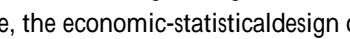


# The Economic - statistical Design of Control Charts under Preventive Maintenance

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## ABSTRACT

As technology advances, human power had gradually replaced by automated production equipment. Therefore, during the production process, maintaining the automated production equipment in order to reduce any production variations can effectively increase product quality and lower production costs. A traditional control chart is designed on the basis of statistics. The chart consists of central line and control limit. The production process will be changed from in-control to out-of-control state if there is an assignable cause occurs and this assignable cause can be detected by the control chart. Since traditional control chart does not take into consideration of the cost, economic design of control chart is developed. Although it may achieve a lower cost, it does not perform well in some statistic features such as Type I error and test power, so the two are combined in order to compensate each other. Even so, the design of a general control chart does not consider the preventive maintenance of machine equipment. Therefore, the economic-statistical design of  control chart is developed under a consideration of the preventive maintenance of machine equipment in this study. Numerical example is also used to demonstrate the model 's working.

Keywords : control chart、statistical-economic design、preventive maintenance

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