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stresses in bolt-and-bushing assembly

4.6 Example of assembly stresses in bolt-and-nut assembly4.7 Example of statically indeterminate beam; 4.8 Summary; Chapter 5 Analysis of Strain; 5.1 Introduction; 5.2 The fundamental metric tensors; 5.3 The strain tensor; 5.4 The geometrical meaning of the strain tensor; 5.5 Small strain; 5.6 The strain transformation laws; 5.7 Principal strains and principal directions; 5.8 The strain-displacement relations; 5.9 Linear strain; 5.10 The change in volume; 5.11 Two simple examples of strain; 5.12 The deviator and spherical strain tensors; 5.13 Compatibility relations for linear strain

5.14 SummaryChapter 6 Analysis of Stress; 6.1 Introduction; 6.2 The concept of stress at a point; 6.3 The stress tensor; 6.4 The transformation of stress; 6.5 The symmetry of the stress tensor: moment equilibrium; 6.6 The differential equations of equilibrium; 6.7 The equations of equilibrium on the surface of a body; 6.8 Principal stresses and principal directions; 6.9 The extreme shear stresses; 6.10 The deviator and spherical stress tensors; 6.11 Summary; Chapter 7 Elasticity; 7.1 Introduction; 7.2 The generalized Hooke's Law-anisotropy; 7.3 Monoclinic material: thirteen constants

7.4 Orthotropic material: nine constants7.5 Tetragonal material: six constants; 7.6 Cubic material: three constants; 7.7 Isotropic material: two constants; 7.8 Thermoelastic stress-strain relation; 7.9 Elastic constants for some materials of engineering interest; 7.10 Strain energy; 7.11 Summary: isotropic stress-strain law and energy relations; 7.12 Summary: the equations of linear elasticity; 7.13 Simple examples of solutions for equations of elasticity; 7.14 Engineering beam theory; 7.15 Summary: engineering beam theory; Chapter 8 Plastic Behavior of Solids; 8.1 Introduction

8.2 Stress-strain relations under uniaxial loading conditions

Sommario/riassunto

Well-written, thoughtfully prepared, and profusely illustrated, this text is the work of a trio of prominent experts. The treatment builds on the mechanics background obtained from an engineering curriculum's first course in physics, providing the foundations for a study of such advanced topics in solid mechanics as the theory of elasticity, structural analysis, plasticity, and shell theory.Divided into two parts, the book begins with an exposition of the fundamentals of solid mechanics and the principles of mechanics, statics, and simple statically indeterminate systems. The second half deals