

FIBRESHIP project, engineering, production and life-cycle management for large-length fibre-based vessel

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ABSTRACT

Along the FIBRESHIP project (H2020, Grant Number 723360), there have been identified several benefits due to the application of FRP in shipbuilding and shipping sector, such as the significant structural weight reduction implying a fuel saving (Directive 2012/33/EU) or a higher life cycle and reduced maintenance costs (Directive 2013/1257/EU) due to the absence of corrosion, among others. Considering that Fibre-Reinforced Polymers (FRP) materials are commonly used for vessels up to 50m length, this project attempts to transfer this technology to larger vessels, applying it to the maritime transport of goods and special service vessels sector.

Currently, FRP material is used exclusively to secondary structures and components for vessels larger than 50m of length. One of the main reasons is the lack of design guidelines allowing to prove that the use of those materials complies with SOLAS regulation.

In order to convince IMO and Flag States of the use of FRP materials in the context set out, it is necessary to fill the technological gaps identified in the project and demonstrate the feasibility of using FRP materials in large-length ships through i) analysis and testing of FRP materials, coatings and other components to be used, ii) analysis of new strategies of structural design, iii) development of validated numerical models able to assess the structural design, iv) development of production strategies, inspection methodologies and life cycle management, and v) development of guidelines and standards to ensure the safety of using this technology.

The main objective of the FIBRESHIP project is to address these technical challenges and generate the regulatory framework allowing the acceptance of regulatory bodies to design and build large-length vessels in FRP material.

As a key outcome, a block structure of a vessel is schedule to be built for mid-2019 as a demonstrator of the studies and methodologies carried out in the project. FIBRESHIP project is still in progress and it is schedule to come to an end on May of 2020 with the best possible results.

REFERENCES

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