

Thales demonstrates mine neutralisation capability of remotely operated underwater vehicle on Maritime Mine Countermeasures (MMCM) programme

- In the latest milestone on the Franco-British Maritime Mine Counter Measures (MMCM) programme, Thales has successfully completed an at-sea demonstration of the ability of the world's first fully integrated drone-based mine countermeasures system to locate, identify and neutralise sea mines.
- This system of systems uses the fully proven M-Cube mission management system (MMS) to integrate and control multiple uncrewed surface and underwater vehicles equipped with high-performance sonars and other systems, and will provide the UK Royal Navy and the French Navy with the world's first complete drone-based mine countermeasures capability.
- Thales is a world leader in uncrewed mine countermeasures. The latest demonstration confirms the company's role as a reliable innovation partner empowering naval forces to develop their strategic capabilities today and into the future.



During sea trials conducted remotely from the command centre in Brest, France, Thales has successfully demonstrated the performance of the final component of its innovative mine countermeasures system – the remotely operated underwater vehicle – and its ability to neutralise sea mines. The MMCM programme relies on the very latest developments in autonomous technologies, artificial intelligence, cybersecurity and uncrewed systems to handle challenging operational scenarios as defined by the French Navy and the Royal

Navy. The first two prototype MMCM systems were delivered incrementally following at-sea qualification in conditions up to and including sea state 4¹. Since the end of 2021, the Navies have been conducting operational evaluations, and will take delivery of the six series-produced systems in 2024 and 2025.

As prime contractor and lead systems integrator on the MMCM programme, and working with an extensive network of partners, Thales has further consolidated its global leadership in drone-based mine countermeasures.

The successful trials represent the latest milestone on the programme. Conducted with representatives of the French Navy, the French defence procurement agency, the Royal Navy, the UK Ministry of Defence and OCCAr, the sea trials demonstrated the system's ability to relocate and identify sea mines, and the remotely operated underwater vehicle successfully installed exercise charges on a bottom mine and a moored mine² so that the neutralization cycle could be completed. The demonstrations were conducted in realistic conditions at sea, with the Thales operations centre in Brest controlling the systems remotely and performing the functions of the Portable Operation Centre (POC) with the support of personnel from the Marine nationale.

This latest technological achievement is a further endorsement of Thales's expertise in naval systems engineering, high-performance sonars, artificial intelligence, cybersecurity and autonomous technologies, and demonstrates the ability of its M-Cube mission management system to integrate a range of different types of sub-systems. It promises to redefine the mine countermeasures concept of operations by ensuring that naval personnel remain outside the mine danger area. Human operators rely on advanced systems to detect, classify, locate, identify and neutralise even the most sophisticated and best concealed mine threats with a high level of precision and reliability. A latest-generation processing and visualisation system powered by artificial intelligence algorithms performs real-time (in-stride) and/or post-mission analysis of the sonar data.

Integration of the first series-produced subsystems within the overall system of systems has begun at the Brest site, with delivery to the Navies scheduled for early 2024. These subsystems include uncrewed surface vehicles deploying either the TSAM towed array sonar or the remotely operated underwater vehicle (ROV) for mine identification and neutralisation. Mission preparation, monitoring, control and evaluation are conducted by operators in the Portable Operation Centre (POC) or the Shore Operation Centre (SOC).

"Ever since the contract was signed in 2015, our teams and partners have been investing their skills, energy and passion to ensure that Thales can step up to the technological challenges of this extraordinary programme. We are fully committed to providing the French Navy and the Royal Navy with the most innovative technologies in order to protect their strategic assets and keep naval personnel out of harm's way. These latest milestones offer further proof of our unflinching determination to meet these goals." **Gwendoline Blandin-Roger, Vice President, Underwater Systems, Thales.**

¹ The Douglas sea scale (also called the international sea and swell scale) is used to estimate the roughness of the sea for navigation. The scale has two codes: one for estimating the sea state, the other for describing the swell of the sea. Sea state 4 (moderate) corresponds to wave heights of 1.25-2.50 metres.

² Moored mines are deployed when the water is too deep for bottom mines. They comprise the mine case, an anchor, and an anchor line that determines the depth of immersion.

About Thales

Thales (Euronext Paris: HO) is a global leader in advanced technologies within major domains: Defence & Security, Aeronautics & Space, Digital Identity & Security and Transport. It develops products and solutions that help make the world safer, greener and more inclusive.

The Group invests close to €4 billion a year in Research & Development, particularly in key areas such as quantum technologies, Edge computing, 6G and cybersecurity.

Thales has 77,000 employees in 68 countries. In 2022, the Group generated sales of €17.6 billion.

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