ABSTRACT

This project concentrates on how to optimize the batch size of work in process that is used in production line of Head Gimbal Assembly (HGA), at the state in which the production capacity and line utilization will not be affected adversely. One method that can help us is the computer simulation method. Simulation is the process of designing and creating a computerized model of a real or proposed system for the purpose of conducting numerical experiments to give us a better understanding of the behavior of that system at a given set of conditions. So, if we simulate the system of HGA production line and specify varies of batch size, then we are able to know what is the optimized batch size of our production line.

Optimized batch size will given a huge benefit for the manufacturer which can be summarized below:

1. Shorter production cycle time.
2. Reduce the resource consumption.
3. Reduce level of work in process in production line.
4. Support the supply chain strategy.
5. Maintain the production level and line utilization.

We apply the simulation technique by creating the current production line system using batch size equal to 5 units. We compare a created system with the real system and then we adjust the number of batch size; to find out the optimize batch size. After we completed the study, we found that the batch size should be 3 units per lot. And we can reduce work in process level from 601 to 468 units (23% reduced) while line capacity and utilization are still maintained.