Record Nr. UNINA9910808142803321 Autore Theodore Louis Titolo Heat transfer applications for the practicing engineer / / Louis Theodore Hoboken, N.J.,: Wiley, 2011 Pubbl/distr/stampa **ISBN** 1-118-00210-5 1-283-29871-6 9786613298713 0-470-93722-X 0-470-93721-1 Edizione [1st ed.] Descrizione fisica 1 online resource (664 p.) Collana Essential engineering calculations series; ; 4 Classificazione TEC009010 UG 2500 Disciplina 621.402/2 Soggetti Heat exchangers Heat - Transmission Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Machine generated contents note: Preface.Introductory Comments.Part One. Introduction.1. History of Heat Transfer.2. History of Chemical Engineering: Transport Phenomena vs Unit Operations.3. Process Variables.4. Conservation Laws.5. Gas Laws.6. Heat Exchanger Pipes and Tubes.Part Two. Principles.7. Steady-State Heat Conduction.8. Unsteady-State heat Conduction.9. Forced Convection.10. Free Convection.11. Radiation.12. Condensation and Boiling.13. Refrigeration and Cryogenics.Part Three. Heat Transfer Equipment Design Procedures and Applications.14. Introduction to Heat Exchangers.15. Double Pipe Heat Exchangers.16. Shell and Tube Heat Exchangers.17. Fins and Extended Surfaces.18. Other Heat Exchange Equipment.19. Insulation and Refractory.20. Operation, Maintenance,

and Inspection (OMI).21. Entropy Consideration and Analysis.22.

23. Environmental Management.24. Accident and Emergency Management.25. Ethics.26. Numerical Methods.27. Economics and Finance.28. Open-Ended Problems. Appendix A. Appendix B. Appendix

Design Principles and Industrial Applications.Part Four. Special Topics.

## C.Appendix D.Index.

## Sommario/riassunto

"This book serves as a training tool for individuals in industry and academia involved with heat transfer applications. Although the literature is inundated with texts emphasizing theory and theoretical derivations, the goal of this book is to present the subject of heat transfer from a strictly pragmatic point of view. The book is divided into four Parts: Introduction, Principles, Equipment Design Procedures and Applications, and ABET-related Topics. The first Part provides a series of chapters concerned with introductory topics that are required when solving most engineering problems, including those in heat transfer. The second Part of the book is concerned with heat transfer principles. Topics that receive treatment include Steady-state Heat Conduction. Unsteady-state Heat Conduction, Forced Convection, Free Convection, Radiation, Boiling and Condensation, and Cryogenics. Part three (considered the heart of the book) addresses heat transfer equipment design procedures and applications. In addition to providing a detailed treatment of the various types of heat exchangers, this part also examines the impact of entropy calculations on exchanger design, and operation, maintenance and inspection (OM&I), plus refractory and insulation effects. The concluding Part of the text examines ABET (Accreditation Board for Engineering and Technology) related topics of concern, including economies and finance, numerical methods, openended problems, ethics, environmental management, and safety and accident management"--