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Preface

Purpose

The purpose of the *CRC Handbook of Engineering Tables* is to provide in a single volume a ready reference for the practicing engineer in industry, government, and academia. The tables and figures provided in this book include data and information from all fields of engineering in a comprehensive format. This information is organized into five sections: Electrical and Computer Engineering; Civil and Environmental Engineering; Chemical Engineering, Chemistry and Material Science; Mechanical Engineering; and General Engineering and Mathematics. The 450 tables and figures are compiled from 51 books and are inclusive of most ready available, important data widely used by the engineering practitioner.

Locating Your Topic

Two avenues of access to information are provided. A complete table of contents is provided at the front of the book. An index is provided at the end of the book. The *CRC Handbook of Engineering Tables* provides answers to most engineering data with reference to the original source. The reader may find it valuable to refer to the original source for a fuller discussion of the underlying theory. We hope that this handbook will be ready at hand to provide data on engineering methods, devices, materials, chemistry, and mathematics.

Acknowledgement

The handbook was compiled with the generous help of the editors and authors of the original sources and I am grateful for their assistance. I wish to acknowledge the diligent help of my editor, Nora Konopka, and my editorial project development supervisor, Helena Redshaw.

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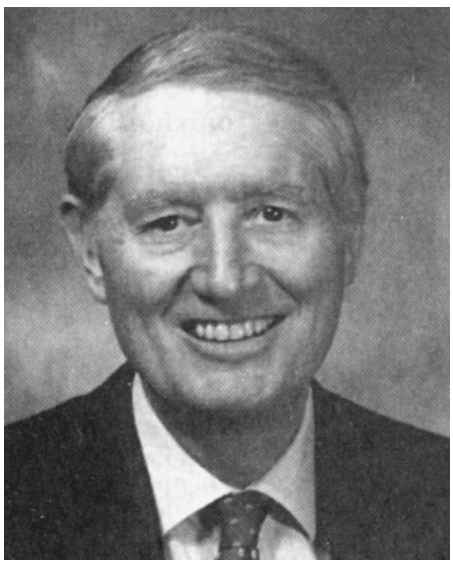
Dedication

I wish to dedicate this book to the memory of my mother and father, Marion Fraser Dorf and William Carl Dorf.

Editor-in-Chief



Richard C. Dorf, professor of electrical and computer engineering at the University of California, Davis, teaches graduate and undergraduate courses in electrical engineering in the fields of circuits and control systems. He earned a Ph.D. in electrical engineering from the U.S. Naval Postgraduate School, an M.S. from the University of Colorado, and a B.S. from Clarkson University. Highly concerned with the discipline of engineering and its wide value to social and economic needs, he has written and lectured internationally on the contributions and advances in engineering and their value to society.

Professor Dorf has extensive experience with education and industry and is professionally active in the fields of robotics, automation, electric circuits, and communications. He has served as a visiting professor at the University of Edinburgh, Scotland; the Massachusetts Institute of Technology; Stanford University; and the University of California, Berkeley.

A Fellow of The Institute of Electrical and Electronics Engineers, Dr. Dorf is widely known to the profession for his *Modern Control Systems*, 10th Edition (Prentice Hall 2004) and *Introduction to Electric Circuits,* 6th Edition (Wiley 2004). He is the Editor-in-Chief of the *Electrical Engineering Handbook,* 2nd Edition (CRC Press 1997), the *Technology Management Handbook* (CRC Press 1999), and the *Engineering Handbook,* 2nd Edition (CRC Press 2004).

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