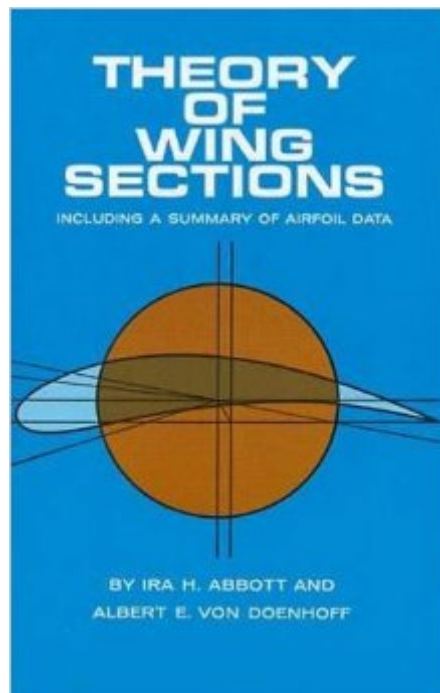


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# Theory Of Wing Sections: Including A Summary Of Airfoil Data (Dover Books On Aeronautical Engineering)



## Synopsis

"Most useful in working with wing sections and methods for using section data to predict wing characteristics . . . much detailed geometric and aerodynamic data." — Mechanical Engineering

The 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

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## Customer Reviews

Even if the book is old, it's the base of the airfoil understanding, because of the data included. Don't look for strange things here, just the classic stuff, but very complete.

I have worn out two copies of this in my professional days, and I am doing so again with my 'hobby' copy. It is much handier than the on-line references for NACA data and for doing the 'quick flip through' when thinking about design. It is not, however, for either the mathematically un-initiated, nor for the first-time designer. The book is both thorough and rigorous in its treatment of the topics it covers. All in all, along with the other standard texts, it supplies the needed data and information when thinking 'I wonder if that will work...'

This should be the first book on the shelf of any serious aircraft designer. The first half of the book is a review of classic airfoil theory, including all of the pertinent formulas. It is a bit dry and definitely not a textbook, but rather a comprehensive reference manual. Most people skip the text and buy the book for the second half, which is a compilation of all the basic NACA airfoils. Each airfoil shape is exactly described and includes graphs of performance data. This is a "must have" book for anyone who wants to design airfoils, whether they are the wings of an airplane, or the fins, rudders, etc. of a sailboat.

This book contains a historical review of the development of wing sections along with their mathematical basis and provides not only coordinates but performance data on many. Most of the source data for my shareware program came from this book.

I keep this book on hand for its 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.

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.

If you are interested in air foils, such as those used on aeroplanes, sailboats, etc then you need to have this book as a technical reference. One of the few books I got from engineering school that was actually useful.

This is one of my favorite technical references. Ever since I was a child wings and airfoils absolutely fascinated me. Now, don't think for a second that this book is only useful to aerospace engineers. Anyone dealing with a foil shape traveling through a fluid can find plenty of useful information in this book, if they understand enough about wing sections. I wouldn't buy this book to learn how to calculate lift, drag, or aerodynamic forces unless you're very mathematically savvy, as of it's all explained in a rather dry and theoretical sense. I had the benefit of learning it in a classroom scenario, as part of my degree in Naval Architecture & Marine Engineering. What is truly of value is the information on all the NACA wing sections and the empirical data they collected, contained in the massive appendices.

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