This chapter presents a technique of Design for Quality. It is based on what is usually called concept generation and selection. As many solutions as possible to a given function are first generated and the best is then chosen according to a set of evaluation criteria. Criteria closely related to Quality are especially important in the context of Design for Quality. A software package has been developed to support this activity using Computervision’s Personal Designer. A case study is given to illustrate the technique and the use of the software.

Quality is generally defined as “compliance with requirements”, that is the degree to which the specific range of characteristics of a machine conform to the requirements. If they match well, then the quality is high; otherwise quality is considered poor. This point of view is also maintained by Hubka (1989): “Quality ... concerns statements about the «what» and «how» of an object or process,” and ”... a combination of conditions ... for one product may not be applicable to another product”, and also is considered more appropriate the expression «vive quality» instead of the common (and abused) expression «high quality». Koudate (1991) declares that “switable quality” is achieved with definite limitation of time and cost.

16.1 DESIGN AND QUALITY MANAGEMENT

The application of rational methods is essential for a complete design and its correct management. In this section, quality systems and the role of design management are reviewed, and a method of setting quality objectives for effective design is discussed.
16.1.1 Machine Design Process

The engineering design is a primary datum-point to obtain the product quality. The explicit development of the quality exigency confirm once more the validity of the propositions of the methodological design that is very suitable for the Quality Systems applications. Figure 16.1 shows a general flowchart of methodical design "philosophy" (Biggioggero and Rovida 1990). Such a systematic procedure of design process is an essential starting point for correct design for quality as with each rational step in a design project.

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**Figure 16.1** Flowchart of design process of archives, controls and revisions.