

## COST ACCOUNTING

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### A BASIC EXPLANATION

- o 'costing' may be described as the value placed on the use of resources with the **purpose of making a profit.**
- o Cost accounting includes all costs incurred to **manufacture and sell a product or provide a service.**
- o The management of the business will require this information to determine the mark-up to be added to the cost to arrive at the selling prices of products or services.
- o To remain competitive, the business must be able to provide products or services at prices lower than competitors.
- o It is therefore important that management are clear about the cost of each product it sell or each service it provides.

### KEY CONCEPTS

1. **Direct material**-are those materials which can be identified in the product and can be conveniently measured and directly charged to the product. For example, bricks in houses, wood in furniture etc. hence all raw materials, materials purchased specifically for a job or process like glue for book making, parts or components purchased or product like batteries for radios and tyres for cycles, and primary packing materials are direct materials.
2. **Indirect materials**-are those materials which cannot be classified as direct materials. For examples are consumables like cotton waste, lubricants, brooms, rags, cleaning materials, materials for repairs and maintenance of fixed assets, high speed diesel used in power generators nuts, pins, screws etc. and in most cases do not form part of the finished product. Factory supplies, office supplies and selling supplies are generally termed as stores.
3. **Direct labour**-is that labour which is directly engaged in the production of goods or services and which can be conveniently allocated to the job, process or commodity or process. For example labour engaged in spinning department can be conveniently allocated to the spinning process.
4. **Prime cost**-refers to the **sum** of direct material cost and direct labour cost.
5. **Factory overheads**-are all other costs (excluding direct material and labour) incurred in the manufacturing process that cannot be directly allocated to a specific product. These may include the following:
  - o **Indirect material (consumable stores)**-which consist of supplementary materials such as cleaning products, colouring matter, glue, screws and lubricants.
  - o **Indirect labour**-this cost of indirect labour cannot be conveniently allocated to a particular job, order, process or article. Which includes salaries and wages that are not directly related to the manufacturing process, for example, wages for cleaning staff, salary for factory foremen, wages for security personnel, watchmen, time-keepers, sweepers, employer contributions that increase labour costs (pension, medical aid, and unemployment insurance fund).
  - o **Depreciation for factory equipment or vehicles**
  - o **Insurance (portion allocated for the factory)**

- Rent expense (portion allocated to the factory)
  - Telephone (portion allocated to the factory)
  - Water and electricity (portion allocated to the factory)
  - Factory expense
  - Factory lights and heat
  - Factory rent and rates
  - Stores overheads
  - Repairs of factory assets
  - Consumable stores
6. **Total manufacturing cost**-refers to the sum of direct material, direct labour and factory overheads.
  7. **Work-in-progress**-consists of incomplete products that are at different stages of production at any given moment.
  8. **Finished goods**-are products that have been through the manufacturing process and are ready for sale.
  9. **Total cost of production of finished goods**-total manufacturing costs plus opening inventory of work-in-progress less closing inventory of work-in-progress.
  10. **Cost of sales**-refers to the cost of finished goods that have already been sold.

**Over Time**-it is the work done beyond the normal working period in a day or week. For overtime done, the workers are given double the wages for the overtime done. The additional amount paid on account of overtime is known as overtime premium.

Overtime increases the cost of production and should not be encouraged as it has the following disadvantages:

- Overtime is paid at a higher rate
- Overtime is done at late hours when workers have become tired and efficiency will it be as much as during the normal working hours
- Workers will develop the habit of working slowly during normal hours and complete the work using overtime to earn more wages.
- Expenses like lighting, cost of supervision, and wear and tear of machines will increase disproportionately.

**Administration expenses**-this are administrative related expenditures for the manufacturing business.

Administration (office) overheads may include:

- Office expenses
- Legal expenses
- Office rent and taxes
- Directors fees
- Audit fees
- General expenses
- Printing and stationery
- Bank charges, postage and stamps

### Selling and distribution overheads includes:

- Selling expenses
- Repairs for deliver vehicles
- Commission on sales
- Warehouse expenses
- Bad debts
- Advertisement expenses
- Carriage outwards
- Travelling expenses
- Demonstration expenses
- Sales office expenses
- Cost of free gifts, samples
- Salary of warehouse staff

### CALCULATIONS

1. **Direct material cost**= balance at the beginning of the year + purchases during the year- purchases returns or returns outwards or creditors allowances + carriage on purchases + customs duties – balance at year end
2. **Direct labour**= factory wages + pension fund contributions (portion by the factory) + medical aid contributions (portion by the factory) + UIF contributions (portion by the factory)  
When you are required to calculate direct labour cost always remember that **direct labour cost** = normal (or basic) wage + overtime wage + employers' contribution  
**Normal wage** = number of employees x number of hours worked x normal or basic wage rate  
**Overtime** = number of employees x number of hours worked x overtime wage rate
3. **Factory overheads**- indirect material/consumable stores (opening balance + purchases – returns – closing balance) +indirect labour (salaries of supervisor, factory cleaner, factory foreman, factory manager etc) + depreciation (on factory machines and vehicles only) + maintenance (on factory machnes and vehicles only) + rent expense (factory portion only) + water and electricity (factory portion only) etc.  
**Note:** do not include costs that are not related to the factory production such as advertising, selling and distribution, bad debts, administration etc.
4. **Cost of sales**-when the business uses a perpetual inventory system we use the mark-up percentage to calculate cost of sales. When the business uses a periodic inventory system we use the following formula to calculate cost of sales:

Opening stock of finished goods + production cost of finished goods – closing stock of finished goods = cost of finished goods sold

### THE PRODUCTION COST STATEMENT

A production cost statement is a summary of the costs that are prepared in a manufacturing business to calculate the total cost of production. It consists mainly

of 3 costs, namely, direct material costs, direct labour costs and factory overheads costs.

**Production cost statement for the year ended...**

Direct material costs	1	xxx	Material issued for production
Direct labour cost	2	xxx	Costs incurred to compensate factory workers
Primary costs		xxx	Direct material PLUS direct labour costs
Factory overheads costs	3	xxx	All other costs involved in the manufacturing process which increase the cost of producing the product
Total manufacturing costs		xxx	Prime costs + factory overheads
Work-in-progress at the beginning of the year		xxx	Opening stock
Work-in-progress at the end of the year		(xxx)	Closing stock (always subtracted)
Production cost of finished goods		<b>xxx</b>	

**Abridged Income Statement**

Sales	<b>xxxxx</b>
Cost of sales (opening stock of finished goods + production cost of finished goods - closing stock of finished goods)	<b>(xxxxx)</b>
<b>Gross profit</b>	<b>xxxxx</b>
<b>Less:</b>	
<b>Administration overheads</b>	<b>Xxxx</b>
<b>Selling and distribution overheads</b>	<b>Xxxxx</b>

## BREAK-EVEN POINT

Break-even point refers to the point at which revenue of a manufacturing business is equal to its costs. At the break-even point, there is no profit or loss made as the total revenue is equal to the total costs.

To calculate the break-even point, you need to have information relating to the following:

- Fixed costs
- Variable costs
- Selling price per unit

Note: the calculation of BEP includes a simple yet very significant calculation for the denominator i.e. selling price per unit less variable cost per unit. The answer to this calculation is referred to as the contribution per unit. This can be expressed using the following formula:

$$\text{Contribution per unit} = \text{selling price per unit} - \text{variable cost per unit}$$

$$\text{Break-even point formula is: } \frac{\text{total fixed cost}}{\text{selling price per unit} - \text{variable cost per unit}}$$

Note: fixed costs includes factory overheads and administration cost

Variable costs includes direct material, direct labour and selling and distribution costs

### DIFFERENCES BETWEEN FIXED AND VARIABLE COSTS

FIXED COSTS	VARIABLE COSTS
These are costs that do not change even if the quantities produced by the factory increase or decrease	These are costs that change depending on the number of units produced
They are not output dependent	They are output dependent
The fixed costs per unit <b>increase</b> with a decrease in the number of units produced	The total variable costs <b>increase</b> with an increase in the number of units produced.
The fixed costs per unit <b>decrease</b> with an increase in the number of units produced	The total variable costs <b>decrease</b> with a decrease in the number of units produced
Total fixed costs remain <b>constant</b> irrespective of the number of units produced	Total variable costs <b>vary</b> directly with the number of units produced

Let us look at the following example to strengthen our understanding of BEP

- If the selling price is R900 per unit and the variable costs are R500 per unit, the contribution per unit is R400 (i.e. R900 less R500).
- The **selling price** will increase the profit, but the **variable costs** will decrease profits, so the contribution is the net effect.
- You are expected to understand that the contribution is the net Rand amount that each unit produced contributes towards covering the **fixed costs**.

- If the fixed costs are R12 000 and the contribution per unit is R400 (as calculated) then:
  - o If only 1 unit is produced, the loss made will be R11 600 (i.e. **fixed costs less R400**).
  - o if 2 units are produced, the loss made will be R11 200 (i.e fixed costs less R900)
  - o if 3 units are produced the loss will be R10 800
- The business will have to produce 30 units\* for the total contribution to be equal to the total fixed costs i.e.  $R12\ 000 / R400 = 30$  units (i.e  $R400 \times 30$  units= R12 000)

This is the breakeven at which the business will make no profit and no loss. i.e. it break even.

If you understood the above explanation, you could easily use Contribution per unit to calculate other figures as suggested in the bullets below:

- for the calculation of **expected profit on additional units produced**, fixed costs are irrelevant as they remain constant (i.e. there is no increase in fixed costs due to increased production).
- The only relevant items are the selling price (R900) and the variable costs per unit (R500) which are represented by the net effect for contribution per unit of R400. It is not necessary to calculate or use total Rand amounts in this case. For example, if production is 20 units more than BEP (i.e. if total production is  $30+20=50$  units), expected profit will be  $R20 \times R400 = R8\ 000$
- If production is 70 units more than BEP (i.e. if total production is  $30+70=100$  units), expected profit will be  $70 \times R400 = R28\ 000$ .

### **USE OF CONTRIBUTION PER UNIT IN CALCULATING PRODUCTION TARGETS**

- In calculation such as this, fixed costs are again irrelevant as they remain constant (i.e. there is no increase in fixed costs due to increased production). For example:
- To make a profit of R6 000, extra units of production will be  $R6\ 000 / 400 = 15$  units
- To make a profit of R120 000, extra units of production will be  $R120\ 000 / R400 = 300$  units