



Contribution ID: 29

Type: Paper

Comparative Assessment of Rule-Based Design on the Pressures and Resulting Scantlings of High Speed Powercrafts

Friday, 16 October 2020 16:15 (30 minutes)

The rules and regulations inherent to the design pressures and scantlings of high-speed powercrafts are numerous, and regularly reviewed. Recently, the new ISO 12215-5:2019 made notable changes to the way high-speed crafts are analysed, including extending the acceleration experienced up to 8 g in certain circumstances. Nevertheless, despite the multiple iterations and variety of regulatory bodies, the seminal work undertaken on planing crafts throughout the 1960s and 1970s remains the foundation of any rule-based design requirement. Consequently, this paper investigates an array of recently published rules through a comparative design case study, the current state-of-the-art across a number of regulations, and the ultimate impact on scantlings. The study reveals that, despite divergence in intermediate calculations and assumptions, similar requirements are ultimately achieved. Eventually, discussion on the comparison undertaken and future trends in high-speed marine vehicles is provided, tackling the relevance of classical planing theory in light of contemporary innovations.

Primary authors: SOUPPEZ, Jean-Baptiste R. G. (Department of Mechanical Engineering and Design, School of Engineering and Applied Science, Aston University, UK.); BEGOVIC, Ermina (Department of Industrial Engineering, University of Naples Federico II, Italy.); SENSHARMA, Pradeep (Naval Sea Systems Command, Washington DC, US.); Mrs WANG, Fuhua (Marine Design and Research Institute of China, China); ROSEN, Anders (School of Engineering Science, KTH Royal Institute of Technology, Stockholm, Sweden.)

Presenter: BEGOVIC, Ermina (Department of Industrial Engineering, University of Naples Federico II, Italy.)

Session Classification: Structures, loads, strength, materials

Track Classification: Seakeeping, Hydrodynamics