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| Titolo                  | Handbook on thermal hydraulics in water-cooled nuclear reactors .<br>Volume 1 Foundations and principles / / edited by Francesco d'Auria,<br>Yassin A. Hassan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Soggetti                | Thermal hydraulics<br>Nuclear reactors<br>Reactors nuclears<br>Hidràulica tèrmica                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| Nota di contenuto       | Front Cover -- Handbook on Thermal Hydraulics in Water-Cooled<br>Nuclear Reactors -- Handbook on Thermal Hydraulics in Water-Cooled<br>Nuclear Reactors: Volume 1: Foundations and Principles -- Dedication<br>-- Copyright -- Contents -- List of contributors -- Contributors for<br>volumes 1, 2 and 3 -- Foreword -- Glossary -- Preface to the first<br>edition of the book -- Preface to the second edition of the book --<br>Acknowledgments (for the past) and wishes (for the future) -- 1 -<br>Introduction -- Foreword -- 1.1 Introduction -- 1.1.1 Scope and<br>framework -- 1.1.1.1 Origin of nuclear thermal hydraulics -- 1.1.1.2<br>Single- and two-phase flows -- 1.1.1.3 Prominent scientists, origins,<br>and textbooks -- 1.1.1.4 Journals, conferences, the web, and selected<br>international institutions -- 1.1.1.5 Education and training -- 1.1.1.6<br>Target nuclear power plant and research reactor types and structures,<br>systems, and components of nuclear installations -- 1.1.1.7<br>Experiments and instrumentation -- 1.1.1.8 Numerical methods and<br>computer science -- 1.1.1.9 Nuclear safety, licensing process, and<br>design basis accident (moving) boundaries -- 1.1.1.10 Severe accidents<br>-- 1.1.1.11 Containment and reactor coolant system -- 1.1.1.12 |

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## Sommario/riassunto

This handbook provides an in-depth analysis of thermal hydraulics in water-cooled nuclear reactors, addressing foundational principles and practical applications. Edited by Francesco D'Auria and Yassin A. Hassan, it compiles contributions from leading experts in the field. The book covers a wide range of topics, including system thermal hydraulics history, two-phase flow development, heat transfer, and safety assessment. It emphasizes the role of thermal hydraulics in nuclear power plant design and safety, offering insights into pressure drops, constitutive equations, and modeling techniques. Aimed at practitioners and researchers, this comprehensive guide serves as a valuable resource for understanding the critical aspects of nuclear reactor operation and safety.

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