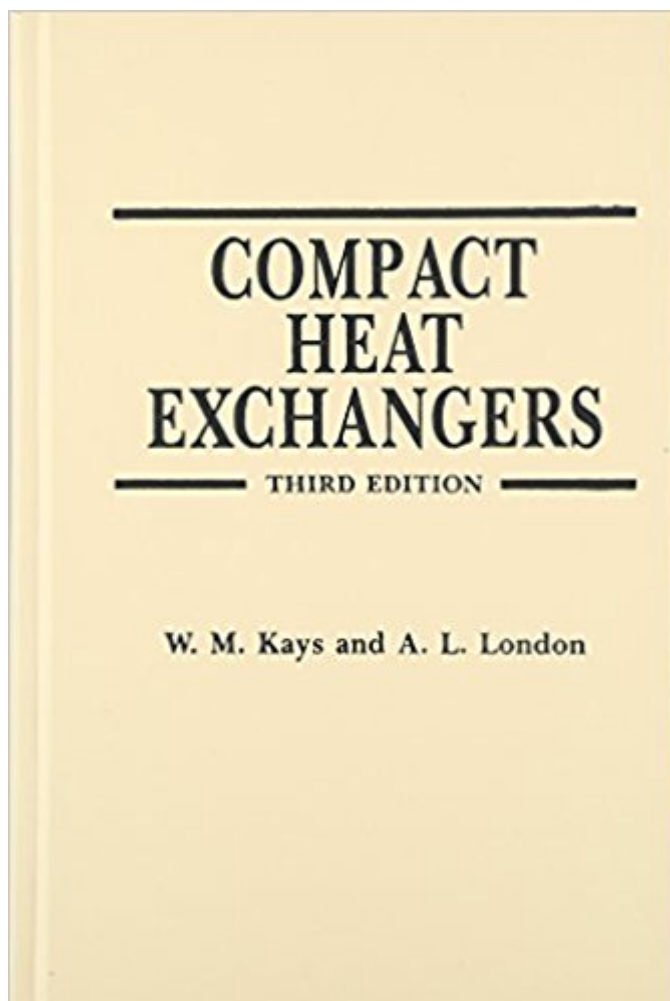


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Compact Heat Exchangers



Synopsis

This text compiles experimental data on the basic heat transfer and flow friction characteristics of compact heat exchangers. The data can be applied to space heating, spacecraft heat exchangers, aircraft heat exchangers and various cooling systems.

Book Information

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Customer Reviews

Any packaging engineers, particularly those in the telecommunications field, who are looking at system-level thermal issues may find this book fairly useful. There is a huge amount of information here that is hard to get from any other sources other than scouring a lot of journals. This is not an easy read and you should be well-versed in the elements of heat transfer, particularly duct flow. However, there is a wealth of experimental data that is still being "mined" by many researchers. Except for some of the newer papers by Manglik and Bergles (see their work on offset strip fin heat exchangers) you aren't missing much information relevant to heat exchangers or heat sinks. I would suggest another reference such as "The Handbook of Heat Transfer" and "Fundamentals of Heat and Mass Transfer" to supplement the information in this volume. Certainly I have used all three designing new heatsinks for specific applications.

As a chemical engineer I've had limited use for this book. Kays addresses an area of heat exchangers used in aerospace, semi-conductors and other industries where small coolers or heaters are needed. I remember first hearing about this book back in the early 80's, while living in

California, so it has been in print for a while; the first printing was 1955. Although the author addresses many of the issues of design there is only a half-hearted attempt at examples. Kays speaks to the PhD level not the working engineer. I was hoping for a book more like Kern's "Process Heat Transfer," or even Bird, Stewart, and Lightfoot's "Transport Phenomena." Here's a good example, on page 45, "Procedures for Sizing a Heat Exchanger." Instead of taking the reader through the bloody details as Kern would do, the author refers us back to Figure 2-12, a block-flow diagram giving the reader a vague understanding of the steps involving sizing an exchanger. In the end, in fact, on the same page, the author finishes with: "The complete design of a heat exchanger involves a whole set of considerations, as indicated by Fig. 2-12." This is clearly a cop-out. I had a similar experience with plate and frame heat exchangers where so much of the sizing information is now proprietary. This forced me to go back to chemical engineering articles written in the 50's when this technology (also a compact heat exchanger) was new. When people are trying to sell an idea they are usually more open; I picked up some dandy sizing equations. All in all, this book will be useful. But, it won't help you size compact heat exchangers to the degree of detail necessary to actually build one. It will merely allow the reader a glimmer of understanding of these marvelous inventions while making him/her a slave to proprietary information from some vendor. If this review was helpful, please add your vote.

This book is very useful for one who wants to design and to calculate performance of the compact heat exchanger. It contains so many figures for the design and calculation of the compact heat exchanger. When I was designing the gas to gas heat exchanger and I decided it must be a compact heat exchanger, I only used this book to help myself.

Most texts spend only a chapter or two on heat exchanger design and performance. This book really dives into the details. You'll need a pretty good knowledge of the subject matter to begin with in order to fully comprehend the topics. This book contains tons of experimental data that can be used to predict heat exchanger performance. The book has several examples and is easy to follow. A great resource for anyone involved in the development of heat exchanger models. I particularly use this for hvac design and find it works well.

This book will never go out of style. It is chock-full of relevant information on extended heat exchanger surfaces that can be used for design and also for verification of numerical models. I highly recommend it.

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