

ABSTRACT

CV Sinar Jaya Stainless Steel is a company that produces a product with the raw material of stainless steel and iron, which was established in 1988, located in Jalan Sukabangun 345. Products are made in the company according to the demand needed by the consumer such as fences, railings, glass shelves, and others. The company wants to optimize inventory planning with respect to owned warehouse capacity. It is intended that the amount of material ordered by company does not exceed capacity.

The system is implemented in the company's inventory system with probabilistic backorder case (Q, R). In this system, the value of booking economical lot size (Q^*) obtained by iteration calculation. The iteration is stopped if Q^* and k (stock out probability) in the last iteration of the same as the previous iteration. The results of calculations using the model (Q, R) is the amount that must be ordered to pipe 2,5 inc; inc 5; merci 10 cm and 12 cm merci are 79 unit; 74 unit; 356 unit and 145 unit. The total cost of the booking must be issued by the company amounting to Rp. 586.393,00.

Furthermore the calculation taking into account capacity constraints warehouse owned by the company, namely the method of Lagrange Multiplier. From the calculations, the amount that must be ordered to pipe 2,5 inc; inc 5; merci 10 cm and 12 cm merci are 66 units, 41 units, 200 units and 138 units. The total cost of the booking must be issued by the company amounting to Rp. 568.011,00.

Keywords: Inventory, Backorder, Lagrange Multiplier, Warehouse Capacity