

Nuttinee Hoontrakoon 2008: Probability Limits of $\bar{X}$ Chart for Non-Normal Distribution. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Mr. Pornthep Anussornnitisarn, Ph.D. 248 pages.

Inaccurate control limits of a Shewhart chart can be occurred by inspecting the small number of subgroups and ignoring the assumption of normality. The purpose of this thesis is to advise a better way of using the probability limit control chart for data that are not normally distributed. The interested distribution is gamma distribution which is commonly found in product life. The purposed probability limit control chart considerations for average include recognition of the degree of skewness and kurtosis. It has been shown that the control chart for process average can be constructed by applying the probability limits, as related to skewness and kurtosis. The results show that the proposed control chart performs efficiently and effectively when the degree of skewness is larger than 1.5 and the degree of kurtosis is larger than 6.38. In addition, the application of the proposed probability limit will also be enable the manufacturers to employ the control chart appropriately.

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Thesis Advisor's signature

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