

Current and Future Procurement programs for the Hellenic Navy

FDI multimission frigate for the Hellenic Navy



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On March 24, 2022, Greece and Naval Group signed a contract regarding the supply of three defence and intervention frigates, plus one optional, and their in-service support. The FDI HN will quickly and sustainably enhance the capabilities of the Hellenic Navy's surface fleet as they will be delivered in a very short timeframe, starting in 2025 for the first two units and in 2026 for the third one.

The contract also includes the supply of MU90 torpedoes and CANTO countermeasures. Thanks to a very ambitious cooperation plan with the Hellenic industry (HIP, Hellenic Industry Participation Plan), this program offers numerous industrial opportunities in Greece, creating jobs and skills in the country. Naval Group's teams have been working in Greece for several months to establish partnerships with local industrial players with the objective of signing the first contracts in the coming months. With its R&D component, the cooperation plan is a sustainable plan that is fully in line with the objective of strengthening the European defence industrial and technological base through Franco-Greek cooperation.

The FDI HN features high-level capabilities in all warfare domains: anti-ship, anti-air, antisubmarine and special forces projection. Its air and surface defenses are ensured by the most modern sensors, including the Thales Sea Fire, the first all-digital multifunction radar with an active antenna and fixed panels.

The FDI HN is equipped with a unique integrated mast that brings together all the airborne sensors, enabling permanent 360° surveillance. As the first frigate on the market to be natively protected against the cyber threat, the FDI HN is equipped with two data centers hosting almost all of the ship's applications. The ship will have a crew of 110 people as well as an aircrew detachment of approximately 15 people.

She will also have a flight deck and one hangar to accommodate one unmanned VTOL (Vertical Take-Off and Landing) aircraft or one NH-90 naval helicopter.

On 13 July 2022, four months after the contract signature, the steel-cutting ceremony of the second FDI HN was held in the Naval Group's shipyard, in Lorient.

Technical specifications of the FDI HN:

- Displacement: 4,500 tons
- Length: approx. 122 metres
- Width: 18 metres
- Maximum speed: 27 knots
- Aviation facilities: 10-ton class helicopter, VTOL
- unmanned aerial vehicle (UAV)

The main armaments of the FDI HN are:

- 32 Aster missiles developed by MBDA
- 8 Exocet MM40 B3C missiles developed by MBDA
- RAM missiles



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- MU 90 torpedoes developed by Naval Group
- 76 mm gun
- 4 torpedo tubes
- CANTO counter measures developed by Naval Group

Beyond the frigates program, Naval Group is committed to building strong and long-term partnerships to support the Hellenic Navy and support the development of the naval warfare capabilities of the Hellenic Industry.

Greece to acquire new corvettes

Within the frame of the Hellenic Navy's modernization program and following a decision of the Supreme Naval Council, Hellenic Navy will acquire three new corvettes, together with the procurement of the three Belharra frigates and the modernization of the MEKO class frigates. Greece plans on acquiring three ships while retaining an option for a fourth, with industry competitors committing to supporting local shipbuilding as part of their bids. A first corvette is expected to be built approximately three years from contract award.

Main candidate companies are considered the French Naval Group and the Italian Fincantieri.

The French proposal concerns the Gowind 2500 while the Italian one is for the FCx30 Doha class. Whichever of the two proposals goes ahead will be done through an intergovernmental agreement procedure.

The French deal would entail Naval Group agreeing for production at Skaramanga Shipyards and Italy's Fincantieri stipulates an agreement with Elefsis Shipyards and the Onex Group. In both cases, the first corvette will be built in France or Italy and delivered in 2025. The rest will be built in Greece.

The General Directorate for Defence Armaments and Investments will take over to negotiate with the interested parties and the final decision will be taken by the Government Council for Foreign Affairs and Defence (KYSEA). Estimated budget is of 1.5 billion euros.

Hellenic Shipyards has announced its support for Naval Group's offer by building Gowind vessels in Greece. The French shipbuilder has also pledged to "ensure economic benefits in Greece of at least 30% of the program value," in line with a "ramp-up" of operations across the country, supported by Naval Group Hellas, a new Greek subsidiary.

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Naval Group has strong ties with the Hellenic Navy, having secured a contract in March 2022 for the construction and supply of three defense and intervention frigates (FDI HN), plus one optional hull. Additionally, Naval Group, Thales, and MBDA have submitted a bid for the midlife upgrade of Hydra-class MEKO 200 designed frigates.

Fincantieri has signed an agreement with Greece's ONEX Shipyards & Technologies Group to establish a Corvette manufacturing line and provide life-cycle support at Elefsis Shipyards.

Supply of Batteries, Accumulators for Hellenic Navy's Type 209 and 214 Submarines

On 7 April 2023, the Standing Committee on National Defence and Foreign Affairs of the Hellenic Parliament approved the supply of batteries and accumulators for the Hellenic Navy's Type 209 and 214 Submarines, for an estimated cost of 21million euros. Prime contractor will be the Greek company Sunlight Group.

Spare Parts Inspection Kits for OTO MELARA 76/62

On 31 August 2022 the Italian company LEONARDO awarded a contract regarding the procurement of Spare Parts Inspection Kits to be used for the OTO MELARA 76/62 Navy Gun maintenance.

Rigid Inflatable Boats (RIBS)

On the 19 May 2022, US Embassy in Athens delivered 6 brand new Rigid Inflatable Boats (RIBS), to be used by the Hellenic Navy and two to be used by the Hellenic Coast Guard, value of \$10million. The US embassy tweeted. "Great to see 6 brand new Rigid Inflatable Boats (RIBS) from the United States delivered to the @NavyGR and @HCoastGuard Special Forces today. This \$10 million US grant is an important investment in maritime and Special Operation Forces interoperability for our countries. The boats are going to be integrated in HNSFC's inventory, upgrading its operational capabilities.

76/62 Ammunition

Hellenic Defence Systems awarded a contract for the procurement of 13,000 76/62mm caliber naval gun ammunition. The estimated budget is € 7,870,000 and it will be implemented through a five-year Framework Agreement, starting in 2022.

Modernization of P-3 Orion Maritime Patrol Aircraft

On 17 May 2019 the Hellenic Air Force received the first P-3B maritime patrol aircraft (interim solution) On 6 October 2014, The State Department has made a determination approving a possible ForeignMilitary Sale to Greece for P-3B aircraft overhaul and upgrade as well as associated equipment, parts, training and logistical support for an estimated cost of \$500 million. The Defense Security Cooperation Agency delivered the required certification notifying Congress of this possible sale.

The Government of Greece has requested a possible sale for modification and reactivation of two (2) P-3B aircraft, and the upgrade of up to five (5) P-3B aircraft that will include structural Mid Life Upgrades (MLU), Phased Depot Maintenance (PDM), Mission Integration and Management Systems (MIMS), and new flight avionics. The MLU kits will provide service life extensions for 15,000 flight hours, spare and repair parts, repair and return, support equipment, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor logistics, engineering, and technical support services, and other related elements of logistics and program support. The estimated cost is \$500 million.

The proposed sale for overhaul and upgrade would allow the Hellenic Navy (HN) to resume operations of its P-3B aircraft for land-based maritime patrol and reconnaissance, surveillance and protection of areas of national interest. The principal contractor will be Lockheed Martin Aeronautics Company in Marietta, Georgia. The domestic defense industry in Greece is providing 30 percent of the overall program value, drawing considerable industrial, financial and technological benefits for the autonomous operation and support of the specific weapon system. The first upgraded aircraft has been planned to be delivered within 2022 and the firth will be delivered by 2024.

Super Vita Fast Attack Craft

After a long delay almost ten years, the Hellenic Navy has taken delivery of the 7th BAE Systems designed Fast Attack Craft, "HS Vlahakos", the latest vessel in a class of seven 62 metre Fast Attack Craft being built by BAE Systems' industry partner, Elefsis Shipyards, for the Hellenic Navy. Under a long-term technology transfer program, BAE Systems is the design authority and major subcontractor to Elefsis Shipyards, responsible for the design and combat systems integration of the vessels.



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The Fast Attack Craft is designed as a high speed, multi-role platform that can operate in both anti-air and surface combat situations. Used by the Hellenic Navy as a high-speed interception and offshore patrol craft, its extensive weapon fit on a compact hull delivers an economic solution to surveillance, intelligence gathering, patrol, interdiction and engagement of enemy forces.

The purchase agreement of the first three fast attack craft (FACs) of the Roussen class (was signed in January 2000, and the construction took place at Eleusis Shipyards, while the Vosper Thornycroft (now BAE Systems Maritime) provided the necessary planning, logistics and equipment for the vessels. In August 2003 a contract was awarded for further two ships, Grigoropoulos and Ritsos, to be built by Elefsis. Ritsos was launched in October 2006 while the vessel was commissioned recently in 2015. A contract from the Hellenic Navy for an additional two vessels, to bring the total to seven, was placed in September 2008. The first ship of the class was launched in November 2002 while three more vessels were planned to be launched the next three years.

Meko frigate upgrade

On 7 April 2023, the Standing Committee on National Defence and Foreign Affairs of the Hellenic Parliament approved the modernization program for the Hellenic Navy's four MEKO (Hydra) class frigates. The schedule for the four vessels upgrade is 7 years, from 2023 to 2029, for an estimated cost of 605 million euros.

The upgrade includes:

- Replacement of existing marine generators
- Replacement of the existing surface and air surveillance radars with more modern ones
- Replacement of the existing Firing Systems with the most modern ones

TKMS (ThyssenKrupp Marine Systems) will be the prime contractor, the program will be implemented by the Hellenic Shipyards, while the local companies SIGNAAL HELLAS, η THALES HELLAS και η MELITA will also be involved covering of 15% of the total modernization work. The MEKO (Hydra) class are a group of four frigates in service with the Hellenic Navy. They were.



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50 YEARS OF CONTINUOUS PARTNERSHIP

Following the Mirage F1 in 1974, the Mirage 2000 in 1985 and the Mirage 2000-5 in 2000, the Rafale provides the Hellenic Air Force with the latest-generation fighter, enabling the Hellenic Republic, a leading European partner and a major member of NATO, to reinforce the protection of the country, to ensure its geopolitical stance in full sovereignty and to serenely address its strategic ambitions for the future.

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designed in Germany and are part of the MEKO group of modular warships, in this case the MEKO 200 design. The programme was awarded in 1988 and partially paid for with FMS aid and provisioned for the commission of six vessels. The first ship was built in Germany and commissioned in 1992 but suffered a serious fire while working up near Portland, England. Repairs were completed in 1993. The Greek built warships were delayed due to financial problems on the part of the Hellenic Shipyards completing in the late 1990s which also led to limiting the total number of vessels to four mainly after the acquisition of eight Kortenaer-class frigates from the Netherlands in the late 1990s.

In 2007, an upgrade of the STIR fire control system to allow the firing of the RIM-162 ESSM surface-to-air missile was launched. Salamis was the first to be upgraded and, in August 2008, successfully completed a live firing test. The other three Hydra vessels were upgraded during 2008.

On 10 December 2021, the State Department has made a determination approving a possible Foreign Military Sale to the Government of Greece of MEKO Class Frigate Modernization and related equipment for an estimated cost of \$2.5 billion. The Defense Security Cooperation Agency delivered the required certification notifying Congress of this possible sale.

The Government of Greece has requested to buy equipment and services to repair, update, and enhance their four (4) existing Hellenic Navy (HN) MEKO Class frigates. These upgrades will include the following: eight (8) Close in Weapon Systems (CIWS) Phalanx BLK 1B Baseline 2 upgrade kits; four (4) MK 45, 5" 54 caliber gun overhauls; four (4) MK 49 Guided Missile Launcher Systems; four (4) COMBATSS-21 Combat Management Systems; and, four (4) AN/SQS-56 Sonar overhauls. Also included is the repair and/or upgrade of existing systems; ordnance; testing; training; systems integration; follow-on technical support; acquisition, upgrades, and overhaul of Narwhal 20A Gun System; Sylena MK 2 Decoy Launching System with CANTO torpedo countermeasure; Radar/Fire Control TRS-4D; Identification Friend or Foe (IFF) Mode 5; NIXIE SLQ-25 Surface Ship Torpedo Defense System; Helicopter Handling System (Repairs); Defense Advance GPS Receiver (DAGR); Gun Computer System (GCS); Low Frequency Active Towed Sonar (LFATS); Compact Low Frequency Active Passive Variable Depth Sonar-2 (CAPTAS-2); Infrared Search & Track System (IRST); Elta Electronic Warfare (EW), with C-ESM, R-ESM, and ECM capability; Naval Laser-Warning System (NLWS); 7 meter Rigid Hull Inflatable Boat (RHIB); SQQ-89 ASW System; Fire Control Radar System; Improved Point Detection System-Lifecycle Replacement (IPDS-LR);

Enhanced Maritime Biological Detection (EMBD), as well as significant Hull, Mechanical and Electrical upgrades, replacements, and repairs; support and test equipment; spare and repair parts; communications equipment, including Link 16 communications equipment; Battlefield Information

Collection and Exploitation System (BICES); AN/SRQ-4 Tactical Common Datalink (TCDL); Global Command and Control System-Joint (GCCS-J); Air Defense Systems Integrator (ADSI); cryptographic equipment including SY-150, SY-117G, and KYV-5M; software delivery and support; publications and technical documentation; personnel training and training equipment; U.S. Government and contractor engineering, systems integration, technical, and logistics support services; test and trials support; studies and surveys; and other related elements of logistical and program support. The estimated total cost is \$2.5 billion.

The proposed sale of this equipment and support will not alter the basic military balance in the region. The principal contractors will be Raytheon Missiles and Defense, Waltham, MA; Lockheed Martin, Bethesda, MD; BAE Systems, Arlington, VA; and VSE Corporation, Alexandria, VA. There are no known offset agreements in connection with this potential sale.

DM2A4 SeaHake Heavyweight Torpedos



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On 31 March 2022, the General Directorate for Defence Investments and Armaments (GDDIA) awarded the German company ATLAS ELEKTRONIK GmbH with a contract for the procurement and Support of the Hellenic Navy Submarine's Torpedoes. The contract includes the acquisition of 44 modern DM2A4 SeaHake Heavyweight Torpedo mod 4" plus extra batteries for older SST torpedoes / SUT Mod0 torpedoes, estimated budget is in the area of 110 million euro.

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Η Naval Group, ηγέτιδα ευρωπαϊκή δύναμη στα ναυτικά συστήματα άμυνας, με κληρονομιά που μετρά 400 χρόνια περίπου. Περισσότερες από 500 δεξιότητες συνεργάζονται για την ανάπτυξη φιλόδοξων και σύνθετων συστημάτων άμυνας. Οι καινοτόμες λύσεις, που σχεδιάζει, προστατεύουν τα συμφέροντα εθνικής ασφάλειας των συμμάχων της Γαλλίας.

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The electric propulsion system, together with skew glass-fibre reinforced plastic (GRP) propellers ensures silent operation across the whole operating envelope. This minimizes the probability of counter-detection and provides optimum sensor performance. All performance data confirmed in numerous in-water-tests, thus the SeaHake mod4 meets or exceeds all customer requirements. The SeaHake mod4 is the superior Heavy weight Torpedo with undisputed performance and tested in all operational scenarios.

MH-60R Multi-Mission Helicopters

Greece is to receive seven MH-60R Seahawk helicopters it has been approved to buy, The new MH-60R helicopters will replace the Agusta Bell 212 in anti-submarine warfare (ASW) missions. Combined with 11 modernized Sikorsky S-70B6 they will be the "long" arm of the Hellenic Navy for missions against submarines and ships in the Aegean and Eastern Mediterranean, while the Israeli company BET SHEMESH LTD (BSEL) has been awarded with a contract for the maintenance, repair and the overhaul for the T700-401C engines of the Hellenic Navy's S-70 helicopters.

The MH-60R Multi-Mission Helicopters will be equipped with APS-I 53(V) Multi-Mode Radars, T700 GE-401 C Engines, Airborne Low Frequency

System (ALFS), AN/ AAS-44C(V) Multi-Spectral Targeting Systems, Embedded Global Positioning System/Inertial Navigation Systems with Selective Availability/Anti-Spoofing Module (SAASM), AN/SSQ-36/53/62 Sonobuoys, AGM-114 M36-E9 Captive Air Training Missiles (CATM), AGM-114Q Hellfire Training Missiles, Advanced Precision Kill Weapons System (APKWS) Rockets, MK 54 Torpedoes, M-2400 Crew Served Guns; and GAU-21 Crew Served Guns. Also included AN/ARC-210 APX-1990A(C) Radios, AN/AVS-9 Night Vision Devices, AN/APX-123 Identification Friend or Foe (IFF) transponders, spare engine containers; facilities study, design, and construction; spare and repair parts; support and test equipment; communication equipment; ferry support; publications and technical documentation; personnel training and training equipment; U.S. Government and contractor engineering, technical and logistics support services; and other related elements of logistical and program support. S-70 helicopters Lockheed Martin has won a \$21 million contract to customize four MH-60R helicopters ordered by the Hellenic Navy from standard export configuration. Work is expected to be completed in September 2027, The Naval Air Systems Command, through the Foreign Military Sales Program, originally awarded a \$194 million contract modification to Lockheed Martin for four MH-60Rs and three airborne low-frequency sonar systems to be used by the helicopters for Greece, according to an Oct. 26 Defense Department contract announcement.

The MH-60R is the U.S. Navy's maritime strike and anti-submarine helicopter. The helicopter type also has been ordered and/or exported to the Royal Australian Navy, the Royal Danish Air Force, and the Royal Saudi Navy, the Republic of Korea Navy and the Indian Navy. On 8 July 2021, the Naval Air Systems Command awarded Lockheed Martin a \$129 million contract modification for the production and delivery of three MH-60R Seahawk helicopters "as replacement-in-kind for the Navy," the Defense Department said in a June 29 contract announcement. The three replacement-in-kind (RIK) aircraft are in support of the Hellenic navy Foreign Military Sales, said Liz Mildenstein, a spokeswoman for the Naval Air Systems Command. "The U.S. Navy issued three 'green' exportable MH-60Rs to the Hellenic navy in order to support the stated delivery schedule in the FMS case. The RIK aircraft are to replenish the U.S. Navy inventory."

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Italian defence companies to further strengthen collaboration with Elefsis Shipyards and the Greek industry

Within the framework of teaming up with the local industrial eco system and strengthening the collaboration between Italy and Greece, Fincantieri and Leonardo have signed a number of further memorandum of understanding (MoU) with potential new Greek suppliers, setting the basis for defining possible long term business relationships. The event took place on 13 February 2023 in Elefsis, where the Onex Elefsis Shipyards is based. This site is the cornerstone of the strategy of Fincantieri if the Group, as prime contractor, will be awarded the program of the Hellenic Navy corvettes pursued by the Hellenic Minister of National Defence.

Thanks to this milestone the involvement of Greek industry, not only referring to the corvette program, continues. Indeed, the Italian team made up of Fincantieri, Leonardo – as system integrator for the Combat Management System and the naval main

sensors, systems and artillery, MBDA Italia and Elettronica, is compact in supporting the development of a large breadth shipbuilding partner with advanced and reliable skills.

After the ones to start a possible supply network in Greece, Fincantieri signed an official agreement with ONEX Shipyards & Technologies Group last December for the creation of a corvettes manufacturing line & their life-cycle support base, that will be located at Onex Naval and Maritime Elefsis Shipyards.

The agreement:

- provides the terms of collaboration for the construction of 2+1 state-of-the-art technology and top-standard corvettes at Onex Elefsis Shipyards along with the necessary upgrades, improvements, know-how & transfer of technology, equipment, which are estimated at approximately euro 80 million.
- is expected to generate the creation of 2.500 direct and indirect new jobs in the shipbuilding industry.
- constitutes a cooperation with multiple benefits for the Greek economy and defense sector, while enhancing the prospect of further cooperation between the two Groups in future construction programs of warships and commercial ships.

The agreement was an important step in the empowerment of the domestic defense production. The know-how that will be acquired through the ONEX-Fincantieri collaboration, that involves the whole Italian industrial ecosystem, will be an important cornerstone for the development of competitive products that will meet the defense requirements of various markets, giving even greater impetus to the rebirth of the Elefsis Shipyards.

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Airbus is leveraging its innovative heritage and pioneering spirit to drive the development of forefront technologies, critical to the future of the defence, security and space sector. Airbus' products and services range from aircraft and unmanned air systems which enable nations to project air power to intelligence capabilities, observation satellites, maritime surveillance, ground-based space services, cyber security and secure satellite communications solutions. All contribute to making the world a safer place.

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In terms of unmanned aerial systems, Airbus designs and develops a wide range of remotely piloted aircraft, covering all segments from small tactical to HAPS. Airbus is prime contractor for Eurodrone, and has also an important presence in the tactical segment with the current definition of SIRTAP or the proven in maritime operations Aliaca, through its subsidiary SurveyCopter.

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Leonardo brings a holistic approach to maritime security

Continuing to effectively monitor, control and secure the maritime domain, as global threats evolve and technological progress continues to accelerate, is a strategic challenge for all naval forces. Meeting this challenge increasingly requires the integration of different skills and technologies beyond those traditionally associated with the domain. Leonardo operates in and across multiple domains, with capabilities ranging from air defence and weapons systems to defence electronics. With this broad portfolio, Leonardo can bring a holistic approach to the maritime domain, acting as a natural systems integrator.

Leonardo is able to draw on its 60 years of experience as a strategic partner to many international naval forces. The company's systems are on-board more than 1,000 vessels worldwide and, in many cases, make up more than 40% of a vessel's components. Leonardo is currently one of the few companies with a comprehensive naval offer including Combat Management Systems (CMS), kinetic effectors (naval artillery, torpedoes) and missile systems (through MBDA, in which Leonardo has a 25% share) as well as sensors, communications and mission systems. This proprietary technology has been developed through continuous investment in skills and research and honed for operational effectiveness in close partnership with the Italian Navy and other forces around the world.

This strong approach to partnership can be seen in how the Fincantieri-led team is pitching its proposal for the Hellenic Navy corvettes programme, where

if chosen Leonardo will play the role of systems integrator for the corvette's Combat Management System (CMS) and main naval sensors, systems and artillery. Should the team be successful, the partners have committed to supporting the development of Greece's maritime industry, building a firm base of advanced skills in-country. The company has already signed a number of collaborations with potential Greek suppliers, laying the groundwork for long term business relationships within Greece's national industrial ecosystem. The overall ambition is to support in fostering deeper collaboration between Italy and Greece.

This collaboration can also be seen in Greece's adoption of Leonardo's M-346 Master advanced trainer aircraft. The aircraft, today the most advanced solution on the market for the training of latest generation fighters' pilots, has been selected by Greece in the frame of a gov to gov agreement with Israel. The M-346 flew for the first time in full Hellenic Air Force markings in early April, taking off from the Leonardo factory in Venegono, Northern Italy. It will reach soon Kalamata Air Base, home of the 120th Air Training Wing.

Leonardo's partnership with the Hellenic Air Force also encompasses the company's latest defence radar technology, with the Kronos Grand Mobile High Power (GM HP) having been chosen for the NATO range based on the island of Crete. The Kronos GM HP radar will be delivered to the NAMFI (NATO Missile Fire Installation) in 2024 and act as the range's integrated air and missile defence system, ensuring high levels of air safety during exercises. The radar will contribute to high quality training and enable the testing and validation of other system. Like all Kronos family radars, the Kronos GM HP incorporates multi-function and multi-mission capabilities optimised for multiple threats.

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From significant weapon systems acquisitions and agreements with allies such as France and the United States, to the fragile relationship with neighbouring Turkey, the implementation of Greece's Defence Policy aims to strengthen the country's deterrence capability.

The Deputy Minister of National Defence Mr Nikolaos Chardalias in an exclusive interview given to the Greek Defence News reports on the latest developments.

Interview with The Deputy Minister of National Defence Mr Nikolaos Chardalias

Greek Defence News: What are the greatest challenges facing Greece's defence policy after the war in Ukraine? Which is the role that Greece has to play?

The international environment, both regional and broader, remains in a state of flux. It is difficult to make accurate projections about the future while the Russian Federation's aggression against Ukraine continues, with no clear end in sight. Even so, Europe and the collective West must prepare themselves for the day after the guns fall silent, however and whenever this may happen. There is a manifest need to start contemplating the post-war security architecture for Europe. Greece, as the last outpost of the West in the East, will continue fulfilling its historical role as a pillar of stability in the Balkans and the East Mediterranean regions. By promoting and deepening our cooperation with our EU and NATO allies, as well as other like-minded partners, we envisionage Greece as the cornerstone of Western security interests in the area.

Greek Defence News: What is the status of the Hellenic Armed Forces' transformation priorities after the significant procurement programs which have already been announced so far?

This government has strived for constructive modernization in every sector of the State. The Ministry of National Defence was not found wanting in this endeavour. We developed a three-fold strategy that can be summarized as follows: Focus in our personnell, modernization of our equipment and infrastructure, evolution as defence apparatus.

The milestone armament programs, such as the procurement of three FDI frigates, twenty-four Rafale fighter aircrafts and 1200 M117 ASV are just an aspect –albeit a very important one– of a concentrated modernization and development effort around those three pillars. A lot of 'quiet' work has also taken place towards the optimization of our organisational capabilities. In particular, I will highlight the formation of the new Force Structure, the foundation of the Space Directorate and the Special Warfare Command, but also the publication of the Armed Forces' Impact Reduction and Climate Change Adaptation Roadmap, the first of its kind in Europe.

Greek Defence News: Would you please comment on the latest developments on the Greek-Turkish Relations?

We have witnessed some encouraging signs from Ankara after the disastrous earthquakes of last February, including a lessening of its provocative rhetoric and activity. Whether this development marks a broader change in Turkish foreign policy remains to be seen. At this point, our priority should be to maintain a stable political environment so that both the Greek and the Turkish people can express their will in the upcoming national elections without fear of an incident between the two countries. If we are succesful, the new governments will be well positioned to explore the possibilities of a resolution for the only outstanding difference between Greece and Turkey, namely the delimitation of the continental shelf/EEZ.

Greek Defence News: How do you assess the current security situation in the Balkans, North Africa and in the Middle East?

For the last year, Eastern Europe has become the focus of worldwide attention, as a result of the hostilities between Russia and Ukraine. However, the security situation remains complicated in many other areas of the globe, including MENA. For example, we have yet to see the conclusion of a long-term compromise to end the dangerous instability in Libya and Syria, the situation in and around Israel remains volatile, while the recent developments in Sudan are extremely worrisome. I believe that the European Union should place more emphasis on facilitating conflict resolution in its courtyard, since the deterioration of relationships with Russia means that its energy and food security is now even more closely connected to the developments in the broader Middle East and North Africa.

DEFEA 2023 SHOW DAILY



Greek Defence News: The Hellenic defence industry is facing a variety of problems, the most important of which is its development. How is the Ministry of National Defence of the Hellenic Republic assisting this target through the implementation of the big armament programs?

For decades, the Greek defence industry, both public and private, was plagued by a variety of problems and flaws. Our government took decisive steps to reverse this regrettable state of affairs, partly by exploiting the internal and external aspects of the recent armament programs. For example, during the negotiations with France for the conclusion of the recent Strategic Partnership Agreement, we insisted in the inclusion of a specific provision for the advancement of cooperation between the defence industries of the two countries.

Building on this clause, contracts were signed between the French company "Naval Group" and Greek subcontractors within the framework of the program for the supply of the three FDI frigates. What's more, the Hellenic Aerospace Industry, that was in a truly hopeless situation just four years ago, today participates substantially in the upgrade program of our F-16 fleet to the cutting-edge F-16V configuration.

I could mention many other examples that prove the impressive revitalization of our defence industry, like the projects "Architas" and "Gripas" for the production of cutting-edge Unmanned Aerial Vehicles, which are developed on the basis of a public and private partnership. However, I believe that my point is evident: While we will probably not start developing space shuttles any time soon, the Greek national defence industry is back, and it's here to stay.

Greek Defence News: Which is the Ministry of National Defence's vision for the Hellenic Armed Forces of the next decade?

From the very beginning of this government's tenure, the political and military leadership of the Ministry has received a clear mandate from Prime Minister Kyriakos Mitsotakis: Build the strongest Armed Forces in modern Greek history. For four years, the Ministry and the General Staffs have strived for this vision to come into being. The Hellenic Armed Forces are already a deterrent force to be reckoned with and one of the most credible guarantees of peace and stability in the Eastern Mediterranean and the Balkans area. By 2030, after the conclusion of our extremely ambitious armament, reorganization and modernization programs, we expect that their capabilities in every domain will be second to none compared to any other regional actor.

DEFEA 2023 SHOW DAILY

Rafael has established itself as a major player in naval capabilities



Based upon years of experience and deep operational know-how in various naval arenas and scenarios and integrating its combat-proven technologies in all domains, Rafael has established itself as a major player in naval capabilities. Through this extensive experience, the Israeli defense giant has provided and developed leading technologies and solutions that actively provide naval forces defense superiority against all modern naval threats above and below the waves, such as naval area defense, swarm attack defense, and torpedo defense.

RAFAEL's naval combat suite includes a Combat Management System (CMS), Typhoon and Mini-Typhoon Remote Operating Weapon Systems, Naval Spike Missiles, SeaCom Internal Communication System and BNET Tactical Data Link, as well as other components with full maintenance and support services for the given customer. RAFAEL's open architecture concept allows for seamless integration of systems across a wide range of naval platforms and offers unique solutions.

In 2021, RAFAEL unveiled its advanced SEA BREAKER, a 5th generation long range, autonomous, precision-guided missile system, enabling significant attack performance against a variety of high-value maritime and land targets.

Sea Breaker is a naval and artillery unit force-multiplier, designed to overcome the modern warfare arena challenges, using Rafael's legacy of high-end precision-guided solutions.

Sea Breaker provides surgical, pin-point precision strikes from stand-off ranges of up to 300 km. It features an advanced IIR (Imaging Infra-Red) seeker, ideal for engagement of maritime and land targets, stationary or moving, in advanced Anti Access/Area Denial (A2/AD) arenas, and in littoral or brown water, including archipelago, as well as for engagements in which previous generation RF-seeker-based missiles are not effective.

Sea Breaker can be launched from naval platforms, varying in size, from fast attack missile boats to corvettes and frigates. The land version is a central part of the shore defense, based on RAFAEL's highly-mobile SPYDER launchers. The battery architecture supports standalone launchers, or operation as an integrated solution, with a command and control Unit (CCU) and various sensors, based on customer requirements.

Using Artificial Intelligence, Sea Breaker performs deep-learning and big data-based scene-matching, a unique combat-proven RAFAEL technology, enabling Automatic Target Acquisition (ATA) and Automatic Target Recognition (ATR). The system has full operational capability in GNSS-denied arenas, in all weather conditions. The missile is ECM immune and jam-resilient. Sea Breaker's mission profile enables sea-skimming and terrain-following low-level flight above ground.

Flying at high subsonic speeds, Sea Breaker has a multi-directional, synchronized full sphere attack capability, based on predefined attack plans, according to waypoints, azimuth, impact angle and aim point selection, ensuring a high probability of mission success, with a 250 lb. penetration, blast and fragmentation warhead, making a single hit effective enough to neutralize a frigate-sized ship.

The missile's datalink supports real-time man-in-the-loop decision-making and tactical updates. It also features a mid-flight abort capability and Battle Damage Assessment (BDA).



Enhancing Mission Effectiveness

- ⊕ An advanced technology base in Greece with international customer portfolio
- ⊕ Focus on Innovation with Significant Investments in R&D
- ⊕ Proven record & Broad Experience for over 30 years
- ⊕ State of the art production facilities and verification infrastructure
- ⊕ Advanced Technologies and Products for quality-driven users
- ⊕ Long standing participation in EU & NATO new technology development programs



*Tactical Communications C4I Systems / Hybrid Electric Power Systems
Missile Electronics / Surveillance / Unmanned Systems*



DEFEA 2023 SHOW DAILY

Aster 30 air defence missile successfully fired from the FREMM DA Lorraine

On Wednesday 22 March 2023 the French Navy's Lorraine multi-mission frigate enhanced with air defence capabilities (FREMM DA) successfully fired the Aster 30 air defence missile.

This type of firing against targets representative of current threats trains crews to deal with the high intensity scenarios the Navy's battleships are likely to encounter during operations. In this case, the task was to neutralise an air threat with a complex trajectory, in an escort scenario involving a valuable ship under threat of missile attack.

Aster missiles, which come in two versions (Aster 15 with approximately 30 km range, and Aster 30 with approximately 100 km range), are carried by multi-mission frigates, air-defence frigates and the Charles de Gaulle aircraft carrier. They will also be carried by the new defence and intervention frigates. The missiles have been specifically designed to destroy attacking aircraft and missiles.

This form of training against top of the spectrum threats helps consolidate the know-how required of a fighting Navy. Firing complex munitions forms part of the POLARIS spirit and reflects the Navy Chief of Staff's (CEMM) commitment to making naval warfare the prime focus of all Navy activities. The many tactical and technical lessons learned from this firing will help develop the French Navy's combat capabilities.

Although the Aster 30 weapon system has already been validated for the FREMM DA (following the Aster 30 firing from the Alsace on 17 November 2021), this recent firing of complex munitions helps confirm the military capabilities of the Lorraine with a view to its entry into active service. The reaction of the FREMM DA crew, who were unaware of the missile trajectory details, was extremely effective. This training highlights the realism demanded in French naval training since POLARIS.

Firing of this type is impossible without support and expertise from the French Defence Procurement Agency (DGA): DGA Maîtrise de l'information (preparation for firing) and DGA Essais de missiles – Ile du Levant launch site (target implementation and safety of the firing range).

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Launched on 13 November 2020 and accepted by the French State in Toulon on 16 November 2022, the FREMM DA Lorraine is the French Navy's eighth and final FREMM and the second to have enhanced air defence capabilities. With its Caïman Marine helicopter, dipping sonar, latest-generation torpedoes and innovative advanced acoustic quieting, the ship has not only been upgraded for underwater warfare but also has enhanced air defence capabilities to ensure air/sea control and the ability to assume air defence command for a force, including during allied operations. 142 metres in length and 20 metres in width, the Lorraine carries a crew of 123.

©French MoD photo



DEFEA 2023 SHOW DAILY

Naval Group launches the first mine countermeasure vessel of the Belgian-Dutch rMCM programme and lays the keel for the third one

On 29 March 2023, the first of the twelve mine countermeasure vessels of the Belgian-Dutch rMCM programme, the M940 Oostende intended for the Belgian Navy, was floated out in Concarneau. The launching ceremony took place in the presence of Ludivine Dedonder, Belgian Minister of Defence, Kajsa Ollongren, Dutch Minister of Defence, and Patricia Mirallès, French Secretary of State for Veterans and Memory. During this day, Naval Group also laid the keel for the third of the twelve vessels, the M941 Tournai, intended for the Belgian Navy.

This programme was awarded in 2019 to Belgium Naval & Robotics, the consortium formed by Naval Group and Exail following an international competition. It provides for the supply to the Belgian Navy and the Royal Netherlands Navy of twelve mine countermeasures vessels and around a hundred drones integrated inside a toolbox that will equip the vessels. The first delivery is scheduled for the end of 2024 in Zeebrugge, Belgium. Deliveries will then be staggered until 2030.

Pierre Eric Pommellet, CEO of Naval Group said: "I am very pleased to be present here in Concarneau at our Piriou partner shipyard, alongside Exail, to celebrate the progress of this unique programme which is the story of a shared vision for the future of mine warfare and European naval defence. We are working together to develop this game-changing defence solution that will serve Belgian and Dutch sovereignty and prepare the future of mine countermeasures in the naval domain."

Ludivine Dedonder, Belgian Minister of defence stated: "In a world in full swing due to geopolitical upheavals, our cooperation is all the more strategic. The operational concept developed by the Belgian and Dutch navies is a world first and revolutionary in several ways. This project, whose first ship is launching today, shows that cooperation, solidarity and innovation are key values for our common security. With this renewal programme for our mine countermeasure capabilities, we can be proud of our contribution to defence innovation, to face the security challenges of our time together.

Naval Group, as overall architect and prime contractor, is responsible for the design of the ships, the overall integration, and the testing and commissioning of the mission system (combat system and mine countermeasures system).

Kership, a joint venture between Naval Group and Piriou, is in charge of the production of the twelve vessels which are assembled in Concarneau and Lanester. Exail Robotics, as co-contractor, is in charge of the unmanned drones' system. Most of these drones will be produced in Exailfactory (Ostend, Belgium). The maintenance of the ships will be carried out in Belgium in close collaboration between the Belgian Navy and Naval Group Belgium, with the assistance of its partner Flanders Ship Repair. The rMCM programme is also a major element of European Defence. This programme demonstrates that European countries can work together to define their needs and share a solution that is destined to become a reference in the mine countermeasures field, not only for the Belgian and Dutch navies, but also for other navies in Europe and around the world.

These mine countermeasure vessels have the following characteristics:

- **length: 82,6m**
- **width: 17m**
- **displacement: 2800t**
- **maximum speed: 15,3 knots**
- **range: >3500 nautical miles**
- **crew: 63 people (base crew 33 people)**
- **Combat System: Naval Group Polaris system**
- **Drone capabilities: Exail UMISOFT System**
- **2 unmanned surface vehicles (Exail Inspector 125)**
- **3 autonomous underwater vehicles (A-18 equipped with Exail UMISAS 120 sonar)**
- **2 towed sonars (T-18 equipped with Exail UMISAS 240 sonar)**
- **2 Mine Identification & Disposal Systems (Exail Seascan and K-Ster C)**
- **1 unmanned aerial vessel (UMS Skeldar's V200)**
- **1 Exail influence mine sweeping system integrating of 5 CTM magnetic modules and 1 PATRIA acoustic module embarkation capacity**
- **2 SOLAS rigid hull inflatable boats of 7m**



DEFEA 2023 SHOW DAILY

Schiebel gearing up for Hellenic Navy Unmanned Aircraft System (UAS) requirement

The CAMCOPTER® S-100 is the only tactical VTOL UAS in its class with extensive operational experience. It is in use with a number of Navies and Armies on five continents (including several NATO members) on land and at sea, as well as with international agencies, such as the European Maritime Safety Agency (EMSA, in 2022 the systems were deployed in Denmark, Iceland, Germany and France) and the Organisation for Security and Cooperation in Europe (OSCE).

The S-100 can operate day and night, under adverse weather conditions, even beyond the line-of-sight of up to 200 km over land and sea. Its typical payload weight is 50kg and it can fly up to 6 hours.

The UAS is capable of transmitting high-definition payload data to the control station in real-time and does not require a prepared area or support equipment for launch and recovery.

The French Navy has been using the S-100 for more than 10 years. The current French S-100 configuration includes an MX-10 EO/IR and a PT-8 wide-area optical scanner. Following a comprehensive integration carried out by the Naval Group, all three French Mistral-class helicopter carriers are fitted with the UAS (both Egyptian ones have it as well, in a slightly different configuration). The French Navy uses the S-100 for practice purposes during exercises (the S-100 allows the “blue team” to detect the “red team’s ship well in advance) as well as for actual deployments (the S-100s participated in the interception of drug smugglers in the Atlantic and the Indian Ocean).

In 2022, Schiebel was awarded several major contracts, of which e.g. an additional batch for the Royal Thai Navy or the iSAR project for the Spanish Maritime Search and Rescue Society were disclosed.

However, the most significant news is the decision of the Royal Australian Navy to shortcut the SEA-129 tender, for the procurement of a large number of VTOL UAS: in May 2022, at a stage where there were five bidders shortlisted, the Australians valued



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© Schiebel

the S-100 as far superior to the competitors and they entered in a sole source negotiation. In this way, the Royal Australian Navy will get its VTOL UAS 15 months sooner than under the initially planned procedure. The S-100 systems will be operated from the ANZAC class frigates and the forthcoming SEA 1180 Arafura class offshore patrol vessels, and later, the SEA 5000 Hunter class frigates.

In addition, Schiebel was recently awarded the FTUAS (Flexible Tactical Unmanned Air System) contract by the UK Royal Navy. Together with system integrator Thales, the company will provide the S-100 with a range of high precision Intelligence, Surveillance and Reconnaissance (ISR) sensors and systems. The Thales I-Master radar, an EO/IR, and an Automatic Identification System (AIS), all fused with the CarteNav's AIMS Mission System, enables an all-weather detection and identification capability of unknown targets. The system is to be deployed on board of a Royal Navy Type 23 frigate alongside a Wildcat helicopter. The Royal Navy chose the name "Peregrine" for this programme.

Given the S-100 is a mature platform with a running serial production and a wide customer base, Schiebel invests a large part of its Research and Development budget into the extension of its already very large portfolio of payloads. At the annual NATO exercises "REPMUS 2022" and "Dynamic Messenger 2022" in Portugal, the CAMCOPTER® S-100 demonstrated three of its capabilities. The world premiere was the Anti-Submarine Warfare (ASW) suite: the S-100 was equipped with the Thales BlueScan sonar data

processing system in the main payload bay and with a Wescam MX-8 EO/IR sensor in the secondary one. The demonstrated scenario was the surveillance and protection of approaches to a strategic port. With a barrier of sonobuoys already laid, the S-100 was deployed to monitor data from the sonobuoys and relayed it to a command post ashore, permitting the detection and classification of possible enemy submarines. After a quick reconfiguration to the typical ISR suite with Overwatch Imaging PT-8 Oceanwatch and Wescam MX-10 camera-based sensors, the S-100 also demonstrated the ability to automatically detect and identify small objects on shore and at sea in various sea states, as part of ISR and SAR missions or supporting amphibious

operations. The CAMCOPTER® S-100 also delivered medical supplies from the port to a ship nearby, using its underslung cargo delivery net. At REPMUS 2023, already in preparation, Schiebel intends to present another set of innovative configurations, further developing the platform's multi-mission capabilities.

Given that globally one of the current priorities is maritime mine counter-measures, the US Navy tested the capabilities of the CAMCOPTER® S-100 to detect small objects in shallow waters. For this task, the UAV used LiDAR detectors to prepare a detailed bathymetric scan.

The Hellenic Navy has conducted trials of the CAMCOPTER® S-100 on board of one of its frigates during the summer in 2021: Schiebel successfully showcased the S-100's range, endurance and speed, as well as its maritime surveillance and detection capabilities. The scenarios alternated day and night take-offs and landings. Naval Group has already launched studies of the S-100 integration into the Kimon class FDIHN frigates. With the CAMCOPTER® S-100, the Hellenic Navy would get the best-in-class VTOL Unmanned Air System, which is also in service with a number of Greece's allies.

By Lubos Sramek, Sales Director Europe



DEFEA 2023 SHOW DAILY

KATANA - USV System

When Sharpness Crosses the Borders



Where Courage Meets Technology

IAI's KATANA provides an unmanned solution for the entire range of homeland security and naval applications. The KATANA has a modular and flexible architecture that allows adaptation to the customer and mission requirements.

The KATANA Unmanned Surface Vessel (USV) system could be installed on different vessels that serve different missions. The different USVs are based on the same baseline architecture that provides autonomous navigation, mission planning and remote control. On top of this baseline architecture, the USV system supports remote operation of payloads according to the specific mission profile. The system also includes Command & Control stations for remote operation. The KATANA system supports dual-mode operations, meaning that the same vessel could be operated as a USV or as a manned platform with a simple and quick switch-over.

Using the KATANA USV, some missions could be executed remotely and without risk to own forces. Moreover, the dual-mode capability allows for efficient use of the same platform either as USV or as a manned vessel depending on the mission requirements.

Technical Details

- Total Length: 11.90 m
- Total Width: 2.81 m
- Platform Weight: 6,500 Kg
- Top Speed: 60 knots
- Cruising Speed: 30 knots
- Maritime Diesel Engines: 2x560 Hp
- Mission Endurance: 350 nm
- Payload Weight: 2,200 Kg

Performance

- Homeland and harbor security in coastal, shallow and territorial waters
- Surveillance and protection for oil, gas and other critical assets
- Firefighting, search and rescue
- Intelligence gathering and surveillance
- Critical assets security (oil rigs, gas) Fleet Defense
- Special Forces
- Security & Patrol
- Mine-Counter-Measure (MCM) & Anti-Submarine-Warfare (ASW)



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Estonia has signed a contract with Israel Aerospace Industries to acquire long-range loitering munitions

The Republic of Estonia has signed an agreement with Israel Aerospace Industries (IAI) to procure advanced long-range loitering munitions, making it the one of the most expensive defense procurement Estonia has ever made. The procurement of long-range loitering munitions aims to strengthen Estonia's defence capability by significantly increasing its indirect fire capabilities. Along with extended range artillery ammunition, anti-ship missiles, and multiple launch rocket systems, Estonia will have various capabilities to influence the adversary from long distances in the near future.

"Long-range loitering munitions are an important addition to the development of Estonia's defence capability. The importance of indirect fire cannot be overestimated, as Russia has caused much of the destruction in Ukraine through indirect fire. The introduction of this new capability allows us to attack the enemy from a longer distance. As a result, indirect fire becomes more layered and flexible, increasing the range of fire, which means that the defense forces can hit the enemy where it hurts," said Defense Minister Hanno Pevkur.

The Estonian Defence Forces' indirect fire capability is provided by various caliber mortars in the composition of maneuver units and self-propelled howitzers in divisional composition. In 2024-2025, multiple rocket launchers and long-range loitering munitions units will also be created within the Defence Forces.

conducted to find the most suitable solution for the defense forces' needs. Estonia's order focused primarily on achieving long-range offensive capabilities. Criteria included precision, munition robustness, and wide-ranging simultaneous offensive capability.

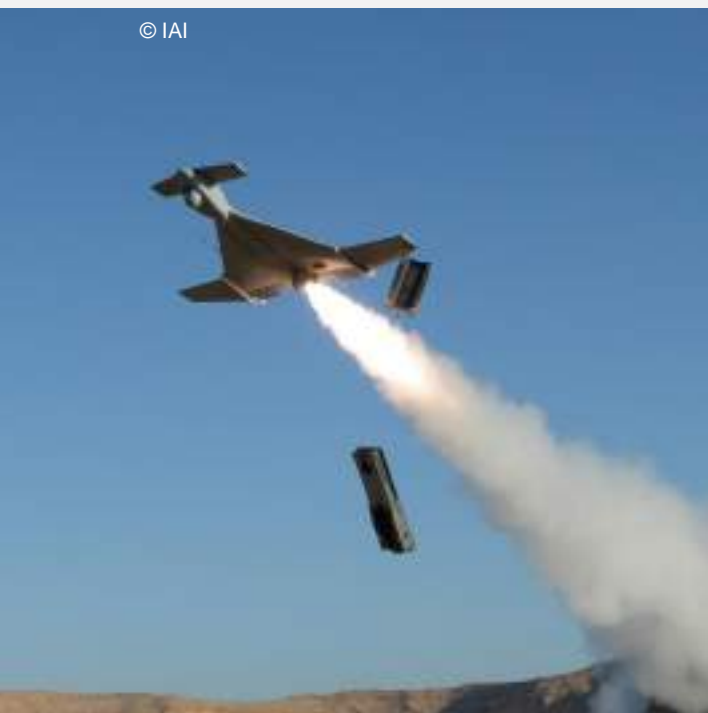
"The market for long-range loitering munitions is currently turbulent. Recent conflicts such as the Nagorno-Karabakh conflict and the ongoing war in Ukraine have demonstrated the high effectiveness of this type of offensive weapon, leading to the development of such systems by several countries, with new players expected to enter the market soon. The future of this market will certainly involve intense competition, and the coming years will reveal where these systems will further evolve. Currently, we have made orders for long-range weapons which we cannot disclose the exact specifications of, but in the future, we plan to acquire similar weapons with different technical capabilities and for firing at different ranges," said Ramil Lipp, armament category manager of the ECDI.

IAI's President and CEO Mr. Boaz Levi, said: "Estonia is a strategic partner for IAI. This award reflects the growing trust and relations between Estonia and our company. IAI offers a family of loitering munition missiles – providing a wide range of solutions from the tactical to the strategic level"

Market research for the procurement of long-range loitering munitions began in the spring of 2022 with the mapping of the first companies. The market research included companies from the USA, Turkey, South Korea, Poland, Germany, Israel, the United Kingdom, and Estonia.

The first deliveries are expected to arrive in 2024, with the necessary training provided to the Defence Forces before deployment. The Defense Forces will be ready to use the systems as soon as they arrive.

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DEFEA 2023 SHOW DAILY

Diehl Defence Guided Missiles for Air and Sea - IRIS-T and RBS15

Diehl Defence concentrates the Diehl Group's business activities in the fields of defence and security and is a leading supplier of state-of-the-art air defence systems. As partner of the German Bundeswehr and international armed forces, Diehl Defence develops and delivers high-tech equipment in the fields of ground-based air defence, guided missiles, ammunition as well as training and protection. Diehl Defence generates annual sales of over 900 million euros with more than 3,200 employees.

Diehl Defence's flagship IRIS-T (InfraRed Imaging System – Tail/Thrust Vector Controlled) is a state-of-the-art fire-and-forget short-range air-to-air missile with unrivalled close-in combat and intercept performance. The IRIS-T guided missile was initially developed as aircraft armament for air combat and has been in service since 2005.

The combination of thrust vector and aerodynamic control provides the missile with extremely high agility. The imaging IR seeker head in conjunction with intelligent image processing is another technological leap. Predictive flight path tracking and lock-on-after-launch features enable the missile to engage targets even in the rear hemisphere. The target can be designated by the airborne radar or via the pilot's helmet sight. Overall, IRIS-T is characterized by exceptional maneuverability and agility as well as precise aim-point selection.

IRIS-T is an absolute export success. It was jointly developed by European nations; the production is managed by Diehl Defence in cooperation with industrial partners from Spain, Italy, Sweden, Greece, Norway and Austria. IRIS-T represents the backbone of European air forces in terms of infrared missiles used to protect their fighter jets. It was selected as standard weapon for the Eurofighter, F-5, F-16, EF-18, KF-21, Tornado and Gripen fighter aircraft and thus enhances the self-defence capability and survivability of the mentioned platforms. IRIS-T is in service with more than 10 air forces worldwide. Besides its role as aircraft armament, IRIS-T is also used as surface-to-air missile, e.g. in the ground-based air defence system IRIS-T SLS for object and short-range protection.



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© Diehl Defence

A performance upgrade of the IRIS-T missile to a block II version will commence in 2024. It will comprise the elimination of obsolescence as well as a performance improvement including new capabilities. Further blocks with even more performance enhancements and the fulfillment of future operational requirements are currently being discussed by the IRIS-T consortium under the leadership of Germany.

RBS15 Mk3 – Anti-Ship Missile System with Land Attack Capability

RBS15 Mk3 is a jointly developed version of the proven predecessor Saab RBS15 Mk2 used in the Swedish Navy and other naval forces. All in all, 7 nations have been using the RBS15 missile system.

With the heavy anti-ship missile RBS15 Mk3, Diehl Defence delivers the main weapon for the German Navy's corvettes of the "Braunschweig" class (K130) in cooperation with the Swedish partner Saab Dynamics.

RBS15 Mk3 is a highly effective precision weapon with active radar seeker head which is extremely jam resistant against electronic countermeasures. The all-weather capable anti-ship missile is also able to successfully engage sea targets and quasi-stationary land targets at a distance of more than 200 km. For this purpose, a combination of inertial

and GPS-aided navigation is used for the free flight. The radar seeker is mainly activated for the target location during terminal homing.

The trajectory can be configured flexibly (evasive maneuver and attack repetition during the terminal phase) via programmable way points and elaborated altitude regulation (sea-skimming). Low radar and infrared signature make the detection more difficult for the enemy. On account of its capabilities, the RBS15 Mk3 disposes of a high penetration capability against air defence and electronic countermeasures. The target engagement is based on a modern operational missile engagement planning system with relevant data bases. Stream multi-missile attacks can be realized.

The missile can also be launched from land-based platforms (e.g. trucks) so that a very effective coastal defence can be created quickly and easily. RBS15 will search, find and destroy the designated targets.

Saab and Diehl decided to develop a new product within the missile family RBS15. In addition to the ship-based and land-based version, the new generation is to be made available for fighter aircraft as well. RBS15 is designed to give you the edge to stay ahead in increasingly complex conflict scenarios.

DEFEA 2023 SHOW DAILY

Tamandaré frigate keel laying marks innovation in military shipbuilding in Brazil

On March 24th, the Brazilian Navy and Águas Azuis, a special purpose entity (SPE) formed by thyssenkrupp Marine Systems, Embraer Defense & Security and Atech, celebrated another milestone in the construction of the Tamandaré frigate: the ship's keel laying. The ceremony, which took place at thyssenkrupp Estaleiro Brasil Sul in Itajaí, Santa Catarina, was attended by the Commander of the Navy Fleet Admiral Marcos Sampaio Olsen, and other civil and military authorities from the defense sector and the naval industry.

Traditionally celebrated in shipbuilding, the keel laying takes place when the keel, the "backbone" of the vessel, is completed, allowing the construction of the other parts. Nowadays, with the engineering evolution and the modern production processes adopted in the Tamandaré Class Frigates Program (PFCT), it is possible for the ships to be built in blocks. In the case of the Tamandaré frigate, the first of the four ships in the PFCT, the keel laying was characterized by the positioning at its building site of an important structural block, which corresponds to the forward engine room. In this metal structure, which weighs approximately 52 tons, two engines, a gearbox and several pumps and auxiliary equipment will be installed.

The construction model, which provides for production in blocks to be joined later, offers several advantages over the old method. In this way, it is possible to install accessories and foundations in advance, in addition to facilitating the placement of equipment on board and enabling work to proceed in different stages in a segregated manner for each unit. The process also increases employee safety by keeping spaces open longer during construction.

The innovations involved in the PFCT extend throughout the entire production chain. Historically, projects of this size are developed from a large number of printed documents, such as drawings, procedures and manuals, which require many copies and recurring updates. In this sense, the shipyard has implemented a methodology for engineering projects called "Paperless", which consists of eliminating the use of paper drawings in the frigate's production line, transforming them into digital files. This approach brings advantages for the information security of the documents, due to the confidentiality required in a military project, and also benefits the environment.

The state of PFCT construction is advancing within schedule, and currently represents 34 % of its total evolution. For the next stages, it is planned to build the block that forms the aft engine room, with the positioning of the equipment and engines in place. Next, the built blocks will complete the central structures of the ship. It should be noted that, of the more than fifty structural units that make up the construction sequence of the first Tamandaré Class frigate, about a quarter are in the process of structural assembly at thyssenkrupp Estaleiro Brasil Sul, and others are already cut and shaped, with panels and subassemblies completed.

Conducted since 2017 by the Brazilian Navy, executed by Águas Azuis and managed by Empresa Gerencial de Projetos Navais (EMGEPRON), the Tamandaré Class Frigates Program is the most modern and innovative naval project developed in the country, comprising the building, within national territory, of four defense ships of high technological complexity. The vessels must reach operational capacity to respond and protect the "Blue Amazon", generating technology transfer and perpetual license, and promoting local industry and civil construction in the country. The Brazilian Navy predicts that the program, as a whole, could create around 2,000 direct jobs and 6,000 indirect jobs.

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DEFEA 2023 SHOW DAILY

OCCAR SIGNS CONTRACT TO LAUNCH GLOBAL PRODUCTION OF ASTER MISSILES INCLUDING THE NEW ASTER 30 B1NT

The OCCAR-EA Director Matteo Bisceglia and the Managing Director of Eurosam Eva Bruxmeier signed the contract for the production of ASTER 30 B1 New Technology, ASTER 30 B1 and ASTER 15 medium range air defence missiles.

The contract was signed in February on behalf of the Direction Générale de l'Armement (DGA) for France and SEGREDIFESA for Italy for the benefit of 5 forces: French Air Force, French Navy, Italian Army, Italian Navy and a new end-user Italian Air Force. This contract concerns especially the procurement of the new version of ASTER 30 B1 NT to deal with future aerial threats speedier and more manoeuvrable.

HORIZON frigates of the Italian Navy. In addition, this contract takes into account the production of new ASTER 30 B1 for SAMP/T NG for Italian Air Force and new ASTER 30 and ASTER 15 for French and Italian Navy.

This complex contract negotiated by OCCAR reached to a conclusion thanks to a strong involvement of EUROSAM and MBDA, as European missile industrial reference, and great cooperation of Nations. With this new contract, OCCAR reinforces the European missile industry supported by MBDA and by major European actors like Thales, Avio, Roxel, Simmel...

This new contract comes in addition to the contract of the Mid-Life Update of the current ASTER stockpile of France, Italy and United-Kingdom placed in 2020 and 2021. With these contracts, OCCAR will provide to the 3 Nations a renewed capacity of Medium Range Air-Defence, contributing at the same time to the European Air Defence system.

FSAF/PAAMS IN SERVICE SUPPORT 2023-2027 CONTRACT SIGNED

FSAF/PAAMS In Service Support 2023-2027 contract has been signed. The FSAF/PAAMS Programme Division achieved the second major milestone of the In Service Support (ISS) contracts renewal, by signing the new ISS#3 contract with EUROSAM, MBDA & THALES for a duration of 5 years (from 2023 to 2027).

Therefore, from the 2nd January 2023, and in line with the previous ISS agreement, the Prime Contractor and his partners have been given renewed responsibility for the supply of Spares and Repairs for the SAMP/T, PAAMS, SAAM/IT, SAAM/FR systems and ASTER munitions, on behalf of OCCAR EA.

With regards to the current geopolitical context, France and Italy have required a higher commitment from industry, with the implementation of some new dedicated activities/services in order to support the increased operational demands on the systems. The FSAF-PAAMS PD was also able to negotiate an additional work package with THALES, to facilitate a contractual upgrade to increase the MRI (Module Radar Identification) operational availability.

The last and equally as important FSAF/PAAMS ISS milestone will be the COTS & Services framework contract, open to European SME (Small to Medium-sized Enterprises) competition, to be signed by August 2023.

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a modular scalable system designed to integrate and control multiple sensors and effectors. Sky Warden can address all threats from small aircraft to very small drones, of which we have seen growing use of recently in conflicts in Europe and elsewhere.

In the field of deep strike and heavy anti-ship weapons, 2022 saw the next phase launched of the Future Cruise/Anti-Ship Weapon (FC/ASW) between France and the United Kingdom, focusing on the

coordinated development of the program, and re-confirmed last week during the Franco-British summit in Paris. Future air combat also stands as a priority for MBDA, being involved in the two major programmes: Germany, France and Spain continued to advance on the Future Combat Air System (FCAS) project for which MBDA is responsible for new Remote Carrier effectors and brings its expertise on connected collaborative combat; and with the Global Combat Air Program, backed by the UK, Italy and Japan, for which MBDA is the effects domain leader. On the innovation side, good progress was made in 2022 on laser directed energy weapons, with the recent acquisition of Cilas in France, the successful trials of Dragonfire in the UK and of the new tracking technology for high-energy laser (HEL) in Germany.

MBDA was founded on the strong willingness of nations to co-operate, this is our strength and is what makes us successful. It is through the interaction of different cultures, different know-how and different ways of working, while respecting national priorities, that MBDA developed itself as an integrated European company. Investment in people to drive innovation and delivery remains a core focus for MBDA, with a company record-breaking 1,570 new people joining the group in 2022, and a plan to recruit more than 2,000 new employees in 2023.

Outside our domestic countries, among the major export contracts signed in 2022 were the weapon packages for the UAE's new Rafale aircraft, the weapon packages for Greece's new frigates and Rafale aircraft, and the CAMM missile contract in Poland.

In total, revenues in 2022 were €4.2 billion, consistent with 2021's record level. Order intake reached a new record total of €9 billion in 2022, growing MBDA's order backlog to €22.3 billion.

MBDA COOPERATION IS OUR STRENGTH

MBDA held its annual press conference in Paris today, 15 March, and presented the group's achievements in 2022 and the challenges to come.

Éric Béranger, CEO of MBDA, said: "At MBDA, co-operation is our strength: the union of countries, of cultures, of expertise and of technology. Co-operation is what allowed us to deliver our strong performance in 2022. Today more than ever, in this deeply troubled international context, we can see how it is through co-operation that we will prevail, support the reinforcement of our countries' sovereignty, and help ensure the safety of our people."

MBDA contributes to European air defence security through the comprehensive solutions offered to counter the whole range of air threats, from long-range ballistic missiles to very small unmanned aircraft. Air defence systems operating the Aster missiles are deployed in France, Italy and the UK, on both ships and on land systems such as the SAMP/T, which was recently sent to Ukraine's borders. Its next generation, SAMP/T NG, continued to advance in 2022 and will be delivered to Italy and France by 2025 and available for export in 2026. Co-operation in air defence is also built around another emblematic co-operation programme between Italy and the UK, CAMM and CAMM-ER, for which in 2022 MBDA received an order for the Italian Army and the Italian Air Force. Progress was also made on Sky Warden, our flagship solution to counter unmanned aerial systems (C-UAS),

DEFEA 2023 SHOW DAILY

Germany buys 227 additional BAE Systems BvS10s through framework agreement

Germany is investing in an additional 227 ultra-mobile, protected, all-terrain BvS10 vehicles from BAE Systems. The German contract, worth around \$400 million, follows the joint procurement by Sweden, Germany, and the United Kingdom in support of Arctic operations for the Collaborative All-Terrain Vehicle (CATV) program, with Sweden as the lead nation. This will extend the deliveries from the framework agreement, which are to begin in 2024, out to 2030.

“This framework agreement streamlines the process by allowing prospective and existing customers to acquire vehicles at previously negotiated terms, while also benefiting from the joint development,” said Tommy Gustafsson-Rask, managing director of BAE Systems Hägglunds, which manufactures the vehicles in Örnsköldsvik, Sweden. “This will secure Germany’s access to these highly capable vehicles for decades to come and demonstrates the strong relationship between BAE Systems and our customer.”

BAE Systems’ military all-terrain vehicles are designed for operations in the harshest and most

remote environments, and this agreement signals the company’s position as the defense industry’s leader in these capabilities. The new contract is for additional troop transport vehicles and armored personnel carriers (APCs), as well as three new German BvS10 versions; Command and Control (C2), and two logistics variants that will add combat support to the German Armed Forces.

The BvS10 (and Beowulf) are world-leading all-terrain solutions. Their articulated mobility systems provide optimal maneuverability across varying terrains including snow, ice, rock, sand, mud, swamps, and steep mountain environments. The vehicles’ amphibious feature also allows them to swim in flooded areas or coastal waters. The vehicles can deliver personnel and supplies to sustain strategic, tactical, and operational mobility.

BvS10’s unprecedented mobility is based on terrain accessible North Atlantic Treaty Organization (NATO) standards. Its modular design allows it to be reconfigured for varying missions and can be delivered in multiple variants that include carrying personnel, command and control, ambulance, vehicle repair and recovery, logistics support, situational awareness, and a weapons carrier with additional mortar capability.

The vehicle is currently operated by Austria, France, the Netherlands, Sweden, and the United Kingdom. BAE Systems’ Beowulf, the unarmored variant of the BvS10, won the U.S. Army’s competition for its Cold Weather All-Terrain Vehicle (CATV) program in August. The U.S. Army will receive 110 vehicles over a five-year period.



DEFEA 2023 SHOW DAILY

Colt CZ Group

Colt CZ Group SE, together with its subsidiaries, is one of the world’s leading manufacturers of firearms and tactical accessories for the military and law enforcement, personal defense, hunting, sport shooting and other commercial use. All products are internationally recognized for their high-quality construction and extreme reliability. Through high-quality combination of advanced craftsmanship, modern design and production technology, and high-level R&D, new and innovative products are consistently brought to market each year.

Companies in the Group include Colt, Colt Canada, CZ, 4M Systems, Spuhr i Dalby and Colt CZ Defence Solutions. Colt CZ Group is headquartered in the Czech Republic and has production facilities in the Czech Republic, the United States, Canada, and Sweden. It currently employs more than 2,000 people. It is a publicly traded company that is listed on the Prague Stock Exchange.

Key brands

Colt, CZ (Ceska zbrojovka), Colt Canada, Spuhr, and 4M Tactical

2022 results: Revenues of CZK 14,590 mil. / USD 663 mil., with total sales of almost 700,000 firearms.



A Selection of Military and Law Enforcement

Customers: Australia, Brazil, Canada, Czech Republic, Denmark, France, Germany, Hungary, Indonesia, Israel, Italy, Jordan, Kenya, Malaysia, Mexico, Netherlands, New Zealand, Poland, Portugal, Romania, Singapore, Slovakia, Sweden, Thailand, Ukraine, United Kingdom, United States, Vietnam and many more.

Military and Law Enforcement Products:



- CZ BREN 2 rifles, CZ SCORPION EVO 3 A1 sub guns and CZ P-10 polymer pistols
- Colt M4, Colt M5 and Colt M16 rifles
- Colt Canada C20 semi-automatic rifles
- Spuhr optical mounts, accessories, and upgrade kits for firearms



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HED ENGINEERING is a pioneering, technologically advanced, Mechanical Engineering Company that invents, designs, manufactures and maintains innovative, Tailor-Made Mechanical Support Equipment for diversified business sectors.

HED is a Greek company, who has the expertise to turn any idea or need into an absolute effective engineering equipment. Today, HED has a specialized and competent Engineering Team working under certified European standards, incorporating cutting edge technologies and practices enabling HED to deliver unique, tailor-made equipment that fulfils any idea.

HED specializes in the industry of CAPITAL GOODS. HED’s mechanical support equipment are assets used in business production.



DEFEA 2023 SHOW DAILY

New Series of Als - Class Surface Combat Ships (SCS)

Specializing in warships, the **Als NSD – Naval Ship Designs** team of researchers and designers present the new series of Als Class Surface Combat Ships (SCS), which includes seven (7) ships:

Als® Class "55 SCS", "65 SCS", "85 SCS", "95 SCS", "100 SCS", "105 SCS" and "110 SCS".

Designed by Greeks, incorporating the latest lessons learned from aeronautical conflicts/wars and updated with the latest technology developments, these modern vessels are exceptional for both the Aegean Sea and the Eastern Mediterranean as well as for other archipelagos, littorals and seas. They can cover the needs of most Navies and Coast Guards worldwide, in multiple roles such as: Coast Guard, OPV, Fast Attack Craft, Littoral Attack Craft, Light Corvette, Corvette, Littoral Combat Ship, Light Frigate.



The ships are based on a platform with common hydrodynamic characteristics and with the design philosophy of enhanced survivability. With an inherent ability to operate, fight effectively and survive in a multi-threat environment, with significant potential capabilities and growth margin aiming upgrades, so they can cope with threat developments throughout their long operational life.

After its participation in DEFEA 2021 and the collaborations that followed, **Als NSD**, with great confidence, continued to improve and adapt its ships' designs to meet the real needs of a wide range of "users", maritime operations and operational environments.

With its participation in DEFEA 2023, **Als NSD** aspires, among other things, to present its new designs and contribute to the revival of the Greek defense shipbuilding industry.

Zodiac

Hurricane™MACH II

Considered the finest craft of their type in the world, the Zodiac Hurricane™ range of RIBs are used by the most knowledgeable and discriminating operators who demand the utmost in ruggedness and reliability. RIBs combine the security, stability, lightweight, and ease of use of traditional inflatables with the speed and comfort of a rigid boat. True "go anywhere" boats provide exceptional marine qualities by combining a low center of gravity with a deep V hull and a stabilizing buoyancy tube.

The Zodiac Hurricane™MACH II (Military Air Channeled Hull II) was created to offer a high speed fully versatile boat that is at ease in all activities and all sea conditions. The patented MACH hull design reduces resistance and enhances directional stability for increased speed, fuel economy, and safety. The Zodiac Hurricane ZH-1300 MACH II OB Interceptor is the largest platform of the Zodiac Hurricane™ range and had its world debut in 2017.



The ZH-1300 shows the nimble maneuverability normally associated with smaller craft and addresses the needs of end users in the Military and Patrol boat market for larger platforms, with a focus on speed. The design of a true RIB has been proven particularly effective in high-speed interdiction missions. With the inherent hull protection provided by the inflatable collar, a RIB serves as an excellent boarding platform in difficult conditions, where boarding from a conventional hull poses a significant risk to crew and equipment.

DEFEA 2023 SHOW DAILY

Nammo proposes collaboration with the HDS for ammunition production in Greece

Nammo's 20 mm x 102 MP LD M70 A1 ammunition is a versatile and high-performance round that is effective against a wide range of targets. With its exceptional muzzle velocity and long-range accuracy, this ammunition is a valuable asset for military forces.

As the Original Equipment Manufacturer (OEM) of the MP LD M70 A1 round and Multi-purpose technology, Nammo/Norway has licensed the production of the PGU-28 A/B SAPHEI to the US Government and US industry. Our 20 mm x 102 MP LD M70 A1 rounds are qualified and in use in many countries that operate F16's, including Norway, Poland, the Netherlands, Denmark, and Portugal, and previously Greece. Nammo, which is majority-owned by the Norwegian State, is committed to meeting the ammunition needs of other NATO and European allies.



Nammo is willing to resume discussions with Hellenic Defence System (HDS), a local ammunition manufacturer, to provide Greek added value to this production. This collaboration has the potential to create and maintain high-skilled jobs, facilitate the development of technologies that have not been in operation for multiple years, contribute to tax revenue in Greece, and ensure a secure supply chain with timely deliveries. Regarding implementation in HDS/Greece: Nammo and HDS have previously collaborated with great success, and if this partnership is re-established, it will enable the Hellenic Air Force to receive the brand-new rounds they need on time.

ZOIS EFSTATHIOU S.A

Founded in 1946, ZOIS EFSTATHIOU S.A., is recognized as a key partner for the Hellenic Navy, Coast Guard and Army Special Forces in Greece.

Inherently reliable and deeply rooted in the "art of sea", ZOIS EFSTATHIOU S.A. is committed to continuing a legacy of excellence in Naval Supplies.

In exclusive and solid partnership with Brunswick Corporation, for MERCURY outboards and integrated systems, products and holistic after sales services on marine recreation, ZOIS EFSTATHIOU is the only Greek company that has incorporated a specialized "Defense and Security Division"

The D.S Division plays a prominent role in military procurement and is a trusted partner of all Governments and Defense departments, boat manufactures and boat importers.

Fostering exclusive collaborations with global brands in engines and equipment, ZOIS EFSTATHIOU is not only equipped to address the

ever-changing demands of today, but also shaping the naval industry of tomorrow.



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LEONIDAS 300



LEOPARD 2A7



HOPLITE 4X4



BOXER 8x8

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