

1. Record Nr.	UNINA9910450185203321
Autore	Salak Andrej
Titolo	Machinability of powder metallurgy steels [[electronic resource] /] / A. Salak, M. Selecka and H. Danninger
Pubbl/distr/stampa	Cambridge, : Cambridge International Science Publishing, 2005
ISBN	1-280-23149-1 9786610231492 1-4237-2289-2 1-904602-44-4
Descrizione fisica	1 online resource (551 p.)
Altri autori (Persone)	SeleckaM (Marcela) DanningerH (Herbert)
Disciplina	671.37
Soggetti	Powder metallurgy Metallurgy Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Contents; Introduction; 1. Introduction; 2. Powder Metallurgy Processes and Materials; 2.1. Metal powder production; 2.6.3 Heat treatment and surface hardening; 2.2. Chemical, physical and technological characteristics of metal powders; 2.3. Mixing and compaction; 2.4. Sintering; 2.5. Alloying methods and alloying elements; 2.6. Secondary operations; 2.7. Porosity and mechanical properties of sintered iron and steel; 3. PRINCIPLES OF MACHINING OF STEEL; 3.1. Machining process; 3.2. Characterisation of machining processes; 3.3. Analysis of the machining process 3.4. Machinability testing 4. CUTTING TOOLS; 4.1. Cutting tool materials; 4.2. Tool coatings and hardening processes; 4.3. Cutting tool wear and tool life; 4.4. Cutting tools, workpiece material and surface integrity; 5. FACTORS INFLUENCING THE MACHINABILITY OF PM STEELS; 5.1. Effect of processing characteristics on machinability; 5.2. Effect of materials characteristics on machinability; 6. MEASURES TO IMPROVE MACHINABILITY OF PM STEELS; 6.1. Machining aids in powder metallurgy; 6.2. Production processes; 6.3. Effect of machining

operations; 7. MACHINING OF SINTERED STEELS - STATE OF ART
7.1. Plain iron and iron-carbon steels 7.2. Iron-copper-carbon steel;
7.3. Nickel alloys steels; 7.4. Diffusion alloyed steels; 7.5. Chromium,
manganese, chromium-manganese and silicon alloyed steels; 7.6.
Iron-phosphorus steel; 7.7. Stainless steel; Comparing machinability of
various steels under different cutting conditions; 7.9. Standardizing
machinability of PM steels; 7.10. Special processing and machining
routes for high strength - hardness PM steels; 7.11. Machining of
powder forged steels; 8. RECOMMENDATIONS FOR MACHINING PM
STEELS; 8.1. Recommendations for drilling
8.2. Recommendations for turning 8.3. Tapping and threading; 8.4.
Recommendations and cutting data for milling, reaming, broaching and
green machining; 8.5. Recommendations for machining with
geometrically not defined edge; 8.6. Cool-lubrication in steel
machining; 8.7. Parameters for optimising machining of PM steels; 9.
APPENDIX; 9.1. Relationship between hardness values determined by
Vickers and Rockwell methods; 9.2. Chemical composition and
designation of PM steels; 9.3. Trade designation and base
characteristics; 9.4. Characteristic types of wear of hard metal inserts;
References; Index

Sommario/riassunto

The aim of the book is to present knowledge for an overview of all interacting factors in the machining process, including those for improving machinability. They include the properties of basic plain iron and alloyed powders, various additions, compacting and sintering conditions. The effect of porosity, individual alloying elements and microstructure character is considered.
