

EMQ Model with Maintenance Actions for Deteriorating Production System

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Abstract

This paper studies the optimal production run length for the economic manufacturing quantity model with deteriorating production process and taking the restoration cost into account. We show that there exists a unique optimal production run length such that the expected total cost is minimized. In addition, bounds for the optimal production run length are provided to develop the solution procedure. Finally, a numerical example is given to illustrate the results and sensitivity analysis is performed to study the effects of changing parameters values on the optimal solution of the system.

Keywords: EMQ, Continuous-Time Markov Chain, Deteriorating Production System.