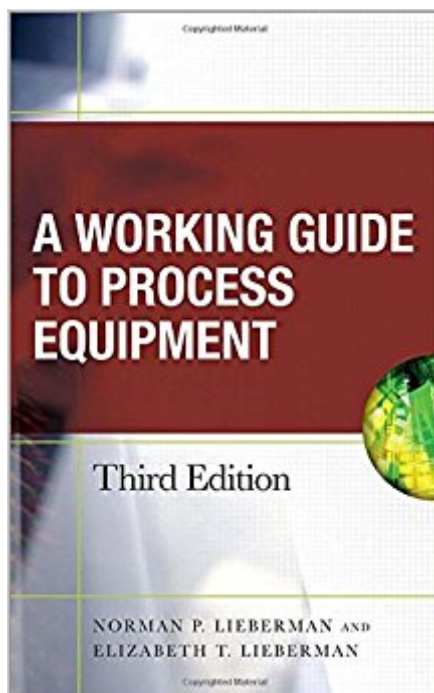


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# Working Guide To Process Equipment, Third Edition



## Synopsis

Diagnose and Troubleshoot Problems in Chemical Process Equipment with This Updated Classic! Chemical engineers and plant operators can rely on the Third Edition of *A Working Guide to Process Equipment* for the latest diagnostic tips, practical examples, and detailed illustrations for pinpointing trouble and correcting problems in chemical process equipment. This updated classic contains new chapters on Control Valves, Cooling Towers, Waste Heat Boilers, Catalytic Effects, Fundamental Concepts of Process Equipment, and Process Safety. Filled with worked-out calculations, the book examines everything from trays, reboilers, instruments, air coolers, and steam turbines to fired heaters, refrigeration systems, centrifugal pumps, separators, and compressors. The authors simplify complex issues and explain the technical issues needed to solve all kinds of equipment problems. Comprehensive and clear, the Third Edition of *A Working Guide to Process Equipment* features:

- Guidance on diagnosing and troubleshooting process equipment problems
- Explanations of how theory applies to real-world equipment operations
- Many useful tips, examples, illustrations, and worked-out calculations

New to this edition: Control Valves, Cooling Towers, Waste Heat Boilers, Catalytic Effects, and Process Safety

Inside this Renowned Guide to Solving Process Equipment Problems:

- Trays
- Tower Pressure
- Distillation Towers
- Reboilers
- Instruments
- Packed Towers
- Steam and Condensate Systems
- Bubble Point and Dew Point
- Steam Strippers
- Draw-Off Nozzle Hydraulics
- Pumparounds and Tower Heat Flows
- Condensers and Tower Pressure Control
- Air Coolers
- Deaerators and Steam Systems
- Vacuum Systems
- Steam Turbines
- Surface Condensers
- Shell-and-Tube Heat Exchangers
- Fire Heaters
- Refrigeration Systems
- Centrifugal Pumps
- Separators
- Compressors
- Safety
- Corrosion
- Fluid Flow
- Computer Modeling and Control
- Field Troubleshooting Process Problems

## Book Information

Hardcover: 591 pages

Publisher: McGraw-Hill Professional; 3 edition (April 17, 2008)

Language: English

ISBN-10: 0071496742

ISBN-13: 978-0071496742

Product Dimensions: 6.1 x 1.5 x 9.2 inches

Shipping Weight: 2 pounds

Average Customer Review: 4.0 out of 5 stars 14 customer reviews

Best Sellers Rank: #1,580,239 in Books (See Top 100 in Books) #79 in Books > Engineering & Transportation > Engineering > Chemical > Plant Design #939 in Books > Textbooks > Engineering > Chemical Engineering #9297 in Books > Science & Math > Chemistry

## Customer Reviews

Here's the Key to How Process Equipment Works--and How to Keep It Working At Its Best Process plant operators, engineers, managers, and other personnel need to understand--in a basic but simple way--how process equipment works. At last, there's a comprehensive, practical reference that sheds light on the inner workings of continuous process equipment for a broad range of technicians and industries, including plant operators and supervisors and service engineers in chemical, refining, pharmaceutical, and fertilizer plants, and other continuous process facilities. Based on the authors' extensive experience in the field, *A Working Guide to Process Equipment* carefully and clearly explains all the basic technical issues that you need to know to trouble-shoot even the thorniest process equipment problems. Here, in one resource book, is a wealth of useful diagnostic tips, worked-out calculations, practical examples, and informative illustrations to help you quickly pinpoint trouble and repair typical malfunctions in: Trayed and packed distillation towers; Natural and forced reboilers; Partial and total condensers; Steam systems and deaerators; Vacuum systems; Fired heaters; Shell and tube heat exchangers; Centrifugal compressors; Gas turbines and reciprocating engines; Centrifugal pumps and motor drivers. In no time at all, this essential problem-solving manual will become your most trusted on-the-job tool for dealing effectively with costly equipment malfunctions. --This text refers to an out of print or unavailable edition of this title.

Norman P. Lieberman is a chemical engineer with 35 years of experience in process design and plant operator supervision. An independent consultant, he troubleshoots oil refinery and chemical plant process problems and prepares revamp designs. Mr. Lieberman is the author of *Troubleshooting Refinery Processes*, *Troubleshooting Process Operations*, *Troubleshooting Natural Gas Processing*, and *Process Design for Reliable Operations*. Elizabeth T. Lieberman is a chemical engineer with more than two decades of experience in the process industries. She currently works as a consultant troubleshooting oil refinery and chemical plant process problems. Ms. Lieberman also has experience in ceramic clay processing, refractories processing, and the conveyance of slurry flow.

This book is on my desk as a tool that I can and do use every day to troubleshoot and resolve process equipment problems. Norman Lieberman has a collection of excellent resources books that will guide and improve anyone in the Hydrocarbon industry.

This book provided me with a thorough overview of the material and knowledge necessary to function adequately in a refining environment. I recommend having this as a resource to refer back to for specific processes.

simple and good book with few inconsistencies.

This book is very easy to read. Has good examples of process equipment and systems. All in all a very informative read

This is the classic text for budding chemical engineers. Great Service. I received the book within 1 week in Saudi Arabia.

There is a good reason this book has been updated into a third edition. It is a great book; well written, easy to read, and a logical flow. Norman Lieberman has a habit of writing with a sort of folksy everyman approach to subjects that could be rather dry otherwise. He and Elizabeth have done an outstanding job on this book and I honestly treated it as fun reading with two or three chapters a night until time to turn off the light. His troubleshooting episodes are like detective stories. It makes me wish I had been a process engineer so I could have had the fun of working with Elizabeth and him.

I was referred to this book after reading a few chapters of his "Troubleshooting Process Operations" book, and it is excellent. He writes it for people working in the industry, for people who might work in the industry, and people who just want to know how things work. His sense of humor is on par with mine, as well as many of my fellow chemical engineers... so if you've spent any time working or dealing with engineers at all, his way of thinking and sense of humor will be well received. Anyways, his examples are pretty much all personal experience, and he does a good job of giving you the "basic" math governing many processes. His intent is not to give design equations, and he is VERY careful to make sure the reader is aware that they are NOT to be used to design equipment. He speaks, in my opinion, from a contractors point of view and is at times very critical of operating

companies, management, other engineers, and SOME operators (he also rightfully gives MUCH praise to experienced veteran operators), so, if you work for an operating company, you might be a TAD offended, but, you'll live. Buy the book, well worth it.

As a licensed professional engineer and consultant in the Houston, TX area, I found this to be an excellent and useful book. It simplifies and demystifies fundamental chemical engineering principals and effectively illustrates how theory applies to understanding the root cause/s of real world plant operating problems. The Lieberman's also do a fine job of making the book interesting to read through the use of non-process plant related anecdotes. These anecdotes help the reader understand the principals presented by drawing upon experiences and situations common to everyday life. I highly recommend this book to engineers of all experience levels who work in the petroleum refining and chemical process industries.

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