

CONSIDERATIONS REGARDING THE COMPUTING OF FUNCTIONAL PARAMETERS OF MARINE DIESEL ENGINES

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This paper proposes a study of functional parameters of a marine diesel engine by electronic and manual methods of measurement and calculation, given the above and the issue will be addressed in the paper, the main objectives in the thesis PhD are:

1. Regarding the naval modeling engine operation proposed for study type MAN B & W 6S60MC-C with 13560 KW/18436 CP of power at 105 rpm, will pursue:

- Develop and implement an algorithm for determining the theoretical study of functional parameters of a marine engine and particularly the parameters involved in naval engine performance.
- Develop a three-dimensional CAD model of the engine using an advanced software such as SolidWorks 2015, which will then be used in numerical modeling of process compression and combustion.
- Numerical analysis model CAD phases of compression and combustion using ANSYS 15 software subcomponent with its ICE- Fluent 15 for deduction about numerical experiment, the main operating parameters of considered engine, including polluting agents.

2. Regarding the experimental validation of the above defined models I will track the patterns defined bellow:

- Conduct research on experimental MAN B & W engine 6S60MC-C, using an apparatus with opportunities to acquisition and storage of data by performing a sufficient number of tests to determine the parameters proposed.
- Study the dependence between of determined operating parameters and theoretical operating parameters in operation and performance of marine diesel engine.
- Establish of rapid methods for determining and estimating the effective power of the engine for continuous surveillance of marine diesel engine load and to reduce fuel consumption and emission of pollutants in the atmosphere.
- Deduction of conclusions regarding the influence of external ambient factors in functioning, load and fuel consumption of MAN B & W marine engine 6S60MC-C.
- Relevant trends in marine diesel engine operation at low speeds to reduce fuel consumption by applying procedures for determining operating parameters.
- Particularities of naval engine operation in different operating conditions.
- Deduction of conclusions on the extent of reliance on results achieved by the results in operating the ship and reference engine.
- Creation of a database of MAN B & W 6S60MC-C engine operation at different speeds, fuel consumption at these speeds and engine performance.
- Experimental validation by comparison of theoretical models and numerical results with experimental data deducted.