

SP'S

SHOWNEWS



AN SP GUIDE PUBLICATION



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF DEFENCE



India : The Emerging Defence Manufacturing Hub

DEFEXPO 22
INDIA

18-22 OCTOBER, 2022 | GANDHINAGAR
Ministry of Defence

SEE US AT
HALL - 8
STALL NO. 8S.3

DAY
2

WEDNESDAY
OCTOBER 19, 2022

PUBLISHERS OF
SP'S MILITARY YEARBOOK, SP'S CIVIL AVIATION YEARBOOK,
SP'S AVIATION, SP'S AIRBUZ,
SP'S LAND FORCES, SP'S NAVAL FORCES,
SP'S M.A.I. & BIZAVINDIA

INSIDE

BOEING P-8I AND F/A-18:
AN EFFECTIVE TAG-TEAM 4

GRUPA WB FORMS JOINT
VENTURE IN INDIA 5

INDIGENOUS NEW PRODUCTS
FROM INDIA OPTEL 5

INTERVIEW:
VIVEK SAXENA,
KASSTECH AEROSPACE 6

INTERVIEW:
DINESH KUMAR BATRA,
CHAIRMAN AND MANAGING
DIRECTOR, DIRECTOR
(FINANCE) & CFO, BEL 8

INTERVIEW:
VICE ADMIRAL NARAYAN
PRASAD (RETD), CHAIRMAN &
MANAGING DIRECTOR, MDL 10

TATRA TRUCKS – TRADITIONAL
MANUFACTURER OF MODERN
MILITARY TRUCKS 11

ASTRA – BUILDING IMPORTANT
BLOCKS IN CRITICAL
DOMAINS OF DEFENCE 12

BOEING & IISC COMMEMORATE
15 YEARS OF PARTNERSHIP 14

IAI ANNOUNCES A
NEW SUBSIDIARY IN INDIA 14

HAL SHOWCASES
INDIGENOUS PRODUCTS 15

UCAV SOLUTIONS FROM
MILKOR 15



EXCLUSIVE INTERVIEW VCNS



Ensuring Operational and Combat Capabilities

Fully supporting self-reliance in defence manufacturing, Indian Navy continues to propel the domestic industry's growth, something that has far-reaching strategic consequences. In **Part 2** of an extensive interview with **Jayant Baranwal**, Editor-in-Chief, **SP's ShowNews**, **Vice Admiral S.N. Ghormade**, Vice Chief of Naval Staff, gave a comprehensive overview of the current and future plans of the Indian Navy.

Jayant Baranwal: Armed Drone

(a) Can you indicate on the status of the requirement finally meeting its fate?

Ghormade: Indian Navy is actively engaging with DRDO and Indian Industry for indigenous development based on the requirements of the Defence Forces. Future procurements of High Altitude Long Endurance (HALE) Remotely Piloted Aircraft System (RPAS) would be met through indigenous sources.

However, to meet interim requirement, Joint case for procurement of Armed Drone from US Government to augment ISR capability is under deliberation.

(b) What is the likely operational plan for such a drone?

Ghormade: The Navy has a well charted course towards induction of small, medium and large Unmanned Aerial Systems. Remotely Piloted Aircraft have considerable applications in naval warfare as a force multiplier. The various phases of warfare include intelligence, surveillance, target acquisition, reconnaissance and targeting. Traditionally, each of these tasks requires individual

assets (human/ equipment/platforms) to be deployed. However, technology today, such as drone, provide these capabilities on a single platform which can effectively contribute to 'Battlespace Transparency' and Maritime Domain Awareness. Not only can these platforms undertake ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) tasks but also undertake targeting.

(c) How has been the experience of two leased Sky Guardians if you can share?

Ghormade: Leasing of two MQ-9B UAS was undertaken to meet op-emergent requirements. The platform is being extensively utilised in ISR (Intelligence, Surveillance, Reconnaissance) role and performance of the equipment is as per Indian Navy's expectations.

Jayant Baranwal: P-75(I)

(a) Please can you give us some update on the progress of the programme?

Ghormade: Subsequent to the issue of the RFP for Project 75(I), based on the concerns received from the

IAI's Heron TP

A Powerful Strategic Capability



Our Experience. Your Winning Solution.

Covering broad areas over land and sea, IAI's Heron TP UAS fulfills the most challenging tasks under all weather conditions and extreme environments. Proven in over two million operational flight hours, equipped with advanced multi-sensory systems, mission autonomy, and remote ATOL capabilities, Heron TP provides a mature, multi-mission certifiable UAS platform addressing your requirements.

www.iai.co.il • info.malat@iai.co.il

Meet us at
DefExpo 2022
Hall 7, Booth 11-12





(LEFT) MQ-9B UAS IS BEING EXTENSIVELY UTILISED IN ISR ROLE AND THE PERFORMANCE IS AS PER INDIAN NAVY'S EXPECTATIONS;
(RIGHT) P-8I HAS CONTRIBUTED IMMENSELY TOWARDS OBJECTIVES OF NAVY

Foreign Collaborators on some of the clauses of the RFP; efforts have been made to resolve all outstanding issues. We are now on course to receive the bids from Indian Strategic Partners.

(b) Any timeline has been fixed for this programme?

Ghormade: The procurement is as per the timelines defined in the standard guidelines for procurement of ships/submarines. Since this is the first project under the Strategic Partnership Model, certain issues have necessitated extended deliberations between all stakeholders including Indian Strategic Partners and foreign OEMs. All efforts are being made to compress timelines in future stages of the project.

Jayant Baranwal: Underwater Weapon Systems

Have the Scorpene family been aptly equipped with the necessary armament systems?

Ghormade: Indian Navy is pursuing development of an indigenous next generation torpedo for submarines which is at trials stage. In order to meet interim requirement and to enhance the combat capability of Scorpene class (Kalvari class), a contract for procurement of new generation Heavy Weight Torpedo is also in progress and is in advanced stage.

Jayant Baranwal: Aviation Arm

(a) Please share the overall wish list of manned and unmanned machine?

Ghormade: Indian Navy's vision for manned and unmanned systems is based on required operational capability, has been encapsulated in the Maritime Capability Perspective Plan and Long Term Integration Perspective Plan. In addition, the Navy has formulated an Unmanned Roadmap for the future.

(b) P-8I has been a great success and has been contributing towards key objectives of Navy. What sort of follow-ups do you foresee out of this case?

Ghormade: P-8I has contributed immensely towards effective long range maritime reconnaissance & ASW missions in our Area of Interests. The state-of-the-art sensors & weapons makes it a potent platform.

Indian Navy intends to undertake significant upgrades in NCO (Network Centric Operations) capability and weapons & sensors of the P-8I aircraft. Navy's endeavor is to induct indigenous weapons and sensors on the aircraft in future. A comprehensive midlife upgrade will also be pursued with a major share of indigenous components in the medium term. ●

*For full interview, please refer to SP's Naval Forces Issue 5/2022;
www.spsnavalforces.com*

Disruptive SDR for Soldier Teams and Drones: The BNET Nano

BNET family is an advanced Broadband IP MANET (Mobile Ad-hoc Network) Software Defined Radio for tactical operations. It supports modern digital battlefield's needs with high-speed, low delay, reliable connectivity for data, voice and video on-the-move. Modular, multi-band and multi-channel BNET is a net-centric spectrum aware system for ground/airborne platforms, HQs and dismounted soldiers. Delivering unprecedented network capacity in terms of data rates, number of users, and minimal delay, BNET enables land, sea and air radio units to participate in a single, seamless, scalable MANET network.

Astra Rafael Comsys Pvt Ltd (ARC), a JV company formed between Astra Microwave Products Ltd (AMPL), India, and Rafael Advanced Defence Systems (Rafael), Israel is engaged in indigenous manufacture of these state of the art BNET SDRs in India at its Hyderabad plant.

ARC is showcasing at the DEFEXPO 2022, a unique form factor of the BNET family of SDR - The BNET Nano- originally developed for situational awareness in unimaginable frontiers of modern warfare. BNET Nano is the network enabler or section level radio, an important element of a Tactical Cloud Package for projects meant to integrate next generation 24/7 situational awareness tools and high-resolution digital sensors. The end result is delivery of a single platform that improves Soldier sensing, decision making, target acquisition, and target engagement.

The Nano's Main Capabilities are:

- Wideband voice, video & various IP data services, transmitted over seamless and self-healing wireless networks.
- 24x 7 Communications continuity and system survivability.
- Close sensor-to-shooter cycles for delay-sensitive applications
- Support for "flat" networks with thousands of members in changing traffic, variable link and terrain conditions ranging from mountains to deserts.
- Interoperability between branches of military and PMF.



NANO BNET



BNET FAMILY

A very compact version of the BNET SDR (smaller in size than a cell phone), it is specially designed to use on different platforms like Drones, UAVs besides being worn by the soldier (Future Soldier Radio). Key Benefits of the NANO are:

- Miniaturised IP SDR, SDR architecture with full IP compatibility
- Frequency Range 1300-2800 MHz, S band (L Band optional)
- Dimension (H×W×D): 9.6 x 8 x 3.3 [cm] with a Weight, less than 330 grams
- Power O/P: up to 1 Watt over two Antenna Ports
- Data Interface: 10/100 Ethernet
- Serial Interface: USB 3/2
- Low power consumption; So, can be hoisted on different platforms (drone swarm for e.g.)

ARC is exhibiting in Hall 7, Stall No 56 & 57. ●



Boeing P-8I and F/A-18 Super Hornet Block III: An Effective Tag-team for Maritime Operations in Indo-Pacific

F/A-18s of the Indian Navy can potentially share data with P-8Is of IN as well as P-8s and F/A-18s of the US Navy, and Royal Australian Air Force to improve the capability of partner countries for helping secure the Indo-Pacific.

ALAIN GARCIA, VICE PRESIDENT, INDIA BUSINESS DEVELOPMENT, BOEING DEFENSE, SPACE & SECURITY AND GLOBAL SERVICES

The Indian Navy continues to shoulder India's increasing strategic and geopolitical responsibility in the Indian Ocean region. The role of naval aviation in defending India's maritime interests is only expected to grow. Mission ready and capable, the Indian Navy's air fleet supports the entire mission spectrum – ranging from countering piracy and asymmetrical warfare to neutralising maritime terrorism. The strength of the partnership for Indo-Pacific will be determined by the abilities of the countries to work together seamlessly. Commonality and interoperability of defence assets contribute not only towards efficient operations of the partner countries but also offer significant enduring strategic benefits to the partners.

P-8I – BOLSTERING LONG RANGE INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE CAPABILITIES

A formidable part of the Indian Navy's fleet, the P-8 is a proven system with more than 140 aircraft in service that have executed more than 4,00,000 mishap free flight-hours around the globe. Along with the Indian Navy, the P-8 family includes the US Navy, the United Kingdom's Royal Air Force, Royal Australian Air Force and Royal Norwegian Air Force. Militaries that have selected the P-8 include the Royal

We've been supporting India's growing P-8I fleet by providing performance-based logistics, spares, ground support equipment and field service representative and on-site engineering support.

F/A-18 SUPER HORNET BLOCK III – THE WORLD'S MOST ADVANCED, COMBAT PROVEN, MULTI-ROLE FRONTLINE NAVAL FIGHTER

Today, The US Navy operates more than 800 Super Hornets and EA-18 Growlers, the electronic attack version of the F/A-18 and have logged over 2.5 million flight hours on the fleet. The Block III configuration is suited to protect India's maritime interests as it is built to meet the broadest range of missions while benefiting from the upgrades and knowledge related to US naval aviation. We anticipate the Super Hornet opening up opportunities for greater interoperability between the two navies for a more secure Indo-Pacific.

Block III's networking allows the F/A-18 Super Hornet to interface with other assets of the Indian Navy. Recently, there have been tremendous advancements in unmanned systems that are to be used in a naval aviation environment. In the coming days, as Indian Navy inducts such systems, both the single-seat and two-seat versions of the Super Hornet on the Indian Navy carrier will allow interfacing with unmanned carrier-borne systems more effectively.

As the F/A-18 Super Hornet has been designed from its inception for carrier operations, over 100 years of US Navy carrier aviation experience and best practices



(LEFT) P-8I OF THE INDIAN NAVY; (RIGHT) F/A-18 SUPER HORNET BLOCK III.

New Zealand Air Force, Republic of Korea Navy, and German Navy. The P-8's performance and reliability delivers confidence in an uncertain world — in any condition, anywhere, anytime.

The P-8 combines the most advanced weapon system in the world with the cost advantages of the most operated commercial airliner on the planet. The P-8 shares 86 per cent commonality with the commercial 737NG, providing enormous supply chain economies of scale in production and support. Boeing's expertise in commercial fleet management and derivative aircraft sustainment also provides customers with greater availability at a lower operational cost. The P-8 is engineered for 25 years/25,000 hours in the harshest maritime flight regimes, including extended operations in icing environments.

The P-8s Indian variant, referred to as P-8I, is an aircraft designed for long-range anti-submarine warfare (ASW), anti-surface warfare (ASuW), and intelligence, surveillance and reconnaissance (ISR) missions. The P-8 delivers highest levels of quality, reliability, and operability. A true multi-mission aircraft, it is defined by a unique combination of state-of-the-art sensors, proven weapons systems, and a globally recognised platform. Notably, the Indian Navy was the first international customer for the P-8 and today operates the largest non-US fleet. In addition to unmatched maritime reconnaissance and anti-submarine warfare capabilities, the P-8I has been deployed to assist during disaster relief and humanitarian missions.

Since the induction of the P-8I in the Indian Navy, Boeing has been supporting the fleet to ensure high rates of mission readiness. With 12 P-8Is the Indian Navy is rapidly increasing its capability to seal and protect its vast coastline – while also playing a greater role in regional maritime security. The patrol aircraft is an integral part of the Indian Navy's fleet and has surpassed 35,000 flight hours since it was inducted in 2013.

have been incorporated into the design of the aircraft, providing many benefits to the Indian Navy. One of the main benefits of this is that the aircraft has the ability to fold its wings, allowing for better utilisation of deck space on the aircraft carrier. Boeing has conducted thorough study and analysis that optimises the number of Super Hornets that can fit aboard INS Vikramaditya and INS Vikrant, as well as optimises the cyclic operations from those carriers leading to high sortie generation rates. Boeing has also developed a capability specifically for the F/A-18 Super Hornet Block III that will allow for the faster movement of the aircraft between the flight deck and hangar deck without having to remove or modify any part of the aircraft. This capability is compatible with the current elevator/lift configuration aboard Indian aircraft carriers.

Another important fact to note is that the two-seater carrier compatible variant of the Super Hornet offers several unique advantages to the Indian Navy including flexibility, higher utilisation of the fleet, and the ability to embark certain missions from the carrier that benefit from having the second crew member. Additionally, two-seater F/A-18 Super Hornets can be used as trainers (ashore and on the carrier) and as fully capable fighters, operational from carrier and from land bases. Thus, Indian Navy will get tremendous flexibility and a higher asset utilisation rate due to the carrier compatible variant of the two-seater variant of the F/A-18.

The F/A-18 Super Hornet's offer is a perfect confluence of several strategic benefits for the IN. Through the Super Hornet Block III, the Indian Navy will not only get a next-generation naval fighter but will further the collaboration between US Navy and Indian Navy in naval aviation. The commonality and potential interoperability between the navies and air forces of partner countries in the Indo-Pacific will get a boost as a result of the F/A-18 Super Hornet on Indian naval carriers.

We are confident about the long-term growth potential of India's defence sector and are committed to supporting and enabling its progress. ●

GRUPA WB Forms Joint Venture in India

GRUPA WB have established a Joint Venture named WB Electronics India Pvt Ltd (WB India) to co-operate with Indian Armed Forces with advanced military project under common R&D programmes and to offer new solutions for Indian military and industry.

WB India, has signed an MoU for the production of Warheads with India's largest Ammunition Manufacturer, Munitions India Limited, a Defence Public Sector Undertaking, Ministry of Defence under the Department of Defence Production, Government of India.

WB GROUP, Poland's largest manufacturer of advanced electronic, unmanned aerial systems, communication and information systems for defence and public security, has established the joint venture company in India. Nearly 25 per cent of WB Group's (Poland) shares is owned by the Pol-ish Government making it a proven, stable and long-term partner of the NATO countries' Armed Forces. The maritime, land and air solutions offered by the Group are being used on all continents.

WB Electronics INDIA Pvt Ltd (WB India) will have its headquarters in New Delhi. The head of the company is the experienced soldier and administrator, Colonel Sandeep Malik (Retd) as the Vice President.

"WB GROUP/WB India is planning to start a broad cooperation with the Indian armed forces, sci-ence and industry, all while respecting the 'Make in India' and the 'Atmanirbhar Bharat' approach of the Prime Minister, Narendra Modi, in the self-sufficiency principle in the field of defence. Flag-ship WB Group systems are already in service with the Indian Army" said Piotr Wojciechowski, President, WB Group.



PIOTR WOJCIECHOWSKI, PRESIDENT, WB GROUP



(CLOCKWISE FROM TOP LEFT) T-WING TACTICAL AERIAL PLATFORM FT-15; TOPAZ INTEGRATED COMBAT MANAGEMENT SYSTEM; WARMATE LOITERING MUNITIONS SYSTEM; FLYEYE UNMANNED AERIAL SYSTEM.

"WB has been engaged in cooperation with various Indian Defence Industry players since early 2000s – both state owned organisations like BEL, DRDO and private sector companies. Industrial cooperation as well as joint development of military technologies has been the essence of these early interactions," said Adam Bartosiewicz, Vice-President, WB GROUP.

WB GROUP aims to start a large-scale participation in the Indian R&D projects and consequently joining the great potential of the Indian and Polish engineers and constructors to the benefit of the Indian defence and public security.

"The newly established Joint Venture, WB Electronics India Pvt Ltd is a proof of both WB GROUP's commitment to the Indian Armed Forces customers, as well as a result of alignment between dynamism of Hi Tech community both, on the Polish and Indian sides," added Adam Bartosiewicz.

WB GROUP has been delivering the most advanced defence solutions to armed forces globally for 25 years. They specialise in system integration and communication and information systems. WB Group's solutions are being manufactured under license in many countries, including the US.

WB GROUP offers battlefield management systems - TOPAZ and FONET mobile Digital Communication Platform and Tactical Software Defined Radios with embedded cryptography PERAD and COMP@N. WB Group is a world leader in the field of the multi-purpose Unmanned Reconnaissance Systems with its flagship UAVs FLYEYE and FT-5, as well as the Tactical and Operational Loitering Munition WARMATE. These are the FORCE MULTIPLIERS. All these systems are battle tested in some of the most demanding situations. ●



(CLOCKWISE FROM TOP LEFT)

COMPAN SOFTWARE DEFINED RADIO; PERAD 6010 TACTICAL MANET RADIO; DISMOUNTED OBSERVATION & COMMAND SYSTEM U-GATE; FONET DIGITAL COMMUNICATION PLATFORM.

Indigenous New Products from India Optel

India Optel Ltd. (IOL) is market leader of Opto-Electronics (EO/IR) vision & control equipment and fire control system. These are used by the Forces on weapon platforms like battle tanks T-90 & T-72, infantry combat vehicle BMP-II and small & medium caliber weapons like rifle, machine guns and anti-material rifle etc.

With emphasis on product development, during past five years, IOL have developed seven (07) new products, being regularly supplied to the Forces. Items made by IOL for T-72, BMP-II, Artillery Guns and small & medium caliber weapons are 100 per cent indigenous. For items of T-90



IOL HAVE DEVELOPED SEVEN NEW PRODUCTS, BEING REGULARLY SUPPLIED TO THE FORCES

tank made by IOL, indigenous content is 78 per cent.

With success in collaborative development of Automatic Control Unit, Voltage Converter and Power Unit for T-90, IOL has placed 69 Project Sanction Orders on the Indian Industry. IOL has also sponsored five projects under iDEX, which will be used in the bulk manufacturing by IOL. ●



VIVEK SAXENA

Kasstech Aerospace

Vivek Saxena, an aviation enthusiast, set up Kasstech Aerospace in 2019 to be able to contribute to the aviation industry's progress by providing technical solutions, product support and services to the country. Kasstech Aerospace is a DPIIT registered company that offers unique integrations to address the industry's problems and also undertakes maintenance and repairs of Indian aircrafts and UAVs. An insight from the three decades of experience in various industrial sectors including the aviation industry.

SP's ShowNews (SP's): What do you think has helped Kasstech be on a successful trajectory?

Vivek Saxena (Saxena): The story of success is always a compilation of many different elements that play a pivotal role in that journey. The major ones for Kasstech include the ability to stay agile, innovative and tech savvy to accept the dynamic demands of the aerospace sector. Along with that, the range of collaborations that Kasstech has established to raise the bar for acting as a solution provider in the fields of aerospace technologies, aviation, and defence has been instrumental.

SP's: What has inspired this diversity and multiple collaborations in Kasstech's services?

Saxena: Most of these collaborations were aimed at serving Kasstech's need to address emerging opportunities in the bounds of its operations. The growing market for small aircraft was under the spotlight as they are believed to make flying easy and affordable for a substantial population. This influenced the partnership with Diamond Aircraft of Austria. Through its partnerships with industry giants like FLIR, Kasstech also provides a wide range of defence and thermal imaging systems. Modern medical oxygen plants from Oxywise were supplied by Kasstech during the Covid epidemic as part of their expansion into healthcare solutions. In addition to acting as a distributor for Austro Engine GmbH, thermal OEM Cores from Teledyne FLIR systems, Dynamic Propellor balancer systems from DSS, and oxygen and nitrogen generator/plants from Oxywise, Kasstech Aerospace is also Diamond Aircraft Industries' sales representative in the Indian market.

SP's: What makes the collaboration with Diamond Aircraft significant?

Saxena: Diamond Aircraft is the world's leading manufacturer of single and twin-engine aircraft in the arena of general aviation. Its efficient design, high construction quality, comfort, safety, and extremely cheap operating costs add up to the aircraft's success, making them the preferred choice for both individual pilots and flying schools all over the world. Austro Engines, the top engines in the world for their class with the best power-to-weight ratio and the most affordable operating costs, are installed in Diamond aircraft with the right balance to the airframe. A variety of models of Diamond aircraft are used for varied applications ranging from aerial sports (DA20-2seater), to flying training operations, (DA40NG single engine & DA42NG- twin engine). The Indian skies have over 50 Diamond aircraft in operation; and their popularity can be gauged from the fact that 5,500 Diamond aircraft are now operational worldwide. In India, Diamond aircraft are also being pressed into service at quite a few flying training organisations (FTOs).

SP's: What kind of technical support is there at Kasstech?

Saxena: At Narnaul, Haryana, we have a CAR-145 approved MRO where we offer maintenance services like engine overhaul and aircraft repair (the facility is dedicated to Diamond aircraft and Austro engines). Large UAVs receive maintenance support from Kasstech's team of skilled engineers, who also repair and maintain their airframes and engines. To further enhance its services Kasstech partnered

with Dynamic Solution Systems (DSS micro) Inc. as the distributor and service provider of dynamic microvib propellor balancer systems; it's also the calibration centre for the same types of rotors on helicopters.

Additionally, Kasstech Aerospace's tie-up with Teledyne FLIR opens the door to the thermal imaging sensors of the US-based company which are similar to camera-like devices that can pick up temperature differences by sensing heat emitted by objects. Teledyne FLIR thermal imaging cores help save lives, protect borders and enhance productivity etc. through a visual depiction of temperature differences between two bodies, hence also known as "WORLD'S SIXTH SENSE".

SP's: How about the R&D division?

Saxena: The R&D department at Kasstech has developed India centric applications. According to the government's "Make in India" and "Atmanirbhar Bharat" initiatives, many crucial system integrators in India employ the FLIR-provided cameras for their drone systems and finished goods for the defence industry. Several FLIR Thermal cores are on order and in the delivery process. This indicates the maturation of Indian Thermal Camera manufacturers and how India's defence demands are being met both locally and for exports. Based on this technology, Kasstech is now creating industry-tailored solutions.

SP's: How does Kasstech go about marketing?

Saxena: Kasstech's multifaceted marketing strategy supported by a number of online and offline tactics works. The company may be eager to begin new projects in the aerospace industry, yet it prefers to go gradually and handle the unavoidable difficulties and ambiguities.

I firmly believe customers are the driving force of any brand but I am also particular about the customers I choose to work with. So, our ability to use our goods and services to address customer issues makes us special. Our client base comprises DRDO (Defence Research and Development Organization) and a number of nation's top system integrators in the aerospace and defence industries.

SP's: How do you navigate the challenges that follow in this industry?

Saxena: Only a few companies have been able to meet the sector's servicing needs in terms of research and development, maintenance, engineering support, and consulting to clients in the aerospace industry, even though the recent policy changes have opened the window for private sector investment and participation in the Indian defence sector. Kasstech's experience as a problem solver puts it with those few companies.

Along with that is the ability to address the complexity of the challenges accumulated by the sectors. This combined with years of strategic planning, technical and commercial management, and marketing, for establishing clear leadership positions of complex and high technology businesses in the fast-paced and under pressure global corporate environment spanning defence, aerospace technologies, aviation, information technology, and power and energy (including solar energy, solar power plants) among others, also allows smooth functioning. ●



(TOP) AUSTRO ENGINES; (ABOVE) TELEDYNE FLIR THERMAL CORES. KASSTECH HAS ESTABLISHED A RANGE OF COLLABORATIONS IN THE FIELDS OF AEROSPACE TECHNOLOGIES, AVIATION AND DEFENCE



Astra Microwave Products Ltd.
On A Winning Wavelength

30
Years of AMPL



Pioneers in Strategic Electronics

Research & Development
State-of-the-Art Infrastructure
High-Volume Production
Total Quality Management

Radar Electronics



Electronic Warfare



Space Electronics



Strategic Electronics & Telemetry



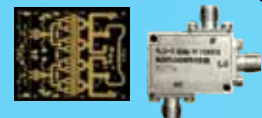
Meteorology/Hydrology



Antennas



MMIC



ASTRA Towers, Kondapur, HITEC City, Hyderabad 500084 | ☎ +91 40 46618000 | ✉ mktg@astramwp.com | 🌐 www.astramwp.com
📱 @astramwp | 🏢 astra-microwave-products-limited

CORPORATE
OFFICE



UNIT I



UNIT II



UNIT III



UNIT IV



BENGALURU UNIT



UNIT VII





DINESH KUMAR BATRA

Creating New Avenues of Growth

*In addition to seeing a very good opportunity in Defence Exports, BEL, has been continuously exploring diversification into allied Defence and non-defence areas. In conversation with **Dinesh Kumar Batra**, Chairman and Managing Director, Director (Finance) & CFO, Bharat Electronics Ltd.*

SP's ShowNews (SP's): BEL has been recognised by Economic Times as the ET Iconic Brand of India (2022). How do you see this award?

Dinesh Kumar Batra (Batra): I see this prestigious award as recognition of the iconic status that Brand BEL enjoys as the country's premier professional electronics company. BEL is India's pioneer in Defence electronics. Today, there's not an area in Defence which is untouched by BEL — Radars, Missile Systems, Military Communications, Naval Systems, Electronic Warfare & Avionics, C4I Systems, Electro Optics, Tank Electronics & Gun/Weapon System Upgrades, Electronic Fuzes, you name it, the company has made some of the most iconic products in all these areas. It is also recognition for the complete trust that customers have reposed in BEL. And like all good brands, BEL has been constantly evolving over the last seven decades and has been diversifying into allied areas of non-defence to keep pace with the changing times.

SP's: Can you please tell us about your performance for FY 2021-22.

Batra: FY 2021-22 saw an impressive performance by BEL with the company registering a record turnover of ₹15,044 crore, and turnover and profit witnessing a strong Y-o-Y growth of 9 per cent and 14 per cent, respectively. This, despite challenges posed by the pandemic, global chip shortage and stiff competition. This has instilled confidence among stakeholders, resulting in the highest PE ratio of 29 of BEL's share price among all manufacturing PSUs. The Company recorded an Export turnover of \$33.30 million and become the first Defence PSU to cross the landmark market capitalisation figure of Rs. 80,000 crores and declaring the highest ever dividend of 450 per cent. On my part, I have steered the Board, Administrative Ministry and Shareholders' approval to increase the authorised capital three-fold to ₹750 crore and issue of bonus shares in the ratio 2:1.



(LEFT) LOW LEVEL LIGHT WEIGHT RADAR-ASLESHA; (RIGHT) TETHERED UAV

SP's: What were the key contributors to such a stellar performance?

Batra: The growth in turnover during FY22 was mainly on account of timely execution of the existing order book as well as new products introduced in the current FY. The major orders executed during FY22 were Long Range Surface-to-Air Missile (LRSAM), Air Defence Weapon System, Integrated Air Command and Control System, AFNET, Coastal Surveillance System Phase II, Integrated Perimeter Security Solution, Smart City projects, Oxygen Concentrators and Ventilators. New products introduced include Laser Fence System, IR Jammer for Active Tank Protection System, Solid State Power Controller Cards for Akash NG/QRSA, S-Band 150 W Power Amplifier, GNSS Receiver and IP EPABX System. As far as profitability growth in the current year is concerned, increase in turnover as compared to the previous year was to the tune of more than ₹1,200 crore, which has brought in economies of scale and corresponding increase in profit.

SP's: What is your turnover projection for FY 2022-23. How is the order inflow this year?

Batra: We are midway into meeting our targets for this financial year and I am confident that we will achieve around 15 per cent growth in our turnover and increase in EBIDTA (as a per cent of turnover) from the present 22 per cent to 23 per cent by the end of March 2023. BEL's order book as on April 1, 2022, stood at ₹57,000 crore. This year, we are expecting around 15,000-20,000 crores worth orders.

SP's: What are your top strategic priorities?

Batra: BEL's investment in R&D during the current FY has been to the tune of over ₹1,000 crores (7 per cent of its turnover). We have also been investing every year more than ₹500 crores in Capital. Going forward, we would like to maintain the same level of investment in both R&D and Capital, which will help us develop new prod-

ucts, indigenise, bring about design change and achieve cost reduction. This will aid in creating new avenues of growth, reduce costs and increase our profitability.

SP's: What is the growth potential from export markets? How are you planning to expand your presence abroad?

Batra: We are seeing a very good opportunity in Exports. Our present export order book is more than \$265 million. During the current FY, as part of its Offset commitments, under the prestigious C295 aircraft programme, Airbus Defence and Space has signed a contract with BEL for the manufacture and supply of Radar Warning Receiver and Missile Approach Warning System. To enhance its geostrategic reach, BEL has strategically opened overseas marketing offices in the Indian Ocean Region, South East Asia, Middle East Region and USA. BEL has six overseas marketing offices in Vietnam, Myanmar, Sri Lanka, Oman, Singapore and New York, and is planning to further expand its global footprints.

SP's: Tell us about your initiatives to diversify into the civilian business.

Batra: Defence, being the mainstay of BEL, has traditionally been contributing to around 80 per cent on an average of the Company's annual sales revenue. BEL, however, has been continuously exploring diversification into allied Defence and non-defence areas. The total opportunity available in the non-defence business segment, being pursued by BEL in the next 8-10 years, is more than ₹2 Lakh crores. The Company aims to increase its non-defence share in the overall business in the coming years.

Some of the areas BEL is focussing on in non-defence include solutions for Civil Aviation sector including Air Traffic Controller Radars, Anti Drone systems, Space/Satellite Electronics, Space Launch Vehicles, Satellite Communication Services, Space-grade Solar Cells, Satellite Assembly &



Integration, Solar Business, Railway and Metro solutions, Software as a Service, Network & Cyber Security, Energy Storage products for Electric Vehicles (Li-ion & Fuel Cells, Charging Stations, etc), Homeland Security & Smart City businesses, Smart Meters, a range of Medical Electronic and health care solutions. BEL is entering into partnerships with various OEMs/technology solution providers to expand the business in the identified non-defence business segments. This wide bouquet of businesses in non-defence would play a key role in driving BEL's growth in the coming years.

SP's: In recent years, the Government of India has stressed on the need to involve the MSMEs, private industry and start-ups in the Defence sector. What are BEL's initiatives to promote such initiatives?

Batra: BEL has formulated a long-term Outsourcing and Vendor Development Policy and has been taking several initiatives in order to broaden the domestic vendor base by implementing online vendor registration and e-procurement processes including using GeM portal. This is in line with the 'Make in India' initiative where enhanced thrust has to be put to develop domestic players. BEL has also made provisions for entering into Long Term Agreements (LTAs) with reputed vendors with an objective to secure the supply of items or services over a specified period of time as per mutually agreed terms and conditions. 'Make in India' Display Cells have been established at all Units of BEL. BEL also takes part in various events organised by the Government of India to promote MSMEs. Startup India is a flagship initiative of the Government of India, intended to build a strong ecosystem that is conducive for the growth of startup businesses, to drive sustainable economic growth and generate large scale employment opportunities. BEL has identified several areas for partnership with start-ups in new emerging technology areas in both Defence and non-defence businesses through various engagement models. ●

- Technology Focus
- Joint Venture and Collaboration Approach
- Local Production and Offsets
- Indigenous R&D and Co-development
- System Integration
- Technical / Warranty Support

Serving Indian Frontiers and beyond.....



— Visit us at —



India : The Emerging Defence Manufacturing Hub
DEFEXPO 22
INDIA 18th-22nd OCTOBER, 2022 | GANDHINAGAR
Ministry of Defence

HALL | 09

STALL | 3, 4, 5, 10,
11, 12, 13, 20

18th-22nd October 2022
Gandhinagar, Gujarat, India



**Alpha Design
Technologies Pvt Ltd**

09, Service Road, HAL II Stage, Indiranagar, Bangalore - 560008
Tel: +91-80-4255 6909 Fax: +91-80-2521 6541
E mail: alphacorp@adtl.co.in Website: www.adtl.co.in



V. ADM. NARAYAN PRASAD (RETD)

Pursuing Indigenisation

Vice Admiral Narayan Prasad (Retd), Chairman & Managing Director, Mazagon Dock Shipbuilders
Limited talks about how efforts are being made to take up indigenisation of equipment for future projects under 'Atmanirbhar Bharat' and 'Make in India' programmes, and status of other projects at MDL

SP's ShowNews (SP's): What are your plans to implement Prime Minister Narendra Modi's vision of Atmanirbhar Bharat?

Narayan Prasad (Prasad): MDL has launched a separate "Atmanirbhar Bharat" Webpage in the company's website. The process of indigenisation, various items/equipment indigenised, items required to be indigenised (EoIs) are displayed under the webpage. Success stories of indigenisation are published on MDL website as a compendium of items indigenised.

MDL has proactively pursued indigenous development for items/equipment of foreign OEMs. Collaborations are being progressed with a range of private players for indigenised development of Equipment/spares for the Submarine Projects. Efforts are also being made to take up Indigenisation of equipment for future projects under 'Atmanirbhar Bharat' and 'Make in India' programmes. MDL has also participated in iDEX (Innovations for Defence Excellence) for self-reliance in defence sector.

A separate indigenisation cell has also been constituted to give thrust to indigenisation of equipment/item at company level, apart from efforts made at MoD/IN level.

SP's: What are the current warships you are building & what is their indigenisation content?

Prasad: The current surface ship order broadly comprises of the construction of 4 Nos. Visakhapatnam Class (Project 15B) Guided Missile Destroyers, out of these four, one has already been delivered and 4 Nos. Nilgiri Class (Project 17A) Stealth Frigates.

The under-construction warships under project 15B and 17A will have an indigenous content between 70 to 75 per cent.

The licensed construction of six Scorpene class Submarines (Project-75) in collaboration with Naval Group, France is in progress at MDL. MDL has delivered four out of six Scorpene Class Submarines of Project 75 to the Indian Navy. The Fifth Submarine is being slated for delivery shortly and the sixth and final Submarine is in the advance stage of trials and outfitting. To-date, MDL Submarines of P75 Project have indigenous content of approximately 32 per cent by value.

SP's: What is the progress on Project 75 to build Scorpene Submarines & what all technologies your company has been able to absorb to be able to implement them independently?

Prasad: Under the Scorpene project, the Collaborator has provided 'Know-How' under ToT for building the submarines. ToT includes provision of Technical Data Package, Software & Hardware, Shipyard Training & Advising and Overseeing of Construction of first two Boats. MDL has fully absorbed the transfer of technology to construct the Scorpene submarines independently without any active support from the collaborator Naval Group, France. MDL has successfully built 3rd and 4th Submarines without such support from Naval Group.

SP's: The RFP for Project 75(I) was issued to your company & Larsen & Toubro (L&T) to build six AIP fitted Conventional Submarines under the Strategic Partnership Model. What is the progress on it?

Prasad: RFP for P75(I) was issued on July 20, 2021 to shortlisted strategic partners. MDL being one of the shortlisted strategic partner, is in the process of selecting of one FC (Foreign Collaborator) from the five shortlisted FCs viz. Naval Group - France, Navantia - Spain, ROE - Russia, ThyssenKrupp Marine Systems - Germany and DSME - South Korea by IHQ/MoD(N).

SP's: Apart from the Navy are you taking up any projects for Indian Coast Guard?

Prasad: Besides warships for the Indian Navy, MDL has also constructed a series of offshore patrol vessels for the Indian Coast Guard ("ICG") in the past. Seven Coast Guard ships, which today form the mainstay of the ICG fleet, were built and delivered to the ICG between 1983 and 1990.

Recently, MDL has also undertaken repairs of three ICG vessels, namely INS Achook, INS Shaurya and INS Savitribai Phule.

MDL has submitted bids to Indian Navy &

Indian Coast Guard for various Naval platforms worth ₹24,000 crore including 8 Fast Patrol Vessels (FPV) for Indian Coast Guard.

SP's: It has been reported that you have taken up Construction of Border Out posts for the BSF which are floating police stations. Would you like to give some details?

Prasad: MDL has undertaken construction of Border Outposts (BoPs). Each of these BoPs, also called as floating police stations, are equipped with four high speed boats. MDL has built and delivered nine such vessels to Border Security Force from year 2003 to 2004. ●



(LEFT) TARAGIRI LAUNCH; (RIGHT) VAGSHEER LAUNCH.



India - The Emerging Defence Manufacturing Hub

INDIA OPTEL LIMITED
SOLDIER'S EYE

INDIA OPTEL LIMITED, DEHRADUN

- IOL - a leading Defence PSU in manufacturing of Opto - Electronics systems in India.
- Committed towards "Atmanirbhar Bharat" in Defence Production & Innovation.
- In-house up gradation & innovation in collaboration with govt. and private research entities leading to new products.
- State of the Art facilities under one roof for Optical, Electronics & Mechanical production capabilities.
- More than 75 years of experience in manufacturing of High-Precision Sighting Systems, Fire Control Systems and Specialised Cables.
- Dedicated and Skilled Workforce across all 03 units with substantial representation of female employees.

75
आज़ादी का
अमृत महोत्सव

Enemy Can Neither Escape Nor Hide,
When IOL Products become "Soldier's Eye"

Raipur, Dehradun - 248008
Mittarakhand, India
CIN-U31909UR2021GO1012802

cmd@indiaoptel.in

https://www.indiaoptel.in

@iol_pro

-91-0135-2780427

Tatra Trucks – Traditional Manufacturer of Modern Military Trucks

Tatra Trucks manufactures Tatra vehicles with a unique chassis design with a central backbone tube and with independently suspended swinging semi-axes and all-wheel drive. The company produces three model lines – FORCE, TACTIC and PHOENIX.

Tatra FORCE is the main model for the armed forces, the company supplies it to NATO armies (most recently Germany – military firefighter trucks, Denmark – wheeled howitzers) and other armed forces in Europe, South America and Asia (e.g. Brazil, Indonesia etc.). FORCE model trucks can be equipped with Tatra engines or engines by other manufacturers and standard or armoured cabins.

The TACTIC model line is produced in 4x4 and 6x6 versions with standard and armoured cabins. The TACTIC model is equipped with Cummins engines, the transmission is either fully automatic or manual. The cabin has a number of unified elements with a FORCE model.

The PHOENIX model is designed for military and civilian use or rescue services. The PHOENIX model line uses a combination of the Tatra chassis and sub-assemblies of foreign manufacturers. Most recently, Tatra Trucks, in cooperation with DAF Trucks, supplies the Belgian army with more than 900 vehicles of the PHOENIX model line.

Tatra Trucks also supplies its chassis platforms for special military vehicles by other manufacturers in Europe, Asia, South America, and Africa. Tatra chassis for military applications are exported, for example, to France, Israel, India, Brazil, Poland, Turkey, Jordan, etc. Tatra military vehicles are manufactured not only in Czech Republic but also in Slovakia and Saudi Arabia. ●





PATH TO PRIDE



ATAGS (Advanced Towed Artillery Gun System)

Setting 'Gold Standard' Globally for Towed Artillery Gun in the 155mm/52Cal segment

- Fired at 13,000+ feet height in Sikkim, creating new record which no other 155mm gun has reached and fired, thus proving endurance and reliability
- Successfully completed 500+ kms in treacherous high-altitude terrain up to 15,400 feet and proving ease of mobility
- World record with longest firing range of 48.074 km (HE-ERFB BB), thus proving range
- System has the phenomenal ability to fire in zone 7 charge (only gun in the segment with larger chamber volume), thus proving lethality
- Shortest Turning Circle Diameter for any towed gun of 155mm/ 52cal calibre with patented technology, thus proving innovation

ARTILLERY
PROTECTED VEHICLES
AEROSPACE
ARMOUR VEHICLES
AIR DEFENCE SYSTEMS
AMMUNITION BODIES
DEFENCE ELECTRONICS
SMALL ARMS
SHIPPING SYSTEMS

Mundhwa, Pune - 411 036. Tel: +91-20-6704 2777 / 2868 | contact.defence@bharatforge.com | www.bharatforge.com



Munitions India Limited
Accurate. Lethal. Reliable.



India : The Emerging Defence Manufacturing Hub
DEFEXPO 2022
INDIA 19 - 22 OCTOBER 2022 GANDHINAGAR
Ministry of Defence

Small Calibre Ammunition



Medium Calibre Ammunition



Large Calibre Ammunition



Mortar Bombs



Tank Ammunition



Rocket Pinaka





Stall No. - 2R.15
HALL No.: 02

+91 - 20 - 67080400

mil@munitionsindia.in
exports@munitionsindia.in

<https://munitionsindia.co.in>
[munitions india limited](#)
[@indiamunitions](#)

MAKE IN INDIA

Astra – Building Important Blocks in Critical Domains of Defence

Astra Microwave today is amongst the very few Indian private sector companies whose core strength is technology in major areas of the defence and space market in India

Astra Microwave was started by three Microwave Engineers in the year 1991. The founders had taken voluntary retirement from their illustrious careers in DRDO labs and started this organisation with an objective of making critical RF and Microwave components and sub-systems indigenously. Back then, all critical components had to be imported and as these are the important building blocks of military systems, they were being imported by the country at exorbitant costs.

Astra Microwave today is one of the only companies in India that works in all critical domains of the defence RF and Microwave industry. They supply critical RF and Microwave Products that are used in Military Radars – Ground, Naval and Airborne, Electronic Warfare systems for Army, Navy and Airforce, Strategic Missile programs and for Telemetry applications. In parallel Astra also works with Indian Space Research Organisation for space qualified RF and Microwave sub-systems for major Communication, Geo-synchronous and remote sensing satellites.

As Astra JMD M.V. Reddy explains, “Major contributions have been made to the Airborne Early Warning and Control Aircraft for all major sub-systems of the primary radar, for the Uttam AESA radar where we have built the Active Antenna Array and all its electronic backbone, major contribution to the EW



ASTRA MICROWAVE WORKS IN ALL CRITICAL DOMAINS OF THE DEFENCE RF AND MICROWAVE INDUSTRY

PODS on the LCA, major contributions to the Naval EW programs like Samyuktha, Himshakthi, Nayan etc. Apart from this, we have been one of the important suppliers for all ground and naval radars built by LRDE and then productionised by BEL. We have been part of major missile programs like Akash, Astra, Brahmos, AGNI, Nag etc. We have also contributed to several telemetry and weather based products for DRDO and IMD. Taking advantage of the offset requirements of the Indian Government, we have also supplied several critical modules for export customers in Israel, France, USA etc. for important systems that ultimately come back to India like MPR, MFCR and P-8I.”

In their journey from a startup to a 600 crore company, Astra has successfully overcome several high technology challenges and today they are amongst the very few Indian private sector companies whose core strength is technology in major areas of the defence and space market in India. This journey has seen them being rewarded by the Indian Government's Scientific department for indigenous R&D, by Electronics Industry Associations and Independent Media agencies for Business Excellence, R&D and Quality. Today Astra is well poised to realise any high end product in India using indigenous technology and are working their way up to the systems domain. ●



गार्डन रीच शिपबिल्डर्स एण्ड इंजीनियर्स लिमिटेड
Garden Reach Shipbuilders & Engineers Ltd.

(A Govt. of India Undertaking)

61, Garden Reach Road, Kolkata-700 024

Tel: +91-33-2469 8100 to 8113, Fax: +91-33-2469 8150



India : The Emerging Defence Manufacturing Hub
DEFEXPO 2022
18 - 22 OCTOBER, 2022 | GANDHINAGAR
Ministry of Defence

VISIT GRSE STALL

2R-27, HALL NO. 2

HELIPAD EXHIBITION CENTER

Delivered 107 Warships to Armed Forces of India & Friendly Foreign Countries



WARSHIPS

I Frigates I ASW Corvettes I Missile Corvettes I FAC I
I Landing Ship Tanks (Large) I Survey Vessels I ASWSWCs I
I Landing Craft Utility Ships I Offshore Patrol Vessels I

ENGINEERING PRODUCTS

I Pre-Fabricated Steel Bridges I Railless Heli Traversing System
I Deck Machinery Items I
I Assembly/Testing/Overhauling of Diesel Engine I

Supplied Over 5500 Portable Steel Bridges to Indian Army, Border Road Organisation, State PWDs, Central Government & Friendly Foreign Countries



Scan the QR Code for Corporate Video



For any query please contact:

✉ marketing@grse.co.in

Follow us :



grsekolkata



officialgrse



OfficialGRSE



garden-reach-shipbuilders-&-engineers



www.grse.in

In Pursuit of Excellence & Quality in Shipbuilding



**Envisioning Defence
Innovation and Invention**

DRDO PARTICIPATES IN



India : The Emerging Defence Manufacturing Hub

DEFEXPO22
INDIA 18-22 OCTOBER, 2022 | GANDHINAGAR

Ministry of Defence

PATH TO PRIDE

Date:
18-22 Oct 2022

Visit us
at Hall-10



Defining India's Future in Advanced Defence Technologies



Boeing and IISc Commemorate 15 Years of Partnership

Boeing India and the Indian Institute of Science commemorated 15 years of partnership in fueling aerospace research and innovation, in India, for India, and for the world.

This partnership began in 2007 with IISc as a strategic university engagement partner for Boeing, for driving early stage research in aerospace materials and structures technologies. In 2009, Boeing, IISc, Wipro technologies Ltd, and

HCL Technologies Ltd, launched ANRC, the country's first public-private aerospace research consortium. ANRC India continues to develop technologies across airspace communication networks, Internet of Things and Artificial Intelligence areas. The research finds direct application in aerospace technology

– and is helping improve passenger experience, increasing data connectivity within the aircraft, and preventing aircraft delays.

In addition to ANRC, Boeing has delivered multiple projects and technology transitions along with IISc over the years in alloy design, advanced manufacturing processes, additive manufacturing, composites materials and coatings – all of which contribute to the performance, cost effectiveness, and improved safety of aircrafts. This has also led to the training of numerous IISc students and research staff, nurturing STEM talent to help drive critical inventions in India. ●



Defence Secretary Conducts Bilateral Meetings



(LEFT) DEFENCE SECRETARY, DR. AJAY KUMAR IN BILATERAL MEETING WITH PREMITHA BANDARA TENNAKOON, STATE MINISTER FOR DEFENCE, SRI LANKA ON OCTOBER 17, 2022; (RIGHT) DEFENCE SECRETARY, DR. AJAY KUMAR IN BILATERAL MEETING WITH DIRECTOR, DEPARTMENT OF DEFENCE PRODUCTS, BRAZIL, REAR ADMIRAL VAGNER BELARMINO DE OLIVEIRA AT GANDHINAGAR ON OCTOBER 17, 2022.

Defence Secretary Dr Ajay Kumar conducted a series of bilateral meetings with visiting dignitaries from friendly foreign countries. He held a bilateral meeting with Premitha Bandara Tennakoon, State Minister for Defence, Sri Lanka. They discussed a host of ongoing and future defence cooperation issues.

The Defence Secretary also met Devendre Gopaul, Permanent Secretary, Mauritius. A number of key bilateral, defence and maritime security issues were deliberated during the meeting. Another bilateral meeting with the United Arab Emirates delegation led by Matar Salem Ali Marran Aldhaheeri, Defence Secretary, UAE was held. They reviewed the existing defence cooperation mechanisms and explored the possibilities of furthering defence industrial cooperation between India and UAE.

Dr Ajay Kumar later met a Brazilian delegation led by Rear Admiral Wagner Belarmino De Oliveira, Director, Department of Defence Products. They discussed areas of potential defence industrial cooperation between the two countries. ●

IAI Announces a New Subsidiary in India

Israel Aerospace Industries (IAI) has opened a new subsidiary, Aerospace Services India (ASI), located in New Delhi, India. IAI's investment in Aerospace Services India is a strong demonstration of IAI's support for the Indian government's 'Atmanirbhar Bharat' - 'Make in India' vision. This also shows the commitment to the strong partnership between IAI and DRDO in developing and supporting advanced systems for the Indian armed forces.

ASI is establishing state-of-the-art facilities to provide product life cycle support services for the air-defence systems in India. The new facilities will provide advanced and timely support to the Indian Defence Forces, including the Indian Air Force, Navy and Army.

The company is located in New Delhi, trades in Indian Rupees and is the sole authorised OEM's Technical Representative for the entire MRSAM system. MRSAM is an advanced and innovative air and missile defence system which is used by the Indian Army, Air Force and Navy. The system includes an advanced phased array radar, command and control, mobile launchers and



BOAZ LEVY, PRESIDENT AND CEO, IAI

interceptors with advanced RF seeker. MRSAM is jointly developed by IAI and DRDO for the Indian forces.

Boaz Levy, IAI's President and CEO said, "Aerospace Services India is leveraging top technology, innovation, and talent to deliver customer satisfaction so that they can focus on their mission. IAI has a well-established operation in India, working with various partners and customers in the Indian market. Through the years, IAI has pursued a flexible and adaptive business policy to comply and respond to PM Modi's 'Self-Reliance' vision." ●

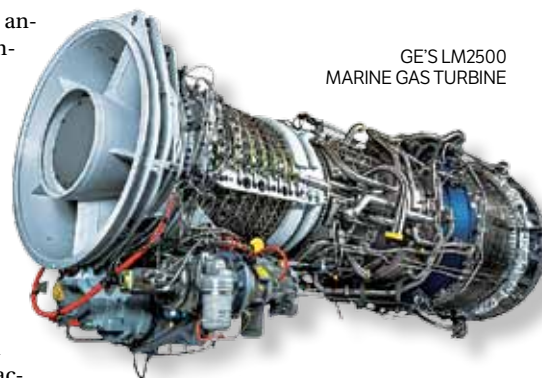
GE Aerospace Grows Indian Supply Chain

GE Aerospace announced its Indian aero-engine supply chain has grown to 13 companies plus GE's Pune multi-modal manufacturing facility.

Indian companies are becoming globally competitive for a growing body of high-value, complex aero-engine manufacturing work. Marquee Indian companies including Tata Advanced Systems, Mahindra Aerostructure and Godrej have set up GE aero-engine component production lines. These components are exported from India to GE's engine manufacturing facilities. Hindustan Aeronautics has established an assembly line for GE's LM2500 marine engine that power India's newest first indigenous aircraft carrier, the Vikrant. These growing capabilities coincided with GE Aerospace's increase in local sourcing spend, which has grown 20 times in the last five years.

GE Aerospace and its Indian partners are in the process of establishing the aero-engine manufacturing infrastructure India needs to achieve its self-reliance goals (locally known as 'Atmanirbhar Bharat'). To support its growing Indian aero-engine manufacturing industrial base, GE Aerospace is pursuing an aggressive skill development programme for manufacturing workforce in India.

Over the past two years, this GE-funded programme trained more than 150 manufacturing staff at the various partner organisations, and these trained workers have then gained employment with one of several GE suppliers in India. More than 1,000 of GE's aviation researchers and engineers work in India and have deep connections with leading academic institutions, such as IIT-Madras, IIT-Kapur and IIT-Patna. ●



GE'S LM2500 MARINE GAS TURBINE

HAL Showcases Indigenous Products

HAL's participation focuses on technological excellence and indigenisation initiatives, under its business verticals such as fighters, trainers, transport aircraft, helicopters, engines, systems and avionics besides projecting the company's futuristic programmes.

HAL has a dedicated 'Indigenisation Exhibition Stall' at Hall-2 for active participation and interaction of Indian industry partners. More than 200 imported items planned to be indigenised with private industries are on display in this stall to attract Indian industry. Twenty six already indigenised items are displayed for understanding and encouragement of private industries. There are one-to-one interactions and instant clarifications to the Industry partners at the venue.

Dr Ajay Kumar, Defence Secretary, inaugurated HAL's dedicated Indigenisation Stall on the first day of DefExpo, launching of a document on indigenisation success stories of HAL, handing over of "Project Sanction Orders" of Positive Indigenisation List (PIL) items to the Indian Private Partners, handing over of approvals/clearance certificates to the industry partners for items indigenised and launch of Indigenisation - Supplier Relationship Management (ISRM) portal are planned.

HAL's Light Combat Helicopter 'Prachand' is showcased in the Outdoor Display area during the show. HAL is also exhibiting the scaled models of LCA, LCH, LUH, ALH, Do-228 and HTT-40 during the show. Some of the avionics/accessories/ components/products such as Indigenous Engine & Flight Display Unit (EFDU), Mission Computer & Interface Computer, Digital Map Generator (DMG), FBW DAU (Fly by Wire Data Acquisition Unit), E-FDR (Enhanced Flight Data Recorder), Gunner Pilot Control Unit (GPCU), Automatic Identification System (AIS), Solid State Data and Video Recording System (SSDVRS), Full Authority Digital Engine Control System (FADEC), Integrated Control Computer (ICC), ICCATS-Jaguar, APU, GTSU-127 etc. are on display at the HAL stall.

Further at the India Pavilion (HEC), HAL is displaying 29 products of which 17 are scaled models and 12 through display posters and product videos. Scaled models of HTT-40, ALH (WSI), IMRH, LUH and RUAV, are showcased during the show. Other products include Main Landing and Nose Landing gears of ALH, Air Starter Turbine -AMCA, Digital TGT Amplifier (TGTA), Ring Forgings, Shape Memory Alloy Ferrule Rings, Solid State Cockpit Voice & Flight Data Recorder, HPTR BLADE-AL31FP ENGINE, Main Rotor Blade (ALH), TACAN, VOR ILS and Air to Air Heat Exchanger. ●



HAL'S LIGHT COMBAT HELICOPTER 'PRACHAND'

UCAV Solutions from Milkor

The Milkor Group has various offerings under its umbrella, one of the subsidiaries whose mandate revolves around the development and production of unmanned programmes for the Group, is growing substantially given the demand in the domain. Responsible for communications, controls, autonomy and system integration, Milkor Integrated Systems (MIS) has overseen the complete product development, manufacturing, delivery and support of Milkor's autonomous platform solutions.

Milkor Defence aims to bring this technology to India and be a supplier of choice

to countries with emerging industries that struggle to access this technology. The expansion comes amid increasing global demand for unmanned solutions to meet the challenges around border security. The most prominent domain where unmanned technology is being utilised is in the Air sector, given the introduction of UAVs and the capability they bring to armed forces.

The Custodian LT is Milkor's flagship MALE UCAV which is being offered in a weaponised configuration, it can be fitted with six guided weapons and various payloads to perform multiple operations. MIS has specifically developed all critical aspects on the Milkor unmanned programmes entirely inhouse - amongst others but notably including communications, avionics, automation and control, mission pre-sets and navigation systems. This advancement in development allows for unrestricted control over the UCAV and includes the upgrade of avionics and communication of existing systems. Specific in-house developments allow for a full spectrum of capabilities without International Traffic in Arms Regulation or other control regime restrictions. The communication systems allow for a customisable solution that features bandwidth switching, STANAG 4586 encryption compatibility and cross-platform applications. On board payload processing units allow data to be processed from multiple payloads. This allows an aggregation capability that can combine information from multiple payloads and allocate bandwidth to priority payloads as required.

As India looks towards self-reliance, entities that can offer complete solutions are gaining traction. The ability to have a platform locally made, serviced and maintained on the ground by a domestic vendor may be the solution. ●



MILKOR'S MALE UCAV

PUBLISHER AND EDITOR-IN-CHIEF

Jayant Baranwal

SENIOR CONTRIBUTORS

Lt General (Retd) P.C. Katoch

PRINCIPAL CORRESPONDENT

Ayushee Chaudhary

CHAIRMAN & MANAGING DIRECTOR

Jayant Baranwal

PLANNING & BUSINESS DEVELOPMENT

Executive Vice President: Rohit Goel

SALES & MARKETING

Group Director: Neetu Dhulia

Deputy Director - Sales: Rajeev Chugh

LAYOUT DESIGNERS

Sr Designer: Vimlesh Kumar Yadav

Designer: Sonu S. Bisht

GROUP RESEARCH ASSOCIATE

Survi Massey

MANAGER - HR & ADMIN

Bharti Sharma

DEPUTY MANAGER - CIRCULATION

Rimpy Nischal

SP'S WEBSITES

Sr Web Developer: Shailendra Prakash Ashish

Web Developer: Ugrashen Vishwakarma

SP GUIDE PUBLICATIONS PVT LTD

A-133, Arjun Nagar,
(Opposite Defence Colony)
New Delhi 110003, India

Tel: +91 (11) 24644693, 24644763,
24658322

Fax: +91 (11) 24647093

E-mail: info@spguidepublications.com

Owned, published and printed by
Jayant Baranwal on behalf of
SP Guide Publications Pvt Ltd. All rights
reserved. No part of this publication
may be reproduced, stored in a retrieval
system, or transmitted in any form or
by any means, photocopying, recording,
electronic, or otherwise without prior
written permission of the Publishers.

Printed at Kala Jyothi Process Pvt Ltd,
Hyderabad

© SP Guide Publications, 2022

www.spguidepublications.com



SP GUIDE PUBLICATIONS



For Advertisement / Editorial queries,
please contact us at **Hall-8, Stall-8S.3**

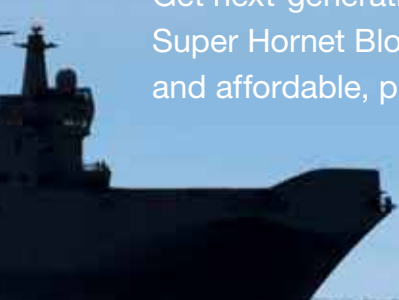
PHOTOGRAPHS: SP Guide Publications
(Archive), PIB, respective OEMs and
miscellaneous

F/A-18 SUPER HORNET BLOCK III



THE BEST CHOICE FOR INDIA'S DEFENSE

Get next-generation technologies that are compatible with Indian naval carriers. The Boeing F/A-18 Super Hornet Block III is the world's pre-eminent carrier-capable aircraft with proven combat experience and affordable, predictable lifecycle costs.



boeing.co.in

