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Nota di contenuto	Cover; Contents; Preface; Acknowledgements; Features of the Third Edition; Chapter 1 Introduction; 1.1 Introduction and synopsis; 1.2 Materials in design; 1.3 The evolution of engineering materials; 1.4 Case study: the evolution of materials in vacuum cleaners; 1.5 Summary and conclusions; 1.6 Further reading; Chapter 2 The design

process; 2.1 Introduction and synopsis; 2.2 The design process; 2.3 Types of design; 2.4 Design tools and materials data; 2.5 Function, material, shape, and process; 2.6 Case study: devices to open corked bottles; 2.7 Summary and conclusions; 2.8 Further reading
6.13 Insulation for short-term isothermal containers6.14 Energy-efficient kiln walls; 6.15 Materials for passive solar heating; 6.16 Materials to minimize thermal distortion in precision devices; 6.17 Nylon bearings for ships' rudders; 6.18 Materials for heat exchangers; 6.19 Materials for radomes; 6.20 Summary and conclusions; 6.21 Further reading; Chapter 7 Processes and process selection; 7.1 Introduction and synopsis; 7.2 Classifying processes; 7.3 The processes: shaping, joining, and finishing; 7.4 Systematic process selection; 7.5 Ranking: process cost
7.6 Computer-aided process selection7.7 Supporting information; 7.8 Summary and conclusions; 7.9 Further reading; Chapter 8 Process selection case studies; 8.1 Introduction and synopsis; 8.2 Forming a fan; 8.3 Fabricating a pressure vessel; 8.4 An optical table; 8.5 Economical casting; 8.6 Computer-based selection: a manifold jacket; 8.7 Computer-based selection: a spark plug insulator; 8.8 Summary and conclusions; Chapter 9 Multiple constraints and objectives; 9.1 Introduction and synopsis; 9.2 Selection with multiple constraints
9.3 Conflicting objectives, penalty-functions, and exchange constants

Sommario/riassunto

Understanding materials, their properties and behavior is fundamental to engineering design, and a key application of materials science. Written for all students of engineering, materials science and design, this book describes the procedures for material selection in mechanical design in order to ensure that the most suitable materials for a given application are identified from the full range of materials and section shapes available. Fully revised and expanded for this third edition, Materials Selection in Mechanical Design is recognized as one of the leading texts, and provides a u