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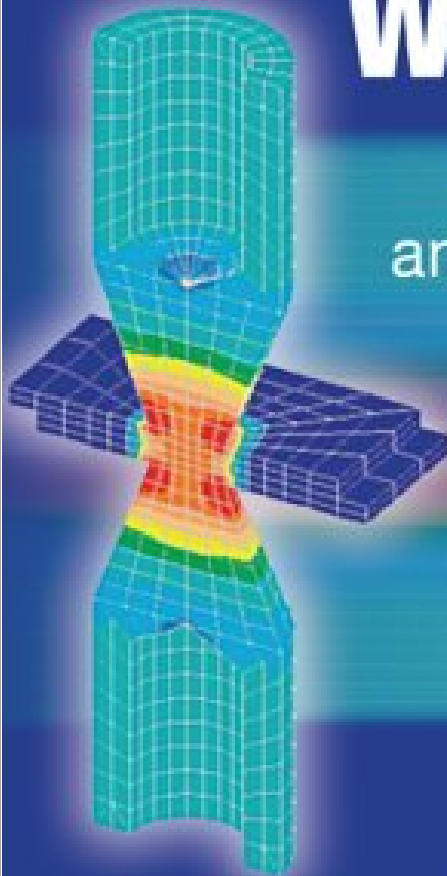
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RESISTANCE WELDING

Fundamentals and Applications



Hongyan Zhang
Jacek Senkara

Taylor & Francis

Engineering Mechanics

RESISTANCE WELDING

Fundamentals and Applications

Hongyan Zhang • Jacek Senkara

High-performance steels and aluminum alloys pose significant challenges to resistance welding processes. Unfortunately for those involved in materials science, metallurgy, and manufacturing, most available books provide only a superficial treatment of resistance spot welding. Surveying the topic in a scientific and systematic manner, *Resistance Welding: Fundamentals and Applications* supplies practical insight into every aspect of the field.

This book comprehensively examines every aspect of resistance welding, from metallurgy and fundamental physical processes, such as electrothermal processes and discontinuities, to mechanical testing, process monitoring and control, weld quality and inspection, expulsion, and numerical simulation. The authors consider the influence of mechanical characteristics of welding machines and emphasize statistical design, analysis, and inference in resistance welding research, enabling students to conduct their own investigations. They present state-of-the-art research results from their own studies as well as from other leading experts, and the text's many examples are derived from real experiments.

Bonding theory to practical applications, this comprehensive text:

- Provides the first and only book devoted to resistance welding with a scientific and systematic approach
- Contains many case studies and examples, and nearly 300 figures
- Discusses many state-of-the-art research results based on the work of the authors and other leading researchers
- Emphasizes the use of statistical analysis in resistance spot welding research
- Uses actual experiments as examples in the text, serving as a perfect guide to on-the-job investigations
- Demonstrates process monitoring using various sensors to explain and investigate resistance welding phenomena

Resistance Welding: Fundamentals and Applications imparts a fundamental understanding of resistance welding processes and phenomena that enables you to approach high-performance steels, aluminum alloys, and other new materials with confidence. It is a handy reference on the job as well as an ideal undergraduate or graduate textbook.



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