

# Lockheed Martin Offering Greece New Frigates, Based on Freedom-Class LCS



An artist's representation of the Multi-Mission Surface Combatant tailored for the Greek navy. *LOCKHEED MARTIN*

The United States and Greece are actively discussing a potential acquisition of four Hellenic Navy Future Frigates (HF2s) from Lockheed Martin, based on the company's for-export Multi-Mission Surface Combatant (MMSC) and Freedom-class variant of the littoral combat ship (LCS).

Saudi Arabia has ordered four MMSCs and signed a Letter of Intent for four more. The first two are under construction at Fincantieri's Marinette Marine shipyard in Wisconsin, where the Freedom-class ships are built.

Fabrication for the first MMSC, HMS Saud, began in October 2019. Steel was cut for the second as-yet-unnamed MMSC in January of this year.

"We've integrated these capabilities with the Saudi MMSC, focused across those multi-mission warfare areas, and we see the Hellenic Navy asking for similar capabilities to this configuration," said Lockheed Martin's LCS program vice president Joe DePietro, who is also responsible for the MMSC and HF2.

According to DePietro, these differences show the tremendous flexibility of the seaframe. "We're able to achieve that with our COMBATSS 21 combat management system, which is a derivative of our Aegis combat system, found on U.S. and international platforms, which come from the same common source library. We can quickly integrate different or new warfare capabilities from a systems perspective."

The common combat management system and weapons, with the ability to share information between the platforms allow them to maximize capabilities in many domains.

What LCS does not have but will be common with the RSNF MMSC and HF2 is an eight-cell MK 41 vertical launch system (VLS). However, unique to the HF2 will be three additional single cell VLS tubes, giving it a total of 11 cells. Missiles like the Evolved SeaSparrow Missile or Sea Ceptor common anti-air modular missile – maritime (CAMM) can be quad-packed, giving each cell the ability to have four missiles in any one cell.

To make room for the VLS in the MMSC and HF2, the gun moves forward, which also makes the room for the additional cells.

“The beauty of single cells is that you can place them in multiple areas of the ship. Because of the flexibility of our hull form and the combat management system, we can accommodate those capabilities that our international partners want to include on their ships.”

DePietro said that Lockheed Martin invested in the capability to utilize multiple VLS cells on different platforms, especially for ships that did not have existing space for a full eight-cell system or larger configuration (some Arleigh Burke-class guided missile destroyers have up to 32 cells forward and 64 cells aft).

The Greek ship will have some variations from the basic MMSC design, such as a larger 76mm instead of the 57mm gun. The Saudi ship will have eight canister launchers for Harpoon anti-ship missiles, where the Greek ship may carry the Naval Strike Missile (NSM).

LCS is a focused-mission ship that allocates a significant amount of its volume to the mission packages. About 40 percent of the ship is set up to receive mission packages that can be connected to the ship’s computing environment to become part

of the ship's overall system. "That gives us a lot of flexibility to also integrate a more traditional multi-mission combat system – to include anti-air, anti-submarine and self-defense capabilities," said DePietro.

For the Freedom-class LCS ships, LCS 1 through 15 carry the MK 31 RAM launcher, while LCS 17 and following ships will have the Sea-RAM installed (all of the Independence-class LCSs already have Sea-RAM). SeaRAM combines the radar and electrooptical system of the Phalanx CIWS Mk-15 Block 1B (CRDC) with an 11-cell RAM launcher to produce an autonomous system—one which does not need any external information to engage threats. The 11-missile SeaRAM will equip the Royal Saudi Navy's multi-mission surface combat (MMSC) based on the Freedom-class littoral combat ships, but the Hellenic Future Frigate will employ the 21-missile MK 31 system.

"As with the Freedom class LCS, we've moved from the TRS 3D to TRS 4D AN/SPS-80 solid state radar with longer detection ranges and accuracy. That, along with the AN/SLQ-32C (V)6 electronic warfare system, gives greater capabilities with regards to the employment of the RAM missile," said DePietro.

The HF2 will have a robust ASW capability. "We've looked at hull-mounted sonars for the MMSC for different customers," DePietro said. "We believe a variable-depth sonar (VDS) paired with the MH-60R helicopter, which the Hellenic Navy has already bought, will give them a significant capability. We're also looking at how we can maximize the capabilities of their upgraded MEKO-frigates and HF2s working together. We think the VDS will give them much needed sonar coverage of the areas where they expect to operate. We're looking at the Thales CAPTAS 2 right now."

The HF2 is designed to embark and operate multiple UAVs – depending on size – along with a minimum of one MH-60R, although the ship can carry two. The ship's datalink will allow communication between the ship, the helicopter and

whatever UAVs they choose, at the same time.

Like the parent LCS design, the MMSC and HF2 have Rolls-Royce MT30 gas turbines and Fairbanks Morse diesels for propulsion. DePietro said the new ships will benefit from all of the modifications, upgrades and improvements in survivability, as well as the substantial testing and validation from the LCS program since the beginning.

The export variants will have the same steel hull and aluminum superstructure. But, he said, Lockheed Martin also offers flexibility. "We can tailor the ship and the systems to meet the requirements of our customers."

The four Saudi ships will be built at Marinette, and Lockheed is currently reviewing options to build a number of the HF2 hulls in Greece, providing an opportunity to revitalize the Greek shipbuilding industry's capability and capacity, and to advance Greek industries.

DePietro sees more export opportunities. "We're seeing interest from navies, particularly for ships with this Hellenic Navy configuration," DePietro said. "There are a number of navies who would like to build them locally, in their shipyards. So, we have to go and assess the capability, and understand how that would work from a construction and contracts perspective."

"We're looking at the international arrangements with Fincantieri as our partner. Lockheed Martin partners around the globe for design and integration of ship platforms. Together you get a team that knows how to do this."

### **Fleet modernization**

New ships are needed to modernize the Hellenic navy. The HN currently operates four Hydra-class MEKO 200 frigates, built between 1992 and 1998, and nine Elli-class frigates, formerly Dutch Navy Kortenaer-class frigates, commissioned in the Royal

Netherlands Navy between 1978 and 1983, and transferred to Greece between 1993 and 2002. (A total of 10 Kortenaers were acquired, but one has been decommissioned and is currently used for parts.)

While some news reports claim that Greece has made its decision on the Lockheed Martin solution for their new combatant, the actual process is complicated and not yet final.

There are other proposals being offered for consideration. British shipbuilder Babcock, partnered with Thales UK, is proposing its Arrowhead 140 design, based on the future Royal Navy Type 31 frigate (which is itself based on the based on the Danish Navy's Iver Huitfeldt frigates. Dutch Shipbuilder Damen is reportedly offering its SIGMA 11515 frigate. A French group with Naval Group, Thales and MBDA, is proposing the Frégate de défense et d'intervention (FDI). A German team led by TKMS is proposing its MEKO A200NG or A3000 frigate. Spain's Navantia is offering its F-110 and Fincantieri is proposing the FREMM, although they are also partnered with Lockheed Martin on the MMSC variant of LCS.

Greece wants more than ships. It wants a partnership that also includes modernization of its shipbuilding capability, upgrading of its four MEKO frigates and other considerations. The MEKO frigate upgrades offer an opportunity for the Hellenic Navy to drive commonality between MEKO frigates and HF2. Under consideration is the use of the AEGIS based COMBATSS-21 combat management system that streamline training pipelines and leveraged existing integrated systems on both ships such as the MH-60R.

"We are very committed to our Navy-to-Navy partnership with Greece," said U.S. Ambassador Geoffrey R. Pyatt, speaking to reporters in Athens March 4.

Pyatt noted key programs where the U.S. is supporting Greece.

“We want to see the Hellenic Navy be as capable as possible because that makes NATO stronger. The MH-60 Romeos are part of that. The P-3 upgrades are part of that. The Mark-5s for the Special Forces are part of that. So, we are already demonstrating our commitment to enhancing Greece’s naval capabilities. The next big step is going to be the frigates. This is a big decision for the Greek state. It’s a sovereign decision that Greece is going to make.”