ABSTRACT

In a competitive business environment, companies would like to be profitable by minimizing the total costs of the company. Inventory management has become one of important functions which can be used to reduce the costs of companies. Therefore the research question of this study is "How can ABC Company improve their inventory management to reduce total inventory cost?" has been established. This study proposes the (Q, r) model of inventory management for use with imported spare parts. One such spare part was selected as the case for this research.

Imported spare parts were classified based on the annual cost of usage. They were separated into three groups by using the ABC classification method forming group A, group B and group C. The ASSY SEAL OIL (TC010-99600) part was selected for this pilot study because it had the highest cost of annual usage of all ABC Company imported spare parts (about 9.3 Million Baht in 2014). Then, the demand pattern of the selected part was analyzed by use of the variability coefficient (VC), and was found to equal 0.30 which indicates high variability. This means that the demand was not constant during the considered period. Therefore the (Q, r) model could be appropriately applied for use with this selected part. Then the inventory related costs of this selected part were estimated (e.g., ordering cost, carrying cost, and stock out cost). The appropriate quantity and reorder point of the (Q, r) model was determined by using all of inventory related cost of the selected part. When the (Q, r) ordering model was applied with the selected part, the total inventory cost was reduced as much as 29,972.63 Baht/year or 4.39 percent. Finally, a sensitive analysis was performed to analyze the model under changing demand. Demand was increased or decreased by minus 100% to plus 200%. The result was that the (Q, r) ordering model still reduced the total inventory costs, if the demand does not change by more than 40% of actual 2014 demand.