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ISBN	0-08-095137-6
Edizione	[Seventh edition.]
Descrizione fisica	1 online resource (xxxvi, 544 pages) : illustrations (some color)
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Soggetti	Finite element method Fluid dynamics Fluid dynamics - Mathematical models
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Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Introduction to the equations of fluid dynamics and the finite element approximation -- Convection-dominated problems : finite element approximations to the convection-diffusion-reaction equation -- The characteristic-based split (CBS) algorithm : a general procedure for compressible and incompressible flow -- Incompressible Newtonian laminar flows -- Incompressible non-Newtonian flows -- Free surface and buoyancy driven flows -- Compressible high-speed gas flow -- Turbulent flows -- Generalized flow and heat transfer in porous media -- Shallow-water problems -- Long and medium waves -- Short waves -- Fluid-structure interaction -- Biofluid dynamics -- Computer implementation of the CBS algorithm.
Sommario/riassunto	This book offers a complete introduction to the application of the finite element method to fluid mechanics. It begins with a useful summary of all relevant partial differential equations before moving on to discuss convection stabilization procedures, steady and transient state equations, and numerical solution of fluid dynamic equations.