

PRESS RELEASE

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Naval Group equips a French navy ship with a 3D-printed propeller

Naval Group manufactured this new-generation propeller thanks to a metal 3D printing process. Mounted on a tripartite minehunter, the propeller will now accompany the ship in all of its operational missions.

This propeller is a technological exploit. With its 2.5-metre span supported by five 200-kg blades, the equipment left the workshops of the Naval Group site of Nantes-Indret in October 2020 for the site of Brest in order to be mounted on the propeller shaft. As part of its major technical stop, the assembly was transferred to the submarine base to be mounted on the intermediate shaft of the Andromède in November. Sea trials were then performed successfully at the end of December.

A world first for this on-board innovation

"Obtaining military naval quality requires rigorous development. Nearly three years of R&D - carried out by the Technical and Innovation Department in cooperation with the Ecole Centrale de Nantes within the framework of the LabCom Joint Laboratory of Maritime Technology - went into the development of the deposition process of metal wire fusion," states Emmanuel Chol, Director of the Nantes-Indret site. "Today, we witness a world first. It is the largest metal 3D-printed thruster ever to have been manufactured and the first propeller resulting from this technology, embarked on board a military ship and manufactured for use beyond just sea trials."

The harsh conditions in which ships are used warrant the need to meet strict requirements (corrosion, fatigue, shock resistance, etc.). Naval Group worked together Bureau Veritas throughout the process to present its technical justification file in order to allow the SSF (Fleet Support Services) and the DGA (French Defence Procurement Agency) to authorise the trial of the blades produced on a military ship in normal operating conditions. The blades received certification from Bureau Veritas.

€7 million investment in metal 3D printing in 2021

For Eric Balufin, Director of the Naval Group site of Brest, "the assembly of this 3D-printed propeller shows great promise for the future. This new technology will enable us to considerably reduce technical constraints, and therefore allow for new

manufacturing solutions for complex geometrical shapes which cannot be produced through conventional processes. It will also enable us to greatly reduce production time and consequently in-service support.”

This propeller is a first step. A new development phase will begin, aimed at revamping the detailed design of other parts so that they benefit from 3D printing (acoustic discretion, weight reduction, increased productivity of the parts). For example, 3D-printed production of thrusters will provide ships with greater efficacy at sea: increased thrust efficiency, stealth and lightening.

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About Naval Group

Naval Group is the European leader in naval defence. Naval Group uses its extraordinary know-how, unique industrial resources and capacity to arrange innovative strategic partnerships to meet its customers' requirements. As a System Engineering Leader and prime contractor, the group designs, produces and supports submarines and surface ships. It also supplies services to shipyards and naval bases. In addition, the group offers a wide range of marine renewable energy solutions. Attentive to corporate social responsibility, Naval Group adheres to the United Nations Global Compact. The group reports revenues of 3.7 billion euros and has 15,168 employees (data for 2019).

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