Heat Treater's Guide

Practices and Procedures for Irons and Steels

Second Edition

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PREFACE

The success of the 1982 edition of the *Heat Treater's Guide: Standard Practices and Procedures for Steel* is largely a tribute to its editors who came up with a unique, easy-to-use format. They packaged practical, how-to information in brief articles (typically less than a page) on each of the 280 standard AISI grades of carbon, alloy, tool, and stainless steels available at the time.

Brevity was further promoted by standardizing the information presented in each article, namely: chemical composition, alternative U.S. and foreign grades, characteristics related to heat treating, forging practice (where applicable), recommended heat treating practice, and recommended processing sequence.

The concept is carried forward in this new edition. In preparing for it, all existing articles were reviewed and updated where necessary, i.e., new AISI-UNS chemical compositions replace obsolete compositions, RH grades of steel are identified, and aerospace practice for heat treating carbon and alloy steels is presented. Other changes include:

- Steels not covered in the prior edition are added to the mix, i.e., ultrahigh strength steels, cast irons (gray, ductile, and malleable types), and P/M steels (ferrous, stainless steel, and tool steel types).
- Topics not in the '82 edition are addressed, such as the use of statistical process control in heat treating, and practical applications of the computer in heat treating.
- New information is also provided by a number of short articles that focus on major trends and current developments in heat treating practice. this information is in support of topics that are part of the standard format, i.e., normalizing, annealing, surface hardening, quenching/quenchants, tempering, cold/cryogenic treatments, and furnace atmospheres.
- The number of steels represented in standard format articles has been increased from 280 to around 350.
- Also new to this edition are more than 50 short articles on timely topics ranging from back-to-the basics look at causes of distortion and cracking in quenching to a survey of all available surface hardening processes.
- Access to articles is improved by restyled contents pages.

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