Marine Propeller Manufacturing A New Approach

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Hydrodynamics of Ship Propellers
Design and Construction of a Propeller Open Water Testing Apparatus and Testing of a Stereolithography 3D Printed Model Propeller
Marine Composites
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DAPHNE ESTRADA

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Marine Composites: Design and Performance presents up-to-date information and recent research findings on the application and use of advanced fibre-reinforced composites in the marine environment. Following the success of their previously published title: Marine Applications of Advanced Fibre-reinforced Composites which was published in 2015; this exemplary new book provides comprehensive information on materials selection, characterization, and performance. There are also dedicated sections on sandwich structures, manufacture, advanced concepts, naval architecture and design considerations, and various applications. The book will be an essential reference resource for designers, materials engineers, manufactures, marine scientists, mechanical engineers, civil engineers, coastal engineers, boat manufacturers, offshore platform and marine renewable design engineers. Presents a unique, high-level reference on composite materials and their application and use in marine structures Provides comprehensive coverage on all aspects of marine composites, including the latest advances in damage modelling and assessment of performance Contains contributions from leading experts in the field, from both industry and academia Covers a broad range of naval, offshore and marine structures
Proceedings of the 2nd International Conference on Electromechanical Control Technology and Transportation (ICECTT 2017), January 14-15, 2017, Zhuhai, China Butterworth-Heinemann
The early development of the screw propeller. Propeller geometry. The propeller environment. The ship wake field, propeller perfomance characteristics.
Basic Ship Propulsion National Academies Press
Ship Resistance and Propulsion provides a comprehensive approach to evaluating ship resistance and propulsion. Informed by applied research, including experimental and CFD techniques, this book provides guidance for the practical estimation of ship propulsive power for a range of ship types. Published standard series data for hull resistance and propeller performance enables practitioners to make ship power predictions based on material and data contained within the book. Fully worked examples illustrate applications of the data and powering methodologies; these include cargo and container ships, tankers and bulk carriers, ferries, warships, patrol craft, work boats, planing craft and yachts. The book is aimed at a broad readership including practising naval architects and marine engineers, seagoing officers, small craft designers, undergraduate and postgraduate students. Also useful for those involved in transportation, transport efficiency and ecologistics who need to carry out reliable estimates of ship power requirements.
Record 2: 2007- Government Printing Office
Technical introduction to ship propeller hydrodynamics, for researchers in ocean technology, naval architecture, mechanical engineering.
Ski CRC Press

Although the propeller lies submerged out of sight, it is a complex component in both the hydrodynamic and structural sense. This book fulfils the need for a comprehensive and cutting edge volume that brings together a great range of knowledge on propulsion technology, a multi-disciplinary and international subject. The book comprises three main sections covering hydrodynamics; materials and mechanical considerations; and design, operation and performance. The discussion relates theory to practical problems of design, analysis and operational economy, and is supported by extensive design information, operational detail and tabulated data. Fully updated and revised to cover the latest advances in the field, the new edition now also includes four new chapters on azimuthing and podded propulsors, propeller-rudder interaction, high-speed propellers, and propeller-ice interaction. · The most complete book available on marine propellers, fully updated and revised, with four new chapters on azimuthing and podded propulsors, propeller-rudder interaction, high-speed propellers, and propeller-ice interaction · A valuable reference for marine engineers and naval architects gathering together the subject of propulsion technology, in both theory and practice, over the last forty years · Written by a leading expert on propeller technology, essential for students of propulsion and hydrodynamics, complete with online worked examples

MotorBoating Springer

These proceedings exchange ideas and knowledge among engineers, designers and managers on how to support real-world value chains by developing additive manufactured series products. The papers from the conference show a holistic, multidisciplinary view.

The Log Woodhead Publishing

The Code of Federal Regulations is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government.

MotorBoating National Academies Press

This thesis describes the design and construction of a propeller open water testing apparatus for educational and experimental use at MIT. This test apparatus was built as an inexpensive alternative to conducted in-house model scale marine propeller testing. A complimentary study was conducted to explore the process of manufacturing a model propeller using additive manufacturing. A propeller open water test apparatus, commonly referred to as a test boat, is used to measure the performance of marine propellers in uniform flow. The test boats performance was validated using a Wageningen B-series aluminum propeller as a benchmark. The test boat measured the open water performance of this benchmark within a small percentage of error. The practicality of using additive manufacturing to produce a model propeller was explored by manufacturing and testing a 3D printed replica of the benchmark propeller. The replica propeller was manufactured using a benchtop stereolithography 3D printer. The open water characteristics of the replica were measured and compared to the benchmark propeller. Results of this testing revealed some limitations of 3D printed model propellers, such as size constraints and imprecision of propeller blade geometry. This research has provided MIT students with an inexpensive method to conduct preliminary marine propeller testing and offers in-sight into the use of additively manufactured model propellers.

Motorboating - ND Cambridge University Press

The Twenty-Second Symposium on Naval Hydrodynamics was held in Washington, D.C., from August 9-14, 1998. It coincided with the 100th anniversary of the David Taylor Model Basin. This international symposium was organized jointly by the Office of Naval Research (Mechanics and Energy Conversion S&T Division), the National Research Council (Naval Studies Board), and the Naval Surface Warfare Center, Carderock Division (David Taylor Model Basin). This biennial symposium promotes the technical exchange of naval research developments of common interest to all the countries of the world. The forum encourages both formal and informal discussion of the presented papers, and the occasion provides an opportunity for direct communication between international peers.

Code of Federal Regulations, Title 40, Protection of Environment, Pt. 87-99, Revised as of July 1, 2010 Elsevier

Marine Propellers and PropulsionButterworth-Heinemann

Cambridge University Press

Additive manufacturing (AM) is one of the most promising emerging technologies for advanced mechanical systems. When compared to conventional manufacturing processes, AM offers major advantages in production of complex components, enhanced performance, material savings, and supply chain management. These advantages are driving a shift towards AM in marine industry, which is highlighted by recent relative publications of the American Bureau of Shipping (ABS) and others. This thesis focuses on the design of an exemplary marine propeller that leverages the advantages of AM through simulation-guided design of an internal lattice structure. Specifically, a B-series Wageningen three-blade propeller model, provided by Naval Warfare Surface Center (NSWC) Carderock, was used as a baseline. Its open water loading conditions were calculated numerically using OpenFOAM®, a computational fluid dynamics (CFD) software. The CFD results were verified using the provided test data, the thrust and torque coefficients differed by a maximum of 2.7%. The derived loads were introduced to the Finite Element Analysis (FEA) based optimization utility in Autodesk® Netfabb Ultimate, in order to identify the optimum lattice geometry for this application. The design limitations were dictated by the material (316SL stainless steel), the metal additive manufacturing process, and the propeller outer geometry.A variety of lattice infill designs were generated to create a design trade space and conclude to the most appropriate design for this application. The design with the best performance was a hexagonal grid lattice with 1 mm wall thickness, which was prescribed as a manufacturing constraint (i.e., the thinnest wall). The material volume was reduced by more than 50%, while exhibiting a satisfactory safety factor based on the material properties and the simulated loads. Sections of the propeller were prototyped by Desktop Metal Studio System[superscript TM].

MotorBoating Marine Propellers and Propulsion

The 2017 2nd International Conference on Electromechanical Control Technology and Transportation (ICECTT 2017) was held on January 14–15, 2017 in Zhuhai, China. ICECTT 2017 brought together academics and industrial experts in the field of electromechanical control technology and transportation to a common forum. The primary goal of the conference was to promote research and developmental activities in electromechanical control technology and transportation. Another goal was to promote exchange of scientific information between researchers, developers, engineers, students, and practitioners working all around the world. The conference will be held every year thus making it an ideal platform for people to share views and experiences in electromechanical control technology and transportation and related areas.

Twenty-Second Symposium on Naval Hydrodynamics Government Printing Office

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