

Tool Steels Emj

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[Crucible Steel Company of America](#) CRC Press
For tool designers, tool and die makers, machinists, and apprentices, Szumera presents specification, heat treatments, applications for all types of die and mold steels, and suggestions on how to prepare steels for machining and heat treatment. He does not provide a bibliography. Annotation (c) Boo
[Steel](#) Carl Hanser Verlag GmbH Co KG
Excerpt from Tool Steels, Data and Tables Appertaining to Electric Tool Steels Steel is a complex mixture of iron with other ingredients. Some of these ingredients are impurities, the kinds and amounts of which depend on process of manufacture and raw materials used. Other ingredients impart useful properties to metal and are added to or allowed to remain in the steel to produce or intensify these properties. The aim of the steel maker is to reduce the proportion of impurities to the minimum and to add to the iron just that percentage of useful ingredients which will give, those chemical and physical properties most suitable for the uses to which the particular grade of steel is to be put. Classification Of Steel. Various grades of steel are classified by uses, processes of manufacture or chemical composition. 1. Uses. Structural Steel is that grade in general use in the fabrication of bridges, buildings, cars and ships. Spring Steel goes into the manufacture of car and carriage springs, etc. Tool Steel is peculiarly adapted to be hardened and tempered for the manufacture of machine and hand tools of all kinds, etc. 2. Processes of Manufacture. The terms, Crucible Steel, Bessemer Steel, Acid Open-Hearth Steel, Basic Open-Hearth Steel and Electric Steel, refer to different methods of manufacture and are somewhat indicative of quality for the reason that a particular grade of steel is best made by one or the other of these processes. 3. Chemical Composition. On the basis of chemical composition there are three main kinds of steel. a. Carbon Steel. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books. Find more at [www.forgottenbooks.com](#) This book is a reproduction of an important historical work. Forgotten Books uses state-of-the-art technology to digitally reconstruct the work, preserving the original format whilst repairing imperfections present in the aged copy. In rare cases, an imperfection in the original, such as a blemish or missing page, may be replicated in our edition. We do, however, repair the vast majority of imperfections successfully; any imperfections that remain are intentionally left to preserve the state of such historical works.

[Metallurgy and Heat Treatment of Tool Steels](#)
In a few short years, this has become the established reference for tool makers, heat treaters, and engineers seeking step-by-step recipes for properly heat treating a wide range of tool steels, plus practical information about machinability, shock resistance, wear, and extending tool life. Now, the completely revised and expanded Second Edition of the best selling Heat Treatment, Selection, and Application of Tool Steels is available. It has been extensively updated and includes the following significant new additions: an entirely new chapter on the popular powdered tool steel CPM 10V; a thorough new section on carburizing thoroughly describes the process and its benefits; the section on cryogenic treatment has been completely rewritten to describe the theory and process; and a comprehensive glossary of related terms has been added. As in the first edition, valuable tables of properties, attributed, qualities, and shortcomings of popular tool steels are also included.

[The Tool Steel Guide](#) ASM International
If you are involved with machining or metalworking or you specify materials for industrial components, this book is an absolute must. It gives you detailed and comprehensive information about the selection, processing, and properties of materials for machining and metalworking applications. They include wrought and powder metallurgy tool steels, cobalt base alloys, cemented carbides, cermets, ceramics, and ultra-hard materials. You'll find specific guidelines for optimizing machining productivity through the proper selection of cutting tool materials plus expanded coverage on the use of coatings to extend cutting tool and die life. There is also valuable information on alternative heat treatments for improving the toughness of tool and die steels. All new material on the correlation of heat treatment microstructures and properties of tool steels is supplemented with dozens of photomicrographs. Information on special tooling considerations for demanding applications such as isothermal forging, die casting of metal matrix composites, and molding of corrosive plastics is also included. And you'll learn about alternatives to ferrous materials for metalworking applications such as carbides, cermets, ceramics, and nonferrous metals like aluminum, nickel, and copper base alloys.

[The American Steel Worker](#) ASM International
This handy book provides a single, up-to-date source of information for increasing the life of tool steels through optimized design and manufacturing. Supplying a solid understanding of the metallurgy involved, the text explains how material compositions, manufacturing processes, heat treatments, surface hardening techniques, and coatings affect tool steel properties, grades, and performance. It also explores real-life case studies and failure analyses, offering examples of die-life parameters and hints for modifying tool steels and heat treatments during cutting or forming processes. While the book offers deep coverage of properties, microstructure, and manufacturing, its focus is on describing the performance of each application of this special class of ferrous materials. Provides a single, up-to-date source of information for increasing the life of tool steels through optimized design and manufacturing. Explains how material compositions, manufacturing processes, heat treatments, surface hardening techniques, and coatings affect tool steel properties, grades, and performance. Supplies a solid understanding of the metallurgy involved in tool steel manufacturing, machining, hot and cold working, and molding. Offers examples of die-life parameters and hints for modifying tool steels and heat treatments during cutting or forming

processes. Includes real-life case studies and failure analyses from the Villares Metals plant in Brazil.
[Steels and Alloys for Special Purposes](#) Industrial Press Inc.
Heat-Treating, Master Control Manual focuses on heat-treating by ASM, SME, and AISI standards. The manual has been created for use in student education, as well as to guide professionals who has been heat treating their entire lives. It is written without the typical metallurgical jargon. This book will serve as a training manual from day one in learning how to heat treat a metal, and then also serve as a day to day reference for a lifetime. This manual zeros in on the popular tool steels, alloy steels, heat-treatable stainless steels, case hardening steels, and more. It deals with these metals with up-to-date usage and processing recipes. What is different with this manual from all the others is that it doesn't just deal with the heat-treatment process, it also covers the continuation of the hardening process with cryogenics. Yes, it is written to help those who may want a thorough understanding of what goes on in the process of heat-treating, and how to do it better. However, it also shows how proper heat and cryogenic processing can save your company money. Making money through longer life tooling, decarb-free and stress relief, all while learning how to create a better, finer grain structure. This manual shows the reader that hardness is only an indication of hardness, and that the real money savings is in the fine grained structure. This manual is written for toolmakers, engineers, heat-treaters, procurement, management personnel, and anyone else who is involved in metals. Metals are affected by the entire thermal scale from 2400°F, down to –320°F. That is the complete range of thermally treated metals and that is what this manual covers.
[Tool Steels](#) McGraw-Hill Companies

Tool Steels Forgotten Books

Properties and Selection of Tool Materials

Tool Steels, Data and Tables Appertaining to Electric Tool Steels

[Steel and Its Heat Treatment](#)

Handbook of Special Steels

Iron and Steel

Transactions of the American Society for Steel Treating

High-speed Steel

Tool Steel Simplified

Distortion in Tool Steels

Steel Products Manual

Heat Treatment and Properties of Iron and Steel

[The Selection and Hardening of Tool Steels](#)