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Nota di contenuto	PRINCIPLES OF WELDING Processes, Physics, Chemistry, and Metallurgy; CONTENTS; PREFACE; I THE PROCESS AND PROCESSES OF WELDING; 1 INTRODUCTION TO THE PROCESS OF WELDING; 1.1 What Is Welding?; 1.2 The Evolution of Welding as a Process; 1.3 The Nature of an Ideal Weld: Achieving Continuity; 1.4 Impediments to Making Ideal Welds in the Real World; 1.5 What It Takes to Make a Real Weld; 1.6 Advantages and Disadvantages of Welding; 1.7 Summary; References and Suggested Reading; 2 CLASSIFYING WELDING PROCESSES; 2.1 Why Classify Processes?; 2.2 Mechanisms for Obtaining Material Continuity 2.3 The Roles of Temperature and Pressure 2.4 Alternative Bases for Classification; 2.4.1 Fusion Versus Nonfusion; 2.4.2 Pressure Versus Nonpressure; 2.4.3 Energy Sources for Welding; 2.4.4 Interface Relationships and Classification by Energy Transfer Processes; 2.4.5 Other Bases for Classification and Subclassification; 2.5 Allied Processes; 2.6 The AWS Classification Scheme; 2.7 Summary; References and Suggested Readings; 3 FUSION WELDING PROCESSES; 3.1 General Description of Fusion Welding Processes; 3.2 Chemical Fusion Welding Processes; 3.2.1 Oxyfuel Gas Welding

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3.4.2 Flash, Upset, and Percussion Welding
3.5 High-Intensity Radiant Energy or High-Density Beam Welding Processes; 3.5.1 High-Energy-Density (Laser and Electron) Beam Welding Processes; 3.5.2 Focused IR and Imaged Arc Welding; 3.5.3 Microwave Welding; 3.6 Summary; References and Suggested Reading; 4 NONFUSION WELDING PROCESSES; 4.1 General Description of Nonfusion Welding Processes; 4.2 Pressure (Nonfusion) Welding Processes; 4.2.1 Cold Welding Processes; 4.2.2 Hot Pressure Welding; 4.2.2.1 Pressure Gas Welding; 4.2.2.2 Forge Welding; 4.2.3 Roll Welding; 4.2.4 Explosion Welding
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4.5 Solid-state Deposition Welding Processes

Sommario/riassunto

An advanced yet accessible treatment of the welding process and its underlying science. Despite the critically important role welding plays in nearly every type of human endeavor, most books on this process either focus on basic technical issues and leave the science out, or vice versa. In *Principles of Welding*, industry expert and prolific technical speaker Robert W. Messler, Jr. takes an integrated approach--presenting a comprehensive, self-contained treatment of the welding process along with the underlying physics, chemistry, and metallurgy of weld formation. Promising to be
