

## An AK-Chart for the Non-Normal Data

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**Abstract :** Traditional multivariate control charts assume that measurement from manufacturing processes follows a multivariate normal distribution. However, this assumption may not hold or may be difficult to verify because not all the measurement from manufacturing processes are normal distributed in practice. This study develops a new multivariate control chart for monitoring the processes with non-normal data. We propose a mechanism based on integrating the one-class classification method and the adaptive technique. The adaptive technique is used to improve the sensitivity to small shift on one-class classification in statistical process control. In addition, this design provides an easy way to allocate the value of type I error so it is easier to be implemented. Finally, the simulation study and the real data from industry are used to demonstrate the effectiveness of the propose control charts.

**Keywords :** multivariate control chart, statistical process control, one-class classification method, non-normal data

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