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5.3. Inertia Balance of Multicylinder Engines5.4. Natural Frequencies of Torsional Vibration; 5.5. Numerical Example; 5.6. Torque Analysis; 5.7. Work Done by Torque on Crank-shaft Oscillation; 5.8. Damping of Torsional Vibration; Propeller Damping; 5.9. Dampers and Other Means of Mitigating Torsional Vibration; 6.1. Critical Speeds; 6.2. Holzer's Method for Flexural Critical Speeds; 6.3. Balancing of Solid Rotors; 6.4. Simultaneous Balancing in Two Planes; 6.5. Balancing of Flexible Rotors; Field Balancing; 6.6. Secondary Critical Speeds; 6.7. Critical Speeds of Helicopter Rotors
6.8. Gyroscopic Effects6.9. Frame Vibration in Electrical Machines; 6.10. Vibration of Propellers; 6.11. Vibration of Steam-turbine Wheels and Blades; Chapter 6. Rotating Machinery; Chapter 7. Self-Excited Vibrations; 7.1. General; 7.2. Mathematical Criterion of Stability; 7.3. Instability Caused by Friction; 7.4. Internal Hysteresis of Shafts and Oil-film Lubrication in Bearings as Causes of Instability; 7.5. Galloping of Electric Transmission Lines; 7.6. Karman Vortices; 7.7. Hunting of Steam-engine Governors; 7.8. Diesel-engine Fuel-injection Valves
7.9. Vibrations of Turbines Caused by Leakage of Steam or Water.

Sommario/riassunto

This classic textbook by J. P. Den Hartog, retired professor of mechanical engineering at MIT, reflects the author's unique ability to combine the scholarly insight of a distinguished scientist with the practical, problem-solving orientation of an experienced industrial engineer. Although mathematics plays a role in the subject, Den Hartog employs the simplest possible mathematical approaches. His lucid explanations of complex problems are presented in a direct style and supported by illustrative models. Numerous figures in the text enhance its value as a basic foundation in a field which De