URN etd-0407109-183704-221
Author Ming-Hsun Chiang
Author's Email Address No Public.
Statistics This thesis had been viewed 57 times. Download 0 times.
Department
Year 2007
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title The Analysis of Gauge Repeatability and Reproducibility with Different Gauges and Operators
Date of Defense 0000-00-00
Page Count 130
Keyword
Gauge Repeatability and Reproducibility(GR&R)
ANOVA
Crossed Design
Nested Design
Fixed Effects Model
Random Effects Model
Mixed Effects Model

Abstract
A reliable and accurate gauge system is closely linked with each people. Correct analysis of the measurement system can assure the exactness of the process capability calculation and it is related to the development of science and industry technology. Good measurement system is the key to stable process and thus makes the product conform to the quality specifications.
The purpose of the research is to expand the ANOVA method for calculating the gauge repeatability and reproducibility (GR&R) since it only considers two factors, part and operator, in the models. In this research the third factor, gauge, is added to the model. Also various experimental designs are considered in the GR&R analysis to make them more applicable to industry.
The research discusses crossed design and nested design for their application on the GR&R analysis. A full model is considered on the crossed design while the nested design discusses both the cases of interaction and without interaction among factors. Also each design can be fixed effects model, random effects model, or mixed effects model. By doing this, one can compare the differences of the GR&R analysis for various designs and models. The research shows that the GR&R variations are different using ANOVA method while applying it on different designs and effect models. This suggests one have to carefully select correct design and effect model according to practical situation, otherwise it may cause a totally wrong conclusion.
Advisory Committee Jeng-Jung Fang - advisor

Files No Any Full Text File.
Date of Submission 2008-07-22