

Reviewer #2: The purpose of the manuscript is to investigate the influence of the dimensions of the torsion box of a 2400TEU feeder-class container ship, on local stress distribution and assessment of local fatigue strength by using a numerical approach. The work is well driven and interesting.

Thank you very much for reviewing our paper and expressing your respectful opinion about it.

1. The relationships need the bibliographic source. There are known relations for the calculation of structures subjected to torsion.

Thank you for your remark. We have included new researches in the reference list to cover the study of the relationships for the calculation of structures subjected to torsion and the corresponding text in the introduction section: “*Silva Campillo et al. [23] propose a two-stage design methodology to aid designers in satisfying the structural requirements and contribute with to a better understanding of the transverse webs of a torsional box structure. Jagite et al. [24] presents a series of dynamic collapse analyses for a 16000 TEU container ship subjected to various loading scenarios representative of the wave-induced stresses, and, finally, Yang et al. [25] simulate vertical bending vibration, horizontal bending vibration and torsional vibration in model tests in a wave basin, for the vibration characteristics of a combined backbone model were analysed by the three-dimensional finite element method*”.

The additional references are:

- 23. Silva-Campillo, A.; Suárez-Bermejo, J.C.; Herreros-Sierra M.; de Vicente, M. Design methodology in transverse webs of the torsional box structure in an ultra large container ship. *Int J of Naval Architecture and Ocean Eng.* **2021**, 13, 772-785. <http://doi.org/10.1016/j.ijnaoe.2021.08.004>
- 24. Jagite, G.; Bigot, F.; Malenica, S.; Derbanne, Q.; Le Sourne, H.; Cartraud, P. Dynamic ultimate strength of a ultra-large container ship subjected to realistic loading scenarios. *Mar. Struct.* **2022**, 82, 103197. <http://doi.org/10.1016/j.marstruct.2022.103197>
- 25. Yang, P.; Feng, Q.; Chen, H.; Wen, L. Combined backbone application on numerical simulations and a model experiment of a 20,000 TEU container ship. *Ocean Eng.* **2021**, 223, 108662. <http://doi.org/10.1016/j.oceaneng.2021.108662>

2. Details are missing regarding: discretization element size, discretization method.

Thank you for your comment. The study model has a coarse mesh in the zones farthest from the points of interest and a refinement mesh in the hot spots. We have included your comment in the paper to include the element size with the following text “*and an average element size of 78.102 mm*”. The discretization method is described in Section 4 through the sentence in the paper “*...a 3D unstructured tetrahedral fine mesh stress analysis beyond 3D coarse mesh structural analysis...*”.

3. A quantitative approach to life cycle would have been very useful.

Thank you very much for your interesting comment. We have expressed the fatigue life of the structural details from the nomenclature provided by Bureau Veritas MARS software and the Palmgren Miner's law formulation. However, we agree with you and in future stages of the research when we implement experimental results that complement the results of this paper we will include a quantitative approach to life cycle.

4. Deformation forms of structures subjected to buckling would be useful. Of course, here I would also add values of the total deformations.

Thank you for your valuable opinion. We agree with you that showing the buckling deformation of each of the elementary plate panels would be useful, however, we consider that its inclusion in the paper does not provide much more relevant information than the one already shown, because its deformation corresponds to a rectangular plate simply supported in all edges and that has been extensively studied over the years. We consider that it is more useful, in order to better understand the novelties of this paper, to show the elastic buckling stresses along the perimeter of the torsion box and their modification in view of the geometric alterations that define the dimensions of the torsion box. We take into account your interesting recommendation and we will include the values of the total deformations in the future research stage when we complement the numerical values with the experimental ones.