

Determining the Number of Kanbans in JIT Production System

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ABSTRACT

Most of previous studies determined the optimal number of the withdrawal kanbans for the production line of the company with the single-kanban system being operated. This study develops the simulation model for the production line of the company which uses the dual-kanban system, and algorithms for the optimal number of withdrawal kanbans and product-order kanbans, withdrawal-direct reorder-point, the quantity of withdrawal, the size of withdrawal container, production-direct reorder-point, the quantity of production and the size of production container. The quantity of consumption per one unit hour obtained from the number of withdrawal and product-order kanban of company is formulated.

The obtained results shows that the balance between withdrawal kanban and product-order kanban, based on the consumption velocity of elements and the production velocity of products, promotes the efficiency of production line. If there exists the unbalance between kanbans, the bottleneck phenomenon happens and the efficiency is reduced. If the container size increases, the quantity of the inventory increases though the number of the kanban is small.