

# Chapter 3

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# Types of Costs associated with Inventory

- Cost of Materials
- Costs on Materials

Costs on Materials consisting of 3 basic costs –

- A. Ordering Costs
- B. Carrying Costs
- C. Stock-out Costs

# Factors Affecting Inventory Costs

- 1. Sales Characteristics
  - A. The size and frequency of orders
  - B. Uniformity of sales
  - C. Service requirement in filling the orders
  - D. The pattern of distribution
  - E. The accuracy, frequency and details of sales forecasts

- 2. Production Characteristics
  - A. The type of production – Job shop or Batch
  - B. The number of processing stages involved
  - C. Capacity of production and warehousing stages
  - D. Kind of processing and processing time at each stage
  - E. Quality requirements, shelf life or obsolescence risks
  - F. Production cycle time
  - G. Production flexibility

- 3. Material Characteristics
  - A. Procurement cycle
  - B. Internal lead time
  - C. Terms of payment
  - D. Discounts
  - E. Speculative buying
  - F. Imported material

## Estimation of ordering Cost per order

- Ordering Cost per order =  
[Total cost incurred in purchase department] / [Total number of orders]

# Inventory Carrying Charges

Inventory Carrying Charges =

$$\frac{\text{Total Inventory Carrying Costs}}{\text{Average Inventory Value}} \times 100$$

# Economic Ordering Quantity (EOQ)

■ E.O.Q. =

$$\frac{2 \times (\text{Annual Demand in Units}) \times (\text{Ordering Cost per order})}{\text{Unit Price} \times (\text{Inventory Carrying Charges as \%})}$$



# Stock-out cost

- When an item is not available in stock when needed, we incur the stock-out cost.

# Results of stock-out

- Back order – The item will be supplied to the customer when the item is available in stock at a later date.
- The stoppage of production or the lost sales and the resulting loss of profit.

# Cost elements of Ordering Costs

- Salaries paid to staff of purchasing department
- Traveling and purchase follow up expenses
- Transportation and shipping expenses
- Costs of receiving and in-wards inspection
- Costs of accounting, bills payment and auditing

# Costs of set ups or change overs

- When inventory item made in-house instead of purchasing from outside suppliers, the ordering cost is replaced by the costs of setting up the production equipment to carryout the production run. Since the new set up requires dismantling the set up for the previous job, these costs are also referred to as 'Change Over" costs.

# Inventory Carrying Costs

- These are costs of holding items in inventory. The greater the level inventory held over a period of time the higher the carrying costs.

# Elements of Inventory Carrying Costs

- Cost of invested funds
- Cost of storage space and materials handling
- Taxes and insurance
- Costs of spoilage, pilferage and obsolescence
- Expenses incurred in warehouse staff salaries

# Costs that increases with increase in inventory

- Cost of invested funds
- Quality costs
- Co-ordination costs
- Cost of storage space
- Taxes, Insurance and shrinkage costs

# Costs that decreases with increase in inventory

- Ordering costs
- Purchase cost
- Set up costs or change-over costs
- Shortage costs or stock-out costs