

INVENTORY CONTROL

Inventory: - Inventory is defined as the list of goods and their cost. Or inventory is defined as the total value of raw materials, spare parts, consumables, semi-processed materials and finished goods etc.

Inventory control is generally concerned with the procurement of raw materials and purchased parts and their supply to the production departments.

Objectives of inventory control: - The main objectives of inventory control are:

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- a) To maintain sufficient inventory so as to avoid production held up which leads to consumer dissatisfaction, loss of revenue & increase in cost.
- b) To avoid excessive investment in inventory
- c) To improve the customer services
- d) To keep plant costs low

Modern techniques of inventory control

- ABC Analysis
- VED Analysis
- The Lead time method
- Inventory carrying cost method
- Safety Stock Method
- Minimum & Maximum Stock levels
- Economic order Quantity method
- Perpetual inventory system
- Establishing an effective purchase procedure

1. ABC Analysis or ABC Method: - ABC Method means always better control method. In this method, the materials are divided into three groups A, B and C according to the cost of materials.

a) Group 'A' materials: - Costly items are coming under this group A. These items cover only 10% of the total inventories & 70% of the total investment. Only very essential items are purchased and kept in stock so as to minimize the investment on these items.

b) Group 'B' materials: - The items coming under this group are neither costly nor cheap. These items cover only 20% of the total inventories and 20% of the total investment. These items should be handled by junior officers.

c) Group 'C' materials: - The items coming under this group are cheap. These items cover about 70% of the total inventories and 10% of the total investment.

2. VED Analysis: - VED analysis means Vital, Essential, and Desirable Analysis. This system is based on the utility of the materials. Based on the utility the materials are divided into three categories namely vital materials, Essential materials & Desirable materials.

Vital materials are one which is very essential for production. Without this material, production is stopped for a period of several days or even a month.

Essential material is one which is also very essential for production. Without this material, production is stopped only for a few hours or a day. Because the material is not so costly and it can be purchased and replaced easily.

Desirable material is one which is necessary for production. Without this material, production can continue. Such material is not so important for production.

Lead Time Method: - The interval between the initiation of acquiring a material and the actual receipt of material is known as Lead Time. It plays an important role in inventory control. The lead time is longer in India than in other foreign countries, because transport and communication facilities are better in foreign countries than in India. Within India, the lead time is longer in public sector than in private sector.

Economic Order Quantity method (EOQ Method): - EOQ method is used to find out how much of the inventories are to be ordered. The correct quantity to be ordered is determined by considering the following factors:

a) Ordering cost – It consists of cost of paper, typing, postage, filling etc

b) The inventory carrying cost – it consists of storage cost, cost of insurance & taxes, salaries of store keeper & losses in stores.

Methods of determination: - Tabular column method & algebraic method are used to determine EOQ.

Tabular column method

example let the order cost is Rs.100/- per order, inventory carrying cost is 10% and the annual usage is Rs.60,000/-. Suppose the particular item was ordered every month, the annual order cost would be Rs.1200/- (Rs. 100/- x 12). The annual inventory carrying cost would be Rs. 500/- i.e $\frac{10}{100} \times \frac{60,000}{12}$.

The total annual cost would be Rs. 1700/- (1200+500=1700/-).

Suppose the particular item was ordered once in two months (i.e. 6 times in a year), the annual order cost would be Rs. 600/- (Rs. 100/-x6). The annual inventory carrying cost would be Rs. 1000/- i.e $\frac{10}{100} \times \frac{60,000}{6}$. The total annual cost would be 600+1000 = 1600/-. The above would be represented in tabular column :

S.No	No. of orders per year	Annual ordering cost (Rs.)	Annual inventory carrying cost (Rs.)	Total annual cost (Rs.)
1.	12	1200/-	500/-	1200+500=1700/-
2.	6	600/-	1000/-	600+1000=1600/-

Thus if the purchasing detail is represented in a tabular column, it is easier to find out an approximate EOQ.

Algebraic Formula Method: - EOQ can also be determined by using the formula

$$EOQ = \sqrt{2ab/cs}$$

Where- a = Annual consumption, b = Buying cost per order, c = Cost per unit of material, s = Storage and other inventory carrying cost

Scrap: - Scrap is the residue obtained from certain type of manufacturing operations. Scrap is most commonly obtained in engineering industries.

Example for scrap : small metal particles during drilling & turning in engineering industries.

Classification: - Scrap may be classified into

a) **Legitimate Scrap** – The Scrap which can be anticipated in advance during certain manufacturing operations.

b) **Administrative Scrap:** - This type of scrap is obtained when some type of material becomes obsolete due to change in design.

c) Defective Scrap: - This type of scrap is obtained from sub-standard raw materials & poor workmanship in handling such materials.

Surplus: - The surplus items are those items which are not required by the firm or organization. For Example – Spoiled raw materials, expiry date goods etc.