ANALYSIS OF SHIP STRUCTURE STRENGTH AGAINST AIRBAG LAYING IN PREPARATION FOR LAUNCH

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ABSTRACT

Ship launching / undocking technology is increasingly developing to achieve economic efficiency, time, security and flexibility by using airbag media at end launching launches. However, risks in the ship launching process using airbags are still and can occur, one of which is the risk of airbag exploding due to excessive pressure or not being able to withstand the load and failure of the structure to hold the airbag as a pedestal. In addition, the pressure exerted by the airbag becomes a stress on the ship's structure which can cause deformation. This study aims to determine the effect of airbag pressure on the strength of the ship's structure and the deformations that can occur in each variation of airbag placement. This study uses finite element-based software to analyze stress and deformation in ship construction due to airbag support. From this study, it was found that the number of airbags used in the two row layout and cross over arrangement was 14 with the status of the airbag on the distribution of loading is safe (not broken). The results of the maximum stress values obtained from the simulation on the two row arragement layout models 1 and 2 are 11.62 MPa and 9.8347 MPa and in the cross over arragement model 1 and 2 layouts, the maximum stress is 20.247 MPa and 13,846 MPa after comparison with the yield stress value. material according to BKI Vol II 2019 Sec 4 B 6.5, the ship's construction is still in a state of meeting or below the allowable stress. The maximum deformation value generated in the two row layout and cross over arrangement is still below the deformation of the BKI Vol II 2019 Sec. 3 F 3.1 are 0.548 mm and 0.68533 mm. The smallest safety factor value for the two row arragement layout is 18 *and the cross over arragement layout is* 10.

Keywords : Airbag, Barge, Launch, Stress, Deformation