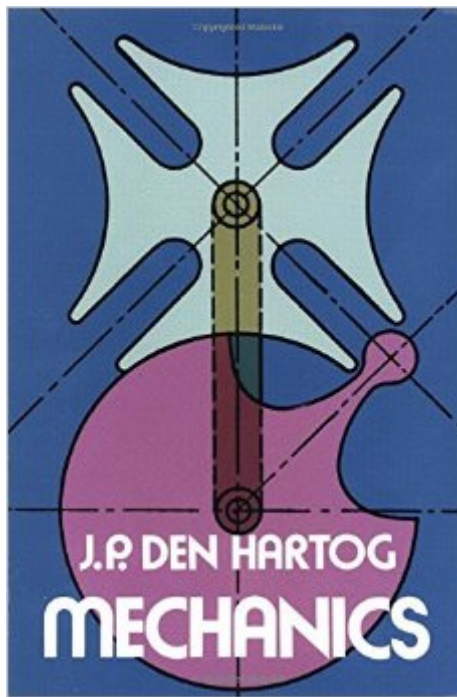


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# Mechanics (Dover Books On Physics)



## Synopsis

First published over 40 years ago, this work has achieved the status of a classic among introductory texts on mechanics. Den Hartog is known for his lively, discursive and often witty presentations of all the fundamental material of both statics and dynamics (and considerable more advanced material) in new, original ways that provide students with insights into mechanical relationships that other books do not always succeed in conveying. On the other hand, the work is so replete with engineering applications and actual design problems that it is as valuable as a reference to the practicing engineer as it is as a text or refresher for the general engineering student. Mechanics is not a "heavy" book, despite the amount of material it covers and the clarity and exactness with which it treats this material. It is undoubtedly one of the most readable texts in the field. More than 550 drawings and diagrams in the regular text and in the highly praised 112-page section of problems and answers further contribute to its lucidity and value. The emphasis is consistently on illuminating fundamental principles and in showing how they are embodied in a high number of real engineering and design problems concerning trusses, loaded cables, beams, jacks, hoists, brakes, cantilevers, springs, balances, pendulums, projectiles, cranks, linkages, propellers, turbines, fly ball engine governors, hydraulic couplings, anti-roll devices, gyroscopes, and hundreds of other mechanical systems and devices. Chapters cover Discrete Coplanar Forces, Conditions of Equilibrium, Distributed Forces, Trusses and Cables, Beams, Friction, Space Forces, The Method of Work, Kinematics of a Point, Dynamics of a Particle, Kinematics of Plane Motion, Moments of Inertia, Dynamics of Plane Motion, Work and Energy, Impulse and Momentum, Relative Motion, and Gyroscopes. Particularly in the last two chapters, Den Hartog provides advanced material not usual in introductory texts. "Very thoroughly recommended to all those anxious to improve their real understanding of the principles of mechanics." — Mechanical World. Index. List of equations. 334 problems, all with answers. Over 550 diagrams and drawings.

## Book Information

Series: Dover Books on Physics

Paperback: 480 pages

Publisher: Dover Publications (June 1, 1961)

Language: English

ISBN-10: 0486607542

ISBN-13: 978-0486607542

Product Dimensions: 5.4 x 0.9 x 8 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

Average Customer Review: 4.7 out of 5 stars [See all reviews](#) (34 customer reviews)

Best Sellers Rank: #23,701 in Books (See Top 100 in Books) #10 in [Books > Textbooks >](#)

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#13 in [Books > Textbooks > Engineering > Mechanical Engineering](#)

## Customer Reviews

I took a course on vector statics in undergrad, and foolishly I sold my textbook back to the bookstore. I later found myself wanting a refresher and so I purchased this book. It has proven an incredible resource. The pedagogical approach is highly visual and geometric. A slip through the book will reveal that there is at least one diagram per page, all heavily labeled, and all physical arguments throughout the text are based on the geometric properties of the diagrams. As some have commented, this is kind of archaic (for instance, calling a force going from a point A to a point B as AB), but fantastically approachable. Also fully explored are the classical, graphical methods of solutions, while the text of course develops the modern algebraic technique. While packed full of diagrams, the text is also packed full of problems which are the only way to learn a subject like this. Almost the last 100 pages of the book are problems with solutions listed in the back. Plenty of examples and illustrations are given in the text as well, often in the form of simplified and idealized versions of real-world mechanisms. When I purchased the book, it was \$15.95, compared to the \$170 you'd spend on a modern textbook in statics and mechanics, and nothing new has happened in mechanics since Newton. I would highly recommend this book to anyone seeking to learn the subject themselves (understanding that they'd need actually do the exercises) on their own time. I'm not a professor, but I feel like I could easily have used this book as an undergraduate in an intro statics class as the main text and still gotten the same information as from my \$170 book, assuming the same regime of homework problems. A definite recommend.

This classic text on the basics of mechanical engineering is still worthy reading, even close to sixty years after its first publication. It's a great resource for developing and securing your understanding of the established principles of mechanical properties in nature. Anyone, who is searching for excellent proto-examples of mechanical engineering, can still rely on this text to supplement one's grasp of dynamics, statics and kinematics. A total of seventeen chapters presented. Plus corresponding problems with an answer key provided. The only drawback with this text is that it may seem dated. Yet, it's still a reliable study-resource for people concerned with aspects of mechanical

technology.

If you have Beer & Johnson's textbooks on either the subject of statics or dynamics you already have a great (and expensive) text. This one is inexpensive with great exercises, and a very affordable self-study text. The one problem with it is that, like many Dover books, it was written decades ago and the language is therefore somewhat archaic and can be harder to read than modern texts. However, the diagrams are excellent and the problems are very good. The answers to the problems are in the back of the book, plus several people on the web have set about publishing detailed solutions to the problems Hartog's book since the problems do tend to be excellent and well thought out. I highly recommend it as a supplement, but I wouldn't recommend it as your main source of learning the subject of engineering mechanics.

Decent refresher on mechanics. Covers basic statics, dynamics, and some physics 1 concepts. Wouldn't recommend for someone with no experience in mechanics.

Just Excellent. Very well written overview and beautifully indexed. There is as much information in this little book as there is in texts four times the size and it is about 5% of the cost of those texts. MIT Professors tend to know their subjects and Hartog is no exception. This book gives us enough of an insight into Statics and Dynamics to leave us well grounded in the subject and with enough of an understanding of forces and analytic techniques to solve real world problems. You'll need your math here - Trig and Analytic Geometry and an understanding of calculus to know what is meant by integration and derivative. There are good example problems here, but a little slack on individual explanation. One can always buy a used college outline paperback for that. This book delivers the goods.

Hartog's treatment covers the fundamental aspects of mechanics in an accessible, if slightly old fashioned, way. The textbook covers statics, kinematics and basic dynamics as they are applied to machine elements and basic structures. The simplest topic is the strength of a beam, and the most complex is the gyrocompass. The textbook is valuable because it is systematic, comprehensive and well-written. The examples are old fashioned (including horse driven carts!) but valid. There is a good mix of geometrical and algebraical treatments of the topics which will be helpful to less-experienced students. It probably won't satisfy those with a keen interest in applied mathematics or who insist on the latest technological examples. Dover have done a fine job

producing a clear and robust book at a cheap price. This is a good investment for a practical engineer.

This book might be one of the best mechanics book I have ever read. It's an elementary book which explains everything that you overlook while following the text books now a days. Problems are really good and makes you think. Highly recommended you need an elementary book on Mechanics. Name is somewhat confusing as it explains you dynamics subject as well.

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