

OPTIMIZING THE STRUCTURE OF A SHIP TRANSVERSE SECTION

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Abstract: In the process of designing the structure of a ship there is a very old practice of establishing the sizes of the structure elements (scantling) using the rules of the shipbuilding classification societies, as for examples Lloyd’s Register, Germanischer Lloyd, Bureau Veritas, American Bureau of Shipping, etc. Besides the rules, in the latest time, these societies also demand an overall check using FEM method. There are enough frequent situations when the structure results oversized or even undersized, so that a new scantling is required, then a new FEM checking, and so on, up to reaching the optimum. In the paper the authors try a procedure that, following immediately after the preliminary sizing step, leads directly to the optimal sizes (or very nearly to them) in order to reduce both the material weight used for constructing the ship structure, and the designer time and effort.

Key words: ship structure, initial design, scantling, optimization.