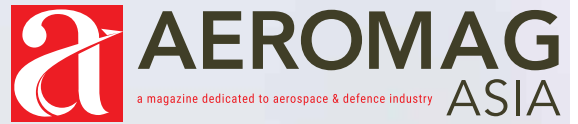


# ARABIAN DEFENCE

Defence, Aerospace, Homeland Security News

## Rosoboronexport at 20, Focusing Middle East & North African Region



a magazine dedicated to aerospace & defence industry  
**Middle East Supplement**



Theunis Botha  
CEO, Al Tariq



## Al Tariq gives Thrust on Innovation, Export Market



Supported by



Held under the prestigious patronage of

**His Majesty King Hamad bin Isa Al Khalifa**

supported by the Royal Bahraini Air Force and Air Defense and Ministry of Transportation and Telecommunications



**Register Now!**

Get Early Bird Discount until November 1, 2020

Official Conference of



BAHRAIN INTERNATIONAL AIRSHOW  
18 > 20 NOV 2020



**Virtual Event**



**3rd MANAMA AIRPOWER SYMPOSIUM 2020**

**NOVEMBER 17, 2020**

Platinum Sponsor



**Confirmed Speakers**



**Major General Hamad bin Abdullah Al Khalifah**  
Commander,  
Royal Bahraini Air Force



**Lieutenant General Gregory Guillot**  
AFCENT Commander,  
United States



**Air Vice Marshal L S TAYLOR OBE**  
Chief of Staff Capability,  
Air Command, Royal Air Force



**Brigadier General Luigi Casali**, Chief of Staff,  
Education and Training  
Command, Italian Air Force



**Gary North**, Vice President  
for Customer Requirements,  
Lockheed Martin Aeronautics  
Company

Organized by



For more information and latest updates:  
[www.segma.co/maps2020](http://www.segma.co/maps2020)

Register to attend the one-of-a-kind international event on air power that will see senior officers from air forces from 30 countries discuss and debate topics related to tactics, strategy and technology. As a virtual event, MAPS 2020 will provide an excellent opportunity for air force officers, professional and defense industry executives to participate and engage from the comfort of their offices or homes. It will also place defense companies in a strong position to reach out and promote their latest technologies.

Media Partners:



**Sponsorship Opportunities**

MAPS 2020 offers a range of sponsorship opportunities for companies to position themselves before key international customers and making a high-impact with decision-makers. For further information on sponsorship packages contact Ms. Delight by telephone +971 4 399 8355 or email [\[delight@segma.co\]](mailto:delight@segma.co).



نافدكس NAVDEX

21-25 FEBRUARY

navdex.ae

# NAVDEX 2021

NAVAL DEFENCE  
EXHIBITION & CONFERENCE

ABU DHABI, UAE

DEFENCE TECHNOLOGY  
FOR THE FUTURE

The leading naval defence and coastline security exhibition in the Middle East and North Africa region returns to Abu Dhabi in February 2021.

NAVDEX 2021 will continue to attract influential VIP's, naval decision makers and investment companies from around the world to do business with international manufacturers and suppliers. Attracting more than 1,250 exhibitors and 108,000 local, regional and international trade visitors and officials from governments industry and armed forces.

For detailed plans about NAVDEX 2021, please visit [www.navdex.ae](http://www.navdex.ae)

To book an exhibition stand or a berth, please email [shahla.karim@adnec.ae](mailto:shahla.karim@adnec.ae)

Strategic Partner

EDGE

Principal Partner

مجلس التوازن الاقتصادي  
TAWAZUN ECONOMIC COUNCIL

توازن  
TAWAZUN

تأسس عام 1992

Official Media  
Partner

nation  
shield

Organised By

CAPITAL  
EVENTS  
مركز أبوظبي  
للأحداث

Host Venue

ADNEC  
مركز أبوظبي الوطني للمعارض  
Abu Dhabi National Exhibition Centre

In association with



UNITED ARAB EMIRATES  
MINISTRY OF DEFENCE



UAE Armed Forces



## Rosoboronexport at 20, Focusing Middle East & North African Region

06



## High maintenance season for AMAC Aerospace

28



## Al Tariq gives Thrust on Innovation, Export Market

10



## Etihad Airways announces new route to Israel

38



## Russian Helicopters Delivers First Batch of Helicopter Knock-Down Kits to Kazakhstan

20



## QRSAM Missile System Achieves Major Milestone

42



For Publishing Articles, Advertisements

Editor, Arabian Defence, Aeromag Asia, Aeronautical Society of India Building  
Suranjandas Road, Off old Madras Road, Bangalore 560075. Karnataka, INDIA

Call: +91 94490 61925 Tel: +91 80 43747492 | Email: [editor@arabiandefence.com](mailto:editor@arabiandefence.com)

[www.arabiandefence.com](http://www.arabiandefence.com)



रक्षा उत्पादन विभाग  
DEPARTMENT OF  
DEFENCE PRODUCTION



2021

**AERO INDIA**

The Runway to a Billion Opportunities



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

**AERO INDIA 2021**

**FEBRUARY**

**03 - 07, '21**

Yelahanka  
Air Force Station,  
Bangalore

Contact : [preethim@aeromag.in](mailto:preethim@aeromag.in)

[editor@aeromag.in](mailto:editor@aeromag.in)

+91 9448447509 | +91 9480551925

91-80-43747492

[www.aeroindia.gov.in](http://www.aeroindia.gov.in)

**Advertise with  
AEROMAG  
Show Dailies &  
Special Issue**





## Rosoboronexport at 20, Focusing Middle East & North African Region

**R**osoboronexport, which celebrates its 20th anniversary on 4th November 2020 is

focusing the Middle East and African Region to expand its business and partnership opportunities.

Rosoboronexport, which is the only state intermediary in Russia for the exports and imports of the entire range

of products, technologies, and services of military and dual use was founded in 4th November 2000.





Rosoboronexport's press-service informed ARABIAN DEFENCE that the Middle East and North African region is historically an important market for Russian Military products, and several countries in this region are its 'long-term, reliable partners'. "Today Rosoboronexport's proposals are of a comprehensive nature and

are aimed at expanding industrial partnership. This includes the possibility of technology transfer and localization of production, maintenance, and repair of equipment, as well as training of the specialists. In addition to modern military products, Rosoboronexport is ready to supply the law enforcement agencies of the

countries of the Middle East and North Africa with highly effective special equipment for anti-terrorism", – said the company.

Rosoboronexport is offering its partners in the Middle East and North Africa, the latest products of the Russian defense industry for the air force, the ground forces, the navy and the air defense. A

presentation of the 155mm MSTA-S self-propelled howitzer was held for the Middle Eastern partners this year. The latest Russian systems for countering unmanned aerial vehicles of all classes were exhibited during the Dubai Airshow 2019.

"In the background of the coronavirus pandemic,

ROE not only fulfills all its obligations to the customers, but also continues to regularly introduce to the global market new models of weapons, military equipment and civilian products, as well as expand the practice of industrial partnership. Thus, such advanced weapons as the 59N6-TE radar capable of

detecting hypersonic targets, the Boomerang wheeled combat platform, the latest means and equipment to combat epidemiological threats have been launched to the market. In recent years the promotion of the T-90MS main battle tank with incomparable firepower, the

Sprut-SDM1 light amphibious tank with unique combat capabilities, the Tornado-S long-range multiple launch rocket system, the Mi-38T medium-class multipurpose helicopter, Project 12701 Alexandrit-E mine countermeasures ship, Project 21980E Grachonok special purpose boat,

coastal missile systems has been started. Against the background of the growing threat from small-sized unmanned aerial vehicles, Rosoboronexport has offered its partners a line of special electronic warfare equipment designed to combat them", – reported Rosoboronexport. According to the press-





service of the company, a promising new field of activity is the promotion on the global market of high-tech civilian and dual-use products, including security equipment (a new segment for Rosoboronexport) in the interests of the Ministries of Internal Affairs, National Guard, gendarmerie, border,

customs and migration services, special purpose forces, civil defense and rescue, other law enforcement agencies, which earlier were not the partners of Rosoboronexport. "In the segments of non-lethal weapons, civilian and service small arms, a number of export contracts

have already been signed. Foreign partners are showing high interest in the Russian proposals for the creation of mobile anti-infectious medical centers, systems for monitoring and responding to emergencies, as well as in the comprehensive automated system Safe City. In October 2020, at

the XXIV International Exhibition of Means of State Security Provision Interpolitex-2020 held in Moscow, Rosoboronexport presented, for the first time, mobile inspection systems for transport and cargo, the DVL-10-M3 Volkodav high-precision rifle", – said the Russian defense exporter. ■



# Al Tariq gives Thrust on Innovation, Export Market



Theunis Botha  
CEO  
Al Tariq

Al Tariq, a member of the UAE based EDGE group is one of the world class manufacturer of precision-guided air munitions and systems. Theunis Botha, CEO of Al Tariq speaks to Aeromag on the success stories of the company, new initiatives, manufacturing capabilities and future programs. Al Tariq is actively looking at India as its potential market and ready to support the Make in India initiatives of the Indian government, says Theunis Botha, CEO of Al Tariq.

Since its inception, AL TARIQ has marked its own signature in the manufacture of precision-guided air munitions. Could you just sum up the major milestones in the journey to success over these years?

AL TARIQ is the first UAE-based manufacturer of precision-guided systems for conventional air munitions. Established in 2012 as a joint venture with Denel, South Africa's largest government-owned defence manufacturer, we launched the 'Al Tariq' modular guidance kits to mark this milestone, and it remains our flagship product to date. Working with Denel Dynamics, we have built up our production capability over a short period by focusing on production expertise and continual innovation. Since then, we have enhanced our engineering capabilities and have implemented a range of operational features through cutting-edge technology and continuous innovation into the Block II version of Al Tariq. We have also enhanced our production capacity through cost saving measures and continuous improvement in our operations.

The rising challenges in airborne defence require combat-driven munitions that are smaller, smarter, and faster. How does AL TARIQ plan to tap the potential in airborne defence by competing with other major players?

We offer a niche and competitive product portfolio of precision-guided munitions (PGMs) that can greatly enhance strike capabilities with a class leading stand-off range. Our fire-and-forget system helps improve aircrew and aircraft safety, and its seeker technologies mitigate collateral damage by delivering a very high degree of accuracy. Advances in navigation solutions have added to the precision of AL TARIQ's weapons. In the future, our focus is to implement various new smart technologies within the flexibility of our

range of precision-guided weapons.

Could you elaborate on the product line-up of AL TARIQ in various fields like precision-guided munitions, fire-and-forget and seekers? Who are the major customers of your products?

We design and produce the 'Al Tariq' range – a modular family of precision-guided munitions designed for the Mark 81 and Mark 82 aerial bombs. With multiple configurations being available, each weapon configuration performs in diverse missions to ensure that our forces are protected on the front line.

The 'Al Tariq' family will be expanded in the future to include other versions of aerial bombs. We are currently in the process of integrating this on to more aerial platforms for future applications.

Our main customer is the UAE Armed Forces, who currently use the full range of the 'Al Tariq' family of weapons. We are also in discussions with a few countries for exports.

Leveraging the latest advanced technologies gives AL TARIQ an edge in optics, and weapons. Please shed some light on your manufacturing capabilities and production facilities.

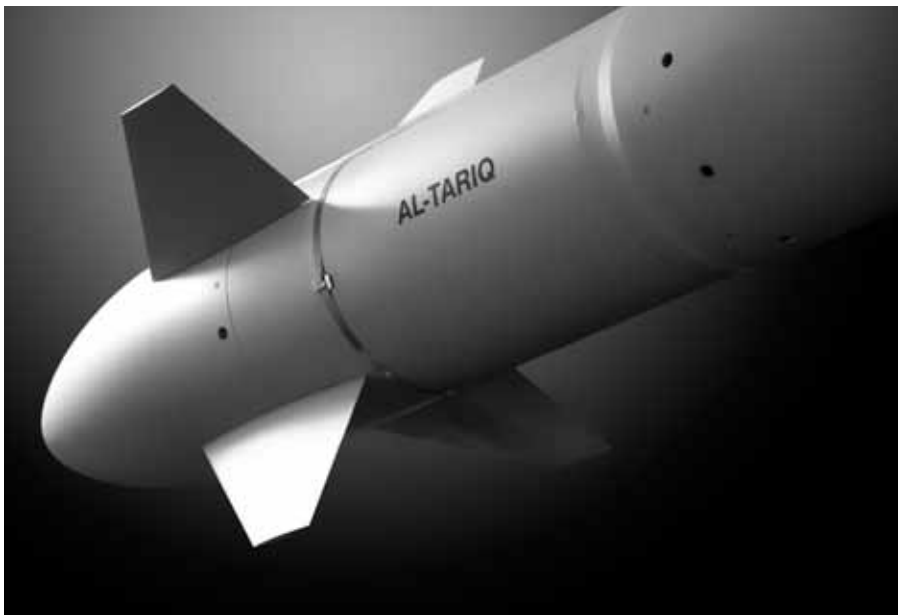
We operate one of the region's most advanced engineering labs focused on environmental stress screenings across all operating and storage environments, including temperature and vibration. Our in-house metrology lab also performs quality inspections on parts we procure. We have a strong engineering team with world-class expertise in electronics, mechanics, software and weapon integration, who constantly push the boundaries of technology for the improvement of the system. The advanced technologies enable our engineering team to create local intellectual property across multiple engineering disciplines including digital electronics, software development and mechanical designs for use in future applications.

India has been actively enhancing its defence manufacturing by attracting international players through schemes like Make in India. How does AL TARIQ look at the Asian defence industry, especially the Indian, as a market of growth?

The Indian defence sector has huge potential to attract foreign direct investment. The new policies will encourage multinationals to set up manufacturing bases in India or acquire local companies. AL TARIQ recognises the rapidly growing market in India, and we are involved to address the future requirements of the Indian Armed Forces. We have engaged with Indian defence companies to address the future “Make in India” programmes for the Indian Ministry of Defence. This will entail the future production and co-development of high technology systems as required by the Indian Defence Forces.

The COVID-19 pandemic has affected all industries including defence. How is your company coping with the impact and what are the measures taken to overcome the challenges?

The pandemic has forced us to adapt and alter the way we work and operate. We are continuing to enhance our ‘Al Tariq’ range of PGMs and are currently in the process of starting our

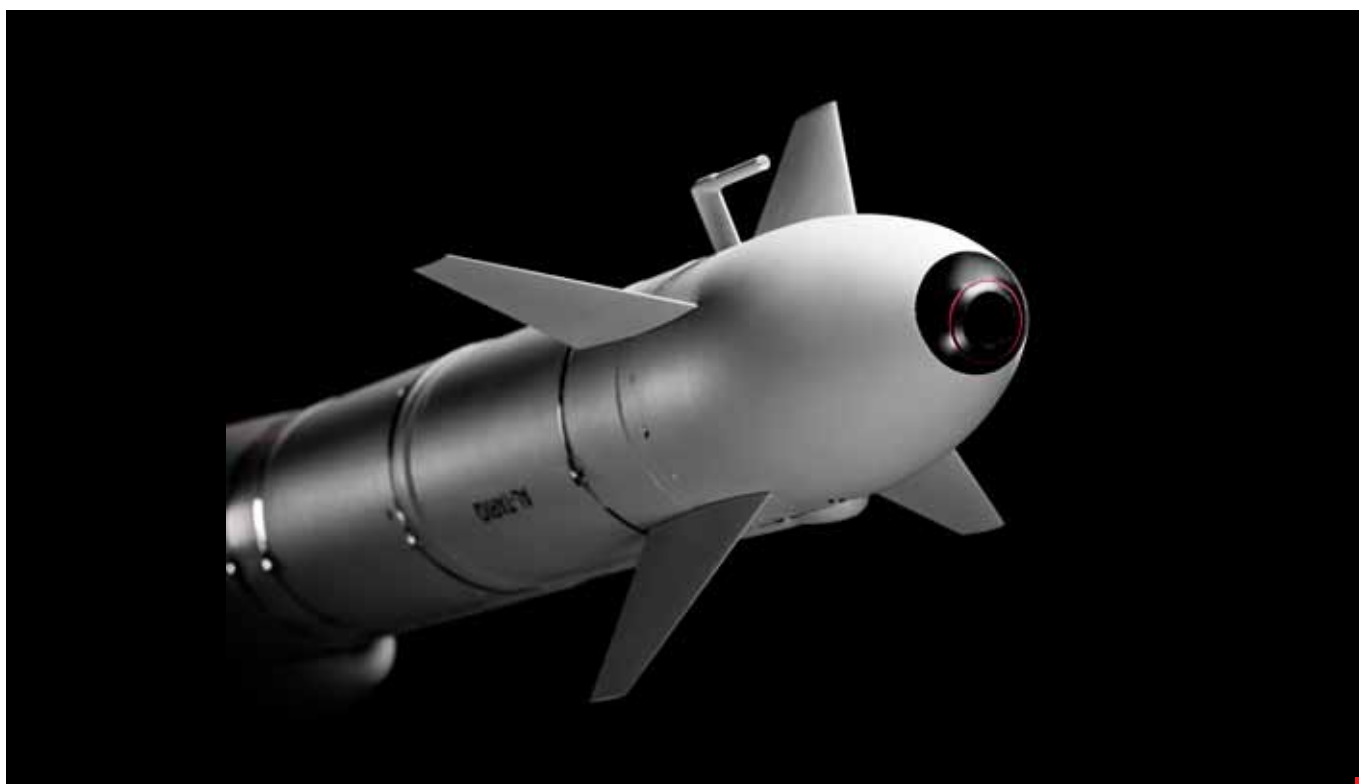


planned production for the Block II version towards the end of 2020. The Block II version features a number of new operational upgrades that greatly enhance the system's capability.

In terms of coping with the pandemic challenges, like any other company, we have been ensuring that our employees have the means to perform their duties safely and efficiently, while maintaining business continuity. All operations and business functions are continuing as normal despite the unprecedented pressures.

Could you share your vision and objectives for AL TARIQ?

The company's vision is to continually enhance our range of precision-guided munitions through innovation, advanced technology, and added value. As mentioned earlier, we want to focus on the modularity and flexibility of our systems' solutions, which enable it to adapt to new priorities as the nature of warfare evolve. Our immediate emphasis is to produce the latest Block II version of 'Al Tariq' and offer it to our customers. ■





# Boeing Secures \$800m in Middle East Training & Support Contracts



Qatar Emiri Air Force to receive aircrew and maintenance training support for F-15QA aircraft.

Comprehensive support includes pre-delivery training and maintenance, and in-country services support.

Boeing acknowledged three foreign military sales contracts with the U.S. Air Force for training services and support in the Middle East valued at more than \$800 million.

The first previously unannounced contract was awarded in 2019 and will support the Qatar Emiri Air Force (QEAF) with F-15QA program management, maintenance and aircrew training valued at \$240 million over a five-year contract period.

Boeing also received a separate not-to-exceed \$68 million contract to provide maintenance and logistics support for the QEAF during their pre-delivery training for the F-15QA aircraft, which will commence early next year. The QEAF will send pilots and weapon system operators to the U.S., where the aircrews will learn how to independently operate the F-15QA ahead of receiving their new aircraft. Training will include in-person instruction, simulation events and flying operations and will be held near Boeing's F-15 production facility in the U.S. through mid-2021.

Following this, Boeing will establish and operate an aircrew and maintenance training center for the QEAF at Al Udeid Air Base, Qatar,

through 2024.

A third contract awarded in November and valued at more than \$500 million will provide the QEAF with in-country spares and logistics support once the aircraft are delivered to Qatar.

"The tailored training and sustainment delivered by our team, coupled with Boeing's platform expertise, allows us to deliver a holistic solution to our Qatari customer so they can optimize the full capability of their fleet with high availability rates," said Tim Buerk, director of Middle East defense services for Boeing. "We look forward to our continued partnership with Qatar and further supporting their mission readiness needs."

The F-15QA is an advanced variant of the undefeated

F-15 aircraft. The Advanced F-15 features next-generation technologies that offer more speed, range and payload than any other fighter in its class. Boeing will deliver 36 F-15QA aircraft to Qatar starting in 2021.

Boeing is the world's largest aerospace company and leading provider of commercial airplanes, defense, space and security systems, and global services. As a top U.S. exporter, the company supports commercial and government customers in more than 150 countries. Building on a legacy of aerospace leadership, Boeing continues to lead in technology and innovation, deliver for its customers and invest in its people and future growth.

# Smartworld Signs Deal with Alef Education for IT Support and Logistics Delivery



**Gregoire Provot**  
Director of Service Delivery at Alef Education

**Abdulqader Ali**  
CEO of Smartworld

Smartworld, a joint venture between Etisalat and Dubai Aviation City Corporation, has signed contracts with the Alef Education to support services for more than 140 schools across the Emirate of Abu Dhabi. Its engagement includes the provisioning of 190-plus staff-members to support Alef Education's IT infrastructure onsite at schools, a centralized service desk and system administration for its HQ operations. Smartworld has also been entrusted with asset management, warehousing and transportation of Alef Education's IT assets to support the schools along with ad-hoc services like the deployment of Access Points and

Passive Infrastructure in schools.

Gregoire Provot, Director of Service Delivery at Alef Education, said: "Smartworld quickly understood our requirements and promptly addressed the key challenges we were facing. Their proposition was extremely well constructed and the associated improvements were clearly articulated, which assured us that they were the correct partner for proceeding forward. Since the decision, our collaboration has increased and our relationship has strengthened".

Abdulqader Ali, CEO of Smartworld, remarked: "The IT outsourcing has been one of Smartworld's long-standing

services. Our long years of expertise have enabled us to be the preferred partner for multiple governmental organizations. We are proud that Alef Education has chosen us and we look forward to supporting them in the digital progress and bring new efficiencies with our services." Gregoire Provot, Director of Service Delivery at Alef Education, said: "Smartworld quickly understood our requirements and promptly addressed the key challenges we were facing. Their proposition was extremely well constructed and the associated improvements were clearly articulated, which assured us that they were the correct partner for proceeding forward. Since the decision, our collaboration has increased and our relationship has strengthened".

Alef Education is a leading K12 education technology company based in the UAE. Alef Education is making learning more personalized, engaging and accessible for students anytime and anywhere. Its vision is to design learning experiences that change the way the world is educated with improved learning outcomes. Today, more than 120,000 students in the United Arab Emirates, United States of America and Canada are using the innovative Alef Platform. Alef Education is committed to building engaging learning experiences for 21st Century learners. ■

## CNS visited Campbell Bay

The Chief of the Naval Staff Admiral Karambir Singh, PVSM, AVSM, ADC, visited INS Baaz, the Naval Air Station located at Campbell Bay, Great Nicobar Island on 13 November. The visit was aimed to express solidarity with personnel on Deepawali.

The CNS was received by Lieutenant General Manoj Pande, AVSM, VSM, Commander-in-Chief Andaman & Nicobar Command (CINCAN). He was briefed on the operational preparedness and infrastructure aspects of the Command,

including readiness in the prevalent security scenario.

During his interaction with personnel at INS Baaz, the CNS acknowledged their contribution in keeping the strategically important base operational at all times. Personnel from Indian Army, Indian Air Force, Coast Guard, DSC and GREF, as well as Defence civilians were present during this occasion.

The geo-strategically located Air Station, INS Baaz, overlooks critical International Sea Lanes passing through the IOR.

The Airbase supports operations of a multitude of military aircraft, which enable surveillance over the Southern Bay of Bengal, South Andaman Sea, Malacca Straits and the Southern Indian Ocean.

INS Baaz provides Aid to Civil Authorities, including Casualty Evacuation, Humanitarian Assistance and Disaster Relief and Search and Rescue and serves as a supporting base for operational turn-around facilities of ships deployed in the Nicobar Group of Islands. ■

# Sanad and GE Aviation Celebrates 100th GEnx Engine Maintenance



**Dave Kircher**  
General Manager, GEnx Engine Program  
GE Aviation



**Adam Boukadida**  
Chief Financial Officer  
Etihad Aviation Group



**Jayesh Shanbhag**  
Director, GEnx Customer Programs & Service  
GE Aviation

Sanad, an industry leader in aerospace engineering and leasing solutions, and a wholly owned subsidiary of Mubadala Investment Company PJSC (Mubadala), has successfully completed the maintenance of 100 GEnx engines on behalf of GE Aviation (GE). Sanad was the first MRO partner within GE Aviation's global services network to obtain MRO certification for the GEnx engine and remains the only certified GEnx MRO





partner in the Middle East and North Africa (MENA) region. In 2021, when the GEnx reaches 10 years of operation, Sanad will expand its existing maintenance and repair services to include the full overhaul of 315 GEnx engines until 2035.

"This achievement evidences Sanad's distinguished engineering capabilities and ability to continue providing the highest quality MRO service to global OEM partners," said Mansoor Janahi, Deputy Group CEO of Sanad. "Despite current challenges facing the sector, we have strengthened our ability to meet the MRO requirements of our partners through strict adherence to the highest international standards. Our success underpins Abu Dhabi's increasing profile as a global aerospace centre in specialised engineering services."

With more than 2,000 engines delivered worldwide on the Boeing 787 Dreamliner and the Boeing 747-8, the GEnx is the fastest-selling, high-thrust jet engine in GE Aviation history. Due to rising GEnx demand, Sanad recently financed and leased its ninth GEnx engine through a sale-and-leaseback agreement with Etihad Airways, the UAE's national carrier and one of the largest global operators of Boeing 787 aircraft.

Adam Boukadida, Chief Financial Officer, Etihad Aviation Group said: "Sanad has supported Etihad with the maintenance of 30 GEnx engines on average per year, which are used on its fuel-efficient fleet of Boeing 787 Dreamliners. Etihad and Sanad's trusted partnership is testimony to the strength of the local aviation infrastructure, and the airline looks forward to continued collaboration as Sanad reaches for its next major milestone."

"On behalf of the GE Aviation team worldwide, I wish to congratulate Sanad on reaching this historic milestone. We look forward to our continued partnership and meeting the MRO requirements of a growing global fleet," said Dave Kircher, GE Aviation General Manager for the GEnx engine.

"The partnership between Sanad and GE Aviation is key to the growth of the region's aviation industry ecosystem," added Aziz Koleilat, GE Aviation Vice President of Sales & Marketing for Eastern Europe, Russia, Turkey and the Middle East region. "We recognise Sanad's efforts and look forward to many more GEnx aircraft engine MRO service achievements in the future."

With the Sanad and GE Aviation partnership dating back to 2013, the pair signed an AED500 million landmark maintenance services agreement for next-generation engines for narrow-body and wide-body aircraft last year. Under the agreement, Sanad will provide performance

restoration overhaul services on the GEnx-1B engine, as well as continued, quick turn overhauls on CFM International's LEAP engines for GE. CFM is a 50-50 joint company between GE and Safran Aircraft Engines.

Boasting the highest-pressure ratio compressor in commercial service today, the GEnx engine has the best fuel efficiency in its thrust class and up to 15 per cent better fuel burn than GE's CF6 turbofan engine – key attributes enabling the GEnx to power many of the world's longest aviation routes.

Sanad enjoys strong strategic partnerships with the world's leading aircraft engine manufacturers, such as GE Aviation, Rolls-Royce, and Pratt & Whitney, enabling it to provide industry-leading expertise in the field of maintenance, repair and overhaul of aircraft engines through a variety of maintenance services for various aircraft engines.

Sanad Aerotech delivers industry-leading aircraft engine MRO expertise and a variety of engine maintenance services for multiple engine platforms

to the world's leading OEMs, including Rolls Royce, GE and International Aero Engines (IAE).

With a global customer base which includes airlines such as LATAM and Asiana among others, Sanad Aerotech is the world's only independent MRO facility serving the Rolls Royce Trent 700 engine. Its facilities is also one of the most sophisticated independent and OEM-approved for the GEnx product line, in addition to IAE for the V2500 engine platform.

With a customer-driven ethos derived from a brand name, which means support in Arabic, Sanad Aerotech provides quick turnaround with reliable maintenance of engines at competitive prices from of its state-of-the-art facilities in Abu Dhabi.

Having led the way in engineering excellence and innovation for more than three decades, Sanad Aerotech's customer-first future strategy is reliant on embracing 4th Industrial Revolution tools and technologies, investing in training programmes and nurturing its workforce. ■



# TOR and Buk Air Defense Systems Tested Against Cruise Missiles at Less Than 10 M Altitudes



Russian Army's TOR-M2 short-range and Buk-M3 medium-range air defense missile systems have intercepted during the drills the cruise missiles flying at altitudes less than 10 meters, reports officially the Russian Ministry of Defense.

The testing resulting in destroying of all the designated targets took place during the large-scale army air defense drills in the South of Russia.

"At the first stage of the exercise, the S-300V4 long-range anti-aircraft missile system battalions repelled the strike of aero ballistic missiles, carrying out combat launches at targets descending from an altitude of more than 200 km. At the second stage, combat crews of Buk-M3 medium-range air defense systems and Tor-M2 short-range anti-aircraft missile systems battalions, after performing combat missile launches,



repelled the attack of the simulated enemy cruise missiles flying at altitudes less than 10 meters. Buk-M3 hit targets at a distance of up to 40 km, while Tor-M2 divisions, in turn, performed combat launches at air targets at a distance of up to 15 km", – said the MoD.

All the systems used during the massive drills have their export modifications, that are actively promoted at the global market by Rosoboronexport, the state intermediary for military and dual-use exports and imports, that celebrates its 20th anniversary on November 4th this year. The systems were showcased at the ARMY 2020 Expo in Russia in August.

The export modification of S-300V4 ADMS called Antey-4000 was unveiled for the first time at ARMY Expo. Buk-M3 is marketed globally as the Viking. In 2018 Russia announced the launching at the global market of TOR-E2 ADMS. As the Rosoboronexport Director General Alexander Mikheev pointed out at that time, it surpassed most of its foreign counterparts in terms of 'unique combat capabilities and technical characteristics'.

The air defense systems form a significant part of the overall Russian military export. As Mikheev pointed out earlier in Independent Military Review interview, the increase in the Rosoboronexport's portfolio's share of air defense weapons was due to such landmark contracts as those for the supply of S-400 Triumph long-range anti-aircraft missile system and other systems.

Rosoboronexport was established on 4th November 2000 by the Russian President Vladimir Putin. It is the Russian state intermediary for the exports and imports of the entire range of products,



technologies, and services of military and dual use. Among the latest offerings in the air defense domain is a line of

electronic countermeasure systems intended for the use against small-sized UAVs. These systems were officially

presented by Rosoboronexport at Dubai Airshow in 2019 and later at DefExpo India in Lucknow.



# Elbit Systems Launches E-LynX-Sat - a Portable Tactical SATCOM System



sequence spread spectrum, enabling continuous over the horizon operations on-the-walk and on-the-move. E-LynX-Sat comprises of compact portable terminals and a Hub base station that is installed in satellite ground stations.

“Overcoming major challenges in military networking, including size and weight reduction as well as automatic tracking, this SATCOM add-on solution offers a significant improvement of the operational effectiveness to the growing customer base of the E-LynX SDR solution”, added Mr. Sabag.

Elbit Systems has launched E-LynX-Sat, a compact satellite communications (SATCOM) add-on system. The new system utilizes a lightweight less than 1 Kg terminal that interfaces with Elbit Systems’ E-LynXTM Software Defined Radio (SDR) solution. E-LynX-Sat enables Infantry and maneuvering forces to maintain robust and secured, on-the-walk and on-the-move, voice and data communication services, over ranges of hundreds of kilometers. The operational benefits of the newly launched E-LynX-Sat system were successfully demonstrated during the British Army’s recent Warfighting Experiment 2020.

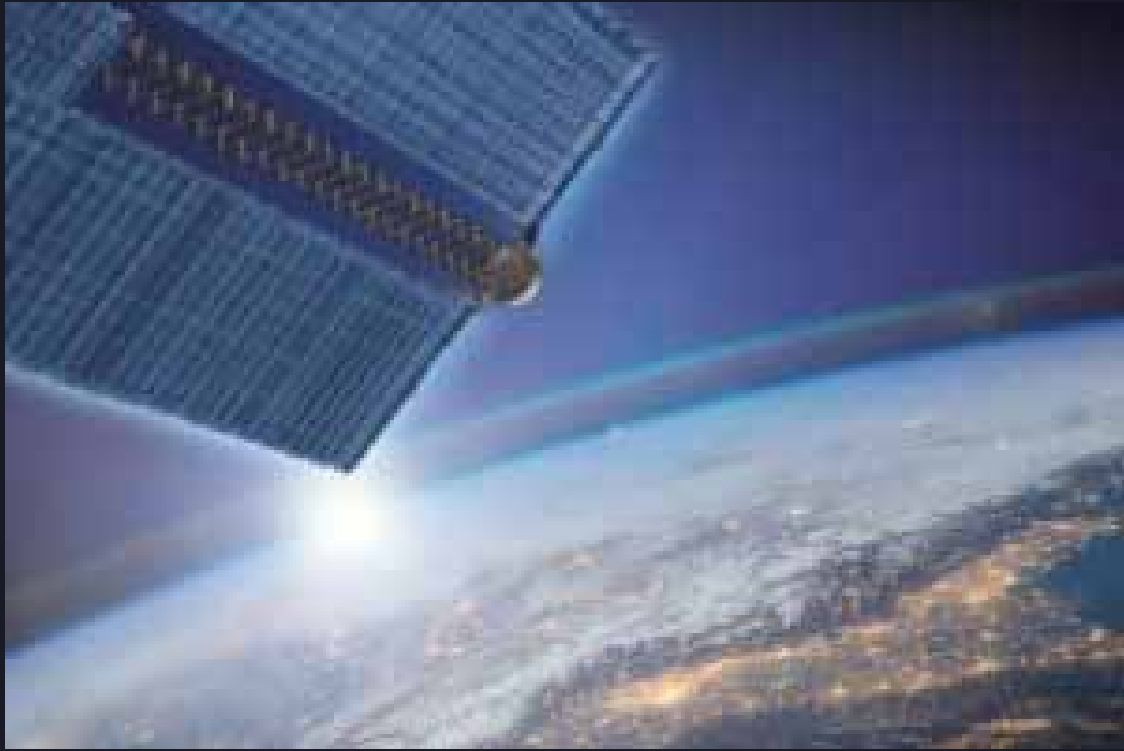
“The access to robust long-range voice and data

communications is a critical operational capability for Infantry and maneuvering forces. Until now this capability required the use of costly and heavy SATCOM equipment that did not interface smoothly with their tactical radio or command and control systems, limiting their adoption and effectiveness”, commented Oren Sabag, a Senior Vice President at Elbit Systems C4I & Cyber Division.

E-LynX-Sat integrates miniature phased-array antennas, unique satellite communication modem, beam steering and error correction software as well as data compression protocols. Using standard Ka and Ku-band Geostationary satellites, it features automatic electronic satellite tracking and direct



# Liebherr-Aerospace to Develop Thermal Management Capabilities for Satellites



Gaining a partnership with European space manufacturer Thales Alenia Space and Centre National d'Etudes Spatiales (CNES), Liebherr is entering a new market: Liebherr-Aerospace, who has been active in the aviation industry for decades, is developing thermal management capabilities for a Mechanically Pumped Loop (MPL) cooling system for satellites.

Liebherr-Aerospace Toulouse SAS, based in Toulouse (France), together with Thales Alenia Space, Joint Venture between Thales (67 %)

and CNES, is developing industrial production and co-design capabilities for evaporators and condensers. These are key components of the next-generation telecommunication satellite's technology payload and platform cooling system, which actively manages the electronic heat dissipation.

Manufacturing evaporators and condensers for future MPL cooling systems will be a demanding assignment: As part of an innovative MPL, they will be in space for at least 15 years without maintenance. This means that the evaporators and condensers have to be

completely free from leakage as well as extremely reliable and robust to operate flawlessly during this period at high heat-exchange performances. The telecommunication satellites fast-moving market is more and more demanding in terms of responsiveness, high quality control and cost competitiveness. To be able to produce evaporators and condensers reaching new standards, Liebherr-Aerospace's French-based center of excellence is developing industrial welding and manufacturing processes, which are both innovative and highly repeatable for both

space and serial production levels of requirements.

Telecommunication satellites payload cooling: adapting to a fast-moving market

Thales Alenia Space has been building up its product range differentiation through technology advance. Cooling electronics to be mounted on-board powerful digital telecom payloads has become a challenge due to increasing density needed to meet such expectations. Thales Alenia Space is continuously developing innovations as well as building relevant partnerships to face that fast-moving market.

For Publishing Feature Articles, Interviews and Advertisements in Arabian Defence - Please contact - [editor@arabiandefence.com](mailto:editor@arabiandefence.com) | [www.arabiandefence.com](http://www.arabiandefence.com)

# Russian Helicopters Delivers First Batch of Helicopter Knock-Down Kits to Kazakhstan

The Ulan-Ude Aviation Plant of the Russian Helicopters holding (part of the Rostec State Corporation) has delivered two Mi-8AMT helicopter knock-down kits to Kazakhstan to be assembled on the territory of the customer.

The delivery is based on a trilateral contract signed by Kazakhstan Engineering, Kazakhstan's Aircraft Repair Plant No. 405 and Russian Helicopters for semi-knock-down (SKD) assembly of Mi-8AMT / Mi-171E helicopters. The contract, signed in 2019, provides for a total of 17 helicopter kits during 2020-2022.

The main customers for the Mi-8AMT helicopters in Kazakhstan are the National Guard under the Ministry of Internal Affairs and the Committee for Emergency Situations. The first batch of Mi-8AMT kits will be assembled for the needs of the Committee for Emergency Situations.

"I'm confident that successful implementation of the semi-knock-down assembly project of Mi-8AMT / Mi-171 helicopters in Kazakhstan will become a significant step forward in the development of the country's helicopter industry and will allow local enterprises to increase their scientific and technical potential", said Leonid Belykh, Managing Director of the Ulan-Ude Aviation Plant.

Assembly and adaptation of the helicopters to the customer's requirements will be carried out by the Aircraft Repair Plant No. 405 in the city of Almaty. The plant holds the greatest competencies in repairing and maintaining this helicopter type in the Central Asian region. The plant is certified by both Kazakhstan and international authorities for the repair, modernization and maintenance of Mi-8/17/171 helicopters.

The assembled helicopters will be tasked with transportation of passengers and goods, emergency rescue operations, forest protection, firefighting, ambulance services and law enforcement operations. The operational experience and extensive service network of the Aircraft Repair Plant No. 405 will provide integrated service



support for customers in the field of deployment. Kazakhstan has been a long-term partner of the Russian Helicopters and the country operates dozens of Mi-8AMT / Mi-171 helicopters. The republic became the first foreign operator of the latest Mi-171A2 helicopter.

Ulan-Ude Aviation Plant JSC is one of the production enterprises of the Russian Helicopters holding. The modern production and technological capacity of the plant makes it possible to manufacture new types of aircraft quickly and combine the creation of prototypes with the line production of equipment. In over 75 years of existence, more than 8,000 aircraft have been built at the plant. Today, the plant specializes in the production of Mi-8AMT (Mi-171E), Mi-171 and Mi-8AMTSh (Mi-171Sh) helicopters.

JSC Russian Helicopters (part of Rostec State Corporation) is one of the world leaders in helicopter industry, the only developer and manufacturer of helicopters in Russia. The holding company was established in 2007. The head office is located in Moscow. The holding company is comprised of five helicopter plants, two design bureaus, enterprises for production and maintenance of components, aircraft repair plants and a service company providing after-sales support in Russia and abroad. The buyers of the holding company's products include the Ministry of Defense of Russia, the Ministry of Internal Affairs of Russia, EMERCOM

of Russia, and other state customers, Gazprom Avia and UTair airlines, as well as major Russian and foreign companies.

Rostec is a Russian State Corporation established in 2007 to promote the development, production and export of high-tech industrial products designed for civil and military applications. The Corporation comprises over 700 organizations that are currently part of eleven holding companies operating in the military-industrial complex and three holding companies working in civilian industry, as well as over 80 directly managed organizations. Rostec's portfolio includes well-known brands such as AVTOVAZ, KAMAZ, Kalashnikov Concern, Russian Helicopters, VSMPO AVISMA, UralVagonZavod, etc. Rostec companies are located in 60 constituent entities of the Russian Federation and supply products to more than 100 countries. The consolidated revenue of Rostec in 2017 amounted to RUB 1 trillion 589 billion rubles, while the consolidated net income and EBITDA amounted to 121 and 305 billion rubles, correspondingly. In 2017 the average salary in the Corporation was 46.8 thousand rubles. According to Rostec's strategy, the main objective of the Corporation is to ensure that Russia has a technological advantage in highly competitive global markets. Rostec's key objectives include the introduction of a new techno-economic paradigm and digitalization of Russian economy.





## flynas Hailed as Middle East's Leading Low-Cost Airline

flynas, the Saudi national air carrier and leading low-cost airline in the Middle East, maintained its leadership in the aviation sector, dodging the challenges of the new normal imposed by the novel coronavirus pandemic, as it retained its title as the Leading Low-Cost Airline in the Middle East by the prestigious World Travel Awards for the sixth consecutive year.

At a time when the global travel industry is challenged by the repercussions of COVID-19, this accolade

from the world's most acclaimed travel and tourism industry awards comes as an international recognition of distinction for flynas' strategy which has ensured its sustained excellence through its continuous innovation in the aviation sector and its delivery of the best offers at a regional level.

Commenting on the new achievement, flynas CEO Bander Almohanna said: "We are proud of this award that flynas has achieved for the sixth year in a row. Gaining this recognition at

this particular time bears additional significance and clearly emphasizes that all the plans that we have implemented during the past period, under the guidance and support of our astute leadership, have been effective at the operational and business development levels." He added that flynas not only focused on sustaining its operations, but also continued to work on its expansion plans which were recommenced immediately with the gradual resumption of flights.

"Focused on its goal to add

new destinations and services that meet the aspirations of travelers, flynas continued to add A320neo airliners to its fleet, and as of October 2020 has received nine aircraft out of its landmark \$8.6 billion-deal with Airbus to purchase 120 A320neo aircraft," he said.

Almohanna concluded that this accolade reflects flynas' strategy that aims to retain its leading position as passengers' most trusted airliner, and acknowledges its exceptional, dedicated team that always strives to deliver the best service to its traveling guests.

## Chief of Navy Reviews Operational Readiness at Sea



Admiral Karambir Singh, the Chief of the Naval Staff (CNS), reviewed the operational preparedness and combat-readiness of the Indian Navy's principal combatants.

CNS accompanied by Flag Officer Commanding-in-Chief Western Naval Command, Vice Admiral Ajit Kumar, arrived at Karwar Naval Base where he interacted with personnel and emphasised key issues of repairs, maintenance, spares support and op-logistics for afloat units to sharpen their war-fighting capabilities. He also reiterated aspects of cyber-security, force protection against terrorist attacks, asymmetric warfare and exhorted all personnel to maintain highest-level of alertness.

Admiral Karambir Singh thereafter departed by helicopter to embark the Carrier Battle Group, comprising Vikramaditya, destroyers, frigates, corvettes, fleet support ships and integral swing-role fighters and helicopters. On embarking indigenous

guided-missile destroyer Chennai, he was given an operational readiness briefing by the Fleet Commander, after which weapon firings, air-to-air combat operations, anti-submarine drills and fleet manoeuvres were demonstrated under realistic conditions. CNS thereafter embarked Fleet Support Ship Deepak to interact with the ship's crew, followed by embarkation on aircraft carrier Vikramaditya, where he witnessed the Carrier Battle Group's capabilities for integral fleet air defence and strike.

Addressing the combatants of the Carrier Battle Group over broadcast from Vikramaditya, CNS complimented them for continuously maintaining peak combat-readiness and high tempo of operations over the past months, in spite of COVID-19 related challenges. The Indian Navy has remained mission-deployed and combat-ready across the IOR, even through rough seas during the monsoon period, towards maintaining the maritime security of the nation. He highlighted the nation's

appreciation for the Navy's contributions in 'Op Samudra Setu' towards for repatriation of our distressed citizens from IOR countries and towards providing medical and logistics assistance to our friendly neighbours in the IOR, as part of 'Mission SAGAR'. He expressed satisfaction at the high levels of motivation and reiterated that the Indian Navy has the best human capital manning our platforms.

Giving an overview of the prevailing security situation, he stated that the Navy would continue maintaining a high-tempo of operations in coming months. He also complimented the Carrier Battle Group and its combatants for accurate and effective weapon firings, which left no doubt about the Navy's readiness to meet any emergent contingencies. CNS highlighted that tri-service synergy and coordination has peaked with establishment of the Department of Military Affairs as was visibly demonstrated in the joint response of the three Services to recent events.

CNS also advised continued

compliance of protocols by naval personnel and their families, in regard to COVID-19 pandemic. CNS visited the Naval Aircraft Yard at Goa also.

Concurrent with CNS's review of combat readiness on the Western seaboard, the Indian Navy's Anti-Submarine Warfare (ASW) capability was further augmented by commissioning of ASW Corvette Kavaratti by General Manoj Mukund Naravane, Chief of the Army Staff, at Visakhapatnam, on the Eastern seaboard. Designed by the Indian Navy and built at Garden Reach Shipbuilders and Engineers Ltd, Kolkata, the ship is a fine example of Atmanirbhar Bharat.

Indian Navy continues to maintain a high tempo of operations and combat-readiness despite the COVID-19 pandemic by adhering to stringent protocols onboard warships, submarines and aircraft squadrons and bases, and is fully prepared to tackle challenges in the maritime domain, in coordination with Sister Services.

# Schneider Electric Showcases Digital Offerings for Future Airports

Schneider Electric, the global leader in digital transformation of energy management and automation exhibited its solutions for 'Future Ready' for India at a webinar 'Airports of Tomorrow' organised by CII. The company highlighted its enterprise level integration system, which in effect is a "System of Systems" approach. This integrated framework provides 'one version of reality' enabling airports with a holistic view, quicker decision-making, better controls, improved operating efficiency and the opportunity to offer travellers a seamless experience.

Daniel Bircher, CEO, Zurich Airport International Asia (Kuala Lumpur) and Hari K. Marar, Managing Director & Chief Executive Office, BIAL joined Schneider Electric's Anil Chaudhry, CEO, SEIPL and Zone President India, to deliberate on various challenges faced by the airports and the way forward on making them future ready. The leaders reiterated that leveraging technology can go a long way in reducing carbon emissions, generating better revenues, and delivering great passenger experience.

Anil Chaudhry, CEO SEIPL said, "Our goals for Airports

4.0 are energy efficiency and unmatched passenger experience and safety. Our technologies digitise the entire value chain of airport infrastructure management which ensure a seamless control and insight into

the airport's operation and energy usage. This allows our customer to operate effectively, safely and in a cost-efficient manner."

Sharing his perspective, Daniel Bircher, CEO, Zurich Airport International Asia (Kuala Lumpur) said, "We have been implementing various initiatives to reduce the CO2 emissions since 1999 and have so far brought it

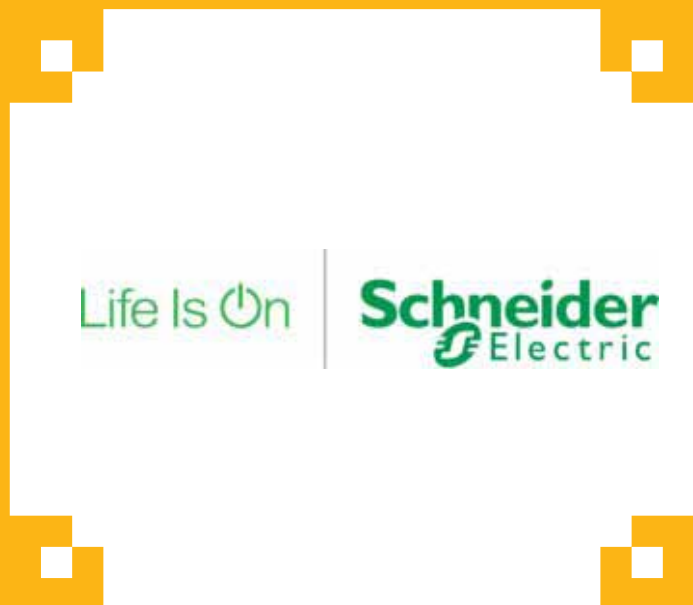
down by 50%. To implement and practice sustainability, one needs to start at the management level. It is important to measure and calculate one's emissions to be able to deliberate on the next course of action. As an entity,

we strongly advocate the efficient use of airport waste management concept and are well equipped with effective data management and emission control technology to measure and monitor the waste generated and to convert it into some form of renewable energy."

The discussion also looked at effective use of renewable energy sources to power

airport facilities, optimising energy efficiency to minimise operating costs and achieve carbon neutrality. The global aviation industry contributes about 2% of global carbon emissions. With its large carbon footprint, the entire aviation sector, is strongly committed to lowering carbon emissions and effectively managing its overall energy use. Airports will dramatically save energy efficiency costs.

Airports focusing on sustainability and reducing their carbon footprint gain from substantial cost savings from increased energy efficiency, in addition to achieving environmental targets. With a strong emphasis on sustainability and reducing carbon footprint, Schneider Electric solutions for airports allows airports to dramatically reduce costs by improving energy quality and achieving environmental targets. EcoStruxure for Airport platform provides a collaborative environment for secure, efficient, reliable and sustainable airport service. Airports are now a smart city where almost all processes are digitised. The presence on the land side is therefore becoming increasingly necessary for airport operators who call for Smart City Vision.



For Publishing Feature Articles, Interviews and Advertisements in Arabian Defence

Please contact - [editor@arabiandefence.com](mailto:editor@arabiandefence.com) | [www.arabiandefence.com](http://www.arabiandefence.com)



# Israel's Defense Manufacturing Assists Hospitals in Coping with the Corona Virus



Combating a pandemic is an extended campaign that combines planning and execution at the local and national levels, with two primary goals: ensuring that patients receive the best possible healthcare services while containing the virus to avoid medical institutions' overburdening and the exhaustion of medical resources. To confront a crisis of this magnitude, the State of Israel turned to the local defense community – companies and organizations that excel in crisis-management and produce some of the world's most cutting-edge systems to address security issues.

Leveraging their technological know-how and operational experience, Israel's defense industries moved quickly to assist first responders and medical teams in dealing with the unique challenges posed by the COVID-19 pandemic. The close collaboration with medical institutions, and active support provided by SIBAT in the Ministry of Defense, enabled these companies to redirect and adapt their resources to develop and produce technological solutions for the challenges faced by medical teams.

The following will provide an overview of some of the challenges that medical institutions face in handling the pandemic, and introduce various technological solutions produced by Israeli defense industries. Isolation of patients during transport and in the wards poses a significant challenge for medical staff required to cleanse and sterilize themselves every time they contact a patient. To avoid further contamination during patients' transport, medical teams may employ the IsoArk N36 Stretcher Isolation system developed by Beth-El, a company specializing in CBRN air filtration.

IsoArk N36 provides maximum protection and operational safety for patients, first responders, and medical teams during transportation in

ambulances, within hospitals, or during air travel. BethEl's IsoArk also provides Mobile Isolation Chambers, designed for the rapid setup of isolation wards. Quickly converting any space into a quarantine room or isolated ward, IsoArk uses HEPA biological filtration units that combine filtration and a powerful UV light, that eliminates viruses, bacteria, and germs. Filtration is a necessary measure to protect medical teams, but hospital facilities must also be sterilized frequently to prevent the spread of infections. Astronautics has partnered with US-based Badger to develop the Hawkeye Ozone-based disinfectant system. Ozone is a highly effective disinfectant -50 times more effective and 3,000 times faster than chlorine bleach in eliminating viruses, germs, and bacteria.

The 'Aqueous Ozone Disinfectant Delivery System' provides a reliable 'Corona-Buster' -quickly and efficiently eliminating any virus traces on surfaces. The Hawkeye operates as a portable system that uses water, air, and electricity and has low recurring costs. Since Hawkeye has no smell or chemical residue, treated spaces may be ready for re-use within a couple of minutes. The pandemic also challenges the supply chain of Personal Protection Equipment. Marom-Dolphin provides face shields and disposable protective suits, both classified as PPE. Shalon also provides HALF MASK RESPIRATORS. These dual cartridge negative pressure half-mask respirators are designed to protect the patient's organs against industrial toxic chemicals. Provided with Shalon's P3 filter, these masks provide superior protection against airborne particles, liquid, and solid aerosols greater than 0.3 micron, as well as bacteria and viruses such as COVID-19. Emergency scenarios require new medical facilities such as hospitals and laboratories to be set up at short notice.

To operate efficiently, they need a high-quality, highly reliable, advanced communications network enabling the delivery of information to medical teams at any given time. ECI has introduced a 'Deployable Medical Communication

Solution' (DCMS). Designed as a 'network in a box,' DCMS is a rapidly deployable, secure solution, providing a secured communications platform with converged, multi-access backhaul connectivity that caters to scalable cloud-enabled computing infrastructure. COVID-19 presents many complex challenges for medical teams. They are subject to strict regulations before entering Coronavirus wards and are required to wear full-body protective clothing while treating patients. Any asset that minimizes caregivers' exposure inside the quarantine wards would protect staff and ensure that patients receive the best possible care.

Robots are useful in administering medical assistance inside isolated wards. NurseBot developed by RobotiCan is a mobile platform for remote patient care and assistive logistics. The robot helps doctors communicate with patients while avoiding physical contact and reducing exposure to the virus. The system is comprised of a tablet computer that provides video and audio from the patient's side and a computer with a camera and a microphone on the medical team's side. NurseBot carries up to 50 kg of supplies, including a UVC disinfecting system for rapid and efficient sterilization indoors. Additional technological means are designed to increase medical services' efficiency and reduce staff exposure to the virus.

Elbit Systems' Ex-Teams is a cross-organizational, multi-user collaboration system supporting voice, video, location services, and chat connectivity. Ex-Teams provides rapid and intuitive voice and data communications. When integrated with robotic systems, sensors, and remotely operated devices, Ex-Teams enables remote treatment and monitoring. The Ex-Teams System is provided as a service (SAAS), over an encrypted cloud-based system, ready for immediate operation via a downloadable app. Technology is also essential in decision-making processes and the allocation of medical services and resources.

EyeDoc, built by the Israel Ministry of Defense tank and APC development



## Gulf Air Resumes Direct Flights to the Maldives

**A**irport in the Maldives with two weekly flights starting from 12 December 2020. The flights will be operated by the airline's newest Airbus 321neoLR which features 150 seats in economy class and 16 flat-bed seats in Falcon Gold class. Gulf Air's first flight to the Maldives landed in Male on 27 October 2019 and it has been the airline's key boutique destination in the Indian

Ocean. The airline currently flies to and from Abu Dhabi, Dubai, Kuwait, Jeddah, Dammam, Medina, Muscat, Cairo, Amman, London, Paris, Frankfurt, Athens, Manila, Dhaka and several destinations in India and Pakistan.

Being one of the few airlines that continued scheduled commercial operations, Gulf Air continuously works closely with the governments

authorities throughout the destinations on its network to resume operations as soon as airports open. Gulf Air boasts a flexible and agile network by immediately adapting to government orders and civil aviation directives around its network and has been responsive to continuous changes and updates regarding operations to and from its network destinations.

Updates are constantly

added on [gulfair.com/covid19](http://gulfair.com/covid19) including travel advice, network and new health and safety procedures.



administration, was developed as part of the center's effort to support local hospitals. This AI-based remote patient monitoring system digitizes the output from standard monitors, processes the video with artificial intelligence, and displays the readout at a remote control center outside the isolated ward. With the data collected and analyzed by the system, EyeDoc produces relevant alerts for immediate intervention.

Some systems address specific tasks routinely performed by medical teams, such as measuring a patient's vital signs. Using remote monitoring, Elbit Systems' E-Res system replaces this manual task with a miniature radar and optical sensor that measures patients' vitals in real-time. E-Res accurately measure respiration, pulse, and temperature from a safe distance. The system can also perform analytical procedures providing efficient and accurate non-contact screening for patient evaluation. It is eliminating the need for direct contact with the patient and provides medical staff with essential, accurate information.

Israel Aerospace Industries (IAI), has developed a model that predicts the progression of the medical status of COVID-19 patients, further assisting hospitals in preparing for an escalation in the medical condition of patients. Built utilizing data from Sheba Medical Center,

the model processes medical data using artificial intelligence (AI), big data, and machine learning technology. Due to its predictive capabilities, the system may alert medical staff about the possible deterioration in a patient's condition, thus enhancing patient care and flagging serious cases.

With pressure on life support systems mounting at intensive care wards, medical teams aim to assist patients if possible before connecting them to ventilators. Elbit Systems has developed a system called 'Life-Can', to provide cost-effective mechanical ventilation for a wide range of clinical settings, suitable for initial respiration care for sub-acute patients. Life-Can enables a standard manual Bag Valve Mask (BVM) to operate as an automatic-mechanical ventilation machine. This solution meets the British MHRA-RMVS standard and is approved for use by the Israeli Ministry of Health. LifeCan is designed for quick and intuitive use by medical staff and enables fewer care providers to operate several devices simultaneously. By using Life-can with noncritical patients, hospitals reserve the expensive and complicated ventilator machines for the most critically ill patients.

To further assist medical teams in supervising seriously ill COVID-19 patients, the Directorate of Defense Research and Development (DDR&D), in

the MOD, IAI, 5 Microsoft, and Soroka Medical Center developed a system that serves as a "medical control room." Like an aircraft's cockpit, the system provides updated, comprehensive information on patients' medical statuses while minimizing medical teams' exposure to the virus. The data collected by the system is readily available to doctors, who can then allocate resources and manage medical care effectively and efficiently. The global pandemic has challenged governments, companies, and citizens all over the world. Our frontline workers in medical institutions bear the burden of the most pressing and complex issues caused by this virus.

As outlined above, Israel's defense industries must work hand in hand with local experts to address these challenges and quickly produce relevant technological solutions. Leveraging Israel's defense industries' extraordinary capabilities, the International Defense Cooperation Directorate in Israel's Ministry of Defense (SIBAT) provides the gateway for international partners and enterprises seeking effective, tailored solutions for the most pressing challenges posed by the pandemic. Only through such cooperation and the integration of cutting-edge technology can we overcome this global crisis and return to routine as soon as possible.



## Su-30MKI, a milestone in India-Russia partnership

India's Ministry of Defence (MoD) recently approved the proposal for procurement of additional 12 Su-30 MKI fighter jets. Termed by MoD as the 'most lethal front-line fighter aircraft', Su-30 MKI is the result of a successful joint programme between India and Russia's Rosoboronexport, which has turned 20.

**A**s Russia's Rosoboronexport state intermediary company celebrates its 20th anniversary, the landmark Su-30 MKI fighter jet programme executed by Russia and India is again in focus. In July 2020, the Defence Acquisitions Council (DAC) under India's Ministry of Defence (MoD) officially approved the proposal for procurement of additional 12 Su-30 MKI fighter jets, which are produced jointly by the two countries.

The product of an unmatched international project, Su-30MKI aircraft has been recently dubbed by the MoD as the 'most lethal front-line fighter aircraft'.

The first contract to deliver Su-30MKI jets to the Indian Air Force (IAF) was signed on November 30, 1996 in Irkutsk,

Russia, between Rosvooruzhenie state intermediary company (predecessor of Rosoboronexport) and MoD. It envisaged the delivery of 32 Su-30MKI, all of which were produced in 2002-2004. Satisfied with the performance of the new Sukhoi jets, the MoD placed additional orders. On December 28, 2000 the general contract for organizing the licensed production of Su-30MKI in India at Hindustan Aeronautics Limited's (HAL) facilities was signed in Irkutsk. In 2012, another contract for technological kits of Su-30MKI was inked.

### Advanced features

At the time of induction into the IAF, Su-30MKI programme was unique for India in terms of functional capabilities of

the new aircraft; the level of participation of India in choosing the technological configuration of the aircraft and the overall scale of technology transfer. Su-30MKI became one of the first serially-produced combat aircraft with super maneuverability features as well as the first export aircraft equipped with the phased-array radar. The supermaneuverability is achieved due to engines with thrust vectoring and advanced fly-by-wire system. It not only provides unmatched superiority of Su-30MKI in dog fight engagements, but also enhances flight safety.

Su-30MKI can be considered a highly optimized fighter jet in terms of meeting cost-effectiveness criteria. Its weapon control system provides reliable





available evolutions of the aircraft in super maneuverability modes . Along with the organization of the licensed production, work on the overhaul of AL-31FP engines and their units has been launched.

In 2020, MoD announced that HAL had handed over the 500th AL-31FP overhauled engine to the IAF .

Meanwhile, Su-30MKI is getting more teeth for performing standoff surgical strikes with the induction of BrahMos supersonic cruise missile, which is another joint project between India and Russia. On January 20, 2020, IAF commissioned its first squadron of Su-30MKI fighter jets armed with the BrahMos-A cruise missile. In fact, Su-30MKI is currently the only Indian aircraft capable of using this missile.

India has created complex and unique infrastructure for Su-30MKI production and MRO which facilitates any future developments in the Sukhoi domain. Su-30MKI is still a potent fighter and is among the best in the world in terms of its integral capabilities of weapons load, range and maneuverability. Upgrading Su-30MKIs will enhance its capabilities even more.

#### **Rosoboronexport**

Rosoboronexport was established on November 4, 2000 by the Russian President Vladimir Putin. It is the Russian state intermediary for the exports and imports of the entire range of products, technologies and services of military and dual use. ■

detection of aerial, ground, and naval targets beyond visual range; tracking of 15 aerial targets and simultaneous engagement of four of them. The open architecture of avionics suite ensures the capability to further enhance its capabilities and expand the weapons set .

Thanks to the programme, India has received a heavy-class multifunctional fighter jet, while HAL has gained huge technological experience. Under the programme, HAL also launched the licensed assembly of Su-30MKI's AL-31FP turbofans.

The project has become one of the largest in the history of military cooperation of India with foreign countries and also contributed to the sales of Su-30MK family aircraft to other countries such as Malaysia and Indonesia. Moreover, the programme has directly influenced the development of Su-30SM fighter jet, which is currently being delivered to the Russian Air Force and offered at the global arms market (as Su-30SME).

The experience gained during cooperation under Su-30MKI programme has paved the way for new joint projects between Russia's Rosoboronexport and India. Director General of

Rosoboronexport Alexander Mikheev has termed Su-30MKI as one of the major India-Russia joint aviation projects and that the overall bilateral cooperation was fully in line with the Government of India's 'Make in India' policy.

#### **AL-31FP engine**

A significant feature of Su-30MKI programme is the licensed production of AL-31FP engines with kits shipped from Russia at HAL's Koraput engine division. AL-31FP is a high temperature turbofan engine of modular design. AL-31FP engines (each Su-30MKI has a pair of these) ensure stable operation in all



# High maintenance season for AMAC Aerospace



**A**MAC Aerospace has announced that two Head of State aircraft has arrived in October in Basel, Switzerland for maintenance. Furthermore, AMAC has been selected to carry out maintenance checks on several Airbus, Bombardier and Boeing aircraft and offers cabin disinfection services for any aircraft type.

The McDonnell Douglas MD-87 is waiting at Hangar 2 to get the systems upgraded AMAC Aerospace were pleased to recently welcome a Head of State McDonnell Douglas MD87 in its headquarters in Basel, Switzerland. AMAC's team will install a new generation of the Cockpit Voice Recorder ('CVR') and a Flight Data Recorder ('FDR') system. In addition, the Head of State aircraft will undergo multiple C-checks and a landing gear overhaul. A second Head of State, a Boeing B747-8, has arrived mid of October to undergo a C-check. Three maintenance projects on Airbus aircraft AMAC was awarded three maintenance

projects on Airbus aircraft. A privately-owned Airbus ACJ319 will arrive in the next few weeks in Basel. AMAC's Airbus team will carry out avionics update in combination with a heavy base maintenance check. A privately-owned Airbus A319 recently arrived to undertake 1A-, 2A-, 1C-, 2C- and 4C-inspections. In September, a privately-owned Airbus A318 checked in to undergo 1A-, 2A-, 3A-checks as well as Out Of Phase ('OOP') tasks.

"Despite limitational circumstances of COVID-19 pandemic, AMAC are pleased to have regular maintenance inputs. We are happy to see a slow improvement of flight activities in business aviation. This shows a positive impact in our business segment", said Alexis Ott, Director Maintenance Sales & Key Account Management.

Various projects on Bombardier aircraft – disinfection services offer for any aircraft type AMAC has also been awarded to carry out a Pre-Purchase

Inspection ('PPI') on two privately owned Bombardier Global 6000s. Both aircraft have already arrived in Basel. A third Bombardier Global 6000 is expected in the next few weeks. The privately-owned aircraft will undergo a 500h-/1,000h-check and a 15-/30-month check. AMAC won a project for a 24-month inspection on a Bombardier Challenger 300 in September. The customer now commissioned AMAC to perform multiple cabin interior work on the privately-owned aircraft. Finally, AMAC has been awarded an annual inspection on a Bombardier Challenger 605. AMAC also welcomed two Boeing BBJ737 in Basel. The owner of the two aircraft assigned AMAC's Boeing team to carry out two

Ka-Band installations. The ground time will be used to perform base maintenance checks as well. A privately-owned Boeing B787 will undergo a due 12-month check. Furthermore, AMAC is carry out a base maintenance check on a privately owned Gulfstream GV.

Soon, AMAC's team welcomed a Boeing 747 for a maintenance package in Basel, Switzerland In the current COVID-19 pandemic, safety matters even more. AMAC Aerospace is offering safe and eco-friendly aircraft cabin disinfection services for any type of aircraft at their hangars in Basel as well as in Bodrum and Istanbul, Turkey.

AMAC is offering aircraft cabin disinfection services in Switzerland and Turkey. ■



**Cabin Disinfection Services**

We Care. Fly safe.

- 24/7 TEAM AVAILABLE & TRAINED TO USE THE LATEST PRODUCTS
- SAFE & ECO-FRIENDLY: A responsible choice for your business, your employees and the environment.
- ACTIVE MARKET: 100% of our services are provided in Switzerland.
- OUR DISINFECTION SERVICES OFFERED IN BASEL.
- APPROVED FOR MEDICAL ENVIRONMENT
- COVERAGE AREA: Covering all major airports, airlines, and private jets.
- STARTING OF DISINFECTION LEASING

AMAC AEROSPACE

SWISS QUALITY



# ARABIAN DEFENCE

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

**IDEX 2021** **NAVDEX 2021**  
INTERNATIONAL DEFENCE EXHIBITION & CONFERENCE  
NAVAL DEFENCE EXHIBITION & CONFERENCE  
ABU DHABI, UAE ABU DHABI, UAE

Publishing Special issues of  
**AEROMAG ASIA & ARABIAN DEFENCE**  
for IDEX & NAVDEX 2021

For publishing feature articles,  
interviews, & advertisements,  
Please contact : [editor@arabiandefence.com](mailto:editor@arabiandefence.com) | [editor@aeromagasia.com](mailto:editor@aeromagasia.com)



Aeromag Asia, Aerosun Media Pvt Ltd, Aeronautical Society of India  
Building, Suranjandas Road, Off Old Madras Road,  
Bangalore 560075. Karnataka. [www.aeromag.in](http://www.aeromag.in)



## Boeing Appoints Jinnah Hosein to New Software Engineering Leader Role



The Boeing Company named Jinnah Hosein as the company's vice president of Software Engineering, effective immediately. In this newly created role, Hosein will report to Greg Hyslop, Boeing chief engineer and senior vice president of Engineering, Test & Technology, and will focus on further strengthening Boeing's focus on software engineering across the enterprise.

"The continued advances in software makes excellence in software engineering an imperative for our business," said Hyslop. "Jinnah will be charged with defining and leading Boeing's strategy for software engineering, which includes providing capabilities, technologies, processes and secure and accurate systems to meet the needs of all our customers across the entire product life cycle."

Hosein will lead a new, centralized organization of engineers who currently support the development and delivery of software embedded in Boeing's products and services. The team will also integrate other functional teams to ensure engineering excellence throughout the product life cycle.

"Safety, quality and integrity underpin the mission of our software engineering team, and building on this solid foundation, Jinnah will be a transformational leader for Boeing," said Dave Calhoun, Boeing president and CEO. "Jinnah's broad experience and fresh perspective will elevate our performance and accelerate the important work we've already begun in this area."

Boeing is the world's largest aerospace company and leading provider of commercial airplanes, defense, space and security systems, and global services. As a top U.S. exporter, the company supports commercial and government customers in more than 150 countries and leverages the talents of a global supplier base. Building on a legacy of aerospace leadership, Boeing continues to lead in technology and innovation, deliver for its customers and invest in its people and future growth.



## Commander-in-Chief of the Russian Armed Forces Awards Rosoboronexport with Certificate of Honor

In line with Order No. 1 of the Supreme Commander-in-Chief of the Armed Forces of the Russian Federation Vladimir Putin dated October 15, 2020, Rosoboronexport JSC (part of Rostec State Corporation) has been awarded the Certificate of Honor "For merit in strengthening the country's defense capacity and developing military-technical cooperation between the Russian Federation and foreign countries."

"Over 20 years of its activities in an extremely difficult segment of the world market, Rosoboronexport has increased its key foreign trade indicators five times and made Russia the second largest exporter of arms and military equipment. A steady inflow of orders through Rosoboronexport contributed to the timely establishment of high-tech production of competitive products in the country. Thanks to government support, primarily the support of the President, we are successfully moving forward, continuing to develop new areas of cooperation with partners. This high award is recognition of the highest competencies of the whole team of the company, its achievements and evidence of high confidence of the country's leadership," said Alexander Mikheev, Director

General of Rosoboronexport.

Russian Deputy Defense Minister Alexander Fomin presented Alexander Mikheev with Certificate of Honor signed by Vladimir Putin, President of the Russian Federation and Supreme Commander-in-Chief of the Armed Forces of the Russian Federation.

November 4, 2020 marks the 20th anniversary of Rosoboronexport (part of Rostec). The company was established by decree of the President of the Russian Federation as part of the reform of the military-technical cooperation system.

Today, Rosoboronexport is a leader in the international arms market. Over 20 years of its operation, the company has delivered over \$180 billion worth of Russian military, dual-use and civilian products to 122 countries. The value of annual export deliveries of Russian enterprises' products is about \$13 billion and the order book exceeds \$50 billion.

Foreign customers appreciate the opportunity to cooperate with Russia's defense industry through Rosoboronexport, a unique one-stop shop offering a full package of services for the export of high-tech military and civilian products and technology transfer.

# India's private firms to get much bigger space

Under the new Spacecom Policy-2020 drafted by the Department of Space, Government of India, private companies in the country can develop new systems related to space, launch satellites and sell services to foreign clients.



In a landmark move, India's Department of Space (DoS) has decided to allow private companies in the country to develop new systems, launch satellites and sell services to foreign customers under its Spacecom Policy-2020. "DoS and Indian Space Research Organisation (ISRO), in their efforts to achieve end-to-end capabilities, have nurtured Indian industry to be partners in supplies and services while realizing launch vehicles and satellites. In this endeavour, Indian industry has acquired skillset and capability to realize the sub-systems and satellite systems meeting the stringent specifications and reliability," says the draft policy.

Under the Spacecom Policy-2020, which will replace the existing Satcom Policy, Indian industries can also utilize the existing space assets for communication

services. Henceforth, private Indian companies can establish control centres outside the country and use overseas space assets. They can establish satellite systems through satellites built on their own or procured. In addition, telemetry, tracking & command (TT&C) earth stations and satellite control centres (SCC) can be established in or outside India. This capacity could be offered to commercial and societal communications within as well as outside the country. The systems and solutions developed by private firms can also be offered to international markets.

Indian orbital resources can be availed from designated PSU/CPSEs under DoS on commercial basis subject to availability. The authorized Indian entities can directly offer their capacities to customers.

"The demand for bandwidth is increasing substantially from ongoing services as well as emerging applications. With the advancements in technology, space-based communications are becoming efficient and affordable. The non-government private entities can play a big role in addressing the growing demand within India and also use the opportunity to be important players in the international space communications market," elaborates the draft policy.

"It is an opportune time to enable commercial communication activities to be carried out by non-governmental Indian entities to not only meet Indian requirements but also enable them to become significant players in the global space communication arena. Government of India seeks a greater participation of Indian Industry to meet the demands in activities of realizing, owning, operating satellite systems for communications over India and outside, creating facilities for satellite control operations and so on," the draft policy adds.

According to K Sivan, Secretary, DoS, the new policy will have everything the Satcom Policy has in terms of protection of India's assets, creation of new assets, monitoring and operations. "The major changes are related to encouraging the private sector and renewing focus on

enhancing national security capabilities," he said.

Sivan said that this was only the first step and that specific policies on launch vehicles, navigation, remote sensing, space exploration, human spaceflight and a national space policy would be released soon. He opined that these developments would propel India to the "next level."

Several representatives of Indian private industry welcomed the government decision. They said that it is a positive move and boosts investor confidence. Moreover, they expect a boom in small satellite launches.

As per the draft, satellite communication systems which cannot be developed in a totally commercial domain could be brought into operation with the involvement of the government for sustainability. For instance, Satcom programmes which focused on tribal development, social empowerment, health, education and disaster management will remain under DoS. "Such programmes exist to address specific objectives, and may not be commercially viable in nature," says the draft of the Spacecom Policy-2020.

At the same time, DoS has signed a crucial agreement with NewSpace India Ltd., (NSIL) a space PSU. As per the MoU, the PSU has been tasked with further encouraging the private sector. "NSIL will be able to transfer technologies to the private industry," it says. ■

# PM Modi spends Diwali with soldiers in forward areas



Prime Minister Narendra Modi rides in an Army tank, at Longewala, in Jaisalmer, Rajasthan on November 14.

The Prime Minister, Narendra Modi, continuing his tradition of spending Diwali with the armed forces interacted and addressed the soldiers at the Indian border post of Longewala. He said his Diwali is complete only when he is with the soldiers whether in the snow-clad mountains or in the desert. He took the greetings, blessings and wishes of every Indian to the armed force personnel at the border. He also greeted the brave mothers and sisters and paid tribute to their sacrifice. The Prime Minister conveyed the gratitude of the countrymen to the armed forces and said 130 crore Indians are standing strongly with the forces.

The Prime Minister emphasized that only that nation is secure which has the capability to face the attackers and intruders. He said irrespective of advances in international cooperation

and changes in equations, we simply cannot afford to forget that vigilance is the key to security, alertness is the basis of happiness, and strength is the confidence of victory.

Prime Minister Modi declared that India's policy is very clear - Today's India believes in understanding and explaining, however, if there is an attempt to test us, the response will be equally fierce.

He declared that today, the world knows that this country will not compromise at all on its national interest. This status of India is due to its valour and capabilities. India is able to forcefully hold forth on the international fora because of the security provided by the armed forces, India's military power has enhanced its negotiating power, the Prime Minister said. Today India hits the purveyors of terrorism in their home.

India has come out as a forceful voice against the ideology of expansionism.

Entire world is troubled by the forces of expansionism which is a mental perversion reflective of 18th century thinking, he said.

Referring to the stress on Aatmnirbharta and 'Vocal for Local', the Prime Minister said that recently it has been decided by the forces that more than 100 weapons and accessories will not be imported anymore. He complimented the armed forces for leading the way in being vocal for local.

Modi called upon the youth of the country to produce for the armed forces as many startups are coming forward to meet the needs of the forces. He expressed the hope that youth-led startups in the defence sector will take the country forward on the path of Aatmnirbharta.

The Prime Minister said, inspired by the armed forces, the country is trying to save each and every citizen in the times of the pandemic. Along with ensuring food for the

citizens, the country is working on putting the economy back on track.

The Prime Minister asked the soldiers for three things, first, make innovation part of their daily life. Second, make yoga part of their life and finally, learn at least one more language apart from their mother tongue, Hindi and English. This will infuse your life with new energy, the Prime Minister said.

The Prime Minister recalled the glorious battle of Longewala and said the battle will always be remembered in the annals of strategic planning and military valour. He said this was the time when the ugly face of Pakistan was exposed as its army was terrorizing innocent citizens of Bangladesh and committing atrocities on daughters and sisters. Pakistan opened the front on western border to divert the global attention but our forces gave them a befitting reply.





# Embraer and Porsche Announce Collaboration for Limited Edition “Duet”



Two global companies at the forefront of technology and innovation, Embraer and Porsche, have collaborated to create Duet, a limited-edition, limited-quantity Embraer Phenom 300E aircraft and Porsche 911 Turbo S car pairing. Both known for world-class engineering, performance, and design, Embraer and Porsche will produce just ten pairs of business jets and sports cars, providing a truly seamless experience from road to sky, for the first time in history.

“Duet is an exclusive package developed in a unique design collaboration with Porsche. This rare, refined combination will only be available through this one-time-only pairing,” said Michael Amalfitano, President & CEO, Embraer Executive Jets. “In the spirit of delivering the ultimate customer experience, we are fusing two of the most notable brands in the aerospace and automotive industries, bringing together the pinnacle in production sports cars with the market benchmark in light jets, once again proving that we don’t simply follow trends — we create them.”

Duet brings the Phenom 300E and the 911 Turbo S into perfect harmony. As the world’s fastest and longest-ranged single-pilot business jet, the Phenom 300 series transformed the light jet category. From its revolutionary, award-winning interior design, with an abundance of cabin and baggage space to its highly intuitive avionics, this well-rounded machine delivers unmatched performance, exceptional comfort, and class-leading technology, at enviably low operating costs, with features previously available only on much larger jets. The

911 is the heart of the Porsche product portfolio and has one of the longest and most celebrated traditions in the automotive industry. The 911 Turbo S is the peak of the 911 models and stands for both performance and usability.

“Porsche and Embraer share a host of common values,” said Alexander Fabig, Vice President Individualization and Classic at Porsche AG. “As part of our cooperation, we used the know-how of both brands to work jointly on a unique pair of vehicles that are equally attractive for the customer group of jet and sports car owners.”

Designed in tandem, Duet fuses speed and style, luxury and power — signatures of both the Phenom 300E and Porsche 911 Turbo S. The most successful business jet of the decade (2010-2019) meets the gold standard in production sports cars, resulting in a uniquely designed jet and car, both featuring a customized interior and paint scheme inspired by one another.

“This is the perfect marriage of car and jet, as personified by the exclusive collaboration logo. The logo brings together the aeronautical requirement of lift — depicted by the Phenom 300E winglet — with the automotive requirement of downforce — depicted by the rear wing of the flagship 911. To further solidify this symbiotic partnership, the aircraft registration number appears on both the car’s rear wing and the sides of its key,” said Jay Beever, Vice President of Embraer Design Operations.

To create a seamless transition from aircraft to car for this exclusive set of customers, design inspiration for the aircraft mirrors that of the car, and vice

versa. Starting with seats, the new style on the Phenom 300E seat was patterned after that of the 911 Turbo S. The seats in both vehicles feature red pull straps, a Speed Blue accent stitch, and carbon fiber shrouds to create a shared connection. The cockpit seats of the Phenom 300E were redesigned to match the car. In the 911 Turbo S, Porsche introduced a unique color combination for the steering wheel to match the aircraft’s yoke, with a Speed Blue accent at 12 o’clock, as well as the first Chalk Alcantara trim roof lining — an homage to the aircraft. To round out the interior, the stopwatch of the Sport Chrono package features an artificial horizon inspired by instrumentation in the aircraft cockpit.

The aircraft and car share the same exterior paint pallet and general scheme. For the first time, Porsche has combined gloss and satin-gloss paintwork. The upper part of the car is finished with Platinum Silver Metallic, transitioning to Jet Grey Metallic at the bottom. Dividing the two paint colors is a trim strip with lines in Brilliant Chrome and Speed Blue. The car is entirely hand-painted, which is unique to this project and reflective of the Phenom 300E paint process. The alloy wheels of the 911 Turbo S are painted in Platinum Silver Metallic, using a revolutionary laser process to expose a Speed Blue underlay on the rim flange. The air intakes of the 911 Turbo S are painted in Brilliant Chrome to match the leading edge nacelles of the aircraft. The LED door projectors cast the Duet collaboration logo on the ground, and the door sill trims feature “No Step” lettering, like the messaging on an aircraft wing.

The exclusive Duet Porsche 911 Turbo S can only be purchased in tandem with its sibling Phenom 300E. To mark this first ever collaboration between Embraer, Porsche AG, and Porsche Design, Duet customers will also receive a custom Duet logo luggage set with a pilot’s bag and two weekenders, as well as a special edition Porsche Design 1919 Globe timer UTC titanium-case watch inspired by the aircraft’s cockpit.



## Gulfstream G500™ & G600™ Demonstrates Additional Range Capabilities

Gulfstream Aerospace Corp. announced the next-generation Gulfstream G500™ and Gulfstream G600™ have once again demonstrated additional range capabilities through real-time operations. The newly increased range for the G500 and G600 apply to both the high-speed cruise of Mach 0.90 and the long-range cruise speed of Mach 0.85. The G500 now delivers 5,300 nautical miles/9,816 kilometers at Mach 0.85 and 4,500 nm/8,334 km at Mach 0.90.

The G600's range at Mach 0.85 has improved to 6,600 nm/12,223 km and 5,600 nm/10,371 km at Mach 0.90. "The G500 and G600 have been exceeding expectations since they entered service," said Mark Burns, president,

Gulfstream.

"This latest demonstrated range increase provides further proof of the tremendous efficiency and versatility of these aircraft. The Gulfstream team is always looking for opportunities to improve aircraft capabilities and the customer experience, and we are pleased to deliver another performance enhancement for both existing and future customers." In addition to the range increases, the G600 now delivers greater payload capacity with full fuel. As a result of Gulfstream's advanced manufacturing and precision-build expertise, the G600's basic operating weight has been reduced by 570 pounds/259 kilograms over original values, bringing its full-fuel payload capabilities up to

2,600 lbs/1,179 kg. This gives G600 operators even more flexibility. – "What's exciting for our existing customers is that these improvements already exist on their inservice aircraft with no modifications required," Burns said. During the flight-test program for the G500 and G600, both aircraft exceeded initial performance expectations with increased range capabilities.

The G600 achieved a second high-speed cruise range increase before it entered service, gaining 700 nm/1,296 km over original projections. The maximum operating speed of both aircraft is Mach 0.925.

Inspired by the belief that aviation could fuel business growth, Gulfstream Aerospace Corp. invented the first purpose-built business

aircraft, the Gulfstream I™, which first flew in 1958. Today, nearly 2,900 aircraft are in service around the world. Together with parent company General Dynamics, Gulfstream consistently invests in the future, dedicating resources to researching and developing innovative new aircraft, technologies and services. Gulfstream's fleet includes the super-midsize Gulfstream G280™, the award-winning Gulfstream G650™, the high-performing Gulfstream G650ER™ and an all-new aircraft family, the clean-sheet Gulfstream G500™, Gulfstream G600™ and new industry flagship, the Gulfstream G700™. All are backed by Gulfstream's Customer Support network and its worldwide team. ■



## MBDA to develop combat missile for the Tiger helicopter

**F**rench Minister for the Armed Forces Florence Parly has announced that MBDA is to develop the Future Tactical Air-to-Surface Missile (MAST-F) program as the main French Army air to ground armament for the Tiger combat helicopter.

MBDA was selected after proposing to the Direction Générale de l'Armement (DGA - French Procurement Agency) its MHT/MLP concept (Missile Haut de Trame / Missile Longue Portée - high tier missile / long-range mobile missile) that builds on the technologies of the mid-range MMP, the first 5th generation land combat missile to enter service around the world. Its modular architecture enables easy

integration of the MHT/MLP onto a variety of land or air combat platforms in addition to the Tiger.

The MHT/MLP is characterised by its high operational effectiveness. Weighing 20% less than other missiles in its category provides a weight saving of nearly 100 kg for the Tiger helicopter, which can carry up to eight missiles in combat configuration. Exploiting this weight saving increases the Tiger's fuel capacity and so its combat endurance, with a significant gain in "Playtime".

The MHT/MLP has a range of over 8 km, even when fired from a stationary platform at low altitude. Its multi-effect warhead can handle a wide variety of targets, from modern battle

tanks to hardened combat infrastructure. The MHT/MLP performs day or night, including in beyond-line-of-sight (BLOS) mode, with a two-way data link that sends images from the missile's high-resolution visible and infrared optronic seeker back to the operator. The crew of the Tiger can use this imagery to choose the missile's point of impact or to select a new target in flight, making the weapon suitable for fluid battlefield situations.

Commenting on the launch of the programme, MBDA CEO Eric Béranger declared: "The MHT/MLP missile combines new technologies, developed with the support of the DGA, with the tried and tested components of the MMP, making it an effector

at the forefront of today's tactical land combat missiles. It offers a flexibility of use unmatched in today's armed forces, while minimising development risks. And with its all-European design authority, the MHT/MLP programme will fully contribute to the strategic autonomy objectives set by France and the European Union."

"With nearly 350 jobs per year over the next five years and, ultimately, around 250 annual jobs in France during the first 10 years of its production, the development and production of this new missile will help maintain of the national industrial and technological base, and in particular in the Centre region", he added. ■





## Leonardo: C-27J Spartan sheds its skin to reach new performance heights

- Building on its proven in-service reliability in disaster relief and military operations the C-27J Next Generation will expand its mission capability
- The first enhanced aircraft will be delivered to an undisclosed customer in 2021
- Mission-proven across all geographic conditions, in the most demanding operational tasks, the C-27J is the ideal platform for the continuous introduction of new capabilities

Leonardo has begun the final testing of the C-27J Next Generation which features new equipment, a new avionics system and advanced aerodynamic devices, these will enhance the existing high performance of the aircraft. The first C-27J in the new configuration will be delivered to an undisclosed customer in 2021.

The performance and reliability of the C-27J Spartan continues to evolve as the best

response to its customers' needs. Pushing on the aircraft's versatility and mission flexibility, the C-27J offers an ever-increasing range of mission solutions, which adapt in response to new challenges faced by operators. A true force enabler, its unrivalled multi-mission capabilities are key in presenting the latest evolution of the Spartan as a cost-effective solution and an intelligent investment for nations, which are selecting

it for their military, as well as civil protection requirements.

Marco Zoff, Leonardo Aircraft Division's Managing Director, said: "The enhanced C-27J brings the unrivalled quality and capabilities of the Spartan to the next, higher level. Its operators will benefit from modern avionics, increased performance and efficiency. The Spartan embodies the essence of national security, proving to be the best asset for armed

forces' defence operations and for their fundamental contribution to population support and disaster relief."

In a world hit this year by the COVID-19 pandemic and other emergencies international media have extensively reported on the C-27J's relentless and effective support to communities in need. Mr. Zoff also added: "Our customers have discovered in this aircraft an element of social inclusion,



Next Generation today features comprehensive new avionics and aerodynamic developments with new winglets, for improved operational efficiency and even better performance. Mission-proven across all continents with a number of prime air forces, the Spartan is operated in the world's most demanding operational environments - from the Andes to Afghanistan - for military transport, cargo and paratroopers air drop, last tactical mile troop support, special operations, humanitarian assistance and disaster relief. ■

because it is the only aircraft capable to reach people in the most remote rural areas of their nations."

Leonardo is committed to serving and protecting communities around the

world, contributing to their sustainable growth by leading in next generation technologies. Partnering

with Governments, private organizations and industries for the best security and safety

capabilities is a cornerstone of Leonardo's BeTomorrow2030 Strategic Plan.

Already acknowledged as the most effective multi-mission military transport aircraft in its class, the C-27J

## Leonardo: U.S. exercises options for 36 TH-73A helicopters



Leonardo welcomes the announcement made by the U.S. Department of Defense to award AgustaWestland Philadelphia Corp. a 171 million USD modification to the previously awarded firm-fixed-price contract

for the US Navy's Advanced Helicopter Training System. This modification exercises options for the production and delivery of an additional 36 TH-73A aircraft, with work expected to be completed in December 2022 in Philadelphia, PA.

In January 2020 Leonardo, through AgustaWestland Philadelphia Corp., was awarded a firm-fixed-price contract valued at 176 million USD for the production and delivery of 32 TH-73A helicopters, initial spares, support and

dedicated equipment, and specific pilot and maintenance training services. The TH-73A will be used to train the next generation of student aviators from the US Navy, Marine Corps and Coast Guard. ■

# Etihad Airways announces new route to Israel



**E**tihad Airways, the national airline of the UAE, will launch daily scheduled year-round flights to Tel Aviv, the economic and technological centre of Israel.

The launch of flights follows the normalization of diplomatic ties between the two nations, and the signing of the Abraham Accords between the UAE and Israel in Washington D.C. on 15th September. Only a month later, Etihad became the first GCC carrier to operate a commercial passenger flight to and from Tel Aviv on 19 October 2020.

Mohammad Al Bulooki, Chief Operating Officer, Etihad Aviation Group, said:

“Following the signing of the new bilateral agreement, Etihad is delighted to announce a direct link between these important cities.

“The commencement of scheduled flights is a historic moment and as an airline, cements Etihad’s commitment to growing opportunities for trade and tourism not just between the two countries but also within the region and beyond.”

The new service effective from 28 March 2021 will provide greater choice and convenience for point-to-point business and leisure travellers between the UAE and Israel. It will not only promote direct inbound tourism to Abu Dhabi, but will

also give Emiratis and UAE residents the opportunity to discover Israel’s historical sites, beaches, restaurants and nightlife.

Departures will be conveniently timed to connect via Abu Dhabi to key gateways across the Etihad network including China, India, Thailand and Australia.

Flying to, from, and via Abu Dhabi is being greatly supported by the Etihad Wellness sanitisation and safety programme, which ensures the highest standards of hygiene are maintained at every stage of the customer journey. This includes specially trained Wellness Ambassadors, a first in the industry, who have been introduced by the airline to provide essential travel health information and care on the ground and on every flight, so guests can fly with greater ease and peace of mind.

More information on the stringent measures being taken by Etihad Airways to provide a healthy and hygienic travel experience is available at [etihad.com/wellness](http://etihad.com/wellness).



## BAE Systems, Elbit Systems of America team to shape the future of Army combat vehicles

**B**AE Systems and Elbit Systems of America have teamed up to develop and integrate advanced operational capabilities for combat vehicles. The arrangement is focused on validating and integrating new technologies on combat vehicle systems to deliver advanced warfighting capabilities.

BAE Systems is an industry leader in the design, integration, production, and support of innovative combat vehicles. Elbit Systems of America is a world leader in the design and integration of advanced turret solutions. This teaming arrangement will explore crew automation, vehicle protection systems, and other defensive and offensive systems for integration into

turrets of various cannon calibers and supporting weapon systems for combat vehicles.

“BAE Systems and Elbit Systems of America are investing in transformational combat vehicle technologies and turret solutions that will greatly enhance the lethality and survivability of next-generation combat vehicles for the U.S. and international militaries,” said Jim Miller, director of business development at BAE Systems. “Our relationship demonstrates a commitment to provide our customers with solutions for future battlefields based on our collective combat vehicle expertise.”

BAE Systems and Elbit Systems of

America will leverage their comprehensive experience for the evaluation, demonstration, and validation of multiple mission payloads and capabilities for the next generation of combat systems.

“The Elbit Systems of America team is excited to partner with BAE Systems and for the opportunities that come with that relationship,” said Ridge Sower, vice president of ground combat and precision targeting at Elbit Systems of America. “Our broad portfolio of mission-enhancing solutions and technologies, coupled with BAE Systems’ proven track record for providing highly effective combat systems, will greatly benefit warfighters as they face new challenges and needs.”





# MUSTERING THE WORLD'S NAVAL ELITE



As Asia Pacific's definitive naval and maritime event, IMDEX Asia celebrates an indomitable 25-year legacy of bringing the world's top naval and maritime buyers to shore.



Debut your latest naval innovations to an elite audience of navy chiefs and key decision makers from the government and commercial sectors, mustered through its established VIP Delegation Programme.

**BE WHERE THE FINEST FLEETS MEET.  
GET ONBOARD IMDEX ASIA 2021 TODAY.**



**IMDEX ASIA**  
**2021 27-29 July**  
Changi Exhibition Centre

**BOOK YOUR BOOTH**

Danny Soong / Cathryn Lee  
+65 6542 8660  
sales2021@imdexasia.com  
@IMDEXAsia



Check out the show and hear what our exhibitors have to say.

# Lockheed Martin and King Abdulaziz University Sign Master Research Agreement



Lockheed Martin, the U.S.-based global technology leader, entered into an international master research agreement with Saudi Arabia's King Abdulaziz University (KAU). Both entities will focus on research and development

initiatives to support the goals of Saudi Vision 2030.

Prof. Dr. Abdulrahman Al Youbi, president of King Abdulaziz University, and Dr. Lawrence Schuette, director of Global Science & Technology, Lockheed Martin Corporation, signed

the agreement during a virtual ceremony with the participation of Joseph Rank, chief executive of Lockheed Martin Saudi Arabia, Prof. Yusuf Alturki, vice president for graduate studies and scientific research at KAU, and other officials.

The agreement provides a framework to support future projects, with an immediate focus on technology development in areas such as industrial engineering, additive manufacturing, and air vehicle research.

"King Abdulaziz University is committed to advancing innovation in engineering through technology-focused projects that support Saudi Vision 2030," said Dr. Al Youbi in comments during the ceremony. "Cooperating with leading technology companies such as Lockheed Martin will enable us to share expertise in the field of applied research and will provide us with unique opportunities to support the development of Saudi industrial capabilities."

"King Abdulaziz University is a leading university in the region, with internationally recognized faculty and advanced research capabilities," added Dr. Schuette. "Lockheed Martin is extremely proud to support the Kingdom's research and



development efforts with KAU, and we look forward to expanding our engagement with Saudi scientists and engineers to advance the strategic priorities of the country."

With 25 different research centers, King Abdulaziz University, based in Jeddah, is Saudi Arabia's premier educational institution focusing on international outreach and collaboration in research and innovation.

As a leading security and aerospace company and supplier of advanced technologies, Lockheed Martin works with leading universities worldwide to sponsor and perform collaborative research for government customers.

Lockheed Martin has been a committed partner to the Kingdom of Saudi Arabia since 1965. Today, the company's presence has moved beyond defense systems to provide various products and services, technical support, and educational expertise to strengthen the Kingdom's defense industry.

### Lockheed Martin

Lockheed Martin entered the Kingdom of Saudi Arabia with the delivery of the first C-130 Hercules in 1965. Since then, the company has expanded its security portfolio in the Kingdom to include integrated air and missile defense systems and maritime and civilian applications, in addition to providing critical technical support and educational expertise to local industry partners.

Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company that employs approximately 110,000 people worldwide

and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

### King Abdulaziz University

King Abdulaziz University carries the name of the establisher of Saudi Arabia - God bless him. The university was established in (1387h / 1967g) in Jeddah as a national

university aiming at spreading higher education in the western area of Saudi Arabia. This dream has come true. The university started its first year in (1388h- 1968g) and directly the year after, the university inaugurated its first college, and became a government university in (1394h / 1974g) and further expanded in the numbers of students and colleges. KAU then established branches for several other universities.

The university witnessed much development in quality and quantity since it was established until it becomes one of the outstanding higher education institutions on the local and international level. KAU has achieved the 42nd position in the world and the first in the Arab world in the US News ranking of world universities for the year 2021, and the 143rd position in the world in the QS ranking.





# Phase 2 of Exercise MALABAR 2020 in Western Indian Ocean



The second phase of Exercise Malabar 2020 will be conducted in the Northern Arabian Sea from 17 to 20 November 2020. Taking forward the synergy achieved in the recently concluded Phase 1 of Exercise Malabar 2020, which was conducted in the Bay of Bengal from 03 to 06 November 2020, this phase will involve coordinated operations of increasing complexity between the navies of Australia, India, Japan and the United States.

Phase 2 of Exercise MALABAR 2020 will witness joint operations, centered around the Vikramaditya Carrier Battle Group of the Indian Navy and Nimitz Carrier Strike Group of the US Navy. The two carriers, along with other ships, submarine and aircraft of the participating navies, would be engaged in high intensity naval operations over four days. These exercises include cross-deck flying operations and advanced air defence exercises by MIG 29K fighters of Vikramaditya and F-18 fighters and E2C Hawkeye from Nimitz. In addition, advanced surface and anti-submarine warfare exercises, seamanship evolutions and weapon firings will also be

undertaken to further enhance inter-operability and synergy between the four friendly navies.

In addition to Vikramaditya and its fighter and helicopter air-wings, indigenous destroyers Kolkata and Chennai, stealth frigate Talwar, Fleet Support Ship Deepak and integral helicopters will also participate in the exercise, led by Rear Admiral Krishna Swaminathan, Flag Officer Commanding Western Fleet. Indigenously built submarine

Khanderi and P8I maritime reconnaissance aircraft of the Indian Navy will also showcase their capabilities during the exercise.

US Navy's Strike Carrier Nimitz will be accompanied by cruiser Princeton and destroyer Sterett in addition to P8A maritime reconnaissance aircraft. The Royal Australian Navy will be represented by frigate Ballarat along with its integral helicopter. JMSDF will also participate in the exercise.

The Malabar series of

exercises, which began as an annual bilateral naval exercise between India and the US in 1992, has seen increasing scope and complexity over the years. The 24th edition of MALABAR, which is being presently undertaken, highlights enhanced convergence of views amongst the four vibrant democracies on maritime issues, and showcases their commitment to an open, inclusive Indo-Pacific and a rules-based international order. ■



# Rafael to showcase Next-Generation Combat Vehicle Suite at Defence Expo Korea



Rafael Advanced Defense Systems Ltd. will showcase Next-Generation Combat Vehicle Suite for increased lethality, maneuverability and situational awareness at DX Defense & Security Expo Korea at KINTEX Hall from 18-21, November 2020.

For over 70 years, Rafael has pioneered advances in defense, cyber and security solutions for air, land, sea, and space, and is one of the world's leading providers of solutions to meet today's complex battlespace challenges. The company's holistic, combat-proven solutions – which are deployed by the Israel Defense Forces as well as by numerous users around the world are based on extensive operational experience, understanding of evolving combat requirements, and deep, mission-critical know-how.

As part of the ROK's Tiger 4.0 program, Rafael's suite for future combat vehicles is taking center stage this year at the company's display. Based on its extensive experience, and responding to demands from the field including the need for combat vehicles to move as quickly and securely as MBTs in today's complex and saturated battlefields Rafael is offering a Next-Generation Combat Vehicle Suite - NGCV-S – which offers integrated protection, lethality, situational awareness and network for enhanced mission effectiveness, even in GPS-denied scenarios, combining a mix of the most advanced, innovative and effective solutions available all developed by Rafael.

Rafael's NGCV-S has an open, modular architecture, that consists of a 30/40mm automatic cannon with ABM capability, a launcher for SPIKE anti-tank multi-purpose guided

missiles, advanced armor protection, including TROPHY, the world's only operational active protection system, the Fire Weaver networked combat system with sophisticated autonomous capabilities that connects all types of sensors and shooters over any tactical radio in real time, the Spike FireFly miniature, portable, BLOS close-combat reconnaissance and loitering munition, the BNET SDR communication system and more.

Another central capability will be Rafael's Spike ER2 (10km) and NLOS (32km), tactical, electro-optical, multi-platform, multi-purpose missiles, addressing the global trend of helicopter platform conversion from utility to assault, as well as platform upgrades. 33,000 Spike missiles have been sold around the world, with 35 customers and over 6,000 missiles fired in combat and in training.

On display will also be the BNET patented communication system, supporting simultaneous and robust data, voice & video services with multiple auto relays. Bnet is an advanced

Broadband IP MANET (Mobile Ad-hoc Network) Software Defined Radio for tactical operations. With a patented technology - modular, multi-band and multi-channel, BNET is a net-centric, spectrum aware, system for vehicular and airborne platforms, headquarters, and dismounted soldiers. BNET enables all radios of land, sea and air units to participate in a single, seamless, scalable MANET network. This enables a network rate of 100Mbps, while facilitating the formation of a single "flat" network, scaling up to thousands of radios.

In the air defense realm, Rafael will showcase its air defense systems, including the the Drone Dome counter-drone system, already operational in a number of countries around the world both in civilian in military applications. Boosting air defense capabilities and on display at DX Korea will be the SkySpotter, a passive electro-optical Early Warning System with a high probability of detection and a very low false alarm rate, enhancing the capability of air defense radar detection systems.



# QRSAM Missile System Achieves Major Milestone



India's Quick Reaction Surface to Air Missile (QRSAM) System has achieved a major milestone by a direct hit on to a Banshee Pilotless target aircraft at medium range & medium altitude.

The missile launch took place from ITR Chandipur on 13th November off the Odisha Coast. The missile is propelled by a single stage solid propellant rocket motor and uses all indigenous subsystems. The Missile is canisterised for transportation and launch using a mobile launcher capable of carrying 6 canisterised missiles.

All QRSAM weapon system elements like Battery Multifunction

Radar, Battery Surveillance Radar, Battery Command Post Vehicle and Mobile Launcher were deployed in the flight test. The system is capable of detecting and tracking targets on the move and engaging target with short halts. The system is designed to give air defence coverage against strike columns of Indian Army.

The radar tracked the Banshee target from farthest range and missile was launched when target was within kill zone and achieved the direct hit with terminal active homing by RF Seeker guidance. Various DRDO labs DRDL, RCI, LRDE, R&DE(E), IRDE, ITR have participated in the test.

The weapon system elements have been realized through Defence PSUs BEL, BDL and private industry L&T. The missile system is fully indigenous with active RF Seekers, Electromechanical Actuation (EMA) systems sourced from various industries. The Radar is four walled Active Phased Array Radar. All range Tracking stations, Radar, EOTs & Telemetry Stations monitored the flight parameters.

Defence Minister Rajnath Singh and Secretary DD R&D & Chairman DRDO Dr G Satheesh Reddy congratulated DRDO Scientists for the achievement.





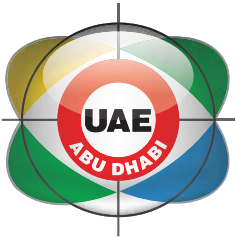
# MIDDLE EAST DEFENCE & AEROSPACE DIRECTORY



For details contact :

[editor@arabiandefence.com](mailto:editor@arabiandefence.com) | [editor@aeroarabia.com](mailto:editor@aeroarabia.com)

[www.arabiandefence.com](http://www.arabiandefence.com)



إيدكس IDEX

# IDEX 2021

INTERNATIONAL DEFENCE  
EXHIBITION & CONFERENCE

ABU DHABI, UAE

## DEFENCE TECHNOLOGY FOR THE FUTURE

The Middle East and North Africa's largest defence and security exhibition returns to Abu Dhabi in February 2021.

The global defence industry will continue to meet influential VIP's, decision makers, military personnel and key investors at IDEX 2021. Attracting more than 1,250 exhibitors and 108,000 local, regional and international trade visitors and officials from government industry and armed forces.

For detailed information about IDEX 2021, please visit [www.idexuae.ae](http://www.idexuae.ae)

To book an exhibition stand or outdoor space, please email: [shahla.karim@adnec.ae](mailto:shahla.karim@adnec.ae)

21-25 FEBRUARY

RNI REG. NO: KARENG/2008/26436

Strategic Partner



Principal Partner

مجلس التوازن الاقتصادي  
TAWAZUN ECONOMIC COUNCIL



تأسس عام 1992 EST.

Official Media  
Partner



Organised By



Host Venue



In association with

