

Part II

Engineering Communications

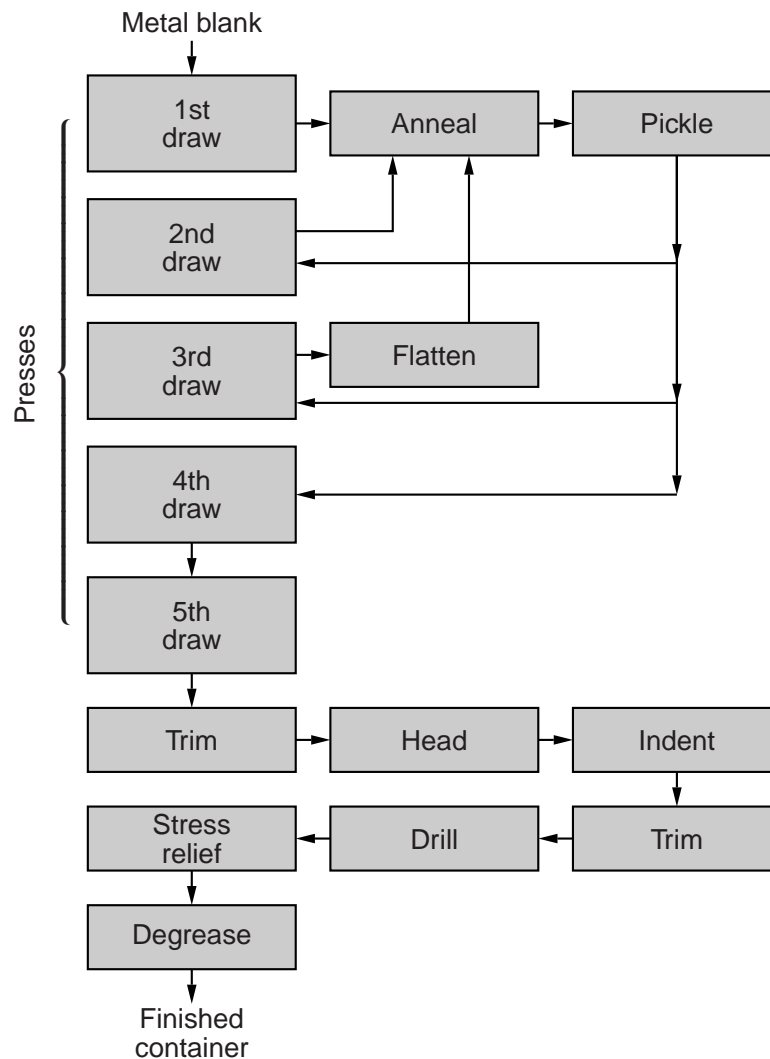


Figure II.1 Flowcharts are used in all engineering disciplines to communicate the essentials of a sequence of steps or events. The example above shows the steps in the manufacture of seamless metal containers by a process called deep-draw forming.

Engineers are creative people! However, creative ideas must be conveyed clearly to others. You will need effective communication skills in order to inform and persuade others, and to record the progress and results of your work. In addition to normal business documents, engineers must produce clear and correct technical reports, drawings, diagrams, graphs, letters, memoranda, and electronic communications.

Engineers must also interact with the business world, and the ability to write and speak effectively in business transactions is important. On rare occasions, you may have to defend your actions and conclusions to business associates or even under the scrutiny of a lawyer in court. Most engineers seek to avoid legal confrontations, but some act regularly as expert witnesses.

Effective communication skills, which are essential for successful engineering practice, should be learned early and refined throughout your career. Part II covers the basics of effective written and oral communication, in the following four chapters:

- Chapter 6 Technical documents:** What types of documents do engineers write? This chapter describes documents that are typically found in an engineering project or are common to engineering and business, and explains briefly how to prepare them. An introduction to information gathering and hints for effective oral presentations are also given.
- Chapter 7 Technical writing basics:** Are you familiar with the basic rules of English grammar? This chapter gives you hints on writing style and punctuation and discusses some errors to avoid. The chapter concludes with hints for the use of the Greek alphabet in technical writing and a grammar self-test.
- Chapter 8 Formal technical reports:** This chapter concentrates on the technical report, which is one of the most common engineering documents, and one of the most important. Technical reports may discuss a wide range of topics and are normally organized according to the basic rules explained in this chapter. Knowing how to begin is also important in report writing, and this chapter explains six simple steps in writing an engineering report. The chapter concludes with a report checklist to help you review your report before submitting it.
- Chapter 9 Report graphics:** The term *graphics* includes diagrams, charts, graphs, sketches, artwork, and even engineering calculations. Graphics often convey the central message in engineering documents, where you frequently must describe trends, patterns, geometrical concepts, or complex shapes. This chapter describes basic principles of creating good graphics and the rules for including them in documents such as technical reports.