

The Impact of OPT and TPM on the Economic Production Quantity

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Abstract

In manufacturing systems, the material flow is influenced by a number of factors, such as batching policies, capacity of machines, machine breakdowns, etc. Realizing the role of batching policies and reliability of machines in production systems, a mathematical model is presented here for determining optimal batching policies with the objective of improving the speed of material flow considering machine breakdowns and batch splitting and forming. This model is employed for studying

- (i) the significance of total preventive maintenance (TPM);
- (ii) the use of the optimized production technology (OPT) concept in batching policies; and
- (iii) the influence of a set-up cost reduction programme on the performance of manufacturing systems.

The basic criterion considered for optimizing the batch sizes is the minimization of total system cost (TSC). An example problem is solved to explain the application of the model.

(International Journal of Systems Science, Vol. 26 (1995), No. 9, 1715-1727)