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	Titolo	Solving Problems in Thermal Engineering : A Toolbox for Engineers / / by Viktor Józsa, Róbert Kovács
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	Descrizione fisica	1 online resource (213 pages) : illustrations
	Collana	Power Systems, , 1612-1287
	Disciplina	621.402 621.4025
	Soggetti	Energy systems Thermodynamics Heat engineering Heat - Transmission Mass transfer Applied mathematics Engineering mathematics Fossil fuels Mathematical models Energy Systems Engineering Thermodynamics, Heat and Mass Transfer Mathematical and Computational Engineering Fossil Fuels (incl. Carbon Capture) Mathematical Modeling and Industrial Mathematics
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	Nota di contenuto	Introduction -- General aspects of thermal processes -- Scaling of thermal processes -- Applications of Renewable Energy -- Thermal processes in vacuum -- Non-Fourier and Non-Fick problems -- Solution methods.
	Sommario/riassunto	This book provides general guidelines for solving thermal problems in the fields of engineering and natural sciences. Written for a wide audience, from beginner to senior engineers and physicists, it provides

a comprehensive framework covering theory and practice and including numerous fundamental and real-world examples. Based on the thermodynamics of various material laws, it focuses on the mathematical structure of the continuum models and their experimental validation. In addition to several examples in renewable energy, it also presents thermal processes in space, and summarizes size-dependent, non-Fourier, and non-Fickian problems, which have increasing practical relevance in, e.g., the semiconductor industry. Lastly, the book discusses the key aspects of numerical methods, particularly highlighting the role of boundary conditions in the modeling process. The book provides readers with a comprehensive toolbox, addressing a wide variety of topics in thermal modeling, from constructing material laws to designing advanced power plants and engineering systems.