A Comparison of Current and Alternative Production Characteristics Of a Flow Line: Case Study In a Yarn Producer’s Packaging Unit

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Abstract: Production lines are consecutively placed machines designed to obtain short cycle times with high speeds. This type of flow line is preferred when the demand pattern occurs in high volumes from the same product in short production periods. The structure of production systems is directly related to the quantity and variety of the demand. If the overall demand is made up of an identical product in high amounts in a short period of time, flow lines are designed to answer this need in a manner of consecutive linear machines, capable of performing one or more tasks per machine. Production with low cost and right quantity conditions is also an obligation under timely constraints. A packaging station of a five machine Bernoulli line is modelled in this paper. Two alternative packaging materials are put into consideration against a readily used material and those 3 packaging films are compared according to the performance characteristics. A C# programme is coded to obtain the statistical performance characteristics of an aggregation method applied to the “bernoulli flow line” to make a decision on which material is to be selected. Production rates, blockages, starvations as well as work in process stocks are the performance values calculated by the C# programme developed, according to an aggregation method. One of the two competing alternatives is selected after analyzing the outcomes of the programme.

Keywords: Automatic production systems, maintenance and repair times, inventory management

References


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