

Contribution to the Evaluation of Uncertainties of Measurement to the Data Processing Sequences of a Cmm

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Abstract : The measurement of the parts manufactured on CMM (coordinate measuring machine) is based on the association of a surface of perfect geometry to the group of dots palpated via a mathematical calculation of the distances between the palpated points and itself surfaces. Surfaces not being never perfect, they are measured by a number of points higher than the minimal number necessary to define them mathematically. However, the central problems of three-dimensional metrology are the estimate of, the orientation parameters, location and intrinsic of this surface. Including the numerical uncertainties attached to these parameters help the metrologist to make decisions to be able to declare the conformity of the part to specifications fixed on the design drawing. During this paper, we will present a data-processing model in Visual Basic-6 which makes it possible automatically to determine the whole of these parameters, and their uncertainties.

Keywords : coordinate measuring machines (CMM), associated surface, uncertainties of measurement, acquisition and modeling

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