ELEMEMTS OF COSTS

- UNIT-2

MATERIAL COST:

Material usually from a high proportion of the total cost of production. In certain cases like sugar, material account for as much as 60 to 70 percent of total cost. This means that efficiency as regards material is a vital factor in total cost of production and the profit earned.

The word material has a very wide meaning. It include fully finished goods, partly finished goods, loos tools implements, fabricated parts etc. The word stores is also widely used as equal to materials.

Kinds of Materials.

Materials used in the process of manufacturing process may be broadly divided into two types namely (1) direct material and

(2) Indirect material.

Direct material: a direct material is that material which can be identified with a particular product, process , operation, or cost centre and be fully charged to it.

Examples:

1. Materials specially purchased or requisitioned for a particular job, order or process.
2. Material passing from one operation to another.
3. Primary packing material.
4. Material requisitioned for a particular job , process or operation.

Indirect material cost :

Indirect material cost is the cost of all material which does not from of the finished products. These costs are not charged directly to the product.

Examples

(1) Lubricants

(2)Cotton waste,

(3)Grease

(4)Oils

(5)Small tools

(6)Work stationery etc..

Inventory Control Techniques:

1. ABC analysis:

The basic work in this always better control analysis is the classification and identification of different types of inventories, for determining the degree of control required for each. In many firms it is found that they have stocks which are used at very different rates. So items are classified under three broad categories A, B and C, on the basis of usage, bulk, value, size, durability, utility, availability, criticality etc.; and should be controlled with due weight age to differential characteristics.

The items included in group A involve largest investments and the inventory control should be most severe to these items. C group consists of inventory items which involve relatively small investments although the number of items remains large. These items deserve minimum attention of control. In B group that items are included which are neither of A nor C. This method can be explained by the following exhibit.

Advantages of ABC analysis.

The following are the advantages of ABC analysis

1. It brings into focus the smaller percentage of items on which maximum control should be exercised , and the larger of items on which little control is necessary.
2. Investment in inventory is regulated and fund can be utilised in the best economic way.
3. It help in maintaining enough safety stock for 'C' category items.
4. It helps in maintain the stock at optimum levels.
5. With less expenditure stock control can be exercised more effectively.

2. Economic order quantity model

The basic decision in an economic order quantity (EOQ) procedure is to determine the amount of stock to be ordered, at a particular time so that the total of ordering and carrying costs may be reduced to a minimum point. A firm should place optimum orders and neither too large nor to small. The EOQ is the level of inventory order that minimizes the total cost associated with inventory. The EOQ model is based on following four assumptions:

The EOQ model is based on following four assumptions:

(i) A firm has a steady and known demand of D units each period for a particular input.

(ii) The firm consumes the input at a uniform rate.

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(iii) The costs of carrying stocks are a constant amount C per unit per period.

(iv) The costs of ordering more inputs are a fixed amount O per order. Orders are delivered instantly.

A useful formula for calculating the optimum order quantity is:

EOQ = √2DO/ C

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To show how we might use the formula consider exhibit III in which a firm has an annual inventory requirement of 10,000 units. The accounting costs associated with placing an order with the supplier come to Rs. 200 per order and the carrying costs of holding stocks are expected to be Rs. 4 per unit.

Hence, D=10,000 units

0=Rs. 200

C=Rs. 4

EOQ = √2 x 10,000 x 200/ 4

= √10,00.000

= 1,000 units

Therefore, 1000 units should be ordered every 37 days.

The EOQ model is very simple one and its assumptions will be unrealistic in many applications, in practice orders are not delivered instantly. The assumption of a constant usage of inventory and known annual demand are of doubtful validity.

Minimum Safety Stocks:

To avoid stock-outs firms maintain safety stocks of inventory. The safety stock is the minimum level of inventory desired for an item given the expected usage rate and the expected time to receive an order. If an order is placed when the inventory reaches 12,000 units instead of 10,000 units, the additional 2,000 units constitute a safety stock.

The manager expects to have 2,000 units in stock when the new order arrives at the scheduled time. The safety stock protects as a safe-guard against stock-outs 'position due to unanticipated increase in usage resulting from an unusually high demand and/or an uncontrollable late delivery of inventories.

The increase in the amount of inventory held as safety stock reduces the chances of stock-out and therefore, reduces stock-out costs over the long-run. The level of inventory investment is, however increased by the amount of safety stock. The optimum level of safety stock is determined by the trade-off between the stock-out and the carrying costs.

Thus the best level of safety stock for a given item depends on stock-out costs, variability of usage rates and delivery times. The safety stock level is the multiplication of the average demand during a period of the maximum delay and the probability of its occurrence.

4. Re-order point

In addition to set EOQ, the inventory management must know when to place the order for avoiding the stock-out position. Especially in the Indian context where there is a considerable time lag between placing the order and actual receipt of the inventory, determining the re-order point (ROP) is momentous as well as intricate. The ROP may be defined as that level of inventory at which a fresh order should be placed to the suppliers for replenishing the current stock.

The ROP is calculated as the lead time X daily usage. The lead time is the time lag between raising an order and the goods being delivered. For example, if the normal daily usage of materials is 100 units and it takes 30 days for the supplier to deliver the goods, then an order must be sent out when the stock level reaches 3,000 units. If safety stocks are held then re-order level should be: safety stock+ (lead time x daily usage).

Another method of ordering is the ‘two bin’ and ‘three bin systems. These involve putting a quantity equal to the re-order level in a separate bag or bin which is sealed or put in a separate location; the rest of the stock is withdrawn as needed with no record of individual usage being kept.

THANK YOU