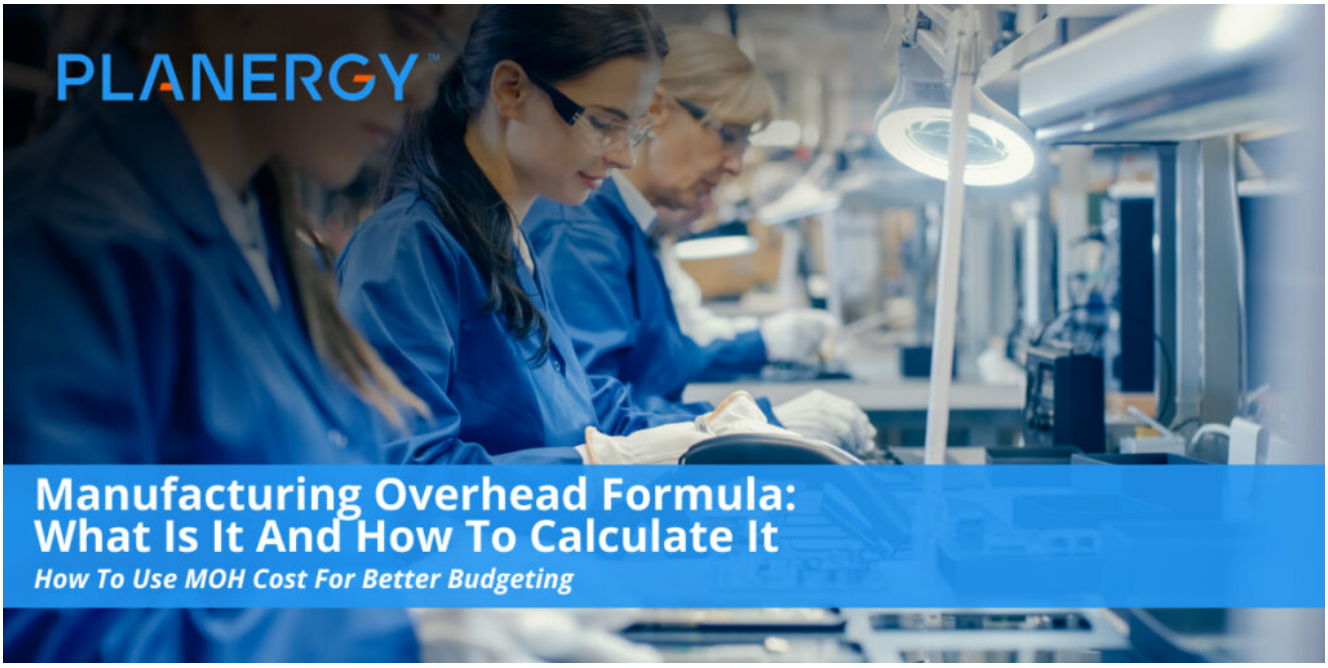
Manufacturing Overhead Formula: What Is It And How To Calculate It



To properly calculate the cost of goods sold, it's important for manufacturing businesses to accurately calculate their manufacturing overhead rate.

In manufacturing, you have direct costs, which are costs directly associated with the production of the product, and indirect costs, which are not directly related to production but are still necessary.

Direct costs tend to be variable costs and are associated with production levels, while indirect costs tend to be fixed costs.

Manufacturing overhead is the total of all indirect costs associated with manufacturing a product.

According to the generally accepted accounting principles (GAAP) rules, manufacturing overhead costs should be allocated to both work in progress (WIP) inventory and finished goods inventory on your balance sheet.

This allocation is vital to ensuring accurate financial statements.

Keep in mind that manufacturing overhead expenses must also be included in your cost of goods sold (COGS) that is listed on the income statement.

What is total manufacturing overhead?

Total manufacturing overhead is the sum of all of the indirect costs associated with manufacturing a product.

Indirect costs are costs that are associated with product production.

Indirect costs use an overhead absorption rate to calculate costs per unit.

For example, some manufacturing companies may use labor hours as a cost driver, while others use machine hours to calculate associated overhead.

Common overhead costs include:

Indirect materials

While direct materials are included in total manufacturing costs, indirect costs must be calculated as well.

For example, if you manufacture wood tables, the cost of wood would be a direct cost, while the cost of cleaning supplies would be considered an indirect material cost.

Indirect labor

Production employees such as those working the machines are always included in direct costs.

However, the wages of those not directly associated with production such as plant managers and supervisors, and janitors must also be included in factory overhead as an indirect cost.

Utilities

Utility overhead can vary based on production, with costs lower with slowed production; ramping up when production does.

Since utilities are used throughout the business, not just for the production facility, accountants are tasked with allocating the proper amount to overhead as an indirect cost.

Depreciation

Monthly depreciation expense must be included in overhead as in indirect cost. Only production-related equipment must be included in the indirect overhead cost.

For example, if your monthly depreciation expense is $2,500, but only $1,500 is related to manufacturing-related equipment, you should only include $1,500 in your indirect costs for the month.

Associated financial costs

Associated financial costs such as rent or mortgage expenses, as well as insurance and property tax expenses, should be included as an indirect financial cost when calculating manufacturing overhead.

> *While direct materials and labor account for the majority of manufacturing costs, not including overhead expenses can directly impact your bottom line.*

What are the steps to calculate the manufacturing overhead?

There are four steps involved in calculating manufacturing overhead.

1. ## Calculate all indirect costs

Step 1 is the most important, so make sure to include all of your indirect costs. A common error is including obvious indirect costs, but leaving others out, resulting in an inaccurate overhead cost, and ultimately, an understated cost of goods sold.

2. ## Determine which allocation base to use

The overhead percentage rate is calculated by adding all of your indirect costs and then dividing them by a designated measurement such as labor costs, sales totals, or machine hours.

If you have a very labor-intensive job site, you should use direct hours, while machine hours can be helpful for a more automated environment. You can also choose to use total sales for your base as well.

3. Find your base totals

If you plan on using direct labor hours, you'll need to calculate the total labor hours worked for the month.

The same goes with machine hours if you're planning on using that for your base calculation.

4. Calculate overhead rate percentage

Once you've calculated all of your indirect expenses, you'll need to complete another calculation for your overhead rate percentage.

For example, if your total monthly sales were $850,000, and your monthly overhead costs were $400,000 your overhead rate for the month would be calculated as follows:

$400,000 / $850,000 = $0.47

This means that for every dollar that you're currently earning in sales, you're spending $0.47 in expenses.

For labor costs, you would divide total indirect costs by total labor hours. For example, if you had 18,000 hours of direct labor, your calculation would be:

$400,000 / 18,000 = $22.22

This means that you'll need to add $22.22 for each hour worked to accurately account for your overhead costs when preparing your financial statements or when calculating the cost of goods sold.

What is the difference between manufacturing overhead and total manufacturing cost?

Manufacturing overhead is the total of your indirect costs that are involved in production while manufacturing cost is the overall cost of manufacturing a product, which includes both direct costs such as labor, as well as any indirect costs.

Manufacturing overhead is always calculated using indirect costs, while total manufacturing cost also includes the cost of raw materials, direct labor, and overhead costs.

Though some may confuse total manufacturing cost with the cost of goods sold, total manufacturing cost includes all finished products within a specific period regardless of whether they have been sold or remain in inventory.

What is the formula for total manufacturing cost?

The formula for calculating manufacturing cost is:

Total manufacturing cost – Direct materials + direct labor + manufacturing overhead

Direct materials

Direct materials are the costs associated with any materials that are directly used in the production of a product. To measure the cost of materials, use the following formula:

Beginning Inventory + Added Purchase – Ending Inventory = Direct Materials Cost

Direct labor

Direct labor is the cost of wages of all employees that are directly involved in the manufacturing process, such as machine operators or those on an assembly line.

Whether calculating direct labor costs or direct labor hours, be sure to include all related expenses such as payroll taxes and benefits, but make sure you're only doing so for employees directly involved in the production process.

Manufacturing overhead

Discussed above, manufacturing overhead is all of your indirect costs calculated and properly allocated.

These would include building rent or mortgage, property taxes, maintenance supplies such as paper products, and oils or lubricants for manufacturing equipment.

For example, Fran's Furnishings makes custom wood bookcases, shelving, and tables.

The primary materials used in production are wood, wood glue, varnishes, paints, as well as nails. They use special cutting equipment to prepare the materials, but production is heavily labor-intensive. This is their 2021 costs:

- Direct Materials – $400,000
- Direct Labor – $1,100,000
- Overhead – $ $145,000

Added together, Fran's Furnishings had a total manufacturing cost of $1,645,000.

You would have to do further analysis of this number to determine whether the company is making a profit or needs to reduce costs.

How do you calculate manufacturing overhead from WIP?

While calculating overhead costs is an important step in producing accurate financial statements, not all of these calculations take place after work has been

completed. At times, you'll also want to calculate your manufacturing overhead costs directly from WIP or work in progress.

Before calculating manufacturing overhead from WIP, you'll first need to determine the WIP ending balance for the period. The formula for calculating your WIP balance is:

WIP Beginning Balance + Manufacturing Costs – Cost of Goods Completed

For example, if your WIP at the start of the year is $325,000 and your manufacturing costs are $750,000, with the cost of completed goods at $685,000, your ending WIP balance for the year would be $390,000.

To calculate manufacturing overhead for WIP, you'll need to determine your base.

For example, if you're using units produced, you would need to first determine your total cost for each unit. For this example, we'll say that each manufacturing unit cost $87.78 in direct labor and materials, with $22.22 added on for overhead costs, for a total cost of $110.00 per unit.

You'll first have to calculate the portion of overhead.

$22.22 / $110.00 = 0.20

You'll then multiply your WIP total by 0.20 to finish the calculation:

$390,000 x .20 = $78,000

The calculation tells you that your manufacturing overhead for WIP is $78,000.

How do you calculate manufacturing overhead from WIP when using the batch costing method?

Batch costing is very similar to traditional job costing with one major difference. Instead of using a single unit to determine the cost, you use a batch of identical units.

For those that mass produce items, batch costing can be useful. The following are some of the characteristics of the batch costing process:

- Each batch is considered a unit of production
- Each batch should be identical in output
- Direct costs should be allocated to each batch
- Indirect costs should be applied to each batch using the appropriate overhead rate

The process for calculating manufacturing overhead from WIP using a batch costing method is similar to one using a single unit measure.

But instead of calculating the total cost for each unit, you would need to calculate the total cost of each batch

Why is it important to calculate manufacturing overhead?

While direct materials and labor account for the majority of manufacturing costs, not including overhead expenses can directly impact your bottom line.

If you only calculate direct costs in your cost of goods sold, you are likely pricing your products too low.

For example, if your direct costs to manufacture a small table are $45 and your indirect costs are $12, you'll know that your total manufacturing cost is $57, and can price your product accordingly.

But pricing based solely on direct costs will likely result in a product priced too low and a reduced profit margin.

Knowing your total manufacturing cost, including overhead can help you more accurately price products while also reigning in expenses when necessary.

What's your goal today?

1. Use PLANERGY to manage purchasing and accounts payable

We've helped save billions of dollars for our clients through better spend management, process automation in purchasing and finance, and reducing financial risks. To discover how we can help grow your business:

- Read our case studies, client success stories, and testimonials.
- Visit our "Solutions" page to see the areas of your business we can help improve to see if we're a good fit for each other.
- Learn about us, and our long history of helping companies just like yours.

Book a Live Demo

2. Download our guide "Preparing Your AP Department For The Future"

Download a free copy of our guide to future proofing your accounts payable department. You'll also be subscribed to our email newsletter and notified about new articles or if have something interesting to share.

download a free copy of our guide

3. Learn best practices for purchasing, finance, and more

Browse hundreds of articles, containing an amazing number of useful tools, techniques, and best practices. Many readers tell us they would have paid consultants for the advice in these articles.

Related Posts