

Integrated Production And Quality Model Under Various Preventive Maintenance Policies

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Summary

In this paper, we investigate the effect of various preventive maintenance policies on the joint optimisation of the economic production quantity (EPQ) and the economic design of control chart. This has been done for a deteriorating process where the in-control period follows a general probability distribution with increasing hazard rate. In the proposed model, preventive maintenance (PM) activities reduce the shift rate of the system to the out-of-control state proportional to the PM level. For each policy, the model determines the EPQ, the optimal design of the control chart and the optimal preventive maintenance level. The effects of the three PM policies on EPQ and quality costs are illustrated using an example of a Weibull shock model with an increasing hazard rate.

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