

# Comparison of sampling plans by variables using the bootstrap and Monte Carlo simulations

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## Abstract

Acceptance sampling is one of the most important off-line techniques in Statistical Quality Control (SQC). Sampling plans for attributes, where each item for inspection is classified as defective or non-defective, are the most common, but in many practical situations we must consider sampling plans by variables, in which the quality characteristics are measured on a numerical scale. In the standard case, a Gaussian distribution is assumed to model the underlying quality characteristic, but in practice, we can have other known or unknown model, being the analytical evaluation of the performance of those plans more difficult, or even impossible. In this presentation we consider sampling plans by variables to inspect batches of products from an industrial process under a context of known and unknown distribution underlying the measurements of the quality characteristic under study. Through the use of the bootstrap methodology and Monte Carlo simulations we evaluate and compare the performance of those sampling plans in terms of probability of acceptance of lots and average outgoing quality level.