Gage Repeatability and Reproducibility Analysis of Coordinate Measuring Machines for a Coplanarity Measurement

洪子傑、李佳言

E-mail: 9511105@mail.dyu.edu.tw

ABSTRACT

Today, industrial parts need more accurate dimensions for manufacturing processes than those in the past. These industrial parts with high precision need more reliable and accurate measuring equipments to do the measurement tasks for quality control. Coordinate measuring machines have been predominatly used to generate measurement points for a surface. The measurement data are analyzed to yield geometric tolerance information for the surface features such as flatness. With the availability of tolerance information, it is necessary to check if the surface is within the specifield limit. In this paper, I compare the effectiveness of Hemmersley sequence sampling, Halton-Zarmba sequence sampling and the Aligned systematic sampling. The mathematical model is used for the measuring points of the workpiece. The experiment is used to find the optimal number of measuring points and an appropriate sampling method to measuring coplanarity with Gage Repeatability and Reproducibility analysis.

Keywords : Coordinate Measuring Machines ; Sampling Mathod

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