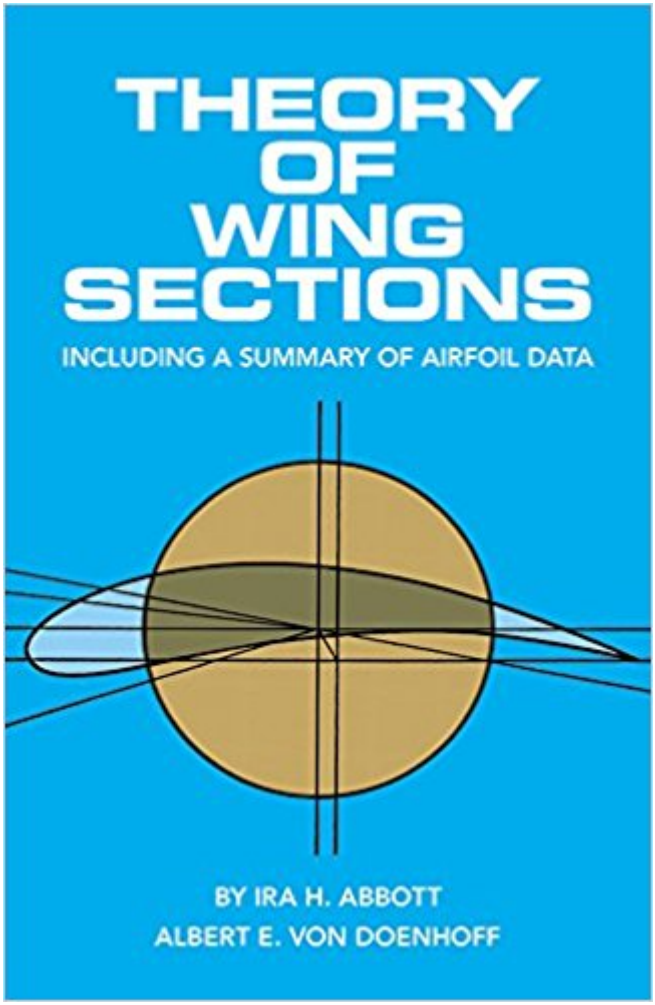
Theory Of Wing Sections: Including A Summary Of Airfoil Data (Dover Books On Aeronautical Engineering)



Synopsis

"Most useful in working with wing sections and methods for using section data to predict wing characteristics . . . much detailed geometric and aerodynamic data." â ” Mechanical EngineeringThe first edition of this work has been corrected and republished in answer to the continuing demand for a concise compilation of the subsonic aerodynamics characteristics of modern NASA wing sections together with a description of their geometry and associated theory. These wing sections, or their derivatives, continue to be the ones most commonly used for airplanes designed for both subsonic and supersonic speeds, and for helicopter rotor blades, propeller blades, and high performance fans.Intended to be primarily a reference work for engineers and students, the book devotes over 300 pages to theoretical and experimental considerations. The theoretical treatment progresses from elementary considerations to methods used for the design of NACA low-drag airfoils. Methods and data are presented for using wingsection data to predict wing characteristics, and judiciously selected plots and cross-plots of experimental data are presented for readily useful correlation of certain simplifying assumptions made in the analyses. The chapters on theory of thin wings and airfoils are particularly valuable, as is the complete summary of the NACA’s experimental observations and system of constructing families of airfoils. Mathematics has been kept to a minimum, but it is assumed that the reader has a knowledge of differential and integral calculus, and elementary mechanics.The appendix of over 350 pages contains these tables: Basic Thickness Forms, Mean Lines, Airfoil Ordinates, and Aerodynamic Characteristics of Wing Sections.

Book Information

Series: Dover Books on Aeronautical Engineering
Paperback: 704 pages
Publisher: Dover Publications (June 1, 1959)
Language: English
ISBN-10: 0486605868
ISBN-13: 978-0486605869
Product Dimensions: 1.2 x 5.8 x 8.2 inches
Shipping Weight: 1.3 pounds (View shipping rates and policies)
Average Customer Review: 4.6 out of 5 stars 47 customer reviews
Best Sellers Rank: #50,045 in Books (See Top 100 in Books) #25 inÂ Books > Textbooks > Engineering > Aeronautical Engineering #69 inÂ Books > Engineering & Transportation > Engineering > Aerospace #70 inÂ Books > Science & Math > Astronomy & Space Science >

Aeronautics & Astronautics

Customer Reviews

First, someone highly recommended this text. I am not disappointed. In two parts, this book has a math beginning and abundant graphical summary of airfoil performance. Starting with Wing-Section characteristics, the forces on airfoils and their response to those forces are covered in 2D, 3D then fluid analysis. Symbols used in each chapter are identified prior to use. Theoretical treatment is a progression of the developing insight in symbolic approximation from the contributors to understanding aerospace engineering. Many of the equations are represented in graphs so one can grasp it quickly and then proceed with the math. Even then, the authors provide a quick precis for a perspective on defining solutions. Many times they seek the quick and simple, not simplistic, heads up approach while not flubbing on the math. So, while Theory of Wing Sections is not an introductory text, it is an excellent supplement or toolbox to deliver achievable options along with their performance and limitations. Many designers or engineers dig into the graphical data section to explore well tried airfoils as a prelude to computer firmware analysis which may not divulge the underlying methods a given design is based. This book takes the mystery out of the meat. To truly ferret through the fundamental concepts here, one should have a working knowledge of calculus prepared to use it. However, one can find use of this work studying the graphical wing section data noting the Reynold’s numbers apply to full size aircraft. One starts here for UAV model scale aircraft, then digs deeper.

I expected a difficult to understand book - something just for experts. But the book has a nice introduction chapter - so even if you are not a aeronautical engineer it pick you up. Later one there are lots of tabled with airfoil coordinates. Recommend it!

Invisible, Inspiring and probably one the best technical book in the world. I do not understand it all and I wish translation.

I had this book in college and lost it. It’s a good reference for any airplane designer and yes there is a lot of math but that is a product of aerodynamics and engineering. Once you understand the graphs you can start building models and drones and possibly the next Canadian fighter jet.

Make sure you know what you’re looking for, cause this book ain’t for aerodynamics beginners. This

is not an easy read. It’s basically a breakdown of a lot of tests and why the wing sections work mathematically. This will save the right user a lot of time. If you’re not an engineer this might not be the book or you.

I keep this book on hand for it’s comprehensive listing of various airfoils used in the aerospace industry. It was especially helpful during my capstone course in selecting the appropriate airfoil for our mission. A great book for those in the aerospace industry to have on hand.

More formulas per page of any book I’ve seen. Engineer recipient was lost to conversation after opening this gift.

excellent book for airfols DATA

Development (Dover Books on Aeronautical Engineering) Aerodynamics of Wings and Bodies (Dover Books on Aeronautical Engineering) Dynamics of Atmospheric Flight (Dover Books on Aeronautical Engineering) An Introduction to Theoretical and Computational Aerodynamics (Dover Books on Aeronautical Engineering) Introduction to Space Dynamics (Dover Books on Aeronautical Engineering) Elements of Gas Dynamics (Dover Books on Aeronautical Engineering)