

Abstract

During the past several decades, quality control has emerged as a primary function in modern industrial enterprises. The quality control function has traditionally been performed using manual inspection methods and statistical sampling procedure which involve precise, yet monotonous work. It often requires that parts be removed from the vicinity of the production machine to a separate inspection area. This causes delays and often constitute a bottleneck in the manufacturing schedule.

In the present work, non-contact optical inspection method has been suggested for inspection of forging of automotive parts. This data from machine vision is to be used as basic input. Cause analysis is done on the basis of the various factors which cause the effects in the forging, and cause and defect diagrams are developed on the basis of the above analysis. The dimensional variation and the defect data is used to make control charts for which the software has been developed. The software also analyses these charts and recommends corrective measures against the defects on the basis of the nature and trends of these charts. Inspection during production will be integrated into the manufacturing process and it will typically be accomplished on 100 percent basis.

The software "Datain" is designed for data management that is input and storage of dimensional variational data and attribute data in different files to be used for different applications. Main programme is for plotting different statistical charts like \bar{X} chart, R chart, C chart, p chart, Parato diagram and Histogram or frequency chart. The software so developed analyses these charts on the statistical quality control basis and inferences are made by the software regarding the process. The software also gives the causes and remedies of the faults.