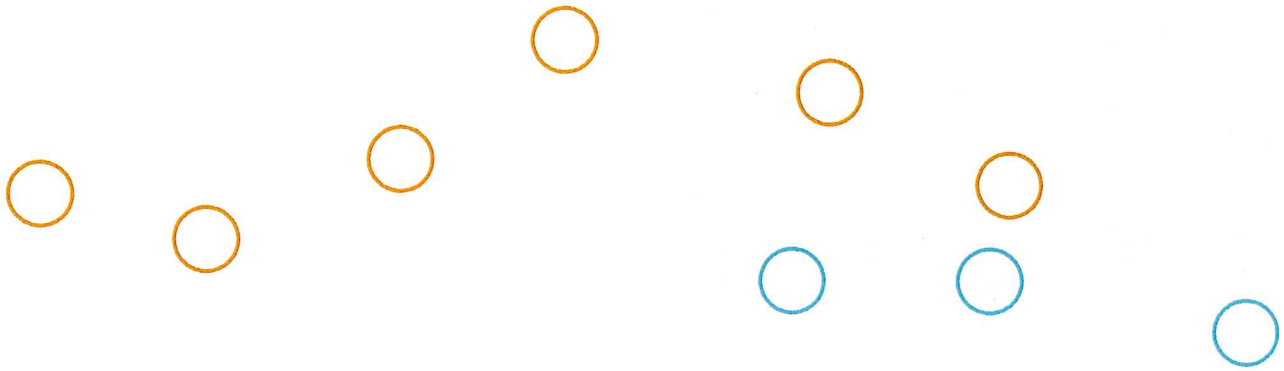
Composite Structures



Equipment & Components

Steel & Patch Repair

Realisation and Demonstration of Advanced Material Solutions for Sustainable and Efficient Ships

RAMSSES partners create the world's first hollow propeller blade

The RAMSSES partners Naval Group and Centrale Nantes have printed the first demonstrator of hollow propeller blades by metal additive manufacturing as part of the European H2020 project, funded by the European Commission. The associates are taking the lead within this project on the production of innovative propeller demonstrators to improve the operational capabilities of ships. The collaborative program aims to reduce the environmental impact of ships.

In order to improve vessel propulsion, Centrale Nantes and Naval Group are using additive manufacturing to design large parts (propellers of 6 metres in diameter), which could not be produced thus far using traditional manufacturing technologies. Implementing the Wire Arc for Additive Manufacturing (WAAM) process allows for the printing of large parts and paves the way for the production of propellers with more complex geometry.

Our latest News

August 26, 2019 · News

It is with sadness that the RAMSSES consortium has acknowledged that our project partner and friend, Tord Gustafsson, passed away.

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June 19, 2019 · News

Summary: E-LASS in Vigo

In June, E-LASS gathered stakeholders in Vigo, Spain to discuss maritime lightweight materials and solutions.

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June 11-14, 2019 · Event

Next E-Lass Event in Vigo, Spain

The next E-LASS event will be arranged in Vigo, Spain, again jointly with the RAMSSES project.

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We are proud to announce that our #RAMSSES partner NAVAL GROUP in collaboration with @Ecole centrale de Nantes 3D-printed the world's first metallic hollow propeller blades by using Wire Arc for Additive Manufacturing (WAAM) process.

INEA - Innovation and Networks Executive Agency

https://lnkd.in/d2ifteM

Substantial industrial gains

The one-third scale hollow blade demonstrator, representative of a container ship propeller, was printed in stainless steel in less than one hundred hours, weighing in at about 300 kg. The teams' sheer technical prowess means that weight gains of over 40% will be achievable compared to conventional processes.

Significant operational gains

Sirehna, a Centrale Nantes spin-off and subsidiary of Naval Group, is piloting the blade design in order to improve propeller energy efficiency and reduce their environmental impact. Sirehna's work has led to an overall optimization of blades in terms of efficiency and endurance, but also a significant reduction in radiated noise and vibrations. Reducing the environmental footprint linked to propulsion, as demonstrated in the H2020 RAMSSES project case study, is a challenge for all types of vessels, and particularly for large container ships.

Naval Group and Sirehna have been able to count on the exceptional technical resources and extensive knowledge offered by Centrale Nantes. The school's expertise in trajectory generation and additive manufacturing is needed to produce the blade. This long-standing co-operation, which took on a formal footing in 2016 with the creation of a joint laboratory (JMLT), feeds through to control over the entire digital chain from design to mechanical dimensioning and hydrodynamics to manufacturing, and will lead to the production of a complete propeller.

Naval Group's Patrice Vinot, Propeller Package Manager for the RAMSSES project, underlines the challenge of such a manufacturing process: "Although additive manufacturing is increasingly present in industry, the programming and design of complex parts, such as propeller blades for ships, represents a considerable challenge for our teams and our partners. The potential of the process revealed by this new case study means that we now anticipate unparalleled performance for the propellers of tomorrow. Taking part in projects such as RAMSSES and coordinating our network of academic and industrial partners will allow us to bring 3D printing into shipyards for the long term."

Professor Jean-Yves Hascoët, head of the Rapid Manufacturing Platform at Centrale Nantes and international expert in additive manufacturing: "Addictive manufacturing has been developed over the last 35 years on the Rapid Manufacturing Platform. All these years of research come to fruition through a project like RAMSSES, which represents a real transfer of our technologies into an industrial environment."

We congratulate Naval Group and Centrale Nantes for this great success.

Link to the News at Naval Group

January 23-24, 2019 · Event

Next E-Lass Seminar in Piteå

The 4th joint seminar with the E-Lass network will take place Piteå, Northern Sweden hosted by PodComp, RISE SICOMP and NetComp

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June 26th, 2018 · Event

E-Lass Seminar day in St. Nazaire

The 3rd joint seminar with the E-Lass network will take place Pornichet and hosted by STX

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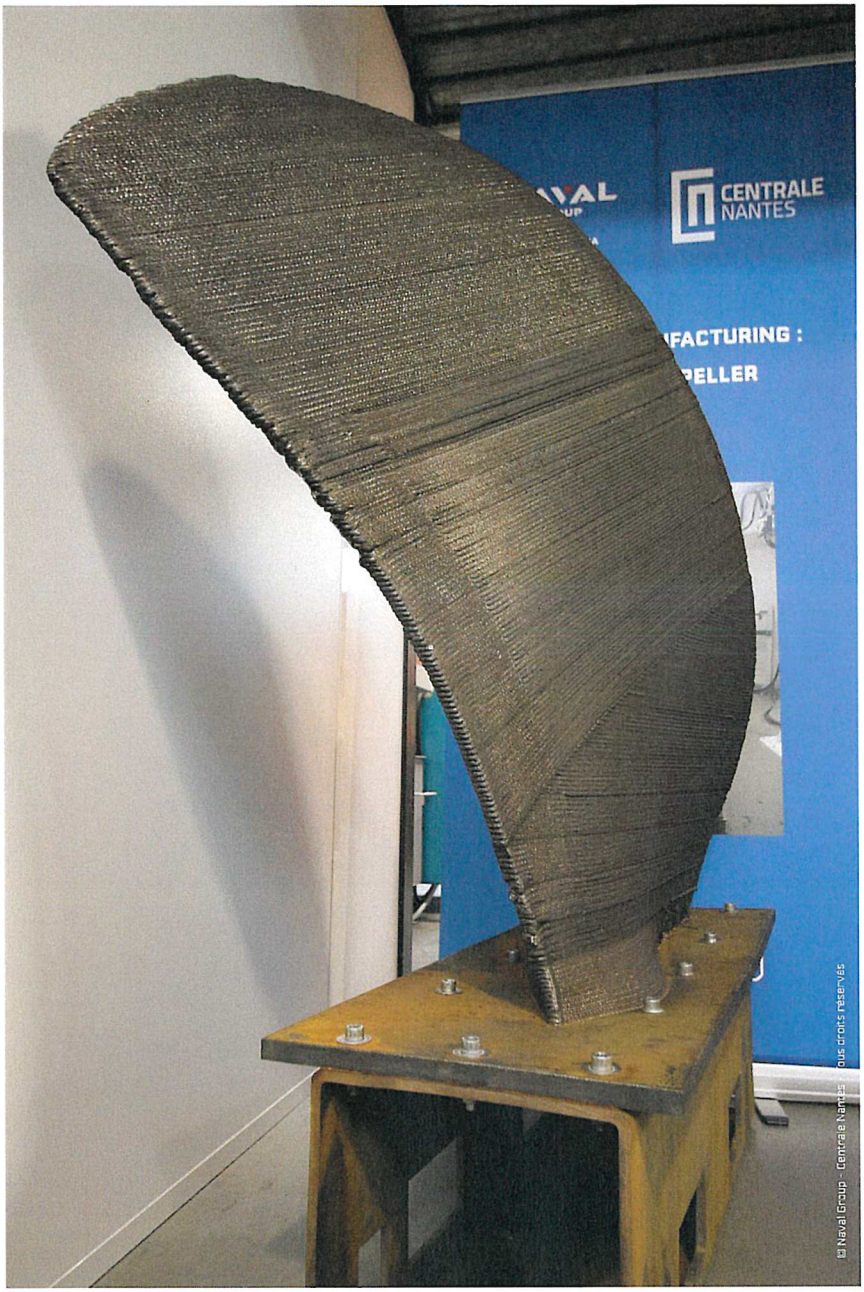

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723246