

<<机电专业英语>>

图书基本信息

书名：<<机电专业英语>>

13位ISBN编号：9787564020804

10位ISBN编号：7564020806

出版时间：2009-9

出版时间：北京理工大学

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页数：137

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## <<机电专业英语>>

### 内容概要

本书内容共13章，即机械基础知识与部件、机械加工工具、机械加工、公差拟合与测量、钢铁及其制造、电的常识、电与电路、无线电通信与电器维修、电焊、能源、微机组装与维护、自动化与机器人、电脑制图。

为便于读者更好地利用本书，编者在每节后面都附有详细的课文注释和词汇，希望对读者有所帮助。

《机电专业英语》内容新颖、图文并茂、通俗易懂、门类齐全、适应面广，适合中等职业学校学生的实际水平。

书籍目录

Part One : Basic Knowledge of Machine and Mechanical Components 1.Basic Knowledge of Machine 2.Shaft  
3.Shaft Accessories--Keys and Pins 4.Bearings 5.Screws 6.Worms . Worm Gears 7.Cam 8.GearsPart  
Two : Machine Tools 1.Fixture and Jig 2.Reamer 3.Grinding Wheel 4.Boring Tool 5 . Turning Tool  
6.Cutting Tool Part Three : Machining 1 . Turning 2.the Lathe and Its Construction 3.Milling  
4.Milling Machine 5.Grinding 6. Bench Work .....

## 章节摘录

Most metallic materials allow phase transformation in the solid state after the shaping process without changing the general geometry, which makes it possible to control the structure and thus the properties within rather wide limits, practical technical operations, which are associated with such phase transformations, are called heat treatment. There are three main operations in the heat treatment of steel: hardening, tempering, and annealing. The hardening operation consists of heating the steel above its critical range and then quenching it, that is rapidly cooling in a suitable medium such as water, brine, oil, or some other liquid. Having been hardened, the metal must be given a tempering treatment which consists of reheating the hardened steel to a temperature below the critical range, holding at this temperature for some time and then followed by cooling in water, oil or air. The critical points or temperatures are the temperatures at which a certain change takes place in the physical condition of the steel. These points are very important because in order to properly harden a piece of steel, it must be heated to a temperature above the upper critical point. Having known the critical points for certain steel, we can easily control the heat in the furnace. Gas, oil, and electric furnaces are the most commonly used for heat treating metals. Annealing is the uniform heating of a metal above usual hardening temperatures, followed by very slow cooling. Annealing may be carried out either to soften a piece that is too hard to machine or to remachine a piece that has already been hardened. Annealing also relieves internal stresses produced by machining. Normalizing is to heat the steel slowly to about 30 °C above its upper critical temperature, then followed by cooling in still air. The process is applied to achieve the best combination of mechanical properties when it is undesirable for the material to be in the softest possible condition.

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