The purpose of this research is to suggest the optimal raw material inventory system alternatives synchronized with the stock out characteristics and the condition can be occurred, the backorder raw material inventory control, beside that it also can reduce lead time and raw material ordering cost. In this case, the inventory models also extend (Q, R) Inventory Model Under lead Time and Ordering Cost Reduction with lead time and ordering cost can be reduced. After the calculation, the optimal solution of inventory models can be obtained; those are with backorder condition which produced the annual inventory total cost for the company.

Keywords: inventory, cost reduction, lead time, backorder. Lot sales