Belgium and the Netherlands began construction of their joint mine countermeasure ship project with a steel-cutting ceremony in France in November 2021.

Cold Waters Spark Warm Relationship

BELGIUM AND NETHERLANDS TEAM UP TO DEPLOY NEW SHIP WITH A MINE-COUNTERMEASURES TOOLBOX

BY EDWARD LUNDQUIST

When it comes to international naval partnerships, few relationships are as close as Belgium and the Netherlands. They operate similar ships and aircraft, and share operations, training, education, and procurement.

Now, the two nations have embarked on a joint program to develop and build twelve new mine countermeasures (MCM) capabilities (six ships each for their respective navies) which exemplifies the close collaboration. The two countries are also jointly acquiring new frigates, led by the Netherlands, while the replacement mine countermeasures (rMCM) vessel program is being led by Belgium.

Mine Concerns in Key Zones

Naval mines are a serious concern. Both nations have very large port complexes that are key logistics hubs for all of Europe, so mines are a particularly worrisome threat.

"We have a small, exclusive economic zone. But the importance of the sea lines of communication through Belgium's waters and our EEZ, and with our neighbors in the Netherlands, is of much of much importance to our blue economy," said Belgian Navy Cmdr. Renaud Hock, project leader for the rMCM program. "That's why Belgium and the Netherlands have been experts in dealing with mine threats and mine countermeasures for many years, and we intend to continue to do so."

Beyond the approaches to their major ports, both Belgium and the Netherlands have interests overseas. There are Dutch possessions in the Caribbean, and Belgium has obligations in Africa. "We want to have a new type of ship — bigger, stronger, that can sail further — up to 3,500 nautical miles without refueling.

The ships must have the sufficient facilities to sustain deployment up to 200 days, with up to 30 days without resupply." Hock said. "And we need to be able to operate in choke points like the Suez Canal and Straits of Hormuz because those choke points, for example, are so important to us, and the world."

Both nations currently have Tripartite-class MCM ships that they built together with France. Not only are they growing old — the first was commissioned in 1983 — but they no longer satisfy all the current MCM requirements of the two navies. Transit speeds, endurance and operational time on station, and covertness are lacking; the ships have limited self-defense capability, and there are no staff facilities. And, those ships must operate inside the minefield, thus risking the crew.

Since the threat has advanced, so must the response to the threat.

Pillars of rMCM Project

The rMCM project has three pillars: the platform, the toolbox, and the simulator to train the crews and support the new CONOPS (concepts of operations).

"We want to keep the platform where the crew is, outside of the minefield, and so to work at standoff ranges, and even over the horizon," Hock said.

Unlike many mine warfare ships that are made from wood or composites, the rMCM ships will be steel, with installed degaussing system to reduce the electromagnetic signature, shock-resistance, force protection, cyber security, and enhanced self-defense capabilities. The ships are equipped with a hull-mounted sonar; not to hunt mines, but to avoid them.

According to Hock, the rMCM is not just a ship, but a "capacity," able to manage all the tasks of naval mine warfare (except for mining, which is currently not a mission assigned to the rMCM), and that can be adjusted or augmented with containerized equipment. While MCM will be their primary tasks, there will be secondary missions these ships will be capable of performing, such as humanitarian assistance/disaster relief, and maritime security.

The rMCM concept is designed around a variety of drones and offboard systems called the "toolbox."

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The overall toolbox has around 10 modules containing a total of about 100 "tools," including an array of unmanned and autonomous systems and a sophisticated launch and recovery system (LARS). The modules and tools can be tailored based on the expected operations.

The ship has two 7-meter ridged hull inflatable boats, and a redundant port and starboard launch and recovery system (LARS) used to launch and recover the unmanned surface vessels (USVs). Hock refers to the USVs as the "central drones," because they deploy the rest of the drones (apart from the aerial drones).

The key systems in the toolbox are the two INSPECTOR 125 "carrier USV," capable of launching and recovering the A18 AUV, the T18 towed sonar, and the SEASCAN identification and K-STER neutralization robots, as well as towing a minesweeping system. The INSPECTOR 125 is also equipped with a mine and obstacle avoidance sonar (MOAS).

While some of the toolbox systems could be operated from "vessels of opportunity," the Belgian and Dutch navies do not plan to use their systems that way. "The rMCM ships are dedicated MCM platforms, and the systems of systems in the toolbox is designed with these ships in mind," said Hock. "The sweeping, hunting, intelligence gathering, and deployment of divers will be accomplished using the systems of systems that are centered specifically on the ship."

The platform is 269 feet long with a beam of 55 feet, a shallow draft, and displaces 2,800 tons, with plenty of internal volume and deck space aft for containers. "The hull is relatively wide and flat, and that's why there's a lot of room on board," Hock said.

Naval Group Leads Consortium

The program is led by Belgium Naval & Robotics (BNR), a consortium combining Naval Group and Exail. Exail, itself, is a recent combination of ECA Group and iXBlue, and is the toolbox integrator for the program. The ships

are being built by in France by Naval Group. The first ship is being constructed in Concarneau. The second ship is being built in Lorient, close to Concarneau, and the third ship constructed in Concarneau with parts of the hull assembled in Poland. From the fourth ship on, the rMCM hulls will be fabricated at a French-owned yard located in Romania, with the integration completed in France. Apart from the Skeldar V-200 unmanned aerial vehicles (UAVs) from UMS Skeldar, a Swiss-Swedish joint venture, the drones are built by Exail.

There is a flight deck and hangar for pair of Skeldar V-200s — the same aircraft being used aboard the German Navy's K130 corvettes — although the flight deck is also capable of operating small manned helicopters.

In addition to ISR (intelligence, surveillance and reconnaissance) and communications relay, Hock said the UAVs will be also used to conduct detection and classification with a LIDAR payload that can detect mines to depths of five meters. "The idea is to do a quick survey of the zone with the LIDAR. We can also use the electro/optical camera to conduct reconnaissance to detect floating mines and other objects in the water. The UAV provides the initial rapid detection, and then we would deploy the USV for further detection and classification, identification and neutralization," Hock said.

The various drones will be able to communicate and exchange data, thanks in large part to the over-the-horizon data relay capability offered by the Skeldar V-200 UAV, and be controlled by other ships.

Interoperability Is the Goal

Hock said the vision is that eventually there will be commonality and interoperability among all the European MCM platforms.

The drones and sensors will be more regularly updated. "Toolbox 2.0" is already being designed. We want to do that at the EU level, so that European navies can deploy the same drones together," said Hock. "We want industry to cooperate so we can all have the same toolbox."

Hock said the rMCM program is the first time such a

large collection of capabilities has been assembled, and the navies do not yet have experience working with them. "While the technology in some cases represents advancements of existing systems and technologies, the 'system of systems' is new," he said.

Belgian Navy Cmdr. Nicolas Doyen, prospective commanding officer of BNS Oostende (M940) — the first ship of class — said he and his team are working at the Project Office in Brussels reviewing documentation for all of the systems, and is in constant contact with the shipyard and his representatives there. His crew will begin training later in the year and be present for much of the testing and trials in preparation for commissioning.

"It's a huge project," said Doyen. "The crew has been appointed, but we won't all be together until later in the summer. So far there have been no delays in the fabrication of the ships."

The simulator facility is currently under construction at the Belgian Navy's Oostende training center. "The simulator includes a tactical simulator with multi-functional consoles for the operators and a virtual reality simulator to train technical personal and maintainers, or to train the crew in launch and recovery," Doyen said. "The idea is to have both tactical simulator and a virtual reality simulator linked by a common scenario to train all the crew together."

The first ship for the Belgian Navy was launched in March of this year. It will be followed by the first ship for the Netherlands in September, and subsequent ships will be launched at six-month increments, alternating between Belgium and the Netherlands.

Last year France declared its intention to join the program, which will increase interoperability between their respective navies. France, which will be using their own version of the "toolbox", has not yet announced how many ships they plan to buy.

"I think that when this ship proves itself to be successful that other navies will be interested, as well," said Doyen. "The more navies that operate ships like ours and have similar systems then the better the interoperability." ∎