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Titolo	Problems in Hydraulics and Fluid Mechanics / / by Sandro Longo, Maria Giovanna Tanda, Luca Chiapponi
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Descrizione fisica	1 online resource (XVII, 395 p. 348 illus., 290 illus. in color.)
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Soggetti	Engineering geology Fluid mechanics Buildings - Design and construction Geoengineering Engineering Fluid Dynamics Building Construction and Design
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Nota di contenuto	Hydrostatic forces on submerged plane surfaces -- Hydrostatic forces on submerged curved surfaces. Immersed and floating bodies -- Momentum analysis of flow systems -- Pipeline systems -- Industrial hydraulic systems -- Circuits with hydraulic machines: pumps and turbines -- Hydraulic transients -- Flow in open channels -- Geometry properties of common plane shapes -- Volume and surface area of solid figures Physical properties of the fluids -- Losses in pipes and channels.
Sommario/riassunto	This textbook offers a unique introduction to hydraulics and fluid mechanics through more than 100 exercises, with guided solutions, which students will find valuable in preparation for their preliminary or qualifying exams and for testing their grasp of the subject. In some exercises two different solution methods are proposed, to highlight the fact that the level of complexity of the calculations is often linked to the choice of method, though in most cases only the simplest method is presented. The exercises are organized by subject, covering forces on planes and curved surfaces; floating bodies; exercises that require

the application of linear and angular momentum balancing in inertial and non-inertial references; pipeline systems, with particular applications to industrial plants; hydraulic systems with machines (pumps and turbines); transient phenomena in pipelines; and uniform and gradually varied flows in open channels. The book also features appendices that contain selecteddata and formulas of practical interest. Instructors of courses that address one or all of the above topics will find the exercises of great help in preparing their courses, while researchers will find the book useful as an accessible summary of the topics covered.