

An Alternative Control Chart Approach Based on Small Number of Subgroups

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Abstract

This paper presents an approach for constructing control limits that can enable the user to begin monitoring the process means at an earlier stage than the standard approaches. The proposed control limits can be constructed easily and are close to any specific percentile of run length distribution of the true limits, even when only a few initial subgroups are available. Performances of the proposed approach are studied by Monte Carlo simulation. The simulation results show that the proposed control limits perform similarly to the true limits even when the limits are estimated using data from only a few initial subgroups.

Keywords: \bar{X} Control Chart, Prospective Control Limits, False Alarm Probability, Run Length Distribution.