

수율이 불확실한 흐름생산공정에서 다품종 제품의 생산통제

Production Control of Multiple Items in Multi-Stage
Production System with Random Yield

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ABSTRACT

Recent studies on multi-stage production systems with random yields mainly consider only the single-item infinite-capacity cases. This paper deals with a more generalized situation in which multiple items are produced in a capacity-constrained multi-stage system with random yield and rework at each stage. We propose a production control policy for such a system and it consists of two phases: (1) Without considering the capacity, optimal production policies at each stage and the input start quantities are derived by solving a dynamic programming model; (2) Based upon the start quantity of each item, actual production quantity at the individual stage is determined considering the capacity. This phase utilizes a simple heuristic rule, and we compare 5 different rules through some simulations. The computational tests show that the rule using the marginal cost concept outperforms the others.