

## The Variable Sampling Interval Xbar Chart versus the Double Sampling Xbar Chart

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**Abstract :** The Shewhart Xbar control chart is a useful process monitoring tool in manufacturing industries to detect the presence of assignable causes. However, it is insensitive in detecting small process shifts. To circumvent this problem, adaptive control charts are suggested. An adaptive chart enables at least one of the chart's parameters to be adjusted to increase the chart's sensitivity. Two common adaptive charts that exist in the literature are the double sampling (DS) Xbar and variable sampling interval (VSI) Xbar charts. This paper compares the performances of the DS and VSI Xbar charts, based on the average time to signal (ATS) criterion. The ATS profiles of the DS Xbar and VSI Xbar charts are obtained using the Mathematica and Statistical Analysis System (SAS) programs, respectively. The results show that the VSI Xbar chart is generally superior to the DS Xbar chart.

**Keywords :** adaptive charts, average time to signal, double sampling, charts, variable sampling interval

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