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A simple integrated production policy of an imperfect item for vendor and buyer

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Abstract

This article develops a simple approach for determining an optimal integrated vendor–buyer inventory policy for an item with imperfect quality. The objective is to minimize the total joint annual costs incurred by the vendor and the buyer. This model is assumed to produce a certain number of defective items during the production process. Items of poor quality detected in the screening process of a lot are sold at a discounted price. The expected annual integrated total cost function is derived and a solution procedure is proposed to determine the optimal policy. Finally, a numerical example is also given to illustrate the solution procedure presented in this article.

Keywords:

Inventory | economic order quantity | imperfect quality

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Acknowledgments

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Related Research Data

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Simultaneous Determination of Production Cycle and Inspection Schedules in a Production System
Source: Management Science
Optimal Lot Sizing, Process Quality Improvement and Setup Cost Reduction
Source: Operations Research
A one-vendor multi-buyer integrated inventory model
Source: European Journal of Operational Research
A comparison of alternative joint vendor-purchaser lot-sizing models
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