

Inventory management

Part II

**Lead Time, Reorder Time, Safety
Margin**

Lead Time

- The standard EOQ model assumes that materials can be procured instantaneously and hence implies that the firm may place an order for replenishment when the inventory level drops to zero.
- **Lead time represents the time lag that takes place between the placement of an order and the actual supply/delivery made in the company's godown.**

Reorder Point

- An re-order point is that inventory level when the next order is to be placed. It is the point where sufficient balance of stock is left to take care of the lead time. In that case, the re-ordering level would simply be as follows.
- Lead time (in number of days for procurement) multiplied by average usage per day.
- *i.e. Re-order Point = Lead time (in days) × Daily usage.*

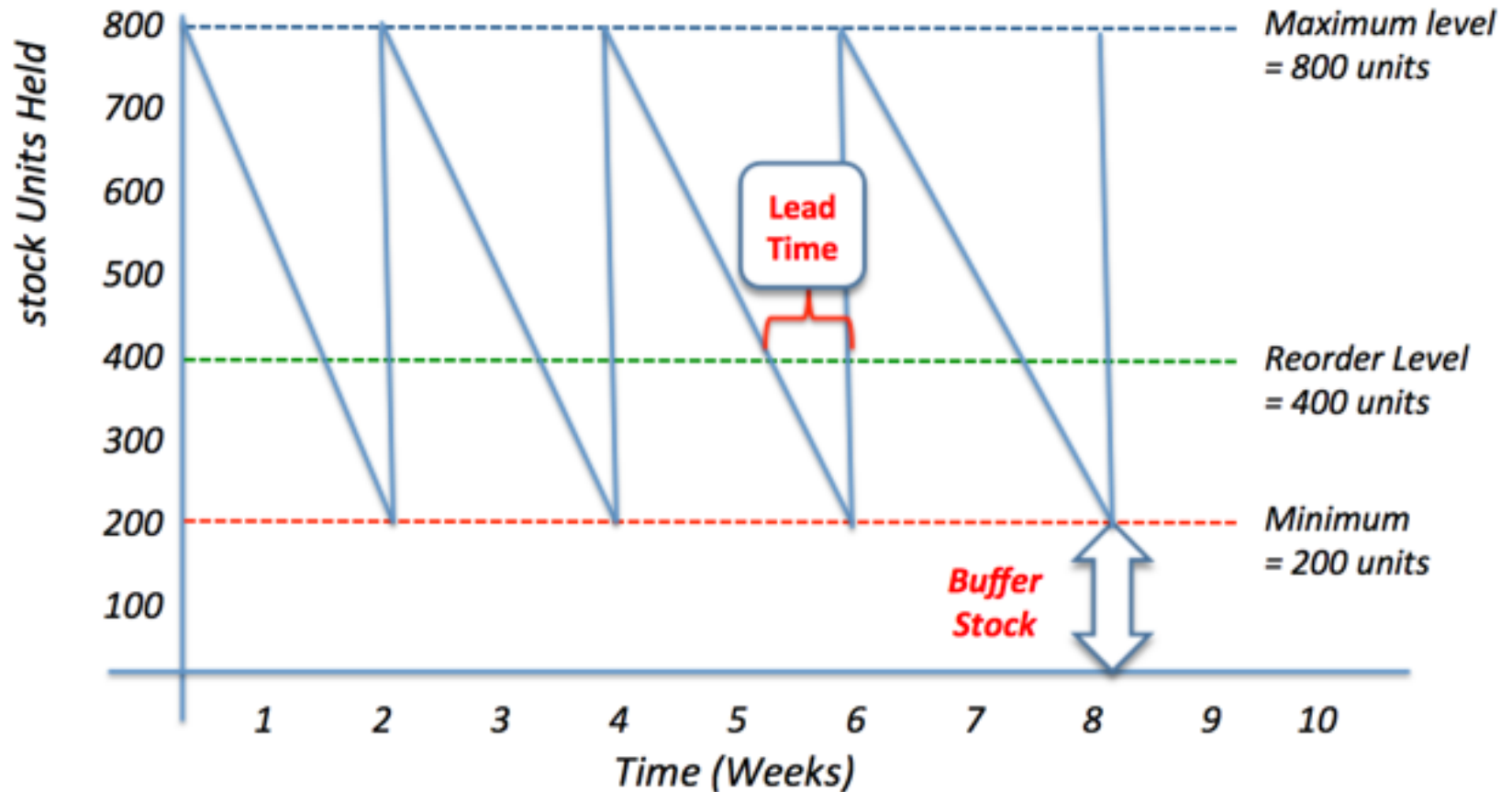
Safety Stock

- In actual practice, one can neither estimate the lead time nor the daily usage so accurately and exactly.
- Therefore, to be on the safer side, one should take into account the element of such uncertainty.
- Accordingly, we should always keep some safety stock with us to meet such eventualities. The re-order point is
- **= [lead time (in days) × daily usage] + safety stock**

Calculation of Safety Stock

= [Maximum usage rate – Average usage rate] × Lead time.

Example of Stock Control Chart



An Illustration

- A manufacturer requires 10,000 components for use during the next year which is assumed to consist of 250 working days; the cost of storing one component for one year is Rs. 4 and the cost of placing order is Rs. 32. There must always be a safety stock equal to two working days usage and the lead time from the supplier, which has been guaranteed, will be five working days throughout the year. You are required to:
 - (a) calculate the economic re-order quantity
 - (b) calculate the re-order point

Solution

- Calculation of Economic Order Quantity:

$$EOQ = \sqrt{\frac{2 * 10000 * 32}{4}} = 400$$

- Lead time = 5 working days
- No. of orders = $10000/400 = 25$ orders
- No. of days per order = $250/25 = 10$ days
- Average per day usage = $400/10 = 40$ Units

- **Minimum safety stock**
- $= 40 * 2 \text{ working days} = 80 \text{ Units}$

- **Re-order point**
- $= (5 * 40) + 80 = 200 + 80 = 280 \text{ Units}$

- Average Inventory = (Minimum inventory + Maximum inventory) / 2
- $= (80+480)/2 = 280$

Classification of Inventory

ABC System of classification

Type of Inventory	Share in Value	Share in Quantity	Level of Attention
A	HIGH	LOW	HIGHEST
B	MODERATE	MODERATE	MODERATE
C	LOW	HIGH	LOW

Illustration

A	50-70%	10-20%	HIGHEST
B	20-30%	20-30%	MODERATE
C	10-20%	50-70%	LOW

VED – Vital, Essential and Desirable

Type of Inventory	Level of Importance	Level of Attention
Vital	Utmost important Production process can not start.	HIGHEST
Essential	Important for running production process smoothly and efficiently.	MODERATE
Desirable	Desirable to increase efficiency. Without it production process will not hamper much.	LOW

FSN – Fast moving, slow moving and neutral or not-moving

Type of Inventory	Level of Importance	Level of Attention
Fast	There movement is very fast. There is need to re-fill them again and again. Shelf life is very low.	HIGHEST
Slow	There movement is not very fast but move on the regular basis.	MODERATE
Neutral or Not moving	Consumer durable goods. Their shelf life is high.	LOW

Just in time inventory

- The just-in-time inventory control system, originally developed by Taichi Okno of Japan, simply implies that the firm should maintain a minimal level of inventory and rely on suppliers to provide parts and components 'just-in-time' to meet its assembly requirements.

If you have any query or question,
you can ask through email as well

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