquely positioned near the center of the landmass defined by Europe, Asia and Africa. How does Boeing tap the potential in sector?**

The Middle East is one of the priority markets for Boeing in commercial, defense, and services. We are committed to supporting the region's considerable potential for growth in the aerospace

sector, including aircraft, infrastructure expansion, services, and financing.

Boeing has a sizable market share in the Middle East, and we believe this region will continue to be one of the world's fastest-growing commercial aviation sectors. According to our commercial market outlook, the Middle East will require nearly 3,000 commercial jets valued at \$765 billion over the next 20 years. The significant investments that Boeing has made in the Middle East in aerospace infrastructure, local workforce, capability, and innovation will ensure that we can capitalize on that demand and continue to serve our customers in the region.

The Defense and Space Market Outlook 2022–2031 predicts that the global defense, space, and security market will be worth \$2.8 trillion in the next decade. This projection is based on the ongoing demand driven by geopolitical and security

challenges and the continued importance of military aircraft, autonomous systems, satellites, spacecraft, and other defense products and services. As of the fourth quarter of 2022, Boeing Defense, Space & Security's backlog was \$54 billion, of which 28 percent represents orders from customers outside the U.S.

**What all will be on display at IDEX 2023? What are the highlights of Boeing's participation at the expo?**

At IDEX 2023, Boeing and its subsidiaries will showcase the cutting-edge capabilities of their platforms, including the CH-47 Chinook, a multi-mission helicopter with a fully integrated digital cockpit system; the T-7 advanced jet trainer, designed to train the next generation of pilots; the KC-46A multi-mission aerial refueler, the world's most advanced refueling and airlift capability; and Insitu's





Integrator ER, a long-range Group 3 unmanned aerial system for ISR.

**How strong is Boeing's technical support network in the Middle East? Could you talk about the distribution facilities in the region?**

Boeing provides technical support for its commercial and defense aircraft customers in the UAE through embedded field service representatives and our Boeing Global Services Dubai service center, which supports customers with parts and material management services.

In the commercial, business, and general aviation services market, Boeing forecasts a \$1.7 trillion market opportunity through 2030. Digital solutions, including analytics offerings, interior modifications and freighter conversions are in demand from our customers, as are training services. Demand for services dependent on aircraft utilization, such as maintenance, parts and supply chain, continue to grow. The aviation services market in the Middle East is estimated to be valued at \$275 billion by 2041.

**Boeing aligns its Global Engagement strategy with local government aspirations and market needs. Could you elucidate it with respect to UAE?**

Our commitment to the UAE does not end with business only. Aerospace enables the UAE's ambitions to diversify its economy and increase job opportunities, and we've established a number of partnerships to work towards that vision.

We've worked closely with Mubadala, selecting a group of undergraduate engineering students, and giving them internships and learning opportunities in the industry, particularly in engineering,

R&D, and education and training.

We also partner with several non-profit organizations that address community needs in the UAE to build the skills needed for the jobs of the future. We partner with INJAZ UAE on business and entrepreneurship training and skills, and at Expo2020, we launched a new STEM Pioneers program in partnership with Amideast and Pure Minds Education. The program introduces students to aerospace challenges and engages them in scientific learning activities that involve designing and testing model airplanes and rockets.

A stronger UAE means a stronger Boeing. Shared progress is the best and most sustainable progress.

**What are Industrial and Academic Partnerships of Boeing in Middle East region?**

As a leading global aerospace company, we want to be close to our customers and partners and have a strong local presence in a strategic market like the UAE. Boeing is closely aligned with the UAE government in many key strategic areas, including sustainability, STEM education, advanced research, and development of advanced technology and industry capabilities.

There is no better example than the 787 vertical fin manufactured by Strata Manufacturing. The 787 vertical fin results from a world-class collaboration between Boeing and Strata Manufacturing — Mubadala's advanced composite aerostructures facility in Al Ain. Strata produces commercial composite aerostructures for the 777 and the 787 Dreamliner. Its next-door neighbor, Strata Solvay Advanced Materials, a joint venture facility formed between Mubadala and Solvay, will manufacture carbon

fiber raw material for Boeing platforms.

Another example is our partnership with Edge Precision Industries (EPI) for complex metallic machined parts. This capability further expands the UAE's industrial base by enabling advanced materials manufacturing.

Regarding academic partnerships, The Boeing University Relations program supports the UAE's efforts to create a robust talent pipeline for emerging aviation & aerospace sectors. In the UAE, we have partnered with Emirates Aviation University and Khalifa University since 2012. In April last year, we supported Khalifa University's aerospace engineering curriculum with a grant to strengthen educational experience and skills development and to support a series of events by the American Institute of Aeronautics and Astronautics (AIAA) Student Chapter in the UAE. We also partnered with Emirates Aviation University on their annual Water Rocket Competition for the fifth time.

We run similar programs in other countries in the region. These programs are focused on supporting the next generation of entrepreneurs and innovators. In Qatar, for example, we have been partnering with the Qatar University College of Engineering (QU-CENG) on several initiatives that benefit its academic programs and support students. In Jordan, we support the AeroSquad Club at the Al-Hussein Technical University (HTU). One of our latest initiatives is a series of STEM programs we are organizing with Amideast in Egypt. These programs will support Egyptian youth through STEM education with a focus on sustainability and were launched on the sidelines of the UN Climate Change Conference COP27 held in Sharm El Sheikh.



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# Tor SAM Scores Hundreds of Combat Hits on Record

The Tor short-range air defense (SHORAD) systems have intercepted hundreds of targets in combat, the Russian media reported. The Tor SHORAD family is developed and produced by the Russian Almaz-Antey Corporation's Izhevsk Electromechanical Plant Kupol. Tor is a multichannel, all-weather SAM system designed to intercept drones, high-precision weapons, aircraft and helicopters flying at different altitudes, including extremely low altitudes, in all weather conditions, at any time of day and night, under conditions of intensive fire and electronic countermeasures.

"The high combat capabilities of the Tor family of SAM systems have been repeatedly confirmed in practice, including in live combat, during which they shot down hundreds of different means of air attack. The unparalleled performance of the Tor family of SAMs is highly appreciated by Russian operators as well as Russia's foreign partners and allies," reported the Russian Aviation & Military Guide (RAMG) magazine.

The distinctive features of the latest tracked Tor-E2 version are: fast deployment time from mobile to combat mode – 3 minutes; capability to conduct reconnaissance of the combat situation on the move; large ammunition load – 16 SAMs per vehicle; response time from



target acquisition to missile launch is 5-10 seconds. The airspace survey speed is 1 turn of the antenna per second, which is the world's best indicator in the class of short-range SAM systems.

The Tor SHORAD is highly automated – if necessary, it can operate in fully automatic mode.

Optionally, the Tor family SAMs are available in a variety of carrier designs.

In addition to the standard tracked version, Tor-M2K on a wheeled chassis, Tor-A on a twin tracked off-road vehicle and Tor-M2KM autonomous combat module have been developed. The Tor-M2K is optimally suited for countries with a developed network of paved roads. The carrier base of the Tor-A is a twin tracked off-road vehicle. It can be effectively used in extreme climatic conditions and difficult terrain.

All radar and optical subsystems, a high-speed digital computer, launchers with missiles and power supply and life support facilities of the Tor-M2KM modular version are mounted in special self-contained combat module (SCCM) without chassis. The deployment time is 3 minutes, while time of redeployment of SCCM from one platform (carrier) to another is 10 min. The Tor-M2KM can even be airlifted by Mi-26 helicopter.

The combat module is intended for defending of stationary objects and can be used from the deck of a ship, a railway platform, roofs of buildings etc. The module is easily coupled with any chassis of suitable payload capacity, which obviously is a beneficial solution for countries interested in integrating SAMs with their own chassis.





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Corp.

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When talking about high altitude for aircraft operation, the altitude range is about 7 to 50 km above ground level. This atmospheric layer is the stratosphere.

To operate in the stratosphere we used so called High Altitude Platform systems (HAPs).

For high altitude operation as HAPs, we have a twin and a single seater GROB G520 aircraft in operation.

Both aircrafts are used in cooperation with several customers and partners, for instance Mynaric AG, AIRBUS and international communication companies.

Together with these partners, we conducted several demonstration flights of different communication and test equipment payload.

We demonstrated the first flying radio tower integrated in the radio communication network in Germany.

A diagram illustrating the integration of a High Altitude Platform (HAP) radio tower into an existing terrestrial network. A central vertical tower is shown on a dark ground plane. Three orange cones represent the signal coverage areas of the tower. The text 'Integration of HAP radio tower into existing terrestrial network' is written across the diagram.

Integration of HAP radio tower into existing terrestrial network

# Rosoboronexport to propose new joint projects at IDEX 2023



Rosoboronexport, part of the Rostec State Corporation, will organize a large-scale display of Russia's leading defense industry enterprises in the country's pavilion at IDEX 2023, the world's biggest international defense and security exhibition, to be held in Abu Dhabi, UAE, from February 20 to 24.

"Middle East countries are Russia's traditional and important partners. Rosoboronexport is implementing a lot of military-technical cooperation projects in the region," said Rosoboronexport's Director General Alexander Mikheev. "Today, we are busy working out proposals for the forms of partnership that could be of immediate interest to Middle East

nations—primarily related to technology transfer, joint R&D, and application of offset programs. Rosoboronexport is considering options for joint design and manufacture of cutting-edge high-tech products, including a fifth-generation fighter based on the Checkmate light tactical aircraft, further work on the development and production of air defense systems, equipment for the

Navy, and weapons for the Army."

Russia's joint display at IDEX 2023 will be located in a separate pavilion, where Rosoboronexport and Russian defense industry firms will showcase the latest high-tech military products for all services of the armed forces. More than 200 full-scale models of armament, ammunition and military gear will be on display for the guests and visitors of the pavilion.

Representatives of the Army will be shown weapon stations for equipping various armored vehicles, in particular, a full-scale model of the AU-220M 57 mm multipurpose remote weapon station. In addition, visitors to the Russian pavilion will be able to see the T-90MS MBT and the Sprut-SDM1 light amphibious tank, the TOS-1A heavy flamethrower system, the BMPT tank support fighting vehicle, the BMP-3 infantry fighting vehicle, including a version equipped with a new remote weapon station, the BT-3F armored personnel carrier, as well as explosive reactive armor (ERA) systems. Most of the vehicles have proved themselves in the region and have been successfully tested in actual combat operations against terrorist groups.

At IDEX 2023, Rosoboronexport and Rostec-affiliated enterprises will demonstrate Russian-developed missile





and artillery weapons. Among them are the Iskander-E theater missile system, the 9K515 (Tornado-S) multiple rocket launcher system, the Khrizantema-S and Kornet-EM ATGM systems.

Visitors to the Russian pavilion will be able to get acquainted with the Typhoon-family MRAP wheeled armored vehicles, remote-controlled and Uran-6 robotic mine-clearing systems, small arms, modern individual protection and gear sets for army and special forces units, as well as ammunition for armored vehicles, artillery and missile systems, and close combat weapons. Among others, the Krasnopol and Kitolov-2M advanced guided artillery projectiles will be offered to the partners.

As part of its small arms stand, Rosoboronexport will display a wide range of Kalashnikov assault rifles, including the AK-200 series, the AK-12, AK-15, AK-19 and AK-308, the Chukavin sniper rifle, as well as ORSIS-branded civilian and law-enforcement weapons: the ORSIS-375ST sniper rifle and the ORSIS F-17M and ORSIS 12.7 mm high-precision carbines.

For the Air Force, Rosoboronexport will show at IDEX 2023 the Checkmate light tactical aircraft, the Ka-52E and Mi-28NE attack helicopters, and the Mi-171Sh military transport helicopter. A broad range of modern weaponry for them, including the Item 305E and Vikhr-1 guided missiles that have proved their effectiveness against armored vehicles, will be on display. Visitors to the Russian pavilion will also be able to see the Orion-E, Orlan-10E and Orlan-30 aerial drones.

Russia's air defense systems are well known worldwide for being effective against any current and emerging air threats. Rosoboronexport is ready both to supply separate systems and



to assist friendly states in building a national layered air defense system.

A wide range of anti-aircraft missile systems of various ranges and purposes will be presented to partners at the exhibition. Almaz-Antey Air and Space Defense Corporation will showcase in Abu Dhabi the S-400 Triumf and Antey-4000 long-range SAM systems, the S-350E Vityaz and the Viking medium-range SAM systems, as well as the Tor short-range SAM systems of various modifications. High Precision Systems, a Rostec subsidiary, will display the Pantsir-S1M SPAAGM system and the Verba MANPADS.

A variety of radars will also be on display at IDEX 2023, including unique solutions developed by Russian designers: the Sula space surveillance radar, the Gamma-DE

medium/high-altitude acquisition radar, the Kasta-2E2 low-altitude radar and the P-18-2 Prima radar capable of effectively detecting current and emerging low-observable aerial targets, including any stealth aircraft.

Russian counter-drone systems, in particular the Repellent, Repellent-Patrol, RLK-MCE, RB-504P-E and RB-504A-E, as well as the Pischal-PRO portable system exhibited at the Rosoboronexport stand, are expected to attract a great deal of attention.

In the naval segment of the exhibition, Rosoboronexport will show the high-speed amphibious assault boat BK-10, the high-speed transport landing boat BK-16, and the Rubezh-ME coastal defense missile system.

During the exhibition, Rosoboronexport will hold a number of public presentations of the armaments and military equipment on display. The presentations will take place in the Russian pavilion.

On February 21, the AU-220M 57 mm multipurpose remote weapon station and the Ka-226T light multipurpose helicopter, a full-scale model of which is exhibited in the outdoor area, will be presented to the visitors at 11:00am and 01:00pm, respectively.

Two other presentations, Modern Russian-Made Small Arms and Layered Non-Strategic Missile Defense System, are scheduled to be held on February 22 at 11:00am and 01:00pm, respectively.

As part of the IDEX 2023 business program, Rosoboronexport will hold meetings and talks with representatives of the armed forces and other security agencies of the United Arab Emirates and other Middle East countries. In addition, it is expected that industrial partnership projects will be actively discussed with the region's leading defense product manufacturers.



# Almaz-Antey to exhibit diverse products at IDEX-2023



The group will demonstrate products of eight of its subsidiaries at the event in Abu Dhabi. Among the highlights will be a model of the Sula space surveillance radar

The Almaz-Antey Air and Space Defense Corp will display a wide range of its major military products at the International Defense Exhibition IDEX-2023 scheduled to take place at Abu Dhabi in the United Arab Emirates during February 20-24.

Almaz-Antey's booth at IDEX will offer visitors information on modern long, medium and short-range air defense systems, modernization options for previously-produced equipment and other achievements, as well as the group's capabilities in training foreign specialists.

The group will demonstrate products of eight of its subsidiaries, all combined in a single exposition. In particular, Almaz-Antey will present models of the S-400 Triumph long-range surface-to-air missile system (SAMs), S-350E Vityaz medium-range SAM, Viking SAM, Buk-M2E SAM, as well as short-range Tor in various configurations, Tor-M2E, Tor-M2K, Tor-M2KM and Typhoon-PVO (E) SAM launchers vehicle.

Numerous presentations available for all visitors at the exhibition will have elaborate details on the Antey-4000

SAM system, Tunguska-M1, ZSU-23-4 Shilka-M4, simulators and target practice equipment. In fact, the booth will exhibit everything needed to train air defense specialists, as well as the group's capabilities in modernization and maintenance of previously supplied equipment. In addition, information will be provided on sea-based anti-aircraft equipment, namely Rif-M, Resurs, and Shtil-1.

Almaz-Antey's exposition will feature radar, reconnaissance, and surveillance equipment too. Visitors to IDEX-2023 will be able to



see models of target acquisition radars such as Gamma-DE, Kasta-2E2 and Barrier-E. In addition, the group's specialists will brief on the Podsolnukh-E over-the-horizon radar.

### Sula space radar

The highlight of the exposition will be a model of the Sula space surveillance radar, designed to track the movement of satellites, space debris and other objects orbiting at an altitude of up to 6,000 km. The radar provides acquisition of coordinate and target information, recorded on nonvolatile carriers and transmitted in real time to the user. The station's antenna is based on a modular digital active phased array, which provides the radar with high performance, data throughput and immunity to jamming. Its hallmark is a compact array and modular architecture, which makes it possible to deploy the radar on the ground and move it by rail in no time. The station is controlled from a command and control center made in an easy-to-deploy module.

### Podlet-E radar

IDEX visitors will also witness a model of the Podlet-E automated 3D low-altitude radar, which has high noise immunity and is capable of operating in various modes of space surveillance. The Podlet-E is intended for use in automated and non-automated air defense and air force units for automatic (semi-automated) detection, acquisition, position measurement, tracking, identification and flight data gathering of air targets and future low-altitude air attack weapons, including stealth, in conditions of moderately rugged terrain and intensive ECM.



Traditionally, portable radars for reconnaissance of ground targets will be of great interest. In this domain, the group's specialists will demonstrate the Fara-VR, Credo-1E, 1L277 and Aistenok radars, as well as Sova point AD protection radar.

Almaz-Antey will also present models of the E-801E radar for detecting air and surface targets and the 1K130E ground target reconnaissance radar, both being helicopter-mounted solutions. In addition, the group's booth will house a model of the ROSC-1 radar designed to counter unmanned aerial vehicles.

Monitors will run presentations of a variety of systems, including the Adjutant target practice system and the 9F678M autonomous simulator.

### Three decades of cooperation

"Our products traditionally attract great interest from the guests of IDEX, one of the most visited defense exhibitions.

For 30 years, the group's enterprises have been successfully demonstrating their research, engineering, technical, and production potential at this forum, which undoubtedly contributes to expanding to new sales markets. We have established ourselves as a reliable supplier of exclusive defense products," said Vyacheslav Dzirkaln, Almaz-Antey's Deputy Director for International Business.

According to the official, the growth of export potential of Almaz-Antey's products could be attributed to the group's provision of a full cycle of support for its products, from development to disposal and recycling. "The products of Almaz-Antey successfully protect the sovereignty and security of many countries," the company's deputy head said.

Vyacheslav Dzirkaln also said that organizers of IDEX have given good support to Almaz-Antey, leading to three decades of fruitful cooperation between the group and the event. "IDEX platform will further benefit international security," he said.

A group of 60 high-tech enterprises, Almaz-Antey is one of Russia's largest integrated defense facilities employing 140,000 people. Its products have been delivered to over 50 countries. Almaz-Antey conducts self-sustained foreign business involving military products, spares, maintenance and modernization of earlier supplied equipment.



# BrahMos Steadfast to Propel India's Defence Exports



The landmark export deal with the Philippines and more countries showing interest in the missile have emboldened BrahMos Aerospace's resolve to further widen its footprint internationally. In an interview with Aeromag, Atul Dinkar Rane, Director General BrahMos, CEO and MD, BrahMos Aerospace, talks about how BrahMos leads from the front to realise India's target of achieving \$5 billion in defence exports by 2025.

## **Atul Dinkar Rane**

*Director General BrahMos, CEO and MD, BrahMos Aerospace*

**BrahMos Aerospace is set to conclude its silver jubilee celebrations. Could you share the major milestones over the glorious 25 years?**

The India-Russia BrahMos JV embarked on the milestone 25th year of its formation in 2022 which coincided with India's 'Azadi Ka Amrit Mahotsav' commemorations. It has been an incredible journey for the JV company which has designed, developed and delivered one of the most powerful, state-of-the-art, unparalleled deterrent weapon to the Indian Armed Forces. The coming together of two scientific-technical institutions of eminence – DRDO and NPOM – redefined India-Russia strategic partnership and led to the development of the 'world-class' BrahMos weapon system. This highly successful Defence JV programme has no parallels in the world.

We have realised many successful moments and milestones in these 25 years, including delivering the supersonic cruise missile system to the Indian Navy in 2005, to Indian Army in 2007, and to the Indian Air Force in 2020. BrahMos is the only weapon in its class and calibre to have been operationalised in all three Services of Indian Armed Forces, making India the first and only country in the world to possess a 'Supersonic Cruise Missile Triad'. The tactical weapon has been tested for a record number of times from frontline

land, ship and air platforms and established an unbeatable record. The missile has validated its supremacy as the 'weapon of choice' for modern, network-centric warfare operations. The BrahMos JV has been leading from the front in the flagship 'Make-In-India' endeavours of defence indigenisation. Through the BrahMos 'Missile Industrial Consortium' (MIC), the JV has significantly widened India's defence & aerospace ecosystem and incorporated higher indigenous technologies, components and sub-systems in the versatile BrahMos.

In 2022, BrahMos became India's first full-scale major weapon system to enter the international arms market. On January 28, we signed a historic export contract with the Republic of Philippines to deliver shore-based BRAHMOS anti-ship weapon system to the Armed Forces of Philippines. It was a watershed moment for us.

**Prime Minister Narendra Modi has set a target of achieving \$5 billion in defence exports by 2025 and BrahMos Aerospace aims high in exports by that time. How strong is your export business and what are the latest updates?**

BrahMos has heralded a new chapter in India's defence exports front. It is the first weapon of such class and calibre to carve global footprint. The landmark export deal with the Philippines has emboldened our resolve to further widen our footprint internationally. There are several countries in the South East Asia, Middle East and Latin American regions which are strongly desiring to acquire the formidable BrahMos weapon system for their Armed Forces. So, the supersonic cruise missile is definitely very strongly positioned to fulfil India's

defence export aspirations. BrahMos Aerospace in fact now leads from the front to realise India's target of achieving \$5 billion in defence exports by 2025.

**You have said that BrahMos Aerospace is capable of making hypersonic missiles and will be able to have its first such missile in five to six years. What are the latest updates?**

We are very much capable of designing and developing the hypersonic variant of BrahMos missile. We are working on this front and are quite hopeful to achieve major breakthroughs in the coming years. BrahMos remains world's fastest tactical weapon having a top speed of Mach 2.8. We are now working on the more advanced BrahMos -NG (next-generation) variant which would have a higher speed of Mach 3.5. Then we are targeting to reach the 'ultra-high' speed which would be one of the defining features of hypersonic BrahMos -II. We intend to build 'technology clusters' in coordination with DRDO and NPOM along with our public & private sector defence industry partners and the academia to realise this ambitious goal of developing the hypersonic BrahMos missile variant in the next few years.

**BrahMos will be taking part in NAVDEX 2023 in Abu Dhabi. What are the plans to explore business opportunities in the Middle East?**

Some countries in the Middle East region have evinced interest in the BrahMos weapon system. We are offering all variants of BRAHMOS – land-based weapon complex, ship-based weapon complex, shore-based weapon complex and the



air-launched cruise missile system – for export. Being a very versatile, flexible system, BrahMos can be seamlessly integrated on some of the military platforms of these countries (in the Middle East region). So, there are very strong business prospects for us in this region.

**Could you talk about the latest updates of Brahmos-NG missile?**

This new weapon is going to be a smarter derivative over its predecessor in terms of scale & size, speed, stealth and other parameters. BrahMos -NG would be designed for integration onto a wider number of modern frontline military platforms on land, sea, underwater and air. Its smaller and lighter dimensions would make it more agile and capable to undertake precision strikes from stand-off ranges against land and sea targets. We have started working on this new weapon variant and are planning to test the first prototype weapon in the next 1 to 2 years' time. The state-of-the-art BrahMos manufacturing centre being set up in Lucknow under the Uttar Pradesh Defence Industrial Corridor (UPDIC) project would cater to the series production of the new BrahMos -NG variant in the foreseeable future.

**What is the current status of the manufacturing centre to come up in Lucknow, Uttar Pradesh as part of the UP Defence Industrial Corridor (UPDIC) Project? How will it boost your production and assembling capabilities?**

This new unit is being set up to meet the growing demand for BrahMos. Work has been expedited with all necessary cooperation and support from the UP

Govt and all other nodal agencies and officials associated with the project. We are quite hopeful to complete all construction and installation work for the new dedicated manufacturing facility by 2024. Once fully ready, the Lucknow unit of BrahMos would roll out existing BrahMos weapon systems. Subsequently, this dedicated facility would cater to the serial production, integration and delivery of the advanced BrahMos -NG weapon in the coming years. The new unit, once operationalised, would significantly bolster our existing manufacturing capabilities.

**How does BrahMos support the indigenisation efforts of India? What is the current rate of indigenisation?**

BrahMos has remained at the forefront of 'Make-In-India' programme. The JV, based on a very unique 'Missile Industrial Consortium' (MIC) model, has in fact reinvigorated the entire defence industrial ecosystem of India. We have involved a large number of small, medium and large public & private defence sector firms, laboratories and institutions in the design, development, integration and production of BrahMos and its numerous components, sub-systems etc. In close coordination with DRDO, we have also indigenised several critical technologies and systems for the missile over the years. The rate of indigenisation is quite high which has reduced the missile's overall production, maintenance and operation costs. Additionally, the weapon's functional and operational efficacy have been enhanced with the infusion of more advanced technologies and features which have been validated during successful test firings conducted in recent times.



**The Ministry of Defence signed a contract for acquisition of additional dual-role capable Surface to-Surface BrahMos missiles under 'Buy-Indian' Category. Could you talk more about it?**

We will design and deliver the new dual-role BrahMos surface-to-surface missiles (SSMs) for deployment on the future frontline maritime stealth combat platforms of Indian Navy. The new weapon variant would have enhanced features for superlative performance over its predecessor. It would also have higher indigenous content in terms of technology and other systems/ sub-systems.

**What are the immediate goals ahead for Brahmos Aerospace? Could you share your vision for the company during your tenure?**

The immediate goals include design & development of new, advanced BrahMos -NG missile variant. Work on this front has gained momentum and we are moving quite swiftly to test the first prototype weapon soon. The other priority area is to incorporate advancements in terms of technology and other indigenous features to make BrahMos even more lethal for our Armed Forces. Series production and swift delivery of BrahMos air-launched cruise missile system to the Indian Air Force is also going on in parallel. Then, at the exports front, we want to take forward the export potential of BrahMos to newer frontiers after signing the historic export deal with the Philippines in 2022. My vision, therefore, is centred on the organisation's overall growth, expansion and consolidation strategies in the longer run.

# Uniquely Italian in Excellence

## Customised Flexibility



For more than 20 years, the Italian firm M.E.RIN has produced unique, customised fuel tanks for the most renowned competition cars, ultralight and certified aircraft, and offshore vessels and pleasure craft. Plans are afoot for a Joint Venture with a Turkish partner during 2023 for the start-up of a new production site in Turkey, says Enzo Giambartolomei, CEO, M.E.RIN, in the context of the company's expanding operations in the Middle East.

**Enzo Giambartolomei**  
CEO, M.E.RIN

**M.E.RIN has more than 20 years of experience in producing customised fuel tanks for cars, aircraft, offshore vessels and pleasure craft. Could you give us a rundown on the major milestones in the company's success journey?**

Enzo Giambartolomei, Owner and CEO, laid the foundation for the M.E. RIN company in 1994. It was accredited in 1998 with the Qualification of sports car fuel tanks according to FIA FT3-1999. In 2005, the first supply of fuel tanks was made for the customer Ferrari.

Began supply of fuel tanks for TB2 UAV to Baykar Company, Turkey, in 2013. In the same year, it won Company certification in accordance with ISO 9001 – EN9100 standards.

In 2021, won Qualification by Leonardo for the supply of fuel tanks for AWHero.

**What are the range of products and services offered by the company in the aviation sector?**

Over the years, our business has specialised above all in the production of fuel tanks for ultralight aircrafts, UAVs and RUASs. Our custom-designed flexible tanks are



made with anti-explosion and anti-slosh foam, which can be installed on all types of aircraft, from ultralights, or UAVs, to helicopters or certified passenger aircraft.

**M.E.RIN is able to provide different levels of protection to armoured vehicles' fuel tanks through a combinations of treatment. Could you shed more light onto it?**

The proprietary technology developed and used for more than 25 years to produce M.E.RIN self-sealing tanks, guarantees the armoring of our customers' vehicles

against 7.62 and 12.7 caliber bullets. Different treatments are available, tested at approved shooting ranges, which can be applied individually or according to the STANAG specifications

requested by the customer.

There are provisions for Self-sealing treatment, Anti-explosion treatment, Grenade and Flame protection.

**How strong is the company's export operations? What are the main products on export and the countries associating with you?**

Exports currently cover over 80% of the Company's turnover. Leading countries are Germany and the Czech Republic for motorsport, and Turkey for aircraft and armored products

**Could you share with us the details of your R&D, production capabilities, quality standards etc?**

Our R&D sector is being strengthened both from the point of view of human resources and from that of technical and IT tools, to allow us to respond to the numerous requests for new products that we receive from all over the world. Our manufacturing facility currently has the capacity to produce over 2,000 tanks annually. The expansion of the plant from



# HAL and Argentinian Air Force Sign Contract



**H**AL signed a contract with Argentinian Air Force (AAF) for supply of spares and engine repair of legacy two tonne class helicopters.

The contract was signed by Brigadier General Xavier Issac, Chief of Air Force, AAF and C B Ananthkrishnan, CMD, HAL.

Brigadier General Xavier Issac said the contract for support service is a stepping stone for the future engagements and defence co-operation between India and Argentina.

Ananthkrishnan said this contract will further pave the way for giving new impetus for Defence exports in the Latin American region. HAL has been supporting the Indian Defence Services and will extend all the support to the AAF too.



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the current covered 1,500 m<sup>2</sup> to almost 4,000 m<sup>2</sup> is expected shortly, which will allow for an increase in production capacity and better rationalization of processes. A new large-volume autoclave was acquired for the vulcanization of fuel

tanks. The company works in accordance with the ISO 9001 – EN 9100 standard, for which we have recently obtained the renewal of the qualification

**Could you talk about the company's operations in the Middle East region? How do you plan to expand them further?**

The Middle East is an area of great interest for our company, which currently has a commercial agency in Turkey, and one for the other Middle Eastern countries. There is a plan to start a Joint Venture with a Turkish partner during 2023 for the start-up of a new production site in Turkey

**What are the highlights of M.E.RIN's participation at IDEX 2023?**

Merin attended IDEX in 2021. In 2023, we preferred to participate in other exhibitions in the same geographical area, but we will certainly be present again in 2025.

# Feeling at home at high altitudes



**H**3 GROB AIRCRAFT and its subsidiary H3HATS are leaders in providing state-of-the-art high altitude platform systems (HAPs).

H3 HATS exists since November 2021 and is headquartered in Tussenhausen-Mattsies, Bavaria. H3 HATS stands for "High Altitude Technologies and Services" and is a company of the H3 Aerospace Group. The overall objective of H3 HATS is the development, manufacturing, distribution and operation of high altitude platform systems (HAPs). These systems are intended to represent various applications such as extensions of telecommunication networks, research, agricultural monitoring, natural disaster monitoring and communication backup in case of disasters and many more.

With the GROB G520 and the GROB G520T, the H3 Company has two high-flying aircraft platforms up to FL450 in permanent operation around the globe. The capability to extend telecommunication 4G and 5G networks was already proven together with the Deutsche Telekom AG in several flight test campaigns. These campaigns were conducted mostly at the home base of the H3 HATS company in Tussenhausen-Mattsies and in the area of the Red Sea Project in the Kingdom of Saudi-Arabia.

In these flight trials, the G520T was equipped with front-haul and back-haul antennas to integrate the aircraft as a



flying radio tower in the local terrestrial network. These antennas were pointed towards a ground station for the permanent telecommunication connection. To optimize connectivity and to increase data transfer rates, the original installed back-haul antennas were exchanged by a SatLink antenna on top of the rear fuselage of the G520T aircraft. This satellite UpLink antenna was provided by Intelsat.

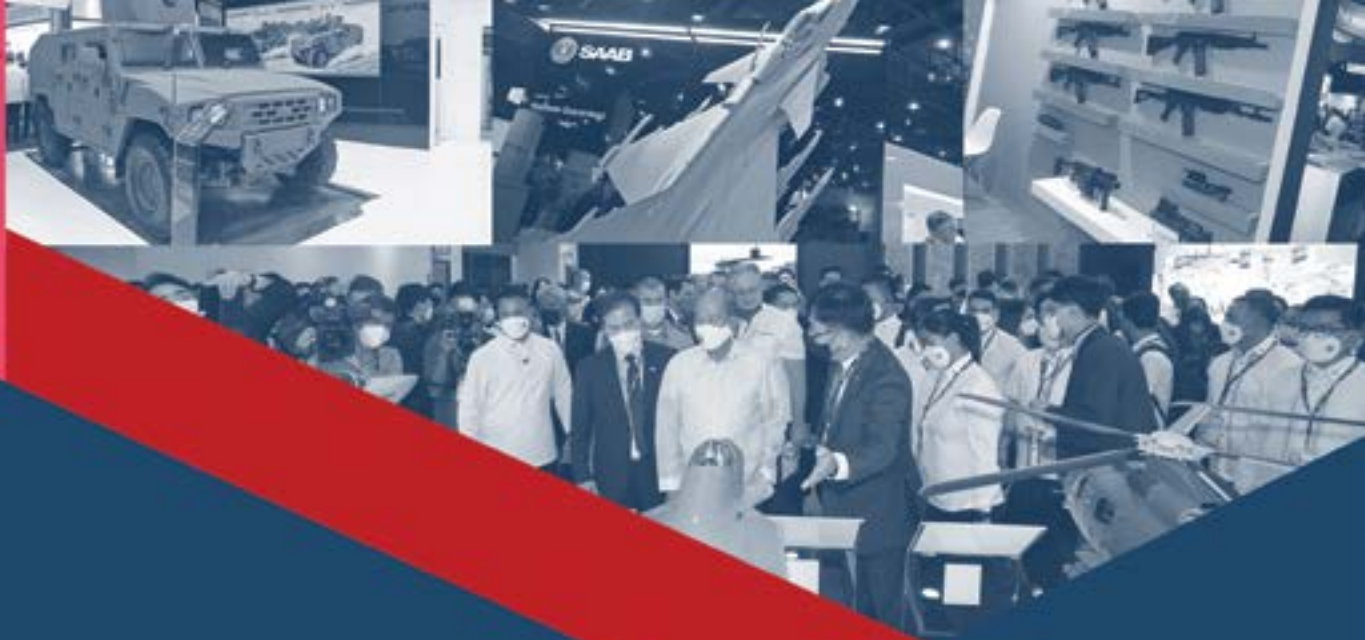
For flight testing purposes of the new integrated SatLink system, the G520T aircraft, a part of the H3 HATS team and a team of the Deutsche Telekom AG transferred to Pula airport in western Croatia (LDPL) in January/February 2023. According to high altitude flight regulation rules, frequency usage capabilities and more or less stable weather conditions, Croatia was the best choice for high altitude telecommunication flight trials. At

the airport of Pula, the telecommunication ground base and the ground base for aircraft controlling was built. With these connected ground stations, the aircraft was operated automatically in different flight levels up to FL450 around the Pula airport. Several circled patterns of different diameters up to 20 km were flown by the full envelope autopilot system. For safety and regulation reasons, a pilot was permanently on the aircraft. The aircraft was permanently connected to both ground stations.

It was shown that the G520T aircraft can be fully integrated in the terrestrial radio telecommunication network with a SatLink antenna as a back-haul antenna system. This flying radio tower is fully operative and can provide local network with high upload and download data rates. The aircraft itself can be flown controlled from the ground or fully automatically in different flight levels according to the local ATC-procedures.

As an OPV Platform, according to the current flight rules, the Pilot needs to be onboard during any kind of operation. With the G520T as a flying radio tower it was shown successfully that the concept to extend telecommunication network by a flying radio tower could be an option for future sustainable UAV HAP-systems. The H3 HATS Company is straight on the way to connect the unconnected.





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# Luminous Niche in Electrotechnics



PIK-AS Austria GmbH, founded in 1981 with its headquarter in Austria, has developed into an industry-leading international supplier of electromechanical / mechatronic products such as Power relays / power contactors (VG), Connectors (VG), special switches and LED lights, associated with Special/Military/Electric vehicle construction, Special mechanical engineering and high voltage technology. Built to resist harsh environmental challenges, their high-quality products are the best choice for vehicle manufacturers in the Middle East Region, says Christina Polster, CEO, PIK-AS Austria GmbH, in an interview in the context of the IDEX 2023, Abu Dhabi

**Christina Polster**  
CEO, PIK-AS Austria GmbH

**PIK-AS has been a leader in electrotechnical products for four decades. Could you share with us the major milestones of the company?**

My father Franz founded the company more than 40 years ago as a sole trader. By focusing on trustful cooperation with his customers, we grew healthy and steadily, gaining more and more market shares. Due to our close relationships with our international customers, we started to engineer and customize products for our clients. When I took over the family business in 2015, we increased engineering capabilities significantly. The latest milestone of PIK-AS surely was the opening of our production facility in 2021 – also receiving the military certification within a short period of time.

**What are the range of products and services offered by the company? How strong is your R&D and production capabilities?**

We are providing electrotechnical products, mainly for military vehicles like high power connectors ("slave start"), as well as intervehicle connectors including their harnessing. Besides, we're offering LED interior lights with features like blackout light, stepless dimming, backup battery, low voltage alert, and so on.

To be able to offer a nice package to our customers, we also provide high power relays and contactors up to 1000A. As

customized products are trending, our engineering team is extremely busy. Our work is based on three principles: high quality, simple processes, reliability. Furthermore, we ensure stable and secure jobs by growing considered and healthy.

**PIK-AS is a company with a strong international focus. What are the highlights of your export operations?**

PIK-AS has always been an international oriented company. Depending on running projects and procurement programmes, more than two thirds of our business is export business. Central and Eastern Europe countries have been our first markets to enter, but by expanding our product areas, we intensified strong customer relationships all over the world.





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**Could you talk about the company's operations in the Middle East Region? How strong a market is the MER?**

The Middle East Region's market is growing and local productions become stronger and stronger. We stepped into the market roughly six years ago. Due to the environmental surroundings, our high-quality products are the best choice for vehicle manufacturers in the Middle East Region. The reason is that our products are built to resist harsh environmental challenges. And this is a fact – proven within laboratory tests as well as in real situations.

**You have recently set up a new production facility for electrical components for the military sector in Austria. Could you share more about it and further expansion plans?**

Our new production facility is set up close

to our headquarter in Mariasdorf, close to Vienna. The physical proximity of the teams helps us to be flexible and to check the success of planning and results promptly. We will continue reviewing the market and are ready to enlarge the production centre if rational. The target for the next months is to convince new possible customers by introducing our excellent, reliable services and high quality products – on the way do underpin our market leadership.

**What are the highlights of your participation at IDEX 2023? What are the immediate goals ahead?**

We're looking forward to have a great show in Abu Dhabi in enlarging our network and meeting decision makers. Being present on site shall be the first step towards a trustful and long-term cooperation with vehicle manufacturers

in the Middle East Region.

**About the company**

PIK-AS Austria GmbH is an owner-managed company, founded in 1981 with its headquarter in Austria. The company has developed into an international, industry-leading supplier of electromechanical / mechatronic products such as:

- Power relays / power contactors (VG)
- Connectors (VG)
- special switches
- LED lights.

PIK-AS holds close relationships to well-known and premium customers within the industries Special/Military/Electric vehicle construction, Special mechanical engineering, high voltage technology.

PIK-AS Austria is led in second generation through Ms. Christina Polster.





# GAMI announces World Defense Show in February 2024

Under the patronage of the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz Al Saud, the General Authority for Military Industries (GAMI) has announced the return of the World Defense Show for a second edition. Scheduled from February 4 — 8, 2024 in Riyadh, World Defense Show is the industry's leading event globally and will spotlight the future of defense through a showcase of the most advanced defense technologies available.

World Defense Show embraces the vision of the Kingdom's leadership, demonstrated through the return of this future-focused domain-driven international event that aspires to set the gold standard for exhibitions on



the global defense show circuit.

On the announcement, His Excellency GAMI Governor, Ahmad A. Al-Ohali, voiced his gratitude and appreciation to the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz Al Saud, and to HRH Prince Mohammed bin Salman bin Abdulaziz Al Saud, Crown Prince, Prime Minister and Chairman of the Board of Directors of GAMI. H.E. Al-Ohali took the opportunity to acknowledge the unmitigated

support of the nation's leadership, and its unrelenting custodianship of the sector, as an embodiment of its aspirational vision of enhancing the Kingdom's strategic autonomy.

As for the ultimate goal, it is to achieve localization of more than 50% of expenditure on defense equipment and services, by the year 2030. A goal that is expected to be reached via focusing on developing indigenous capabilities in defense industries, technologies, and national competencies, as well job creation for Saudi youth, and an increased contribution from the sector to the national economy. Organically, World Defense Show is a powerful enabler for realization of this vision. "World Defense Show is a strategic driver, through which



the aspirational vision of our leadership to localize defense industries in the Kingdom may be realized. It also creates an ideal environment, to exchange knowledge, and to provoke a discourse on thought leadership, based on successful local and international experience, while introducing the technologies and innovations that are on the cutting edge of the frontier. One further key aim of the event will be to build on the Kingdom's robust international partnerships and explore new major investment opportunities."

Investment opportunities are open to all manufacturers, suppliers, and international service providers who share the passion and commitment to transfer of technology, human talent development, and strategic partnership building, along the Kingdom's aspirational localization journey.

Following the success of the inaugural WDS 2022, WDS continues to receive massive interest in participating in 2024. In response to this strong demand, and as part of the show's overall enhancement initiatives, WDS

organizers have reviewed expansion plans to include a third exhibition hall offering the defense community with an additional 25% of exhibition space, to compliment the two existing main halls. Purpose built for WDS, the venue provides unrivalled facilities and features that deliver the very best platforms to connect, communicate, and collaborate.

On the returning exhibition, Andrew Pearcey, CEO, World Defense Show, commented, "We are excited to present our valued global defense community partners with the second edition of WDS in February 2024. In the second edition of the show, we aspire to focus even more so on the Future of Defense, and further facilitate a world-class future-focused platform for technological innovation and thought leadership. We have big ambitions for 2024, and our team is working tirelessly to deliver a truly fantastic show once again, with strategically crafted networking programs set to feature delegations, governments, global defense industry

original equipment manufacturers, and investors. Since the resounding success of the sold out inaugural World Defense Show in 2022, we have really been humbled and so very pleased with the overwhelming interest from exhibitors and new defense ecosystem constituents keen to participate. In fact, and in order to accommodate this tremendous growth in demand, we have expanded our venue to accommodate an additional 9,000 square meters in exhibitor space. Our oath to the global defense community, is to continue to improve upon the quality of the show with every edition, and in doing so, continue to surpass your expectations."

Founded by GAMI, the inaugural WDS registered military & defense procurement contracts with a total estimated value of USD 7.92 Billion (SAR 29.7 Billion). WDS 2022 also attracted over 600 exhibitors from more than 42 countries, over 100 official defense and security delegations, and witnessed more than 65,000 visits over the course of the show.

# Being and Splendour of Electromechanics



Karin Punning, CEO, Englo LLC, sounds philosophical while recounting how the firm, launched in Estonia in 1991, has grown into a global leader in design and manufacturing of intelligent electromechanical measuring devices, spanning a wide range of applications including environmental, construction, mining, military, commercial and more

**Karin Punning**  
CEO, Englo LLC

**How successful has Englo been in achieving its vision of becoming a global leader in the design and manufacturing of intelligent electromechanical measuring devices? What are the major milestones?**

We are still on our way to reach the level to be satisfied. There are so many excellent companies in the world, it would be an honour to be one among them. Besides, electromechanics is used for very many purposes therefore it even couldn't be the purpose for any company, it is just impossible to be the best in such a wide area!

We could be the best only in a very narrow field of production of the electromechanical measuring devices.

**What is the share of defence products in the overall business of Englo? What are the main products and services on offer in defence sector?**

The defence products accounts for approximately half of our products and turnover. It has been our strategy from the very beginning to deal with more than one direction of R&D and production, in our case with two directions: the defence/mining/security and building/road construction. The company's well-being and future are less hurt if it deals with more than one field of activity.

**For the defence sector we produce:**

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- Digital line testers for safe testing the electric detonator lines and/or the connecting cables
- Vehicle sensors that can be integrated to security/surveillance systems for alarming of the unexpected vehicles or used as a traffic counter
- Gamma and X-ray dosimeters and radiation detectors, digital handheld personal alpha, beta, gamma, radon (Rn) and X-ray radiation meters, radiation surveillance systems for indoor and outdoor applications.

**Englo has a wide range of products for surveillance and inspection in different applications including environmental, construction, mining, military, commercial and more. Could you elaborate?**

No, I couldn't explain it as it has been our 31-years-long life! We founded our company immediately after Estonia got its independence in 1991. There was nothing in our pocket except for great willpower and the experiences in R&D and production of electronic devices for chemical analyses. We started from zero, growing together with our State and its needs and possibilities. Unfortunately, there was no need of equipment for chemical analyses! The first customers came almost at the same time and they were from defence and road construction institutions. These were really quite strange fields for our experiences but as we say "only the brave wolf's chest is fat". To stay alive and fulfil your dreams we have accepted all orders that seemed to be within our reach in terms of our experience and knowledge. It was a difficult, but exciting

and challenging time and we came out of it stronger and with a lot of knowledge. However, we wouldn't recommend anyone to follow the same strategy!

**What are the latest updates on your export business? How do you plan to expand it further?**

We have great plans, specially in expanding our production capabilities and export. To step closer to our dreams we are looking for cooperation with the companies and/or institutions who could be our partners to go on in this direction. We are open to suggestions to discuss about them.

**How strong is the company's R&D capabilities, quality performance measures, and the production facilities?**

All our devices correspond to the quality demands of EU. Please, visit our website [www.englo.eu](http://www.englo.eu) for more information about our devices.

Our R&D capabilities are strong and correspond to currently needed level. Certainly, together with the growth of production facilities and export will also increase the need for extra growth in R&D sector.

**Could you share with us the company's expansion plans and focus areas?**

The growth should have to occur relatively simultaneously in all sectors, e.g. in the export, in production capacity and in R&D sector. We should admit, we are strong in all of our sectors, e.g. R&D and production of the electromechanical devices for building/road construction and defence/security/mining! That will make the future more complicated! Think about it more deeply, it could also be stronger and more flexible.

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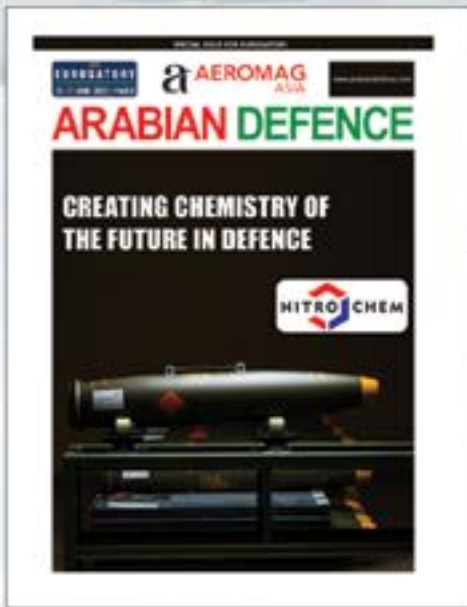
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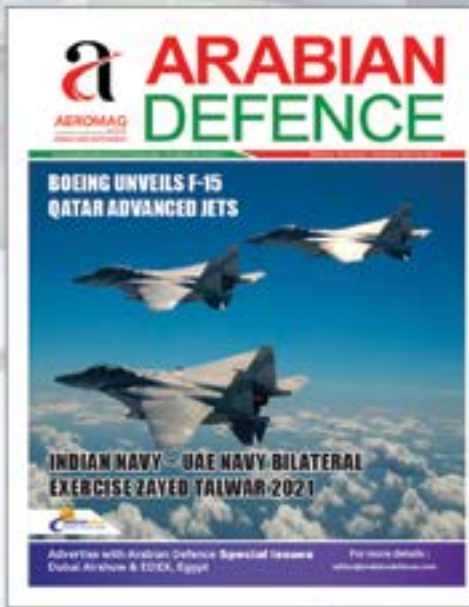
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# Countdown begins for Singapore Airshow 2024



The biennial Singapore Airshow is considered an ideal venue for aerospace business in Asia and Pacific. Preparations have begun for the next edition of the event, which is scheduled during February 20-25, 2024.

The next edition of the biennial Singapore Airshow, which is among the biggest such events in the world, is scheduled to take place during February 20-25, 2024. The venue of the Airshow is Changi Exhibition Centre in Singapore and programmes include a trade exhibition, flying displays, static displays, AeroForum, AeroCampus and What's Next. Considered to be Asia's most influential aerospace and defence event, Singapore Airshow provides a platform to feel the networking power as the finest in global aviation converges there.

The airshow was launched in 2008 and was earlier known as Changi International Airshow. During the launch, the event was organised as a partnership between Singaporean agencies Civil Aviation Authority of Singapore and the Defence Science and Technology Agency.

The event currently hosts top government and military delegations, senior corporate executives, representatives of leading aerospace companies and budding players such as startups in the global aerospace and defence market.

The Singapore Airshow is considered an ideal venue for aerospace business in Asia and Pacific as the event offers a

platform for industry thought leadership through its high-level conferences, forums and co-located events. At the Airshow, participants - including leading industry players, government and military chiefs - contribute to the dialogues, exchange ideas and seek solutions and strategies to advance the interests of the international aerospace and defence sector.

Singapore Airshow is claimed to be the third largest air show in the world after Le Bourget and Farnborough. It is also Asia's largest air show, according to the organisers. The permanent site of the Singapore Airshow is a plot adjacent to the northern edge perimeter fencing of Changi Air Base. Incidentally, the Changi Air Base is located east of the Singapore Changi Airport.

In 2006, a contract was awarded for building a new exhibition site to replace the Changi International Exhibition and Convention Centre, including a main exhibition hall with 40,000 square metres of space. When completed in September 2007, the New Changi Exhibition Centre boasted a 40,000 square metres of fully air-conditioned exhibition hall, 2,000 parking lots for trade visitors and motorists as well as 100,000 square metres of outdoor space for

exhibitions and functions. On its completion, the hall was named as the Changi Exhibition Centre to distinguish it from the Changi International Exhibition and Convention Centre which had been in use by the Asian Aerospace exhibitions from 1988 to 2006. The old site is 2 km west of the current one.

Currently organised by Experia Events Pte Ltd, the Singapore Airshow 2022 was held from February 15 to 18, 2022 with no public viewing days. With several ASEAN nations showing interest in HAL Tejas, India participated with three Tejas multirole fighter aircraft and conducted a flying display. The Indian delegation comprised 44 members. It showcased Tejas and interacted with counterparts from Republic of Singapore Air Force and other delegations from around the world.

In 2022, the airshow hosted 96 high-level delegations from more than 33 countries and regions, facilitating 716 exhibitor-delegation meetings. Ministers of Civil Aviation, Transport and Communication from the following nations took part in the event, among others: Bahrain, Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Nepal, South Africa, Sweden and Thailand.



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