



Newsletter

January 2014

Dear all,

This is the first in what I hope will be, a long series of E-Lass Newsletters where we try to bring you brief information concerning ongoing lightweight activities. My possibilities to provide information depend very much on your participation and I hope you will send me things to present. Anything related to use of lightweight materials at sea is of interest. We will shortly introduce a “News” page at our website, www.e-lass.eu, where we will be able to quickly publish interesting things sent to us.

A very important event for the FRP-composite business is the next week IMO meeting in London, 20-24th of January. As you probably know there has since the last IMO FP56 meeting one year ago, been a correspondence group working on guidelines for how to design vessels using composites, based on the SOLAS regulation 17: “Alternative Design and Arrangements”. The task is quite complex and they have not been able to finalize the guidelines, partly due to a change of timing for the 2014 IMO meeting. The correspondence group will propose a prolonged mandate in order to have the guidelines ready at the 2015 meeting. **I urge those of you who have any possibility to support this proposal to do so!** At the meeting, national authorities will be deciding but also class and ship operator representatives are present and have the opportunity to speak out. There is a strong competition from other groups that would like to see their particular area of interest investigated in a correspondence group and only a limited number of such groups will be appointed. The IMO acceptance of composites will be very much facilitated if the community can agree on how to approach the particularities of the material through well established guidelines. A short report from the correspondence group is given in the Newsletter.

Please remember to book your agenda for our next meeting that will take place at Meyer-Werft in Papenburg, 26-27th of March. The event will be a joint effort with EU projects MESA and ThroughLife. A detailed agenda will be sent out shortly. My intention is to bring forth some aspects of using lightweight materials for the offshore business. I therefor welcome suggestions from you regarding interesting presentations to make.

Below are given short stories of recent lightweight event. In some cases, a lengthier article/report is provided at our website, www.e-lass.eu.

FIRST CARBCAT® 39 FERRY LAUNCHED

(Tommy Hertzberg, SP)

On 27th December 2013, the first CARBCAT® 39 carbon fibre ferry designed by TBS Yard AB was launched at Özata Shipyard in Istanbul, Turkey, see www.youtube.com/watch?v=aS2pydRDHn8 This is the first High Speed Craft ferry in a series of 15 ordered by the Metropolitan municipality of Izmir for its public transportation and it is built according to DNV HSLC and national Turkish regulations.

TBS Yard participates in E-Lass and brought two more network participants into the project:

C Marine AB that contributed with global strength calculation, structural integration of systems and classification support, test plan and material requirements.

Fireco A/S that contributed with initial structural strength calculations and material testing.

COMPOSITE HATCH COVER FOR BULK CARRIER

(Philippe Noury, DNVGL)

A highly interesting project concerning the use of composite hatches for a Panamax bulk carrier is about to be finalized. The project aim was to develop a FRP composite concept and evaluate whether such a solution was technically and economically feasible. The feasibility studies included for the various concerns e.g. fire hazard, structural capacity, weight, vibrations, outfitting, production friendliness, price, impact resistance, and durability and reparability. Rules and regulations (but also deviations) applicable to hatch cover and composite components were also examined.

Please see also:

www.dnv.com/industry/maritime/publicationsanddownloads/publications/updates/bulk/2011/2_2011/oshimaecoship2020.asp

The results from the structural evaluation of the proposed design concept showed that all acceptance criteria could be fulfilled without modifications or with minor local modifications. Weight estimate indicated a saving of 60% of the net weight. Solutions for outfitting equipment based on conventional equipment solution were also identified. Suitable and simple production methods and processes well established in the marine composite industry were defined with DNV's partners. Less maintenance were also expected thanks to superior corrosion properties and a more flexible structural behaviour.

DNV carried out a fire risk assessment in accordance with the SOLAS II-2 Regulation 17 and the IMO guidelines MSC/Circ.1002. SP Fire Research provided fire expertise and performed fire analysis in the project.

The overall conclusion confirmed that, with inexpensive risk control measures implemented, the fire risk for the novel composite hatch cover could be considered equivalent to that implied by the prescriptive requirements of SOLAS.

The final acceptance from the authorities is expected to be formally confirmed before the end of spring 2014. More information can be found at the E-lass website.

LAUNCH OF USS ZUMWALT

(Stella Job, Materials TKN)

The *USS Zumwalt*, first of three DDG1000 series destroyers, was launched on Monday 28th October 2013 into the Kennebec River next to the shipyard of General Dynamics Bath Iron Works in Maine, USA. Amid jokes about the ship's space age looks and Star Trek, it has been announced that the commanding officer of the 610ft ship will be Captain James Kirk.

Because of the complexity of the 14,564 ton (14,800 tonne) first-of-class ship, the Navy will perform a two-phase delivery process. Bath Iron Works will deliver the ship itself to the Navy in late 2014. The Navy will then conduct combat systems activation, tests and trials. The ship is expected to reach its initial operating capability in 2016.

Zumwalt's 900 ton carbon fibre composite deckhouse probably represents the largest composite structure in the world.

A video of the launch is available [here](#). More information can be found at the E-lass website.

FRP and SOLAS: Report from the IMO correspondence group

(Gabor Szemler, Swedish Transport Administration, Tommy Hertzberg, SP)

IMO the International Maritime Organization is about to propose new guidelines on the use of FRP structures on SOLAS vessels.

At the 2013 meeting of the IMO sub-committee on Fire Protection, FP 56, it was decided to create a correspondence group that would develop guidelines for how to implement FRP composite structures on SOLAS vessels. The correspondence group is led by Sweden and consists of 12 member countries and a number of observers in the form of various classification societies and organizations.

The correspondence group was asked to discuss the following:

1. Determine whether it is possible to make use of FRP composite structures in accordance with SOLAS regulation II-2/17 (alternative design of fire protection), taking into consideration rules II-2/2.1 (Purpose), II-2/2.2 (Functional requirements) and II-2/2.3 (Fulfilment of purpose).
2. Evaluate the available fire test data and existing research and methodology with respect to FRP structures in ships
3. Develop draft guidelines to be used for evaluation and testing of FRP structures
4. Discuss any relevant new procedures and testing criteria for fire testing and classification of FRP structures required for its use on SOLAS vessels

Most of the discussions held within the group concerned paragraph 1, where opinions differ. The majority, however, including Sweden, believes that it is possible to make use of FRP structures on SOLAS vessels where it can be verified in the context of SOLAS regulation II-2/17. The conclusion also reflects the discussions held at the FP56 meeting in London 2013.

The current prescriptive SOLAS regulations are based on the assumption that the vessel structure is of non-combustible material. If the rule II-2/17 is used to justify combustible structures in the ship's construction, a thorough review of the prescriptive requirements in Chapter II -2 is necessary in order

to find the requirements that may be affected by an alternative design. Within the working group several examples of such regulations were identified but the work is not yet finished.

Continued work

The development of guidelines is not complete and the group therefore will request that the task will be extended for one year. The group also proposes to expand the scope to include a general use of FRP onboard, not just in the ship's structure. The correspondence group report has now been sent to the IMO and will be discussed during the SDC 1 (Sub - Committee on Ship Design and Construction) starting January 20th 2014.

FUNDING INSTRUMENTS

(Lars Molter, Grzegorz Domanski, CMT)

Horizon 2020

On 11th December the European Commission has launched a series of calls for projects under new framework programme of the EU, called Horizon 2020. During the first two years, more than €15 billion are intended to be invested in Europe's knowledge-driven economy and in European companies. The industrial participation is within one of three objectives of the Horizon 2020 and will dominate the key pillar '**Industrial leadership**'. It aims to make Europe a more attractive location for businesses, large and small, to invest and set the research and innovation agenda in the technology areas like nanotechnologies, advanced manufacturing or robotics. The research into new materials, resource and energy efficiency, as well as maritime transport is an integral part of another key pillar '**Societal challenges**'. Call search has been made available by the European Commission:
ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/search/search_topics.html.

ERA-NET MARTEC II

Until 30.04.2014, joint research applications for funding can be submitted to the transnational call published recently by the ERA-NET MARTEC II. MARTEC Brokerage Event will be held in Turku/Finland on 30th January 2014, allowing all interested parties to get in contact and to exchange research ideas. The technology areas addressed by the call, ranges from new processes and materials in shipbuilding through offshore technologies, to safety and human elements. Additional information is available on the official MARTEC II website, <http://www.martec-era.net/opencall/>.

The E-Lass network will support you in project ideas and funding schemes with respect to lightweight topics. Furthermore, CMT e.V. (www.cmt-net.org) offers an excellent access to the German maritime and shipbuilding network, and may upon request assist you during the whole application process in cooperation with SP and the E-Lass network.

FINAL COMMENT

Timing of the next Newsletter depends very much on what is happening and how much information I get from you. Hence, it is a common responsibility. We will try to keep as I said initially, a news page available at www.e-lass.eu where we can put information continuously so please send me things you would like to publish. I hope to see as many of you as possible at the Papenburg meeting.

Regards

