Microsoft Dynamics® GP

Manufacturing Core Functions

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Contents

INTRODUCTION

Introduction

You can use Manufacturing to organize and track the daily workings of the manufacturing process, such as taking orders, purchasing raw materials, building finished goods, fulfilling orders, and selling the finished goods.

This introduction is divided into the following sections:

Manufacturing documentation

Manufacturing documentation is divided into five manuals. Refer to the following table for an overview of what is included in each of the manuals.

Manual	Modules or other major pieces
Manufacturing Setup manual	System setup User setup
Manufacturing Core Functions manual	Manufacturing Cards Extensions to Inventory Control Bills of Materials Extensions to Sales Order Processing Sales Configurator Manufacturing Reports
Manufacturing Production Functions manual	Routings Manufacturing Orders Outsourcing Work in Process
Manufacturing Management Functions manual	Quality Assurance Engineering Change Management Job Costing
Manufacturing Planning Functions manual	Sales Forecasting Master Production Scheduling Capacity Requirements Planning (CRP) Material Requirements Planning (MRP)

The online help file includes all of the information in the manuals, except installation information. The online help also includes field-by-field descriptions of the windows. You can access online help by pressing F1 whenever a Manufacturing window is active, or by choosing Help >> About this window.

If a Microsoft Dynamics® GP window—such as the Sales Transaction Entry window—is the active window when you access help, online help for Microsoft Dynamics GP will be displayed. You can close that help, open any Manufacturing window, and try again to access Manufacturing-specific help.

What's in this manual

This manual is designed to give you an understanding of how to use the features of Manufacturing, and how it integrates with the Microsoft Dynamics GP system.

To make best use of Manufacturing, you should be familiar with systemwide features described in the System User's Guide, the System Setup Guide, and the System Administrator's Guide.

Some features described in the documentation are optional and can be purchased through your Microsoft Dynamics GP partner.

To view information about the release of Microsoft Dynamics GP that you're using and which modules or features you are registered to use, choose Help >> About Microsoft Dynamics GP.

The manual is divided into the following parts:

- Part 1, **Manufacturing cards**, includes information about defining basic Manufacturing cards: machine definitions, labor codes, work centers, and operations. Information about attaching drawings or electronic files to Manufacturing records also is included.
- Part 2, **Item extensions**, includes information about additional windows and fields you can use to enter item information. It also includes information about using standard costing with Manufacturing.
- Part 3, **Bill of Materials**, describes how you can create and use bills of materials to organize your components into lists of items you use to build products.
- Part 4, **Sales extensions**, contains information about the windows Manufacturing adds so you can enter more information about your sales. The extensions to Sales Order Processing also include features that help you generate manufacturing orders automatically from sales orders.
- Part 5, **Sales Configurator**, includes information about setting up and using the Sales Configurator to enter customers' selections from lists of options you create. Pricing is calculated based on those options, and can be used to generate and schedule manufacturing orders automatically.
- Part 6, **Manufacturing reports**, describes how you can use Manufacturing's Universal Report Filter to print Manufacturing reports.

Symbols and conventions

For definitions of unfamiliar terms, see the glossary in the manual or refer to the glossary in Help.

Symbol	Description
	The light bulb symbol indicates helpful tips, shortcuts and suggestions.
	The warning symbol indicates situations you should be especially aware of when completing tasks.
	The multicurrency symbol points out features or procedures that apply if you're using Multicurrency Management.

This manual uses the following conventions to refer to sections, navigation and other information.

Convention	Description
Creating a batch	Italicized type indicates the name of a section or procedure.
File >> Print or **File > Print**	The (>>) or (**>**) symbol indicates a sequence of actions, such as selecting items from a menu or toolbar, or pressing buttons in a window. This example directs you to go to the File menu and choose Print.
TAB or ENTER	All capital letters indicate a key or a key sequence.

Resources available from the Help menu

The Microsoft Dynamics GP Help menu gives you access to user assistance resources on your computer, as well as on the Web.

Contents

Opens the Help file for the active Microsoft Dynamics GP component, and displays the main "contents" topic. To browse a more detailed table of contents, click the Contents tab above the Help navigation pane. Items in the contents topic and tab are arranged by module. If the contents for the active component includes an "Additional Help files" topic, click the links to view separate Help files that describe additional components.

To find information in Help by using the index or full-text search, click the appropriate tab above the navigation pane, and type the keyword to find.

To save the link to a topic in the Help, select a topic and then select the Favorites tab. Click Add.

Index

Opens the Help file for the active Microsoft Dynamics GP component, with the Index tab active. To find information about a window that's not currently displayed, type the name of the window, and click Display.

About this window

Displays overview information about the current window. To view related topics and descriptions of the fields, buttons, and menus for the window, choose the appropriate link in the topic. You also can press F1 to display Help about the current window.

Lookup

Opens a lookup window, if a window that you are viewing has a lookup window. For example, if the Checkbook Maintenance window is open, you can choose this item to open the Checkbooks lookup window.

Show Required Fields

Highlights fields that are required to have entries. Required fields must contain information before you can save the record and close the window. To change the way required fields are highlighted, choose Microsoft Dynamics GP menu >> Tools >> Setup >> User Preferences >> Display, and specify a different color and type style.

Printable Manuals

Displays a list of manuals in Adobe Acrobat .pdf format, which you can print or view.

What's New

Provides information about enhancements that were added to Microsoft Dynamics GP since the last major release.

Microsoft Dynamics GP Online

Opens a Web page that provides links to a variety of Web-based user assistance resources. Access to some items requires registration for a paid support plan.

Customer Feedback Options

Provides information about how you can join the Customer Experience Improvement Program to improve the quality, reliability, and performance of Microsoft® software and services.

Send us your documentation comments

We welcome comments regarding the usefulness of the Microsoft Dynamics GP documentation. If you have specific suggestions or find any errors in this manual, send your comments by e-mail to the following address: bizdoc@microsoft.com.

To send comments about specific topics from within Help, click the Documentation Feedback link, which is located at the bottom of each Help topic.

Note: By offering any suggestions to Microsoft, you give Microsoft full permission to use them freely.

PART 1: MANUFACTURING CARDS

Part 1: Manufacturing cards

This part of the documentation describes how to set up basic Manufacturing cards. Most of the cards described here will need to be defined only once, but you can refer to this information at other times for instructions on modifying or viewing existing entries.

The following information is discussed:

- Chapter 1, "Machines and labor codes," describes how to define machines used in your production processes and how to set up labor codes for production employees.
- Chapter 2, "Work centers," contains information about setting up work centers and work center calendars. Information about specifying alternate work centers and adjusting work center capacity also is included.
- Chapter 3, "Operations," describes how to define operations for work centers.
- Chapter 4, "Drawings," includes information about setting up your Manufacturing system so users can view electronic files while working with Manufacturing.

Chapter 1: Machines and labor codes

Before using Manufacturing, you must enter information about the different components of your operation. First you'll need to define machines and labor codes. These basic definitions will be used throughout the system as you create routings and work centers, and as you track your manufacturing costs.

You must enter machine definition records for any device, implement or tool used in your manufacturing process that requires scheduling or that adds to the cost of your manufacturing process. If all products must be processed through a certain machine—maybe a shrink-wrapping machine for packaging—you should enter a definition record for the shrink-wrapping machine. If a machine or tool doesn't significantly affect your schedule or your costs, however, you don't need to create a definition for it.

You also must define labor codes. If you have Microsoft Dynamics GP Human Resources with Payroll registered, you can link labor codes to positions. If you have Microsoft Dynamics GP Payroll registered, you also can link labor codes to pay codes. You can assign costs for each labor code so those costs can be included in standard costing formulas.

This information is divided into the following sections:

Machine and labor code terms

Refer here for information about some of the terms related to machine and labor codes.

If you're using outsourcing, you must set up a machine ID or a labor code for outsourcing. Refer to Chapter 15, "Outsourcing overview," and Chapter 16, "Outsourcing setup," in the Manufacturing Production Functions documentation.

Machine A machine can be any tool, device or implement that you use in your manufacturing process.

Labor code A labor code is used to associate a job function with a specific pay code. For instance, jobs requiring fewer skills often have lower labor code numbers or identifiers—PROD1, PROD2, PROD3, for example—and are compensated at lower rates. Jobs requiring more skills or education have higher labor code numbers and higher pay rates.

Often, within a labor code, there are several pay levels. For example, an entry-level Labor Code 3 worker usually is paid less than an experienced Labor Code 3 worker.

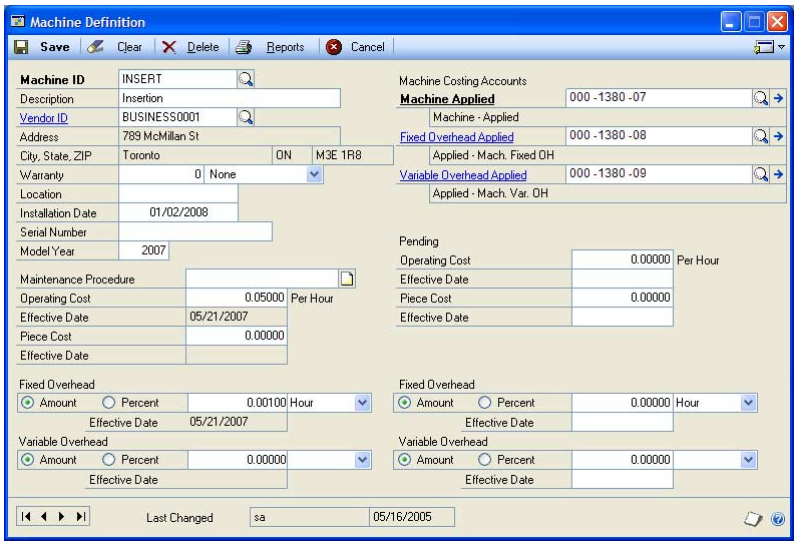
Shop rate The shop rate is a standard pay rate for each labor code. It is the amount used to estimate labor costs for a manufacturing order and to calculate standard costing information.

Entering a machine record

Use the Machine Definition window to enter basic cost and overhead information, as well as warranty information, and the location and ID number for the machine.

To enter a machine record:

1. Open the Machine Definition window.
(Cards >> Manufacturing >> Machines)



2. Enter or select a machine ID. The ID can be up to ten characters.

3. To enter information about the purchase of the machine, enter or select the vendor ID.

If you've specified the vendor for the machine but the vendor record wasn't already defined in the system, a message appears and you'll have the option to define the new vendor. If you choose Cancel to return to the Machine Definition window, you'll need to define the vendor record later. If you choose Define, the Vendor Maintenance window will open so you can define the vendor record.

4. In the Machine Applied field, enter or select the account to which applied machine costs will be posted.

5. Enter or select the accounts to which fixed and variable overhead amounts will be posted.

6. You can enter the current operating costs of the machine. Enter the cost of operating the machine and the cost of operation per piece the machine produces.

You must enter an operating cost for the machine if you're defining fixed or variable overhead for the machine as a percentage of operating costs.

The amounts you enter here should be calculated and made with the assistance of a cost or managerial accountant.

7. Enter information about the fixed overhead costs of the machine.

   Mark Amount or Percent to indicate whether the fixed overhead cost will be determined by a percentage of costs or a specified amount.

   Enter the percentage or amount, and select Hour or Piece to indicate if the costs are to be calculated on a per-hour or per-piece basis.

8. Enter information about the variable overhead costs of the machine.

   Mark Amount or Percent to indicate whether the variable overhead cost will be determined by a percentage of costs or a specified amount.

   Enter the percentage or amount, and select Hour or Piece to indicate if the costs are to be calculated on a per-hour or per-piece basis.

9. Choose Save.

Changing a machine definition record

Use these steps to change machine definition records. Some changes, however, require special consideration. Refer to *Changing machine operating costs* and *Changing a machine ID* for more details about those procedures.

To change a machine definition record:

1. Open the Machine Definition window.
   (Cards >> Manufacturing >> Machines)

2. Enter or select a machine ID.

3. Make changes, as needed.

4. Choose Save and close the window.

Changing machine operating costs

Changing the operating costs of a machine will affect how manufacturing costs—including standard manufacturing costs—will be calculated.

To change machine operating costs:

1. Open the Machine Definition window.
   (Cards >> Manufacturing >> Machines)

2. Enter or select a machine ID.

3. Enter the new cost information for the machine.

4. Enter information in the Pending section if you know the operating costs of a machine will change on a specific date—for instance, due to a change in the electrical rate.

   You can enter a new operating cost for the machine and the date the new operating cost will be in effect. You also can enter the new cost per piece and the date the new cost per piece will increase.

5. Choose Save and close the window.

6. To complete the revaluation, use the Standard Cost Rollup window.

   Refer to Chapter 14, "Standard costing revaluations," for more information.

If the machine operating costs change while a manufacturing order using that machine has an Open status, the cost change won't be applied to the Work in Process Machine account. However, the cost change will be reflected in the value of Work in Process Finished Goods posted to inventory. The price difference will be accounted for in the variances that will be calculated and reported.

Changing a machine ID

You might need to assign a new machine ID to a previously defined machine. To change the machine ID, you must delete the existing machine record and then enter a new record and assign a new machine ID to it.

To change a machine ID:

1. Open the Machine Definition window.
   (Cards >> Manufacturing >> Machines)

2. Enter or select the ID for the machine you need to change.

It's a good idea to print the Machine Detail report for this machine before you delete it. The report summarizes the information that you've entered in the Machine Definition window for this machine, and will be a handy reference when you recreate the machine record.

3. Choose Delete.

   If the machine has been assigned to a work center, a message will indicate that the machine has been assigned to work centers and you'll have the option to see a list of those work centers. You can't delete a machine that's assigned to a work center, so choose Yes to see a list of the work centers the machine has been assigned to. Use the Work Center Setup window to remove this machine from those work centers, if needed.

Refer to Unassigning an employee or a machine on page 25.

4. Enter a new machine record. Refer to *Entering a machine record* on page 10 and to the Machine Detail report for this machine.

Deleting a machine record

You might need to delete a machine record if you quit using it in production. Be sure the machine you want to delete isn't assigned to any work centers.

To delete a machine record:

1. Open the Machine Definition window.
   (Cards >> Manufacturing >> Machines)

2. Enter or select the ID of the machine to delete.

3. Choose Delete and close the window.

   If the machine has been assigned to a work center, a message will indicate that the machine has been assigned to work centers and you'll have the option to see a list of those work centers. You can't delete a machine that's assigned to a work center, so choose Yes to see a list of the work centers the machine has been assigned to. Use the Work Center Setup window to remove this machine from those work centers, if needed.

Refer to Unassigning an employee or a machine on page 25.

Entering a labor code

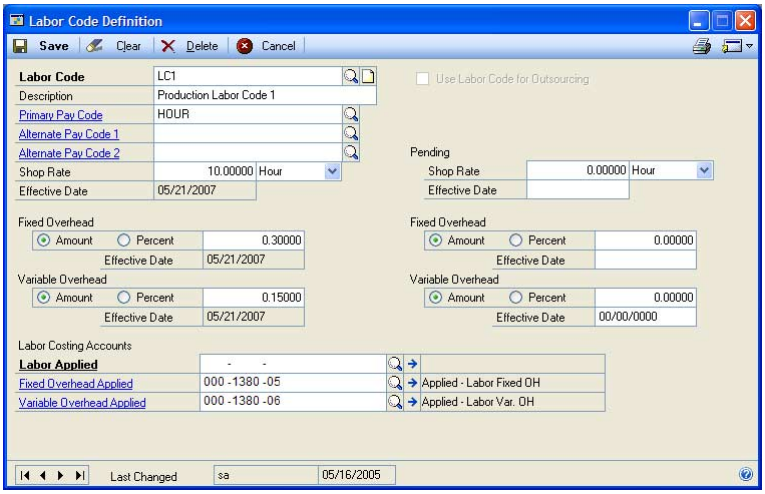
Labor codes are identifiers you can use for groups of employees. Many manufacturing companies use labor codes to distinguish between groups of employees who have different sets of skills or tenure. Labor codes often are associated with different pay rates. If you're using Microsoft Dynamics GP Payroll, you can use the pay codes defined in Payroll and associate them with labor codes.

You also can set up labor codes to be used to calculate the costs associated with outsourced services.

Use the Labor Codes Definition window to enter labor code information.

To enter a labor code:

1. Open the Labor Code Definition window.
   (Cards >> Manufacturing >> Labor Codes)



2. Enter or select a labor code and enter a brief description of the labor code.

3. If the labor code will be used to track the costs associated with outsourcing, mark Use Labor Code for Outsourcing.

   This option is available only if you're using a labor cost bucket to track outsourcing costs, and if you marked the Allow Outsourced Labor Code option in the WIP Preference Defaults window. Refer to *Setting up data collection options* in Chapter 4, "Manufacturing production functions setup," in the Manufacturing Setup documentation.

4. Enter pay codes.

Refer to your Payroll documentation for more information about creating pay codes. Refer to Adding pay codes to labor codes on page 17 for more information about assigning pay codes to labor codes.

5. Enter a shop rate, and select whether it should be applied per-hour or per-piece.

6. Enter fixed overhead amounts.

   Mark Amount or Percent to indicate if fixed labor overhead costs are determined by a percentage of labor costs or a specified amount.

   Enter the percentage or amount.

7. Enter variable overhead amounts.

   Mark Amount or Percent to indicate if variable labor overhead costs are determined by a percentage of labor costs or a specified amount.

   Enter the percentage or amount.

8. Enter or select the labor costing accounts to which these overhead amounts will be posted.

9. Choose Save and close the window.

Changing a labor record

Changes to labor code records might include changes to the basic criteria for the labor code, such as the shop rate and the comments about the code.

Changing the costs associated with a labor code will affect costing calculations. Refer to *Changing labor code costs*.

To change a labor code:

1. Open the Labor Code Definition window.
   (Cards >> Manufacturing >> Labor Codes)

2. Enter or select the labor code to change.

3. Make changes, as needed.

You cannot remove the designation for outsourcing if the labor code is included in any operation, or planning or active routing—that is, the labor code can't be included on any routing for any item and can't be part of any open manufacturing order. Also, you can't mark the Use Labor Code for Outsourcing option if the labor code already is the setup labor code for any planning or working routing.

4. Choose Save and close the window.

Changing labor code costs

You can use fields in the Pending section of the Labor Code Definition window to enter information about changes to the labor code rate and overhead that you know will take effect on a specific date. A scheduled change—such as a change in the shop floor rate—can be entered ahead of time using these fields.

To change labor code costs:

1. Open the Labor Code Definition window.
   (Cards >> Manufacturing >> Labor Codes)

2. Enter or select a labor code.

3. In the Pending Shop Rate field, enter the shop rate.

4. Select Hour or Piece from the list to identify how the rate will be calculated.

5. Enter the date the new rate will take effect.

6. To change the fixed overhead rate information, mark the Fixed Overhead option to reflect how the fixed overhead will be calculated—as an amount or as a percentage.

   Enter an amount or percentage and the date the change to the fixed overhead rate will be effective.

7. To change the variable overhead rate information, mark the Variable Overhead option to reflect how the variable overhead will be calculated—as an amount or as a percentage.

   Enter an amount or percentage and the date the change to the variable overhead rate will be effective.

8. Choose Save.

9. To complete the revaluation, you must use the Standard Cost Rollup window, available through the Go To button of the Item Maintenance window.

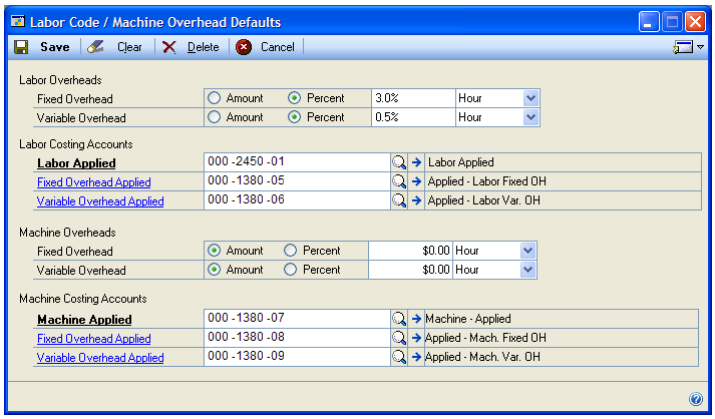
   Refer to Chapter 14, "Standard costing revaluations," for more information.

Updating all machines or labor codes

You can use the Labor Code/Machine Overhead Defaults window to enter default settings for overhead amounts and accounts, and then roll them down to existing labor codes or machine IDs. This can make updating machine and labor code information faster and easier.

To update all machines or labor codes:

1. Open the Labor Code/Machine Overhead Defaults window. (Cards >> Manufacturing >> Labor/Machine OH)



2. Enter fixed labor overhead amounts.

   Mark Amount or Percent to indicate if fixed labor overhead costs are determined by a percentage of labor costs or a specified amount.

   Enter the percentage or amount, and select Hour or Piece to indicate if the costs are to be calculated on a per-hour or per-piece basis.

3. Enter variable labor overhead amounts.

   Mark Amount or Percent to indicate if variable labor overhead costs are determined by a percentage of labor costs or a specified amount.

   Enter the percentage or amount, and select Hour or Piece to indicate if the costs are to be calculated on a per-hour or per-piece basis.

4. Enter or select the labor costing accounts to which labor overhead amounts will be posted. As you select each posting account, the description of the account will be displayed in the window.

5. Enter fixed machine overhead amounts.

   Mark Amount or Percent to indicate if fixed machine overhead costs are determined by a percentage of machine costs or a specified amount.

   Enter the percentage or amount, and select Hour or Piece to indicate if the costs are to be calculated on a per-hour or per-piece basis.

6. Enter variable machine overhead amounts.

   Mark Amount or Percent to indicate if variable machine overhead costs are determined by a percentage of machine costs or a specified amount.

   Enter the percentage or amount, and select Hour or Piece to indicate if the costs are to be calculated on a per-hour or per-piece basis.

7. Enter or select the machine costing accounts to which machine overhead amounts will be posted. As you select each posting account, the description for the account will be displayed in the window.

8. Choose Save.

   A message will appear and you'll have the option to apply changes to existing records. If you choose No, your entries in this window will be saved but won't be reflected in existing machine and labor code definitions. If you choose Yes, the settings for calculating overhead and the posting accounts will be updated for all machine records and all labor codes.

If you have machines or labor codes that require settings other than the default settings and you roll down changes to existing records, you'll need to review those machine and labor code records and adjust them, as needed.

Adding pay codes to labor codes

Use the Labor Code Definition window to link pay codes to labor code definitions.

Refer to your Payroll documentation for more information about creating pay codes.

To add pay codes to labor codes:

1. Open the Labor Code Definition window.
   (Cards >> Manufacturing >> Labor Codes)

2. Enter or select a labor code.

3. Select a primary pay code. You also can select one or two alternate pay codes.

4. Choose Save.

Removing a pay code from a labor code

Use the Labor Code Definition window to remove pay codes from labor codes.

To remove a pay code from a labor code:

1. Open the Labor Code Definition window.
   (Cards >> Manufacturing >> Labor Codes)

2. Enter or select a labor code.

3. In the field that has the pay code information to remove, select the text and press DELETE on your keyboard, or backspace over the code.

4. Choose Save.

Deleting a labor code

Use the Labor Code Definition window to remove a labor code.

To delete a labor code:

1. Open the Labor Code Definition window.
   (Cards >> Manufacturing >> Labor Codes)

2. Enter or select a labor code.

3. Choose Delete.

You can't delete a labor code if is part of any planning or active routing, or if the labor code is included in any routing for a manufacturing order that is not closed.

Chapter 2: Work centers

Work centers include the employees and machines that are grouped together as a unit for completing tasks in a production process. Some companies use the term "load center" to mean the same thing. If you're using Capacity Requirements Planning (CRP), you can schedule work into your work centers. CRP information can help you see the capacity for each work center and determine which work centers have extra capacity that you can use other ways.

This information is divided into the following sections:

Work center terms

Refer here for information about some of the terms related to work centers.

Outsourced work center A work center with capacity supplied by an outside supplier or contractor. For example, if your business manufactures farm machinery, you might have an outside vendor that paints the machinery for you once it is assembled.

Alternate work center A second work center, usually equipped with similar staff and machines, that can assist the primary work center, when needed.

Employee efficiency percentage A ranking of how an employee performs a given task. You can use this information in different ways, depending on how your organization handles its employee efficiencies.

Some organizations complete time studies of various tasks and set task goals for workers based on those figures. Employees earn efficiency ratings based on their ability to meet task goals.

For example, Acme Widgets has determined that the widget assembly task can be completed in two minutes—or at the rate of 30 pieces per hour. An employee who can meet that goal is assigned an efficiency of 100%. An employee who can assemble 20 widgets per hour has a 67% efficiency. If an employee can achieve more than the goal—can build more than 30 widgets per hour—that employee would have an efficiency level greater than 100%.

In some organizations, the top producer is assigned a value of 100% (or less) and all other employees are ranked in comparison to the top producer.

Hours per shift The amount of time in the shift.

Machine hours The number of hours in a day or in a shift that a machine is available to perform tasks.

Machine efficiency How well a machine performs a given task compared to a control number.

Machine utilization The percentage of available machine capacity that is currently being used. For example, if a machine is capable of producing 100 items per shift and is only being used to produce 80 items per shift, the machine utilization is 80% of capacity.

How sites and work centers are related

You can define sites in Inventory Control. The sites are inventory sites where items can be stored. Work centers are specialized sites where manufacturing processes occur.

Before you can create a work center, you must use the Site Maintenance window in Inventory Control to create the site. Then you can create a work center based on the site information. You can create one work center for each site. A work center will have the same identifier as its associated site. For example, if you create the NORTH site and then create a work center based on that site, the work center ID also will be NORTH.

Because sites and work centers are so closely related, special rules apply whenever you attempt to delete a site or a work center. For more information, refer to the following topics:

- *Rules for deleting work centers* on page 28
- *Rules for deleting sites in Manufacturing* on page 29

Entering a work center record

Before you can assign machines or employees to a work center, you must use the Work Center Setup window to create a basic definition for a work center.

Work center information is important because it represents your company's capacity for work. That information will play a bigger role later on when you want to compare available work capacity with the work you have scheduled in Capacity Requirements Planning (CRP). Besides assigning employees and machines to work centers, you also can specify the efficiency—the statistical measure of the employee's performance compared to routing sequence times—of employees and machines.

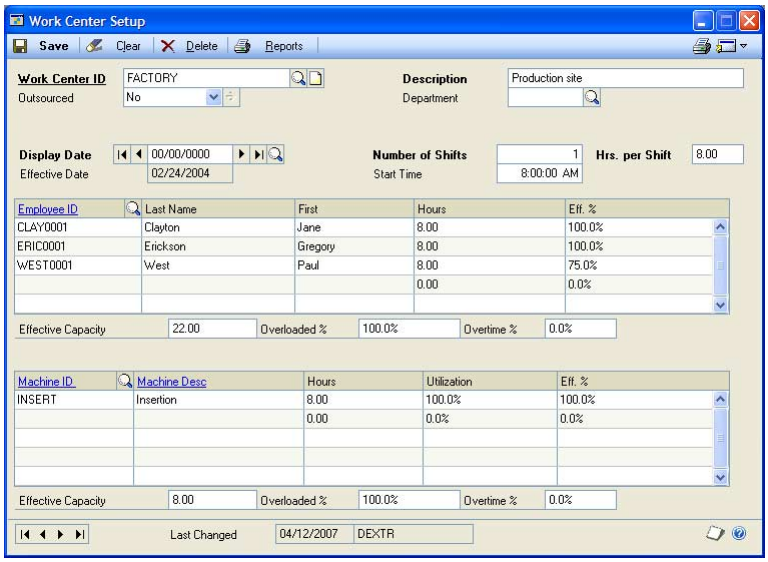
The Display Date field in the Work Center Setup window is important because it determines when the work center definition you're creating will be effective. Some companies want the work center records to reflect every change to the work center definition; for instance, if an employee is on vacation or if a machine is offline for repairs. Other companies don't want that level of detail. Refer to *Timing for work center changes* on page 24 for more information.

A work center is a specialized site. Before you begin this procedure, you must use the Site Maintenance window to set up the site that will be a work center. Refer to Inventory Control documentation for more information.

If you like, you can associate the work center with a department. For more information about setting up departments, refer to your Payroll documentation.

To enter a work center record:

1. Open the Work Center Setup window.
   (Cards >> Manufacturing >> Work Centers >> Setup)



2. Enter a work center ID. The identifier for the work center must match the identifier for the associated site.

   If you enter a work center ID and there is no corresponding site ID, a message appears and you'll have the option to create the site ID.

3. Enter a brief description of the work center. Often, the work center description is a word or phrase that describes the work that will be completed in that work center. The description field is required.

If the work center tasks are completed by an outside supplier, this is an outsourced work center. Complete this procedure and then refer to Defining or modifying an outsourced work center on page 25.

4. To associate a work center with a department, enter or select a department name.

5. Enter the start time, hours per shift and number of shifts. The hours per shift multiplied by the number of shifts can't be greater than 24.

   If you're using Capacity Requirements Planning, (CRP), be sure the hours per shift you enter is the number of actual working hours per shift. For example, if employees have two 15-minute breaks in an eight-hour shift, the working hours per shift is 7.5 hours.

6. Enter the date this work center definition should become effective in the Display Date field. Refer to *Timing for work center changes* on page 24 for more information.

7. Choose Save and close the window.

Assigning an employee to a work center

Use the Work Center Setup window to assign employees to work centers.

To assign an employee to a work center:

1. Open the Work Center Setup window.
   (Cards >> Manufacturing >> Work Centers >> Setup)

2. Enter or select the work center to add employees to.

It's possible to have several records for a single work center, each with a different effective date. Be sure the work center record you select has the appropriate Display Date.

3. In the first blank line of the employee scrolling window, enter or select an employee ID.

4. Enter the number of hours the employee will work in each shift, and the employee's efficiency percentage. Entries in the scrolling window will be saved as they are entered.

   As you add employees to the work center, the effective capacity of the employees in the work center will be calculated.

5. Repeat steps 3 and 4 to add additional employees to the work center. If the work center has more than one shift, enter employees from all shifts who are part of the work center to the work center record.

   The amount in the Effective Capacity field is calculated automatically by multiplying each employee's hours by his or her efficiency percentage. CRP uses this information to determine the workload that can be handled by the work center, but you can edit the amount.

6. In the Overloaded % field, enter the maximum percentage of the effective capacity to schedule into this work center.

For example, a work center might have an effective employee capacity of 100 hours, but you've found that the work center employees respond well to slightly larger workloads, so you schedule an overload of 105%. When the work that can be assigned to the work center is calculated in CRP, 105 hours of work per day will be assigned to the work center.

A work center will be flagged when the work center's load exceeds the overloaded percentage.

7. You can enter the percentage of overtime that is acceptable for the employees in this work center. This field is for reference only, and the amount you enter here won't be taken into consideration when CRP information is calculated.

8. Choose Save and close the window.

Assigning a machine to a work center

Use the Work Center Setup window to assign machines to a work center.

To assign a machine to a work center:

1. Open the Work Center Setup window.
(Cards >> Manufacturing >> Work Centers >> Setup)

2. Enter or select the work center to add machines to.

It's possible to have several records for a single work center, each with a different effective date. Be sure the work center record you select has the appropriate Display Date.

3. In the first blank line of the machines scrolling window, enter or select a machine ID.

4. Enter the number of hours the machine will run in each shift, and the utilization percentage of the machine. Entries in the scrolling window will be saved as they are entered.

   As you add machines to the work center, the effective capacity of the machines in the work center will be calculated.

5. Repeat steps 3 and 4 to add additional machines to the work center.

   The amount in the Effective Capacity field is calculated automatically by multiplying each machine's hours by its efficiency percentage. CRP uses this information to determine the workload that can be handled by the work center, but you can edit the amount.

6. In the Overloaded % field, enter the maximum percentage of the effective capacity that you want to schedule into this work center.

For example, a work center's machines might have an effective machine capacity of 10 hours, but during hot summer months you've found that the machine often overheats. You might schedule an overload of 90%, to keep the load a little lighter during those months. When work that can be assigned to the work center is calculated, it will assign 9 hours of work per day.

A work center will be flagged when the work center's load exceeds the overloaded percentage.

7. You can enter the percentage of overtime that is acceptable for the machine in this work center. This field is for reference only, and the amount you enter here won't be taken into consideration when CRP information is calculated.

8. Choose Save and close the window.

Timing for work center changes

There are several ways you can change your work center records: you can adjust an employee's efficiency percentage to reflect the employee's additional experience, you can add or remove machines or employees, and you can change the number of shifts that are run in a work center.

Sometimes, changes should be reflected immediately. If you find that an employee's efficiency rating has increased from 70% to 90%, for example, you'd want to have that change in the work center's capacity reflected immediately.

On the other hand, you might want to delay the effective date for some work center changes. For example, if you plan to take a machine offline for a week of repairs and maintenance on the 10th of the month, you should enter the information as a pending change. That way, CRP can "see" that the machine capacity of the work center has changed when it tries to schedule work for that period. Likewise, you could make another pending work center change for when the machine is scheduled to be back in service.

The information you enter in the Display Date field of the Work Center Setup window will determine if changes will be reflected immediately or in the future.

- If a change should be reflected immediately, select the work center record you want to change in the Work Center Setup window and make your changes without changing the Display Date field.

- To enter pending changes—changes that will take effect on a certain date—select the work center record you want to change in the Work Center Setup window, change the display date to the date the changes should take effect, and then make your changes in the window.

Use care when entering pending changes for work center records because the changes you enter on a day-to-day basis won't be applied to scheduled changes. For example, if you have several pending work center changes scheduled and you then change an employee's efficiency percentage effective immediately, you must change the employee's efficiency percentage in each of the pending changes.

Not all changes can be scheduled using the Display Date field. For example, a work center's status as a "regular" work center or as an "outsourced" work center is effective immediately.

Unassigning an employee or a machine

Before you can delete a machine record, you must unassign it from its work centers. The same steps can be used for removing employee records from work centers.

Use the Work Center Setup window to remove employees from a work center.

To unassign an employee or a machine:

1. Open the Work Center Setup window.
   (Cards >> Manufacturing >> Work Centers >> Setup)

2. Select a work center.

3. Determine when the change should be effective.

   - If the change should be effective immediately, accept the date in the Display Date field.

   - If the change should be effective on a date you specify, enter that date in the Display Date field. If the display date you enter hasn't already been used to enter pending updates to this work center, a message will appear and you'll have the option to create a new record. Choose Yes.

Refer to Timing for work center changes on page 24.

4. Mark the employee record or machine record to remove from the work center.

5. From the Edit menu, choose Delete Row. Your changes automatically will be saved.

Don't choose the Delete button. Use the Delete button only to delete the entire work center record.

6. Continue removing employee records or machine records from the work center.

7. Close the window.

Defining or modifying an outsourced work center

If some of the work for your company is outsourced—that is, if its capacity comes from an outside supplier or contractor—you can define it as an outsourced work center. Use the Work Center Setup window to first define a basic work center record, and then refer to this topic for entering information specific to outsourced work centers.

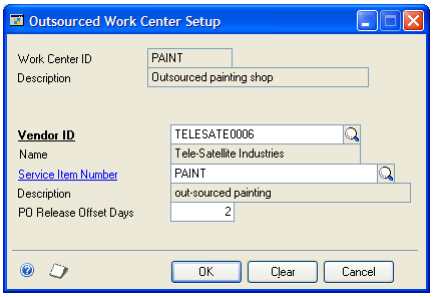
To define or modify an outsourced work center:

1. Open the Work Center Setup window.
   (Cards >> Manufacturing >> Work Centers >> Setup)

2. Enter or select a work center ID.

3. Be sure the Outsourced list is set to Yes. If you're defining a new work center, the Outsourced Work Center Setup window opens. If you're modifying work center information, choose the expansion button on the Outsourced field to open the window.

Refer to Rules for changing the outsourcing status of a work center on page 27 for information about the requirements and effects of changing this setting for an existing work center.



Information will be displayed in the Work Center ID and Description fields.

4. Enter or select the vendor who is supplying the outsourced services.

5. You can enter or select the item number of the service you purchase from the vendor.

   For example, if the vendor provides special testing services, you might create an item with Service type in the Item Maintenance window, and enter "Testing" for the item.

   The item you select must have a Service type, and must be assigned to the vendor. Refer to Inventory Control documentation for more information about creating item records and assigning them to vendors.

Selecting a service item number isn't required, but it is required for tracking history. That is, if you will order the same service several times and want to be able to review the amount and costs for the service each time it is ordered, you must set up a Service Item Number.

6. In the PO Release Offset Days field, enter the number of days that should elapse between when the purchase order for the service is released and when the service should begin.

   For example, if the vendor needs to know 10 days in advance that the outsourced services will be required, you would enter 10 for the PO Release Offset Days.

   The number you enter here will be the default value when a routing is created using the outsourced work center. You'll have the option to accept the default value, or change it.

7. Choose OK and close the window.

Rules for changing the outsourcing status of a work center

You can use the Work Center Setup window to change the outsourcing status of a work center. For example, suppose you have an existing, non-outsourcing work center that you want to use for outsourcing, or that you have an outsourcing work center that you want to use for in-house activities.

You can change the outsourcing status of a work center by changing the selection in the Outsourced field in the Work Center Setup window. To do this, however, the work center can't be part of any planning or working routings.

If you change the status of a work center so that it is no longer an outsourcing work center, all outsourcing-specific information about the work center—the vendor ID, the service item number, and the offset days—will be removed from the work center record.

Adjusting work center capacity

Sometimes you'll need to adjust the numbers used to calculate the capacity of the work center as a result of changes to an employee record or a machine. For example, if an employee has completed training, you might want to increase his or her efficiency percentage. On the other hand, if a machine has become worn, you might want to decrease its efficiency percentage.

Other changes also impact productivity. If a work center redesign reduces the delay between operations, the work center might be able to add more work. You can reflect an increase in work center efficiency by increasing the total hours available to schedule.

The available work time of a work center also has an impact on the amount of work that can be scheduled. If production of a certain work center will stop for a day of training, for example, you'll have fewer real "working" hours that can be scheduled.

To adjust work center capacity:

1. Open the Work Center Setup window.
   (Cards >> Manufacturing >> Work Centers >> Setup)

2. Enter or select a work center.

3. Determine when the capacity adjustments should be effective.

   - To have the change effective immediately, accept the date in the Display Date field.

   - To have the change effective on a date you specify, enter that date in the Display Date field. If the display date you enter hasn't already been used to enter pending updates to this work center, a message will appear and you'll have the option to create a new record.

Refer to Timing for work center changes on page 24 for more information.

4. In the scrolling windows, select an employee ID or machine ID.

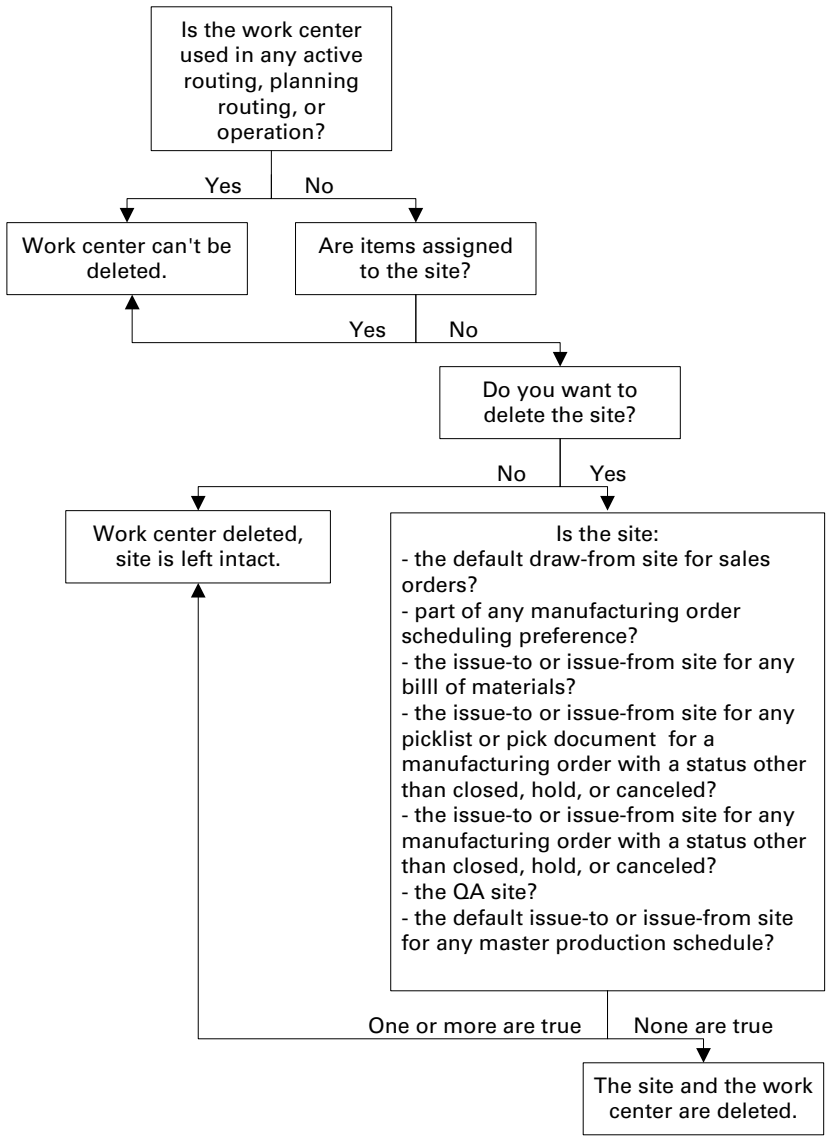
5. Enter the available hours or efficiency for the employee or machine. Your changes automatically will be saved.

6. If needed, update other fields in the window. You can change the effective capacity of the employees or machines in the work center and the overload percentage.

7. Choose Save and close the window.

Rules for deleting work centers

Because work centers and sites are closely related, you might want to delete the associated site when you delete a work center. Refer to the following illustration for information about rules that determine whether you can delete the work center, the site, both, or neither.



For more information about deleting site records—including the rules that apply and changes you can make so the site can be deleted—refer to *Rules for deleting sites in Manufacturing on page 29.*

Deleting a work center record

You can't delete a work center record if it's part of a current active or planning routing. You must remove all references to the work center from active and planning routings before deleting it.

You also can't delete a work center record if its associated site has one or more items assigned to it. Refer to Inventory Control documentation for information about unassigning items from a site.

To delete a work center record:

1. Open the Work Center Setup window.
   (Cards >> Manufacturing >> Work Centers >> Setup)

2. Enter or select a work center.

3. Choose Delete.

4. A message will appear to ensure you want to delete the work center. Choose Delete.

5. Another message will appear to ensure you want to remove the work center from the site file.

   - If you choose Yes, the Item Site Maintenance window will open, displaying the work center record. Choose Delete in the Item Site Maintenance window. The record will be deleted from the site file. Close the Item Site Maintenance window.

   - If you choose No, the work center definition will continue to be part of the site file.

6. Close the Work Center Setup window.

Rules for deleting sites in Manufacturing

If Manufacturing is not installed and you attempt to delete a site, several rules apply. For example, the site can have no inventory quantities, and the site can't be part of an unposted transaction.

When Manufacturing is installed, additional conditions must be met before a site can be deleted. For example, if you delete a site and a work center has been set up for that site, the work center must also be eligible to be deleted.

Refer to the following table for more information about the Manufacturing-specific rules. For information about inventory rules for deleting a site, refer to your Inventory Control documentation.

If this is true:	Refer to:
Site has associated work center that is part of a planning or manufacturing order routing, or an operation.	Check planning routing sequences with the Routing Sequence Entry window. Check manufacturing order routing sequences with the Manufacturing Order Routing Sequence Edit window. Check operations with the Operations Setup window.
Site is the default draw-from site for sales orders.	Change the Default Draw Inventory From site in the Manufacturing Series Sales Order Preferences window.
Site is part of any manufacturing order scheduling preference.	Check manufacturing order scheduling preferences in the Scheduling Preferences window.
Site is the issue-to or issue-from site for any bill of materials.	Check bills of materials in the Bill of Materials Entry window.
Site is the issue-to or issue-from site for any picklist for a manufacturing order when the status of the manufacturing order is not Closed, Hold, or Canceled.	Check picklist in the Picklist window.
Site is the issue-to or issue-from site for any pick document for a manufacturing order when the status of the manufacturing order is not Closed, Hold, or Canceled.	Check pick documents in the Manufacturing Component Transaction Entry window.
Site is the issue-to or issue-from site for any manufacturing order with a status other than Closed, Hold, or Canceled.	Check manufacturing orders in the Manufacturing Order Entry window.
Site is the QA site.	Check the QA Site ID in the QA Preference Defaults window.
Site is the default issue-to or issue-from site for any master production plan.	Check the sites for the master production plans with the Manufacturing Order Options window, which is available through the Master Production Scheduling window.

Work center calendars

A shop calendar is a company-wide definition of your company's production days and "down days"—weekends, holidays, and other days when the production line isn't running. A work center calendar defines production days and down days for a specific work center within your company.

If the calendars for the work centers in your organization vary from one work center to another—for example, if some work centers run three shifts and other work centers run just one or two shifts—you can use the Work Center Calendar window to make adjustments to the shop calendar. Each work center can have its own work center calendar, but if the work center calendar is the same as the shop calendar, you won't need to set up work center calendars.

Changes to the shop calendar aren't automatically reflected in the work center calendars. If you already have work center calendars defined and then decide to enter another down day in the shop calendar—maybe a company holiday or a down day due to bad weather—you must make the same change in each of the work center calendars.

Refer to the following topics for more information:

- *Defining a work center calendar* on page 31
- *Adjusting a work center calendar* on page 32

Defining a work center calendar

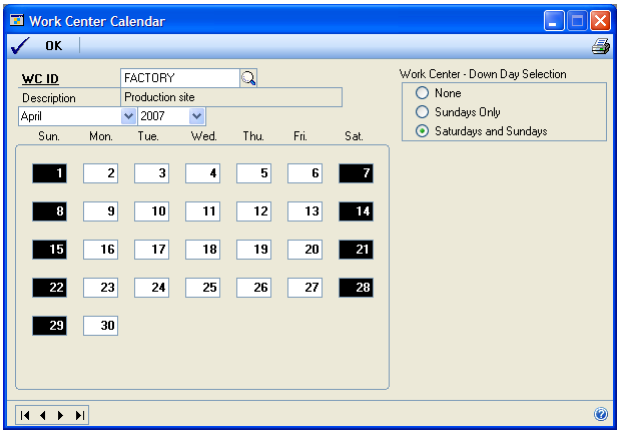
Before you define work center calendars, you should have defined a calendar for the organization using the Shop Calendar window. Use the Work Center Calendar window to define work center calendars.

For information about shop calendars, refer to Shop calendars and Defining the shop calendar, both in Chapter 1, "Manufacturing basic setup," in the Manufacturing Setup documentation.

Information from the shop calendar will be displayed in the work center calendar because the shop calendar settings are the default settings for the work center calendar. Down days are displayed with black backgrounds and white numbers; up days—that is, days when production will occur—are displayed with white backgrounds and black numbers.

To define a work center calendar:

1. Open the Work Center Calendar window.
   (Cards >> Manufacturing >> Work Centers >> Calendar)



2. Enter or select a work center.

3. Select a month and year.

4. Make your calendar adjustments. Select a day in the calendar to change it from a production day to a down day, or from a down day to a production day.

   Each time you change the status of a date, a message will appear to indicate that changing the work center calendar might affect work center scheduling.

   If you make changes to the work center calendar that will affect the number of hours available for scheduling work, be sure to regenerate your schedules so the changes are appropriately reflected.

5. Choose OK and close the window.

Adjusting a work center calendar

Use the Work Center Calendar window to update an existing work center calendar. Information from the shop calendar will be displayed in the work center calendar, because the shop calendar settings are the default settings for the work center calendar. Down days are displayed with black backgrounds and white numbers; production days are displayed with white backgrounds and black numbers.

To adjust a work center calendar:

1. Open the Work Center Calendar window.
   (Cards >> Manufacturing >> Work Centers >> Calendar)

2. Enter or select the work center with the calendar to adjust.

3. Select a month and year.

4. Make your calendar adjustments. Select a day in the calendar to change it from a production day to a down day, or from a down day to a production day.

   Each time you change the status of a date, a message will appear to indicate that changing the work center calendar might affect work center scheduling.

If you make changes to the work center calendar that will affect the number of hours available for scheduling work, be sure to regenerate your schedules so the changes are appropriately reflected.

5. Choose OK and close the window.

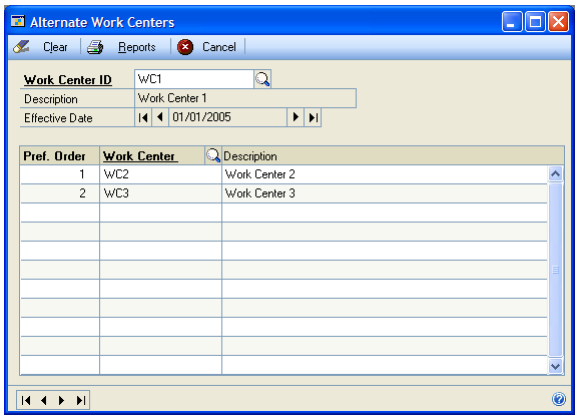
Designating alternate work centers

If you have work centers that become over-scheduled or for some reason can't accommodate assigned tasks, you can designate alternate work centers that can be used to handle some of the overflow. You can use the Alternate Work Centers window to specify alternate work centers for any work center in your organization.

This procedure assumes that the work centers you're working with here—both the work center you're defining the alternates for and the work centers you're designating as alternates—already have been defined.

To designate alternate work centers:

1. Open the Alternate Work Centers window.
(Cards >> Manufacturing >> Work Centers >> Alternates)



2. Enter or select the work center to specify alternates for.

3. To assign more than one alternate work center to the work center displayed at the top of the window, enter a number in the Preference Order field in the first empty line in the scrolling window.

   You can assign a preference order to determine how overflow work will be scheduled among the alternate work centers. An alternate work center with a preference order of "1" will be considered first, "2" would be considered second, and so on. Refer to *Specifying preferred alternate work center order* on page 33 for more information.

4. Use the Work Center lookup button in the scrolling window to select an alternate work center.

5. Repeat steps 3 and 4 to designate other alternate work centers. Entries in the scrolling window will be saved.

6. Close the window.

Specifying preferred alternate work center order

If you've defined several alternate work centers, you must designate the preference order for the alternates. The preference order determines the order in which the alternates will be considered—the first alternate work center will be used first. If there is additional work to assign to another work center the second alternate will be used, then the third and so on.

Use the Alternate Work Centers window to specify or adjust the preference order for alternate work centers.

To specify preferred alternate work center order:

1. Open the Alternate Work Centers window.
(Cards >> Manufacturing >> Work Centers >> Alternates)

2. Enter or select the work center that has the alternate work centers assigned to it.

3. In the scrolling window, mark an alternate work center and enter the new preference order for this alternate. You can't use a preference order number already assigned to another work center. To update several preference orders, you can assign temporary values to each alternate site until you reestablish the correct preference order.

4. Continue updating alternate work center preference order numbers, as needed. Your changes in the scrolling window will be saved.

5. Close the window.

Deleting alternate work centers

Use the Alternate Work Centers window to remove alternates from work centers.

To delete alternate work centers:

1. Open the Alternate Work Centers window.
(Cards >> Manufacturing >> Work Centers >> Alternates)

2. In the scrolling window, mark the alternate work center to delete.

3. From the Edit menu choose Delete Row. Your changes automatically will be saved.

4. Close the window.

Skill sets and work centers

If you're using Microsoft Dynamics GP Human Resources, you can define the skills that your company is seeking in its employees. Microsoft Dynamics GP Human Resources includes windows for defining skills—individual tasks or areas of expertise that might be required in several areas of the organization—and for defining skill sets. Skill sets are groups of related skills. Your company might define one skill set for office support personnel focusing on computer skills or familiarity with office protocol. Other skill sets might be defined for your production employees. For example, employees in a quality assurance work center might need to know how to calibrate test equipment, to sample lots correctly, and to complete special tests.

If you have both Manufacturing and Human Resources installed, you can apply skill sets to work center definitions. You can use the Work Center Skill Assignment window to assign skill sets defined in Human Resources to employee records in work centers.

Assigning skill requirements to work centers

Use the Work Center Skill Assignment window to assign skill sets to the requirements for employees in work centers.

You must be using Human Resources to apply skill sets to your work centers.

To assign skill requirements to work centers:

1. Open the Work Center Skill Assignment window.
   (Cards >> Manufacturing >> Work Centers >> Skills)

2. Enter or select the work center to add skill requirements to. All the skill sets that have been defined for your organization will be displayed in the scrolling window.

3. Mark the Assigned option for each skill set that's required for this work center. Your entries automatically will be saved.

4. Close the window.

You also can query employee skill records in your organization to find which employees have the skills necessary for working in a particular work center. Refer to your Human Resources documentation for more information.

Next steps

After you've defined work centers, you can define the operations that can be performed in each work center. Operations—also called operation codes and op codes—are the most basic components of routings. The operations you define for each work center can be a type of template as you begin to create routings that describe your manufacturing processes. For more information, refer to Chapter 3, "Operations."

If you have work centers that complete basically the same task for most of the routings in your organization, you might want to define pointer routings. For example, if you have a work center that handles all packaging and shipping tasks, you can create a pointer routing for those tasks. For more information, refer to *Pointer routings* in Chapter 5, "Pointer routings," in the Manufacturing Production Functions documentation.

Chapter 3: Operations

After you've created work centers and have assigned machine and employee records to them, you can define operations—or "op codes"—for each work center. An operation can be anything that changes the product or even measures the product, such as an electrical test. An operation might be a setup routine, preparation of items for the next sequence, or any other task element required for the completion of a task within a work center.

Operation codes are optional. They are routing sequence templates, however, and can make entering routing sequence information quicker and more accurate if you have many similar routing sequences.

For example, a painting work center might have a setup operation. That setup operation definition would include information such as setup time, labor time, machine time, and the required labor codes for setup and labor. That operation code would be linked to the work center definition. When you need to define a routing sequence for setup in that work center, you can select this operation code. You can use the default information that is part of the operation code, or you can adjust it for each routing sequence.

Use the Operations Setup window to define operations linked to specific work centers.

This information is divided into the following sections:

Operations terms

Refer here for information about some of the terms related to operation codes.

Operation A specific task within the manufacturing plant. Examples of operations are assembly, painting, shipping and receiving.

Setup labor code Identifies the skill requirements for the person preparing the work area prior to starting production in the work center.

Run labor code Identifies the skill requirements to perform the operation as defined.

Setup time The number of hours needed to prepare the work area.

Labor time The number of employee hours required to complete the operation.

Machine time The number of machine hours needed to complete the operation.

Queue time The time spent waiting for the operation to begin.

Move time The time needed to physically move an item to the next operation.

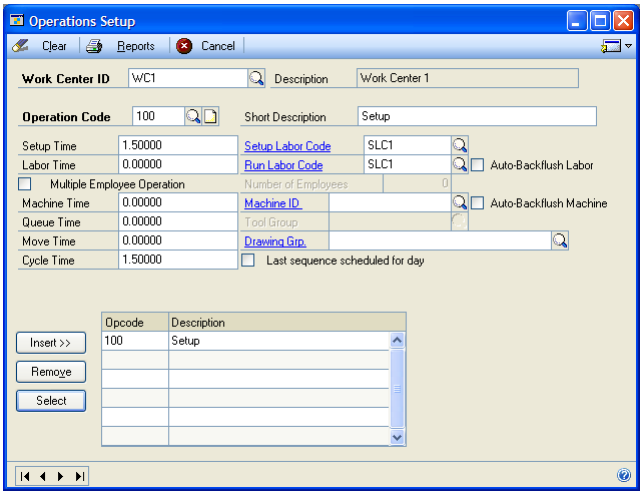
Cycle time The time required to complete one item in a manufacturing order.

Creating an operation

Use the Operations Setup window to create operations applied to specific work centers.

To create an operation:

1. Open the Operations Setup window.
   (Cards >> Manufacturing >> Routings >> Operations)



2. Enter or select a work center.

3. Enter an operation code—sometimes labeled “op code” in Manufacturing—to be a unique identifier for this operation.

4. Enter a brief description of the operation code.

5. Enter the amount of time needed for setup, labor, machine, queue, move, and cycle times.

6. Enter or select labor codes for setup and run labor.

If you’re using one of the labor cost buckets for outsourcing and you selected an outsourcing work center, you must select an outsourcing labor code.

7. If labor or machine costs for this operation should be auto-backflushed—automatically added to the costs of the project without requiring data collection—mark the auto-backflush options.

8. If a machine is needed for the operation, enter or select the machine.

   If the machine hasn’t been assigned to the work center, a message will appear, and you’ll have the option to use it, anyway. Choose Yes to add the machine to the operation. Choose No to cancel your selection.

If you're using one of the machine cost buckets for outsourcing and you selected an outsourcing work center, you must enter a machine ID.

For information about attaching drawing or other electronic media files to operation codes, refer to *Attaching drawings to operation codes on page 39.*

9. If you've set up user-defined fields for work centers, you can enter values in those fields.

   Refer to *Setting up work center options* in Chapter 1, "Manufacturing basic setup," in the Manufacturing Setup documentation for more information about creating user-defined fields for work centers

10. Choose Insert to link the operation to the work center record. Your entries automatically will be saved when added to the scrolling window.

11. Close the window.

Modifying operation definitions

Use the Operations Setup window to change your operation definitions.

To modify operation definitions:

1. Open the Operations Setup window.
   (Cards >> Manufacturing >> Routings >> Operations)

2. Enter or select a work center.

3. In the scrolling window, mark the operation code you want to change and choose Select.

4. Make your changes, as needed.

5. Choose Insert to add the updated record to the scrolling window. Your changes automatically will be saved when they're added to the scrolling window.

6. Close the window.

Attaching drawings to operation codes

If you have drawings, schematics, multimedia files, or other graphic files that will help employees do their tasks, you can attach the files to the operation definition. Use the Operations Setup window to do this.

Before you can attach files to operation codes, you must define drawings and drawing groups. Refer to Chapter 4, "Drawings."

If you're attaching graphic or other media files to your operations, be sure the computers that will be used to view these files have the appropriate viewing software installed. Paths to the viewing applications must be established for each computer that will be used to view the files. Refer to *Setting up INI user settings* in Chapter 7, "Manufacturing basic user setup," in the Manufacturing Setup documentation for more information.

To attach drawings to operation codes:

1. Open the Operations Setup window.
   (Cards >> Manufacturing >> Routings >> Operations)

2. Enter or select a work center.

3. In the scrolling window, mark the operation code to which you want to attach a drawing and choose Select.

4. Select a drawing group to attach to the operation.

5. Choose Insert to move the record to the scrolling window. Your changes automatically will be saved as they are added to the scrolling window.

6. Close the window.

Deleting operation codes

If you find that you have no use for an operation code in a specific work center, you can delete it.

You can't delete an operation code if it is part of an active or planning routing.

To delete operation codes:

1. Open the Operations Setup window.
   (Cards >> Manufacturing >> Routings >> Operations)

2. Enter or select a work center.

3. In the scrolling window, mark the operation code to delete and choose Remove. Your changes automatically will be saved.

4. Close the window.

Chapter 4: Drawings

Pictures—including computer-aided graphics, diagrams and multimedia files—can be invaluable in communicating the specifications of your component or finished-good items, or in explaining how to perform specific procedures within manufacturing operations. You can link drawings and other files to items, routing sequences and operations to be viewed by users throughout your organization as their work is affected by a particular item or procedure.

This information is divided into the following sections:

Drawings terms

Refer here for information about some of the terms related to drawings.

Drawings Drawings in Manufacturing can be almost any electronic file you can link to an item record, operation, or routing sequence.

Drawing groups Drawing groups are categories of drawings. Each drawing can be linked to multiple drawing groups.

Drawings and drawing groups

You'll need to define drawing groups—categories of drawings—and then add drawings to those groups. Each drawing can be part of more than one drawing group. For example, a computer manufacturer might want to store electronic files that show the specifications of a 128MB RAM module. The module might be part of a drawing group called "RAM" that includes all the different modules used by the manufacturer, and it also might be part of a group of drawings that are all part of a specific computer model.

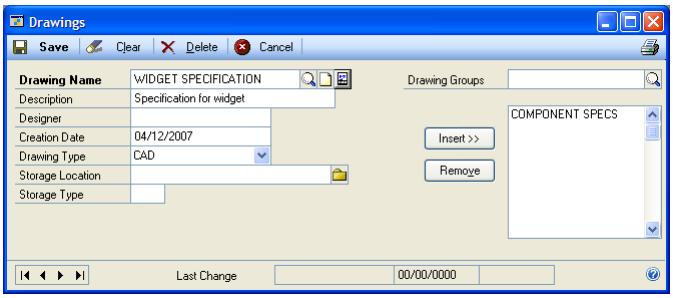
To view the drawing or other media files you attach to your items, routing sequences and operations, the appropriate viewing software must be installed on the computer you'll use to view the files. You also need to be sure that the INI settings for each computer where files will be viewed have been properly set. Refer to *Setting up INI user settings* in Chapter 7, "Manufacturing basic user setup," in the Manufacturing Setup documentation for more information.

Adding a drawing to a drawing group

Use the Drawings window to create drawing groups. The procedure for doing this includes assigning drawing names to the drawing files and recording basic information about the drawing.

To add a drawing to a drawing group:

1. Open the Drawings window.
(Cards >> Manufacturing >> Drawings)



2. Enter a name for the drawing. You also can enter a brief description for the drawing, note the designer, and enter the creation date. To enter more information about the drawing, use the notes button.

3. Select the drawing type. The drawing type determines which of the viewing applications you've defined for each computer will be used to view this particular file. For example, if you have several kinds of electronic files to attach to items or operations, you can attach CAD schematics to item files and multimedia .AVI files to operations to illustrate how a specific task is to be done.

4. Choose the folder button and browse to find the location of the specific drawing file.

5. You can enter a short code to enter the drawing size or type in the Drawing Type field. If you need special-sized paper to print the drawing, for example, you could note the required paper size.

6. Determine which drawing group to add this drawing to.

   - If the drawing group already exists, use the lookup button on the Drawing Groups field and then select it.

   - If the drawing group doesn't exist, enter the name for the new drawing group in the Drawing Groups field.

7. Choose Insert to add the drawing to the drawing group displayed in the Drawing Groups field. Your entries automatically will be saved as they are added to the scrolling window.

8. Close the window.

Attaching a drawing to a record

Refer to these topics for information about linking drawing groups to records throughout Manufacturing.

- *Attaching a drawing to an item* on page 71
- *Attaching drawings to operation codes* on page 39
- *Attaching a drawing to a sequence* in Chapter 2, "Routing entry," in the Manufacturing Production Functions documentation
- *Attaching a drawing to an inspection procedure* in Chapter 4, "Inspection procedures," in the Manufacturing Management Functions documentation

Deleting a drawing

If a drawing becomes obsolete you can remove it from your Manufacturing records.

This procedure doesn't remove the drawing from your computer system, but deletes the information about the drawing in the Manufacturing records. The actual electronic drawing file will remain in your system.

To delete a drawing:

1. Open the Drawings window.
   (Cards >> Manufacturing >> Drawings)
2. Enter or select a drawing.
3. Choose Delete and close the window.

Removing a drawing from a drawing group

Occasionally you might need to remove a drawing from a drawing group. Use the Drawings window to remove drawings from groups.

To remove a drawing from a drawing group:

1. Open the Drawings window.
   (Cards >> Manufacturing >> Drawings)
2. Enter or select a drawing.
3. In the Drawing Groups scrolling window, mark the drawing group from which you want to remove this drawing.
4. Choose Remove.
5. Choose Save and close the window.

Viewing a drawing directly

After you've specified the storage location and drawing type for a drawing, you can view the drawing. You can use this procedure to view drawings if you don't know what Manufacturing record the drawing is attached to.

This procedure assumes that INI settings have been set for the computer on which you're viewing the drawings, and that the appropriate viewing software is properly installed.

Refer to *Setting up INI user settings* in Chapter 7, "Manufacturing basic user setup," in the Manufacturing Setup documentation for more information.

To view a drawing directly:

1. Open the Drawings window.
   (Cards >> Manufacturing >> Drawings)

2. Enter or select a drawing to view.

3. Choose the small blue and gray image icon button on the Drawing Name field. The software for the type of drawing you're viewing opens and displays the drawing you've specified.

Viewing a drawing attached to a record

Use this procedure to view drawings attached to Manufacturing records, such as item records, manufacturing orders, and routing sequences.

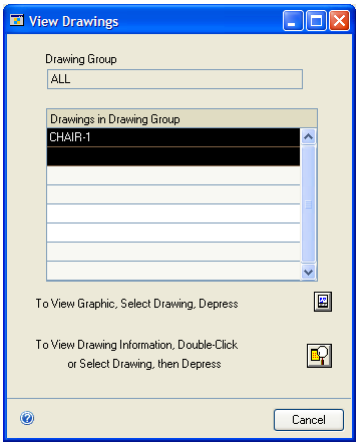
This procedure assumes that INI settings have been set for the computer on which you're viewing the drawings, and that the appropriate viewing software is properly installed. Refer to *Setting up INI user settings* in Chapter 7, "Manufacturing basic user setup," in the Manufacturing Setup documentation for more information.

To view a drawing attached to a record:

1. Choose the image icon button or an expansion icon for a Drawing Group in any of the windows listed in the table to open the View Drawings window.

   Refer to the table for more information.

Window	Path
Sales Configurator	Transactions >> Manufacturing >> Sales Configurator
Routing Sequence Entry	Cards >> Manufacturing >> Routings >> Routing Entry
Routing View Closeup	Inquiry >> Manufacturing >> Routings >> View >> mark a sequence >> Zoom button



If no drawing has been attached to the record, the View Drawings window won't display any information.

2. Determine the kind of drawing information to view.

   To view the drawing Highlight the drawing name in the scrolling window and choose the image icon button. The viewing software will open and display the attached file.

   To view information about the drawing Highlight the drawing name in the scrolling window and choose the zoom icon button. The Drawings window will open and display more information about the drawing file.

3. When you've finished viewing information, close the windows.

PART 2: ITEM EXTENSIONS

Part 2: Item extensions

This part of the documentation includes information that will help you set up and maintain the extensions Manufacturing adds to Inventory Control. The setup procedures generally need to be completed once, but you can refer to this information at other times for instructions on modifying or viewing existing entries.

When you install Manufacturing, new windows will be added to your system, and some existing Inventory Control windows might be modified. This part of the documentation describes the special considerations you'll need to make as you work with inventory issues and Manufacturing. You also should refer to your Inventory Control documentation.

The following information is discussed:

- Chapter 5, "Item extensions overview," describes how Manufacturing extends Inventory Control. Definitions of basic terms and concepts are also included.
- Chapter 6, "Item classes," contains information about how you can use item classes to make entering information in Manufacturing easier.
- Chapter 7, "Manufacturing accounts," includes information about specifying additional, manufacturing-specific accounts for items.
- Chapter 8, "Item engineering data," describes the tasks that can be completed using the Item Engineering Data window.

Chapter 5: Item extensions overview

Manufacturing companies need to track more detailed information about items than other companies might need. For example, whether an item is manufactured or purchased is an important part of tracking information for manufacturing organizations.

Inventory Control helps you to define how items are bought and sold. When you add Manufacturing to your system, however, you'll have more ways to record information about your items. Some Inventory Control windows—such as Item Quantities Maintenance—will include more fields or more options when you add Manufacturing.

Manufacturing also includes information specifically for use in standard costing environments. You can enter information about the cost and overhead of standard cost items, you can create "what-if" scenarios for adjusting those costs, and you can revalue standard cost items.

This information is divided into the following sections:

Inventory and Manufacturing documentation

Refer to the following table of windows to learn where you can find additional information about items.

Some of these windows are Inventory Control windows and are described in the Inventory Control documentation. Others have slight modifications—such as the addition of fields; in-depth information about those windows also is in the Inventory Control documentation, with some specific procedures included in this documentation. Still other windows are specific to Manufacturing and are described fully in this documentation.

Window	Documentation source
Item Account Maintenance window Item Class Setup window Item Maintenance Options window Item Maintenance window Item Quantities Maintenance window Item Resource Planning Maintenance window Resource Planning Site Maintenance window	Microsoft Dynamics GP Inventory Control documentation
Alternate Items window Item Account Maintenance - Costing window Item Class Fulfillment Extras window Item Engineering Data window Manufacturing Series Item Class Extras window Standard Item Class Overhead Defaults window	Manufacturing Core Functions documentation

Item terms

Several terms specific to items in a manufacturing setting are used to describe how you'll work with Manufacturing.

Subassembly Subassemblies are combinations of raw materials that aren't finished products, but that are part of a larger finished good. For a phone manufacturer, one of the components of a finished phone might be a circuit board with many electrical components placed upon it.

Component Components—also called raw materials—are items that are used to build products. They can be individual items like nuts, screws and diodes, or they can be subassemblies.

Finished goods Finished goods are the final products that a company sells.

Setup cost Setup cost is the cost of preparing a work area before production begins. For instance, the cost of calibrating machines, gathering the necessary tools and resources, and completing any trial runs of processes might be included in the setup cost. You can specify a setup cost only for items that are manufactured.

Lead time Lead time is the minimum amount of time required for production of an item. You can use the Calculate Manufacturing Lead Times window or the MFG/ Lead Times window to calculate lead time for an item. Refer to the following topics:

- *Calculating lead time for an item unit* on page 71
- *Calculating lead time for quantities* on page 72

Primary routing The primary routing is the routing that is most commonly used in the manufacturing of an item. Your primary routing, for example, might assume that all processes involved in the manufacturing of an item will be automated, but you also can create other routings that can be used if some processes must be handled manually. The primary routing is the routing that is used to estimate production times for an item.

Serial- or lot-number–tracked item If an item is assigned a unique identifier (which can be letters, numbers or a combination of letters and numbers), it is a serial-number–tracked item. If an item is part of a group and the group is assigned a unique identifier, the items are lot-number–tracked items.

Item statuses

In Inventory Control, you can assign item types—such as Sales Inventory, Discontinued, and Services—to items. These item types affect what you can do with the item records. For example, you can't assign a price list to an item unless its item type is Sales Inventory or Discontinued. To manufacture an item—that is, to create a manufacturing order for an item—its status must be Sales Inventory.

In Manufacturing, you also can assign statuses to items. Like item types, item statuses affect what you can do with an item.

Refer to the following table for information about the item statuses that are available.

Status	Use
Active status	Select Active status for items that are part of your current processes. Items must have Active status before you can create purchase orders or manufacturing orders for them.
Inactive status	Select Inactive status for items that aren't currently part of your process. Some companies use the Inactive status as a step toward making items obsolete.
Obsolete status	Select Obsolete status for items that were once part of your processes, but aren't any longer. You can't open manufacturing orders or purchase orders for items with this status.
Prerelease status	Select Prerelease status for items that you've entered but that you don't want to be generally available yet. Some companies might enter item records for products under development, for example, keeping their status at Prerelease until the product is ready for production.
Released status	Released status is the same as Active status. You can select this item status for items that are part of your current processes.
Service status	When you create an item with the Service item type in the Item Maintenance window, the corresponding record automatically is created for the Item Engineering Data window with Service status. These items can be used to track the costs of outsourcing services.

Replenishment methods

In Inventory Control, you can specify how each item should be replenished. You can use the Item Resource Planning Maintenance window to specify whether each item should be Make, Buy, or Make or Buy. Depending on the replenishment method you've selected, you can enter more information about how the item should be made or purchased.

The Item Resource Planning Maintenance window allows you to choose a different replenishment method for each item-site combination. For example, you might purchase widgets for the North site, but make widgets for the South site. The replenishment method you specify in Item Resource Planning is the method used by MRP.

The replenishment method specified in Item Resource Planning is the method that MRP will look at. The replenishment method specified on Item Engineering is only used by the BOM module. This is needed because specifying a site on a BOM is not required so it is not possible to get this value from Item Resource Planning.

Manufacturing extends the available replenishment methods.

Make items Make or made items are any items that are manufactured or produced by your organization. Made items can be finished goods or can be subassemblies you use to produce other manufactured items.

Buy items Any items—including finished goods, raw materials and subassemblies—that are purchased for use or for sale are buy or bought items.

Make or Buy items Make or Buy items are those that can be bought or manufactured by your company. For example, a furniture manufacturer might use wood pieces cut to specific sizes in its manufacturing process. If the furniture company can either purchase the pieces from a vendor or can buy wood stock and cut its own pieces, then those pieces could be "make or buy items.

Fulfillment methods

If an item's replenishment method is Make or Make or Buy, you can select a fulfillment method for the item. A fulfillment method determines what events will cause a manufacturing order to be started. The two usual fulfillment methods are Make to Stock and Make to Order, but Manufacturing includes two types of the Make to Order method.

Fulfillment methods are combined with manufacturing sales order processing preferences to determine how manufacturing orders are generated. Refer to *Manufacturing orders generated from sales* on page 162 for more information.

Make to Stock When make-to-stock items are sold, the quantities required to fulfill the sales order are taken from inventory quantities. Manufacturing orders are used to keep inventory levels up so that sales orders can be fulfilled.

Make to Order–Manual When make-to-order items are sold, manufacturing orders to build the items required to fulfill the manufacturing orders are created. Manufacturing orders respond to specific sales orders. Select Make to Order–Manual to have sales order entry processes include options for creating manufacturing orders. Sales order line requirements for items of this type should be met with specific manufacturing orders.

Make to Order–Manual is the recommended fulfillment method for finished goods that are sold or configured using the Sales Configurator.

Make to Order–Silent When make-to-order items are sold, manufacturing orders to build the items required to fulfill the manufacturing orders are created. Manufacturing orders respond to specific sales orders. Select Make to Order–Silent if manufacturing orders should be started automatically in response to sales orders. Sales order line requirements for items of this type should be met with specific manufacturing orders.

Standard costing

Standard costing is an accounting method used by some businesses. Standard costing values inventory at a cost based on the standard cost assigned to an item, plus eight other factors:

- Fixed material overhead
- Variable material overhead
- Labor costs
- Fixed labor overhead
- Variable labor overhead
- Machine costs
- Fixed machine overhead
- Variable machine overhead

Items that have standard costs use a periodic valuation method. That is, the minor day-to-day changes in the costs of materials aren't reflected in the cost of inventory.

Instead, costs are assigned to inventory items that are adjusted or revalued periodically—usually semiannually or annually.

You can use utilities in Inventory Control to update cost information for bought items. You must use Manufacturing windows to update cost information for manufactured items, so that the changes to the cost of the components is "rolled up" appropriately to the cost of the finished item.

For more information about revaluing standard cost items, refer to Chapter 14, "Standard costing revaluations."

When you install Manufacturing, several windows related to entering and maintaining information for a standard cost environment are included. Windows for "rolling up" standard costs and "revaluing" inventory—two important processes in maintaining a standard cost system—are also included.

Rolling up Rolling up is the process of applying calculations based on changes to standard cost information to items. If you change the cost of a raw material that is part of several subassemblies and finished goods, "rolling up" that change will result in calculations that will determine the new standard costs of the subassemblies and finished goods. Rolling up helps you to view the effects of standard cost changes before actually applying the costs to items.

Revaluing Revaluing is the process of finalizing rolled-up standard cost changes. Revaluing replaces existing standard cost information with new standard cost information. The new information will be used in your accounting processes.

As you change your standard cost information, you might roll up costs several times, but probably will revalue items only at certain points.

Chapter 6: Item classes

Item classes are groups of item records that you set up in Inventory Control. You can specify default settings for each class, such as methods for calculating labor and material overhead and order policies. You then can "roll down" those entries so they're reflected in existing item records in each class. The default setting entries will be applied to new items added to each class. You can also enter default settings for item class characteristics, such as item types and valuation methods. If you have a large number of items to enter, you can create item classes with default entries to speed up the entry process.

Refer to your Inventory Control documentation for more information about creating item classes.

Manufacturing extends the use of the item classes. This information is divided into the following sections:

- *Specifying accounts for an item class*
- *Specifying a fulfillment method for an item class*
- *Setting up shipping history for an item class*
- *Defining overhead for a standard cost item class*

Specifying accounts for an item class

Items involved in manufacturing processes—whether they are components or finished goods—require additional accounts. Manufacturing includes windows you can use to specify these additional accounts for item classes involved in your manufacturing processes.

You can use the Item Class Accounts Setup - Costing window to specify accounts for an item class. The accounts you specify in this window will be the default manufacturing accounts for new items that you enter that are assigned to the class. You can change the default manufacturing accounts for each item, if needed. Refer to Chapter 7, "Manufacturing accounts," for more information.

This procedure assumes that you've already created the item class. For more information about creating an item class, refer to Inventory Control documentation.

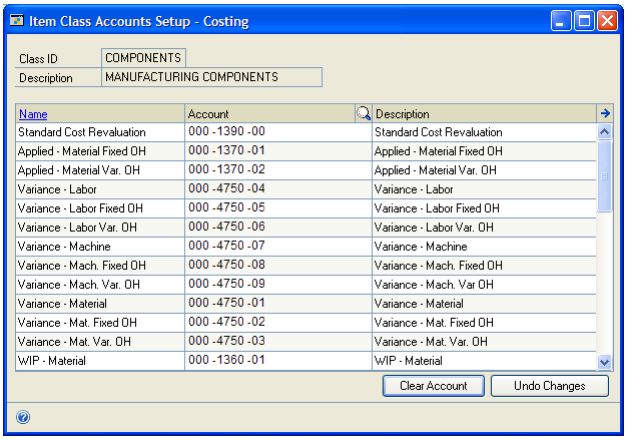
To specify accounts for an item class:

1. Open the Item Class Setup window.
   (Microsoft Dynamics GP menu >> Tools >> Setup >> Inventory >> Item Class)

2. Enter or select the item class to assign manufacturing accounts to. Be sure to note the valuation method for the item class.

3. Choose Accounts.

The Item Class Accounts Setup window opens, and the Item Class Accounts Setup - Costing window opens behind it.



Refer to Inventory Control documentation for information about specifying accounts for an item class in the Item Class Accounts Setup window.

4. Enter or select the applicable accounts.

   The accounts you'll need to specify for an item class depend on the valuation method for the item class. Refer to *Overview of accounts* on page 61 for information about the accounts.

Refer to the table for more information about accounts and how they're used.

Accounts	Description	Cost type
Standard Cost Revaluation		Used for standard cost items—those with a periodic valuation method.
Applied - Material Fixed OH Applied - Material Var. OH	Overhead costs for standard cost components are applied to the applied accounts.	
Variance - Labor Variance - Labor Fixed OH Variance - Labor Var. OH Variance - Machine Variance - Mach. Fixed OH Variance - Mach. Var. OH Variance - Material Variance - Mat. Fixed OH Variance - Mat. Var. OH	Differences between actual costs and standard costs for each cost bucket are applied to the variance accounts.	Used for both actual and standard cost items. Actual cost items are those with a perpetual valuation method.
WIP - Material WIP - Material Fixed OH WIP - Material Var. OH WIP - Labor WIP - Labor Fixed OH WIP - Labor Var. OH WIP - Machine WIP - Machine Fixed OH WIP - Machine Var. OH	Costs for materials and labor and machine time, plus their associated overhead amounts, are applied to work in process (WIP) accounts when they are designated for a specific manufacturing order.	
CoGS - Material CoGS - Material Fixed OH CoGS - Material Var. OH CoGS - Labor CoGS - Labor Fixed OH CoGS - Labor Var. OH CoGS - Machine CoGS - Machine Fixed OH CoGS - Machine Var. OH		
Inventory - Material Fixed OH Inventory - Material Var. OH Inventory - Labor Inventory - Labor Fixed OH Inventory - Labor Var. OH Inventory - Machine Inventory - Machine Fixed OH Inventory - Machine Var. OH		

Each account selection is saved as it's added to the scrolling window.

You can use the Clear Account button to clear an account selection that isn't needed, or you can use the Undo Changes button to undo all changes you've made in the window.

5. When you've finished, close the window.

If you're setting up default accounts for an item class for standard cost items, you also can use the Standard Item Class Overhead Defaults window to specify the default method for calculating overhead for items in the class. For more information, refer to *Defining overhead for a standard cost item class* on page 59.

Specifying a fulfillment method for an item class

Use the Manufacturing Series Item Class Extras window to choose a default fulfillment method for item classes.

Only made items—items you manufacture or produce in your business—will be affected by the fulfillment method selection.

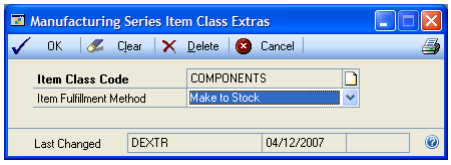
This procedure assumes that you've already created the item class. For more information about creating an item class, refer to your Inventory Control documentation.

To specify a fulfillment option for an item class:

1. Open the Item Class Setup window.
   (Microsoft Dynamics GP menu >> Tools >> Setup >> Inventory >> Item Class)

2. Enter or select an item class.

3. From the Additional menu, choose Manufacturing Item Class Extras to open the Manufacturing Series Item Class Extras window.



4. Select a fulfillment method for items in the class. For more information about fulfillment methods, refer to *Fulfillment methods* on page 52.

5. Choose OK. A message will be displayed and you'll have the option to roll down changes to all items in this class.

   - Choose Yes if the existing fulfillment method information for all items in this class should be changed to the fulfillment method you've selected here.

   - Choose No if the item records that are included in this class shouldn't be updated. Only subsequently entered records will be affected.

Setting up shipping history for an item class

Use the Item Class Fulfillment Extras window to indicate if shipping history should be maintained for the items in a specific class. You must set up options to track shipping history if you plan to use Manufacturing's order fulfillment features to review how sales order line-item requirements have been fulfilled.

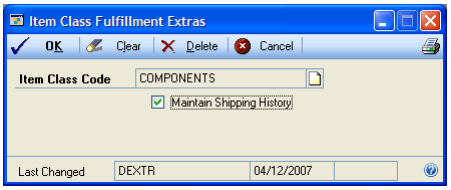
This procedure assumes that you've already created the item class. For more information about creating an item class, refer to your Inventory Control documentation.

To set up shipping history for an item class:

1. Open the Item Class Setup window.
   (Microsoft Dynamics GP menu >> Tools >> Setup >> Inventory >> Item Class)

2. Enter or select an item class.

3. From the Additional menu, choose Item Class Fulfillment Extra to open the Item Class Fulfillment Extras window.



4. Mark Maintain Shipping History to begin tracking shipping history for items in this item class.

5. Choose OK. A message will appear, and you'll have the option to roll down changes to all items in this class.

   - Choose Yes to begin tracking shipping history information for all items in this class.

   - Choose No if the existing item records in this class shouldn't be updated. Only subsequently entered records will be affected by your settings.

Defining overhead for a standard cost item class

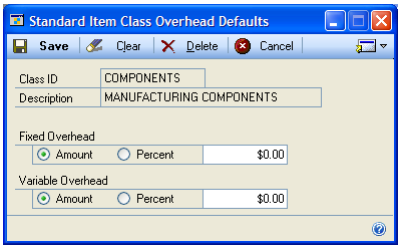
If you're using standard costing in your business, you can specify default methods for calculating fixed and variable overhead costs. Use the Standard Item Class Overhead Defaults window to complete this procedure.

To define item class standard cost overhead:

1. Open the Item Class Setup window.
   (Microsoft Dynamics GP menu >> Tools >> Setup >> Inventory >> Item Class)

2. Enter or select an item class.

3. From the Additional menu, choose Stnd Item Class Ohd Defaults to open the Standard Item Class Overhead Defaults window.



4. Determine how fixed overhead for items in this item class will be calculated.

   Amount If you mark Amount, enter the amount per base unit of measure of the item to be used for fixed overhead costs.

   Percent If you mark Percent, enter the percentage of the standard cost of the item to be used for fixed overhead costs.

5. Determine how variable overhead for this item class will be calculated.

   Amount If you mark Amount, enter the amount per base unit of measure of the item to be used for variable overhead costs.

   Percent If you mark Percent, enter the percentage of the standard cost of the item to be used for variable overhead costs.

6. Choose Save. A message will be displayed and you'll have the option to roll down the changes to items in this class.

   - Choose Yes to update existing overhead information for all items in this class to the overhead information you've entered.

   - Choose No if the existing item records in this class shouldn't be updated. Only subsequently entered records will be affected by your settings.

Chapter 7: Manufacturing accounts

Items involved in manufacturing processes—whether they are components, subassemblies, or finished goods—require additional accounts. Manufacturing includes windows you can use to specify additional accounts for items used in your manufacturing processes.

This information is divided into the following sections:

Overview of accounts

As you're setting up manufacturing accounts for items or item classes, it's helpful to understand how the accounts are used.

Material Overhead Applied accounts These are liability accounts. They are used only for standard cost bought items that have associated fixed or variable overhead costs. They are liability accounts and are credited when a purchase order is received. The credit balance must be offset when the bills for the associated overhead expenses are paid. These bills could include rent, purchase payroll, or depreciation for warehouse equipment.

Inventory accounts These are balance sheet accounts and have a debit balance. Their value is attributable to your overall inventory value. They are used for standard cost items where overhead is being tracked and calculated as a result of the overall cost of the finished good.

Cost Of Goods Sold (COGS) accounts These accounts are income statement accounts that are treated as an expense, and they have a debit balance. These accounts show the value of sold inventory. With standard costing you can separate the costs of material, labor, machine, and the various overhead amounts into buckets.

Work In Process (WIP) accounts These accounts are balance sheet accounts and have a debit balance. They show the value of work in progress. For manufacturers, the value of inventory can be broken into three components: raw materials, work in progress, and finished goods. WIP amounts typically reflect labor and machine time used to produce the finished good.

Variance accounts These accounts are expense accounts and appear on income statements. They have a debit balance. Variance accounts are used for standard cost items. You can use them to spot deviations between actual costs and standard costs. Variances can be used to pinpoint where materials, labor, machine costs, or overhead amounts were greater or less than expected.

Actual and standard cost items

Before you enter accounts, you should be aware of the following terms.

Actual cost items Actual cost items are those that have a perpetual valuation method. The cost of these items comes from the Current Cost field in the Item Maintenance window. Current Cost is the cost that is used for the general ledger transactions of actual cost items.

Standard cost items Standard cost items have a periodic valuation method. The "total" cost for these items comes from the Standard Cost field in the Item Maintenance window. You also can view the breakdown of the cost—the amounts of the item cost that come from material, labor and machine costs and overhead—in the Standard Cost Maintenance window. When you're working with standard cost items, the broken-out costs are the costs used for general ledger transactions. Broken-out costs can include:

- Material
- Material Fixed Overhead
- Material Variable Overhead
- Labor
- Labor Fixed Overhead
- Labor Variable Overhead
- Machine
- Machine Fixed Overhead
- Machine Variable Overhead

Specifying Manufacturing accounts

Most items involved in manufacturing processes require more accounts than other inventoried items. For example, you need work in process (WIP) accounts for items you use in manufacturing processes, but you don't need WIP accounts for other items.

You can use the Item Account Maintenance - Costing window to specify the additional accounts needed for manufacturing items. The accounts that are needed will depend on whether the item is a raw material component, a subassembly, or a finished good, and the valuation method of the item.

Be sure to consult your accountant for information about the accounts that will be needed.

Refer to the table for more information.

Accounts	Description	Cost type
Standard Cost Revaluation		Used for standard cost items—those with a periodic valuation method.
Applied - Material Fixed OH Applied - Material Var. OH	Overhead costs for standard cost components are applied to the applied accounts.	
Variance - Labor Variance - Labor Fixed OH Variance - Labor Var. OH Variance - Machine Variance - Mach. Fixed OH Variance - Mach. Var. OH Variance - Material Variance - Mat. Fixed OH Variance - Mat. Var. OH	Differences between actual costs and standard costs for each cost bucket are applied to the variance accounts.	Used for both actual and standard cost items. Actual cost items are those with a perpetual valuation method.
WIP - Material WIP - Material Fixed OH WIP - Material Var. OH WIP - Labor WIP - Labor Fixed OH WIP - Labor Var. OH WIP - Machine WIP - Machine Fixed OH WIP - Machine Var. OH	Costs for materials and labor and machine time, plus their associated overhead amounts, are applied to work in process (WIP) accounts when they are earmarked for a specific manufacturing order.	Used for both actual and standard cost items. Actual cost items are those with a perpetual valuation method.
CoGS - Material CoGS - Material Fixed OH CoGS - Material Var. OH CoGS - Labor CoGS - Labor Fixed OH CoGS - Labor Var. OH CoGS - Machine CoGS - Machine Fixed OH CoGS - Machine Var. OH		
Inventory - Material Fixed OH Inventory - Material Var. OH Inventory - Labor Inventory - Labor Fixed OH Inventory - Labor Var. OH Inventory - Machine Inventory - Machine Fixed OH Inventory - Machine Var. OH		

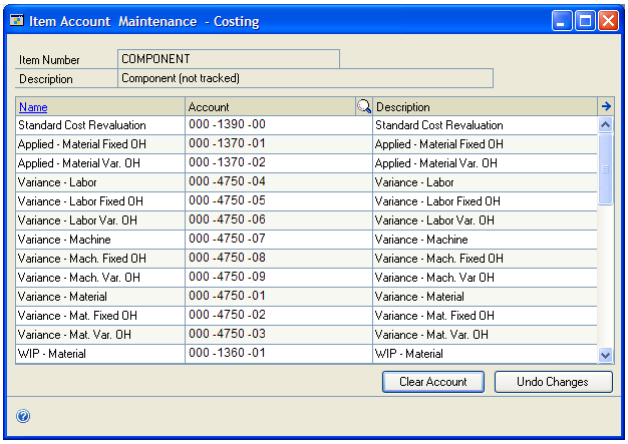
If you're using item classes, you can specify default accounts for the items in the class. Refer to *Specifying accounts for an item class on page 55* *for more information.*

To specify Manufacturing accounts:

1. Open the Item Maintenance window.
   (Cards >> Inventory >> Item)

2. Enter or select the item to specify accounts for.

3. Choose Accounts to open the Item Account Maintenance window and the Item Account Maintenance - Costing window. The Item Account Maintenance window opens behind the Item Account Maintenance window.



4. Highlight a field in the Account column in the scrolling window.

5. Use the lookup button in the Account field to open the Accounts lookup window. Select the account to use for the item.

   Each account selection is saved as it's added to the scrolling window.

You can use the Clear Account button to clear an account selection that isn't needed, or you can use the Undo Changes button to undo all changes you've made in the window.

6. Continue, repeating steps 2 through until 5 you've selected accounts for all the rows in the scrolling window that are applicable to this item.

7. When you've finished, close the window.

Chapter 8: Item engineering data

Most of the Manufacturing-specific information for items can be entered in the Item Engineering Data window. Use the Item Engineering Data window to establish guidelines for each item defined in the Item Maintenance window, such as minimum issue quantity, the status of items, and item revisions. You also can attach graphics to items. Other functions of the Item Engineering Data window include establishing setup costs, scrap percentages, and average make quantities.

This information is divided into the following sections:

About item classes and Manufacturing

Item classes are groups of item records that you set up in Inventory Control. You can use the item classes you create in Inventory Control to specify the item type, unit of measure schedule, and tax details for a group of items.

In Manufacturing, the use of item classes is extended. You can specify default settings for each class, such as methods for calculating labor and material overhead. You then can roll down those entries so they're reflected in existing item records in each class. The default settings entries also will be applied to new items added to each class. You also can enter default settings for item class characteristics, such as item types and valuation methods.

Refer to Inventory Control documentation for more information about creating item classes.

Using item classes isn't required, but if you have a large number of items to enter, using item classes can speed up the data entry process. With Manufacturing, you can use item classes to set the following options:

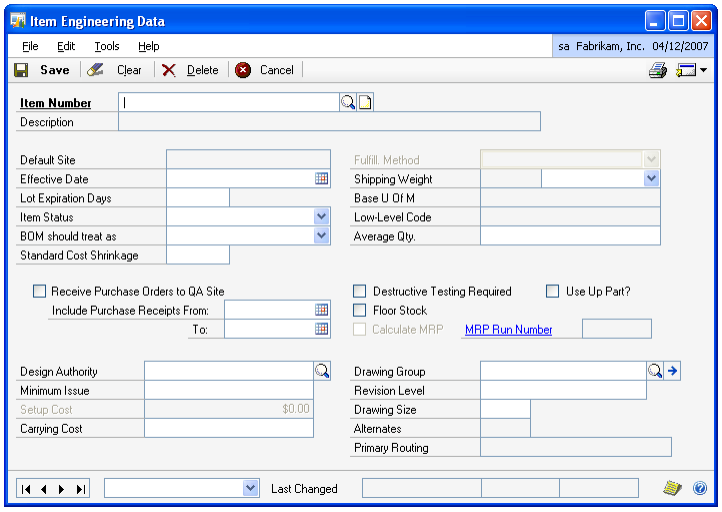
Entering item engineering data

You can enter engineering information for each item that's used in your manufacturing process. Items that are purchased for use in your company but that aren't part of the manufacturing process—such as office supplies, for example—don't need item engineering data.

The Item Engineering Data window builds on the item information entered in the Item Maintenance window and the Item Resource Planning Maintenance window, which are both part of Inventory Control. It's best to enter the item information in those windows first, and then use the Item Engineering Data window to add manufacturing-specific information.

To enter item engineering data:

1. Open the Item Engineering Data window.
   (Cards >> Manufacturing >> Inventory >> Engineering Data)



You also can open this window by opening the Item Maintenance window, selecting a record, then choosing Item Engineering Data from the Go To button.

2. Enter or select an item. Information displayed in the window varies, depending on whether the item has already been created.

   - If you opened the window using the Go To button, information about the item will be displayed. The specific information will depend on whether a default site has been specified for the item.

   - If you enter an item number that hasn't already been created in the Item Maintenance window, a message will appear, asking if you want to create the item. You can't enter engineering information for an item without first creating the item in the Item Maintenance window, so choose Yes. The Item Maintenance window opens, and you can enter the item information. For more information about entering an item record, refer to Inventory Control documentation.

3. Select how a BOM should treat an item: as a bought item, a made item, or a make or buy item.

Manufacturing includes a setting that lets you specify if make or buy items should be considered made items or bought items when MRP information is calculated. Refer to Setting up general MRP options on page 50 for more information.

4. Enter additional information about the item. The information you enter depends on the Manufacturing modules you're using, and the replenishment method for the item.

   Refer to the table for more information.

Field	Additional information
Fulfillment Method	Required for Make items. Refer to *Fulfillment methods* on page 52 for general information. Refer to *Manufacturing orders generated from sales* on page 162 for information about how fulfillment methods affect generated manufacturing orders.
Effective Date	Refer to *Assigning an effective date to an item* on page 68.
Shipping Weight	Required only if shipping weight information should be automatically calculated. Refer to *Setting the unit of measure for shipping weight* on page 68.
Lot Expiration Days	If the item is tracked by lot numbers and has a limited shelf life, enter the maximum number of days that can be between the date of manufacture and the date of use.
Item Status	Refer to *Specifying item status* on page 68.
Average Quantity	Optional. The Average Quantity is the default manufacturing order quantity, and is used in calculations if setup costs of standard cost items are prorated by the average quantity.
Receive Purchase Orders to QA Site	Mark Receive Purchase Orders to QA Site only if the items need to be inspected when they are received. Refer to *Identifying an item requiring incoming inspection* on page 69.
Floor Stock	Mark Floor Stock if the cost of the items should be applied to an expense account. Refer to *How floor stock costs are applied* on page 105.
Destructive Testing Required	Mark only if some items are destroyed when they are inspected.
Use Up Part?	Used when making a Buy item obsolete. Refer to *Assigning an effective date to an item* on page 68.
Calculate MRP	Mark if item should be included in MRP calculations. Refer to *About items and MRP* on page 70.
Design Authority	You can enter or select a design authority—an employee or any other entity.
Drawing Group	Refer to *Attaching a drawing to an item* on page 71.
Minimum Issue	If you enter a Minimum Issue quantity, a message appears if you attempt to create a manufacturing order or purchase order, or enter an Issue component transaction for a quantity less than the minimum issue quantity. If you leave the field blank, no warning will appear.
Revision Level	This field is informational only, and isn't tracked or updated by system processes.
Setup Cost	These amounts aren't calculated and aren't included in any Manufacturing calculations.
Carrying Cost	
Drawing Size	Enter the size of schematics or other drawings, if needed.

5. Choose Save and close the window.

Assigning an effective date to an item

You'll have only limited use of your item records if they have no effective date or if the effective date for the item is in the future. For example, if the effective date for an item with the Make replenishment method is a week away, you can't schedule any manufacturing orders for producing that item.

You can use effective dates to modify item records before the change is to take effect. For example, to make a certain product obsolete at the end of the year, you can change the status of the item to Obsolete and make its effective date December 31 of the current year. If you've marked Use Up Part? in the Item Engineering Data window for the item, however, the change to the item record won't be effective until all inventory quantities of the item have been depleted.

To assign an effective date to an item:

1. Open the Item Engineering Data window.
   (Cards >> Manufacturing >> Inventory >> Engineering Data)

2. Select an item and enter an effective date.

3. Make other changes—if any—that should be effective on the date you've specified.

4. Choose Save and close the window.

Setting the unit of measure for shipping weight

Use the Item Engineering Data window to specify the unit of measure for shipping weight for an item. This information will be used in Sales Order Processing and in Manufacturing extensions to Sales Order Processing.

To set the unit of measure for shipping weight:

1. Open the Item Engineering Data window.
   (Cards >> Manufacturing >> Inventory >> Engineering Data)

2. Enter or select an item.

3. Select the unit of measure for the shipping weight.

To change the number of units for the shipping weight, use the Item Maintenance window (Cards >> Inventory >> Item). Refer to Inventory Control documentation for more information.

4. Choose Save and close the window.

Specifying item status

Most Manufacturing procedures require that the items you choose—to build, to sell, to purchase—must have an Active or Released status. However, other statuses are available so you can enter information about items and begin working with the item records before the items themselves are available for use. Use the Item Engineering Data window to set the status for each item.

To specify item status:

1. Open the Item Engineering Data window.
(Cards >> Manufacturing >> Inventory >> Engineering Data)

2. Enter or select an item.

3. Choose a status for the item. To use an item in Manufacturing—that is, to be able to create a manufacturing order for it or to use it as a component in a manufacturing order—the status of the item must be Active or Released. You can use other status choices to describe the status of an item within your business.

For more information, refer to Item statuses on page 50.

4. Choose Save and close the window.

Identifying an item requiring incoming inspection

If you're using Quality Assurance, you must identify which bought items will require inspection when they're received. Use the Item Engineering Data window to do this.

To identify an item requiring incoming inspection:

1. Open the Item Engineering Data window.
(Cards >> Manufacturing >> Inventory >> Engineering Data)

2. Select the item that will require incoming inspection.

3. Mark Receive Purchase Orders to QA Site. If you mark this option, quantities of this item will be posted to the inspection site rather than to inventory when they're received. After they're inspected, you must complete an inventory adjustment transaction to move the quantities to inventory.

If no quality assurance site has been defined for your organization, a message appears. You'll have the option to specify a quality assurance site or to cancel the procedure. If you choose Cancel, the Receive Purchase Orders to QA Site option will be cleared. Refer to Setting up Quality Assurance in Chapter 5, "Manufacturing management functions setup," *in the Manufacturing Setup documentation for more information.*

4. To restrict the receipt records that are displayed in the QA Incoming window, use the Include Purchase Receipts From and To fields to specify a range of dates.

   When you use the QA Incoming window, you can restrict the purchase receipts that you view in the lookup windows based on the dates you enter. If you set the dropdown list at the bottom of the QA Incoming window to QA Required - Restrict By Date, only those purchase receipts that include one or more items that require inspection and that have a date that is within the range you specify will be displayed when you use the lookup button on the Receipt Number field.

5. If the testing is destructive—that is, if the testing process will require that a portion of the amount received will be destroyed and won't be suitable for use in manufacturing—mark Destructive Testing Required.

6. Choose Save and close the window.

About items and MRP

If you're using Manufacturing MRP (Material Requirements Planning), you need to understand how information in your item records will affect MRP calculations. You also need to be aware of how changes made in one module will be reflected in other modules in the system.

One of the keys to getting useful information from your MRP system is carefully selecting items to be tracked in MRP. You should include all items that are critical to your production process, including raw materials, subassemblies and finished goods. Sometimes you'll need to make decisions about whether certain items should be tracked in MRP. Those decisions will depend on how the materials are used and their importance to your processes. For example, a company that paints huge farm machinery might need to track its paint supplies carefully in MRP. Another company that uses paint to stamp tiny ID numbers on its components might not want to track paint supplies.

There are several areas where you can choose to include—or exclude—an item in MRP calculations. For example, Calculate MRP is an option in the Item Engineering Data window. If you mark this option for an item, requirements for that item will be included in MRP calculations.

You can specify if an item or item-site combination should be included in MRP calculations in four places:

Resource Planning Site Maintenance This is an Inventory Control window. Clear the Calculate MRP for this item/site option to exclude all items at a particular site from MRP calculations.

Item Engineering Data This is a Manufacturing window. Clear the Calculate MRP option to exclude the item from MRP calculations.

Even if an item is marked for inclusion in MRP processes, quantities of that item at a site that is marked to be excluded from MRP won't be reflected in MRP calculations. For example, suppose you manufacture radios and have 100 currently in inventory. If you had an additional 20 that were at a QA site—which was not marked to be included in planning—then those 20 radios wouldn't be included in MRP information. MRP calculations are done strictly on a site-by-site basis: supply from one site won't automatically be used to cover demand from a different site.

Item Resource Planning Maintenance This is an Inventory Control window. Clear the Calculate MRP for this item/site option to exclude the item-site combination from MRP calculations.

The Resource Planning Site Maintenance window also includes a Calculate MRP for this site check box, but that check box doesn't affect any MRP calculations.

MRP Exclusion List This window is part of the Manufacturing MRP system. Use this window to remove selected items, sites or item-site combinations from MRP views, calculations or both. To view information about MRP exclusions from the Item Engineering Data window, and the Item Resource Planning Maintenance window, be sure the Item Number field and the Site ID field are blank, and choose Refresh.

Attaching a drawing to an item

You can use the Item Engineering Data window to attach electronic files—CAD files, multimedia clips, drawings, or other electronic files—to item records.

To attach a drawing to an item:

1. Open the Item Engineering Data window.
   (Cards >> Manufacturing >> Inventory >> Engineering Data)

2. Enter or select an item.

3. Select the drawing group that includes the drawing or other electronic files to attach to the item.

If you have the associated viewing software installed on your system, after you've attached a drawing to an item you can choose the image icon button to view the attached file.

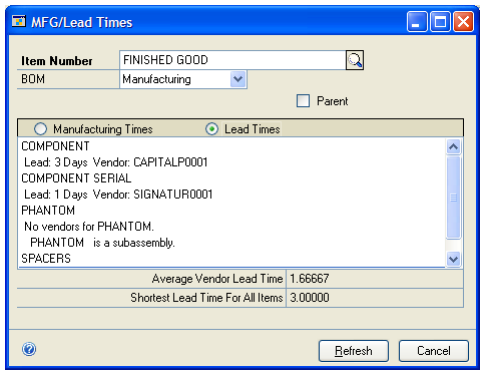
4. Choose Save and close the window.

Calculating lead time for an item unit

Use the MFG/Lead Times window to check the amount of lead time required for one unit of an item. You can choose to view the lead time based on the time needed to obtain purchased components for the item, or to build the item.

To calculate lead time for an item unit:

1. Open the MFG/Lead Times window.
   (Inquiry >> Manufacturing >> Routings >> MFG/Lead Times)



2. Specify the type of lead time information to view.

To ensure that the information is accurate, it's especially important that you enter information and select options in the order described here.

Manufacturing lead time To view the labor time, machine time, cycle time, setup time, move time, and queue time for a manufactured item, enter or select a manufactured item and then a routing for that item.

Component lead time To view the lead time requirements for the components of a manufactured item, enter or select a manufactured item, mark Lead Times and then select a bill of materials for the manufactured item.

Lead time calculations for bought items will work only if you've identified vendors for all the items in the bill of materials and have specified the vendors' planning lead times for the components.

Parent part lead time To view the lead time requirement for a single purchased item, enter or select a bought or make or buy item, mark Lead Times and then mark the Parent option.

3. When you've finished viewing the information, close the window.

Calculating lead time for quantities

Use the Calculate Manufacturing Lead Times window to update the manufacturing fixed lead time and variable lead time information. You can update lead time information for one Make item, or Make or Buy item, or for all items that have routings.

The manufacturing fixed lead time and variable lead time are based automatically on the item's primary routing and values set up for the routing's work centers. (An example for a work center is the number of hours a day a particular work center is running.) The manufacturing fixed lead time and variable lead time are used to determine the lead time for any given MRP requirement. For example, assume that the manufacturing fixed lead time is .20 days, the manufacturing variable lead time is .0070, and the requirement is 300. The lead time is calculated as follows.

.20 + (.0070 * 3000) = 2.300

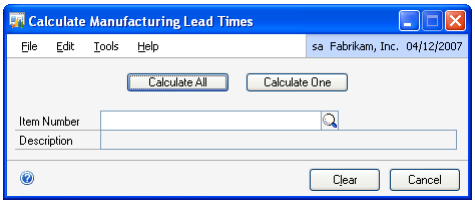
Using the example, the lead time is 2.300 days. The value used in MRP is 3 days since the value is rounded up to the next whole day.

The information that is calculated is displayed in the Mfg Fixed Lead Time field and the Mfg Variable Lead Time field in the Item Resource Planning Maintenance window (Cards >> Inventory >> Item Resource Planning) for the item-site combination.

You can enter manufacturing lead time information directly in the Item Resource Planning Maintenance window. If you use the Calculate Manufacturing Lead Times window to update lead time information for all items, however, any values you've entered for the item-site combination will be overwritten.

To calculate lead time for a quantity:

1. Open the Calculate Manufacturing Lead Times window.
(Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> Calc MFG Lead Times)



2. You can update the lead time information for one item or for all items.

   - To update the lead time information for all items, choose Calculate All. A message appears, indicating that the lead times of all made items will be updated. Choose Yes to proceed.

   - To update the lead time information for the average make quantity for a single item, enter or select the item number and choose Calculate One. The lead time required to build the average quantity of the item is displayed in the Lead Time field.

3. When you've finished calculating lead times, close the window.

   If needed, use the Item Resource Planning Maintenance window (Cards >> Inventory >> Item Resource Planning) to view the manufacturing lead time that has been calculated.

How available to promise dates are calculated for Manufacturing

You can use the Inventory Available to Promise Inquiry window to view the date when a specific quantity of a finished good is scheduled to be complete.

The available to promise date is calculated with one of the following equations. Down days are not considered when available to promise dates are calculated.

If all components are available User Date + Manufacturing fixed lead time (from the Item Resource Planning Maintenance window for the site).

If some components are unavailable If some components are unavailable, more calculations are done to determine the available to promise date of the finished goods, based on whether each component is a made, bought, or make or buy item. Once the available to promise lead times for each component are determined, the calculation for the finished good is User Date + Latest component availability date + Manufacturing fixed lead time (from the Item Resource Planning Maintenance window for the site).

- If an unavailable component is a purchased item, the same processes that are used for purchased items in the Inventory Available to Promise window are used to find each component's available date.

- If the unavailable component is a made item, the available promise date calculations are run for each of its components. The available to promise date for the subassembly item is calculated as if the subassembly were a finished good.

- If the unavailable component is a make or buy item and has a manufacturing bill of materials, it is treated as a made item. If the make or buy item has no manufacturing bill of materials, it is treated as a purchased item.

You must use the Item Resource Planning Maintenance window to enter manufacturing fixed lead time information for each site where you will want to check the quantities that are available to promise.

For example, suppose that you're building widgets, which have a manufacturing lead time of four days. To build one widget, you need two units of Component A and three units of Component B, and you issue both of these components from the Warehouse site. There is no fixed quantity of either component on the manufacturing bill of materials. Then suppose that you want to calculate the date for 200 widgets. On the day when you calculate the information, your inventory levels are like those shown in the following table.

Component	Lead time	Required quantity	Warehouse site
Component A	14 days	(2 x 200) + 0 = 400	500
Component B	7 days	(3 x 200) + 0 = 600	600
Required quantity for a component is (BOM quantity x finished good quantity) + BOM fixed quantity.			

Required quantities of each component are available from their issue-from sites, so the calculated manufacturing time would be four days from the user date. If the current date is June 5, the calculated manufacturing date would be June 9.

If the inventory levels of the components are different, however, a different date might be calculated, as illustrated in the following table.

Component	Lead time	Required quantity	Warehouse site
Component A	14 days	(2 x 200) + 0 = 400	100
Component B	7 days	(3 x 200) + 0 = 600	500
Required quantity for a component is (BOM quantity x finished good quantity) + BOM fixed quantity.			

In this case, the calculated date would be 18 days: four days of manufacturing lead time plus 14 days for the longest component lead time. If the current date is June 5, then the calculated manufacturing date would be June 23.

Limitations of available to promise dates for Manufacturing

The following limitations exist when you're working with available to promise dates in the Inventory Available to Promise Inventory window.

- Component information is calculated based on the issue-from site only. If the items are available at another site, you can transfer inventory items from another site to cover a shortage. However, the inventory levels could change from the time that you calculate the date and when the items are actually allocated for the manufacturing order. There might not be a shortage now, but there might be one later.

Refer to Issue-from and issue-to sites on page 85 for more information about how the issue-from site for a component is determined.

- Manufacturing lead times are based on the average make quantity for the item. If the quantity of items is different than the average quantity, the real date when you might expect the items could be different.

- Manufacturing lead times do not reflect work center capacity. If your plant is running at or close to full capacity, items might not be available on the calculated date.

- The manufacturing lead time is not automatically updated if the sequence information in the primary routing is updated. If the routing has changed, use the Calculate Manufacturing Lead Times window to update the manufacturing lead time for the item, and then use the Inventory Available to Promise Inquiry window to view calculations based on the most recent information.

- If the manufacturing bill of materials includes any subassemblies, the manufacturing lead time for the subassembly is calculated using the manufacturing lead time for its average make quantity and the availability of its components. All levels are calculated this way. If there is a subassembly within the subassembly, the requirements for the subassembly of the subassembly are also calculated and included in the lead time for the higher-level subassembly.

- If the manufacturing bill of materials includes any phantom items, the lead time for manufacturing the phantom item is not an additional period, but is included in the manufacturing lead time for the finished good.

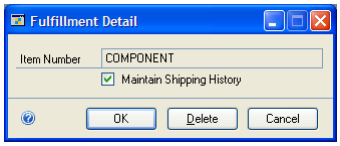
- Down days from the shop calendar are not reflected in the date that is calculated.

Starting to track shipping history for an item

Use the Fulfillment Detail window to indicate if shipping history should be maintained for an item. Use this procedure to use Manufacturing order fulfillment windows to track additional details about shipments of the item.

To start to track shipping history for an item:

1. Open the Fulfillment Detail window.
   (Cards >> Inventory >> Item >> select an item >> Go To button >> Fulfillment Detail)



2. Mark Maintain Shipping History to begin tracking shipping history for this item.

3. Choose OK to save your entry and close the window.

To discontinue shipping history maintenance for an item, open the Fulfillment Detail window and choose Delete to clear the option.

Manufacturing alternates

You can specify an unlimited number of alternates for an item. The alternates can then be used if you have a shortage of a certain item. Obviously, you won't be able to specify alternates for all items in your business, but alternates can be used for some items, such as nuts, bolts, screws, and epoxies.

There are some limitations for using alternate items. Consider these issues as you identify alternates for use on your production floor.

- Specify alternates in the order of preference. The Item Maintenance Options window in Inventory Control has two fields for substitutes. The first two alternates you define in the Alternate Items window in Manufacturing will be displayed there. If you change information in the Alternate Items window, it will be reflected in the Item Maintenance Options window.

Changes to substitute items in the Item Maintenance Options window won't be reflected in the Alternate Items window.

- Specifying alternates doesn't remove responsibility from production personnel. The Alternate Items window helps you record information about possible substitutions, but if inventory quantities of an item are depleted, the system won't automatically make the substitution for you.

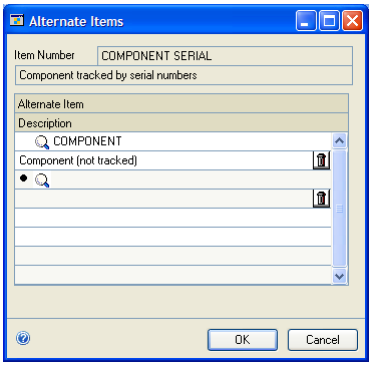
- Include alternate components in bills of materials where the alternates will be used. Refer to *Specifying an alternate component in a bill* on page 106 and *Verifying alternate assignments* on page 107 for more information.

Specifying alternates for an item

Use the Alternate Items window to define alternates for items.

To specify alternates for an item:

1. Open the Alternate Items window.
   (Cards >> Manufacturing >> Inventory >> Engineering Data >> select an item >> Go To button >> Alternate Items)



2. Use the lookup button in the first row of the scrolling window to select the item you would choose first to be substituted for the item displayed at the top of the window. Your changes will be saved.

3. Continue using the lookup button on other scrolling window rows to choose other alternate items. You can specify an unlimited number of alternates.

4. Choose OK and close the window.

Removing an alternate from an item

If you find that an alternate item won't be a good substitute for another item, you can remove the alternate from the item record. Use the Alternate Items window to complete this procedure.

To remove an alternate from an item:

1. Open the Alternate Items window.
   (Cards >> Manufacturing >> Inventory >> Engineering Data >> select an item >> Go To button >> Alternate Items)

2. In the scrolling window, select the alternate to remove.

3. Choose the delete icon button in the scrolling window. Your changes will be saved. Close the window.

Removing items

Inventory Control includes two methods for removing items. You can remove items using the Item Maintenance window or you can remove items with the Discontinued type using the Inventory Year-End Closing window.

If an item that you attempt to remove is a component in a bill of materials, a message is displayed and the item isn't removed. Before you can remove an item, you must find all instances where it is used as a component in a bill of materials, remove the item from the bill of materials, and then use the Item Maintenance window or the Inventory Year-End Closing window to remove the item.

Refer to Removing an item from multiple bills of materials on page 149 for information about how you can use the BOM Mass Updates window to remove an item from all bills of materials.

If you use the Inventory Year-End Closing window to remove items with the Discontinued type, no items that are components of any bill of materials will be removed. If there were discontinued items that weren't removed, they will be listed on the Manufacturing Components Not Removed report, which is generated when processing ends in the Inventory Year-End Closing window.

How Manufacturing affects reconciling inventory

When you reconcile items in Inventory Control, you'll also reconcile the item information that is added to the system for Manufacturing.

The additional procedure adjusts the allocated quantity of an item so that it reflects the quantities of components allocated for manufacturing orders.

For more information about reconciling inventory, refer to Inventory Control documentation.

After the reconcile process is finished, an extra report destination window appears so that you can choose where the Picklist Reconcile Report should be printed. The picklist reconcile process occurs before the inventory reconcile process begins.

If any manufacturing orders are locked—for example, if another user is editing a manufacturing order—both reconcile processes will be ended without updating item information.

PART 3: BILL OF MATERIALS

Part 3: Bill of Materials

This part of the documentation includes information that will help you set up and maintain Manufacturing Bill of Materials. Bills of materials list the items and item quantities needed to produce subassemblies and finished goods.

The following information is discussed:

- Chapter 9, "Bill of Materials overview," describes how to use Manufacturing Bill of Materials and contains definitions of important terms.
- Chapter 10, "Position numbers," includes information about how position numbers are used in bills of materials and picklists.
- Chapter 11, "Bill of Materials entry," explains how to enter and modify bills of materials.
- Chapter 12, "Links to routings," describes how you can link components in a bill of materials to the routing sequences where the components are used.
- Chapter 13, "Bill of Materials copies," includes information about copying bills of materials and removing components from the copies.
- Chapter 14, "Standard costing revaluations," provides information about setting up your system for using standard costing. Information about rolling up and revaluing inventoried items also is included.
- Chapter 15, "Bill of Materials inquiries," provides information about viewing bill of materials records.
- Chapter 16, "Reference designators," includes information about entering, modifying, and removing reference designators for components.
- Chapter 17, "Revisions and archived bills," explains the differences between using revision history and archiving bills of materials. Information about creating and viewing revision levels is included, as well as information about removing archived bills of materials.
- Chapter 18, "Mass updates," includes information about updating several bills of materials at one time. You can add, remove, and replace components. You also can update component information.

Chapter 9: Bill of Materials overview

Bills of materials (BOMs) are the lists of items needed to produce products; they describe the items needed to build a product unit. The information in bills of materials also is critical in other areas of plant operation, such as material purchasing, product costing, and MRP.

You can build and store the bills of materials that your business uses to create its products. You can create single- and multi-level bills of materials, copy existing bills of materials to use as the basis of new bills, and make global changes to the bills of materials you've defined. Manufacturing Bill of Materials also includes a window—the BOM Routing Link window—that helps you link bills of materials and routings.

Refer to the table for topics related to bills of materials.

Topic	Refer here:
System setup tasks	Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation
User setup tasks	Chapter 8, "Manufacturing core functions user setup," in the Manufacturing Setup documentation
Security	Chapter 2, "Security," in the Manufacturing Setup documentation
Item Engineering Data window	Chapter 8, "Item engineering data," in this manual
Reports	Chapter 28, "Manufacturing reports," in this manual

This information is divided into the following sections:

Bill of materials terms

Refer here for information about some of the terms related to Manufacturing Bill of Materials.

Bill of materials A bill of materials is a list of the components needed to build one unit of a product. It also shows quantities for each component.

Parent parts and components In a manufacturing environment, the terms "parent parts" and "components" describe the relationship between an item and its components. Parent parts are higher-order assemblies, such as computers or lamps. A parent part can be a subassembly or a final product. Components—also known as child parts—can be raw materials or subassemblies that are used to build a parent part.

Single- and multi-level bills of materials Bills of materials can have multiple levels. The simplest bills of materials are single-level bills of materials. Those bills list the components and the amount of each component required to produce one unit of the parent part. For example, the single-level bill of materials for a dining room set built by a furniture manufacturer look like this:

Single-level bill of materials for (1) Dining Room Set	
Item	**Quantity**
Table	1
Chair	6

A multi-level bill of materials, however, lists all the components directly or indirectly involved in building the parent part, together with the required quantity for each item. For example, if a subassembly is used in the parent part, the multi-level bill of materials will show all the components needed to build the subassembly, including purchased parts and materials.

The multi-level bill of materials for the same dining room set—a table and six chairs—might look like this:

Multi-level bill of materials for (1) Dining Room Set	
Item	**Quantity**
Table	1
Table top	1
Table leg	4
Table leaf	1
Chairs	6
Chair back	6
Chair seat	6
Chair leg	24
Chair arm	12

Backflushing Backflushing deducts item quantities from inventory accounts to cover the quantities consumed in the manufacturing process. Backflushed quantities are accounted for when the parent parts are received—that is, transactions to account for the use of backflushed materials are created when a manufacturing order receipt is posted. Materials that are backflushed are included in the final costs, but aren't formally issued to a work center or work in process.

You can backflush entire bills of materials or just certain elements. When an item is marked as backflushed in the Bill of Materials Entry window, the Backflush option in the Picklist window automatically will be marked.

Refer to *Rules for backflushed components* on page 87 and *Backflushing bill of materials components* on page 104 for more information.

Incremental spacing Incremental spacing is a setting in the BOM Preference Defaults window that is used to assign position numbers to new components automatically. The value selected in the New Component Position Number Incremental Spacing field will be used to determine the position number for new components. Refer to *Position number incremental spacing* on page 89 for more information.

Issue-from site The issue-from site—also known as the draw-from site—is the site from which the component or subassembly quantities are taken. If you have several inventory sites for an item, you can specify the site from which the components should be taken for a manufacturing order. Refer to *Issue-from and issue-to sites* on page 85.

Issue-to site The issue-to site—also known as the post-to site—is the site to which components or subassemblies will be delivered when they're needed in production. If your production process includes several work centers, you might set up the bill of materials so that components and subassemblies are delivered to the appropriate work centers. Refer to *Issue-from and issue-to sites* on page 85.

Lead time offset Lead time offset is the number of days difference between the start date or end date of a manufacturing order and the date that a component will be needed. For example, suppose the final step in your manufacturing process is to glue two components together, and after the gluing process, the epoxy must cure for two days. Then the lead time offset for the epoxy would be two days from the manufacturing order end date.

Refer to *Lead time calculations* on page 87 for more information.

Fixed quantity You can specify a fixed quantity of each component in a bill of materials. The fixed quantity is the amount of a component that is consumed for each manufacturing order, regardless of the manufacturing order size. For example, suppose that your manufacturing processes require you to use a sheet of metal to create a template to use for the rest of the manufacturing order. You could enter a fixed quantity of 1 for the sheet of metal, so that it would be issued for that purpose.

Position number Each component on a bill of materials and each component item on a picklist has a position number. A position number is a number that indicates the order in which components are used to build a product. All new components and new picklist items will be assigned a position number. Because you assign a position number to each component on a bill a materials and each component item on a picklist, a component can be used more than once in the process. For example, if a component is used at the beginning and at the end of the process, you can add the component to the bill of materials twice, using a different position number for each instance. The position number will be displayed in windows where you can enter or view bill of materials and picklist information.

Reference designators Some manufacturers—especially electronics manufacturers—use reference designators to specify where components are to be used in an assembly. For example, if four resistors are used in an assembly, the manufacturer might include reference designators to tell the assemblers where the four resistors should be placed on a circuit board.

Differences between types and categories

Each bill of materials that you define in Manufacturing Bill of Materials will have a type and a category.

Types Types help describe the status of each bill of materials. For example, a manufacturing bill of materials is typically used in current manufacturing processes and an archived bill of materials is an obsolete bill of materials. Refer to *Bill of materials types* on page 84 for more information.

Categories Categories help describe the visibility of the components in a bill of materials. A regular bill of materials is a straightforward bill of materials. A phantom category must be assigned to a subassembly item if components for the subassembly must be included in the picklist. Refer to *Bill of materials categories* on page 85 for more information.

Bill of materials types

Refer to the following definitions for more information about various types of bills of materials.

Manufacturing bill of materials A manufacturing bill of materials is used to build a parent part and is the "real" production bill of materials used to calculate material requirements. You can create only one manufacturing bill of materials for each item.

Engineering bill of materials An engineering bill of materials is defined for a product by your engineering department. An engineering bill of materials could include the most recent changes proposed by an engineering department, and might or might not match the manufacturing bill of materials.

Designs in the prototype stage of development, for example, might have engineering bills of materials. This allows you to study the costs of producing a design without affecting the material requirements that the system generates. You can create only one engineering bill of materials for each item.

Archived bill of materials An archived bill of materials is one that has been stored for reference but isn't used in production. Refer to *Revision levels and Archived bills of materials* on page 141 to compare archived bills of materials with revision levels.

Configured bill of materials A configured bill of materials is created when a customer selects options from a super bill of materials. For example, a configured bill of materials for a computer would include the basic components and option items that the customer had specified from a list of options that you provide. The option items might be for RAM, hard disks or processors. You can generate many configured bills of materials for each item, so you must assign a name to each configured bill of materials.

You can choose to automatically delete or archive configured bills of materials when the manufacturing orders they're used for are closed. Refer to Setting up manufacturing order processing in Chapter 4, "Manufacturing production functions setup," in the Manufacturing Setup documentation for more information about those options.

Super bill of materials A super bill of materials includes all of the possible parts in a configured bill of materials for a finished item. For example, a computer manufacturer might have a super bill of materials that lists all the various computer component types for its customers, such as several types of processors, hard drives, monitors and RAM modules. Then, when the company needs to build a computer, someone will specify which of the component types will be included in the specific computer.

Bill of materials categories

Refer to the following definitions for more information about various categories of bills of materials.

Regular bill of materials A regular bill of materials is a basic, single-level bill of materials.

Phantom bill of materials A phantom bill of materials is assigned to a bill of materials for a subassembly that isn't usually stocked as an inventory item. For example, a furniture manufacturer might set up a bill of materials for a table so that the table leaf is a subassembly. The manufacturer doesn't want to build any extra table leaves—he wants to manufacture leaves only as tables are being made, but will never stock the table leaves as separate inventory items. If you create phantom bills of materials, you won't need to create separate manufacturing orders for the production of the subassembly items needed for parent parts.

Option bill of materials This setting is not currently used.

Modular bill of materials This setting is not currently used.

Issue-from and issue-to sites

When you create a bill of materials, you have the option to specify an issue-from and an issue-to site for each component.

For definitions of issue-from and issue-to sites, refer to Bill of materials terms on page 81.

If you specify issue-from and issue-to sites in a bill of materials, those sites will be the issue-from and issue-to sites in the picklist. If you're using site-specific segments in your chart of accounts, the accounts for the specific sites will be used as you move materials from one site to another.

If no issue-from or issue-to site is specified for a component, however, default sites will be used.

Default values for the issue-from site

Refer to the following information about how the default issue-from site is determined.

- The issue-from site from the bill of materials line entered in the Bill of Materials Entry window is used.
- If a site hasn't been specified in the Bill of Materials Entry window, the default site for the item entered in the Item Quantities Maintenance window is used.

For more information about the Item Quantities Maintenance window, refer to Inventory Control documentation.

- If that site hasn't been specified in the Item Quantities Maintenance window, the Draw Inventory From site entered in Manufacturing Order Entry window is used. (The default site comes from the scheduling preference you've selected for the manufacturing order, but you can change it.)

Refer to Setting up scheduling preferences in Chapter 4, "Manufacturing production functions setup," in the Manufacturing Setup documentation and Entering a manufacturing order in Chapter 7, "Manufacturing order entry," in the Manufacturing Production Functions documentation for more information.

Default values for the issue-to site

Refer to the following information about how the default issue-to site is determined.

- If a link between a portion of the component amount in the bill of materials and a routing sequence has been established, the default issue-to site is the routing sequence work center for the portion of the component amount that is linked to the sequence.
- If no link has been established between the component and a routing sequence, the default issue-to site is the site specified for the line in the bill of materials. This also is the default issue-to site for any quantity of the component that is not linked to the routing sequence.
- If no site is specified on the bill of materials line, the work center associated with the first routing sequence for the manufacturing order is used.

If your business has several production lines that use the same bills of materials, we recommend leaving the issue-to site blank in the bill of materials, and then adding that information for each manufacturing order.

Rules for backflushed components

When you create a bill of materials, you can choose to backflush all components or just specific ones. However, there are rules regarding which components can—or cannot—be backflushed. Refer to the table for more information.

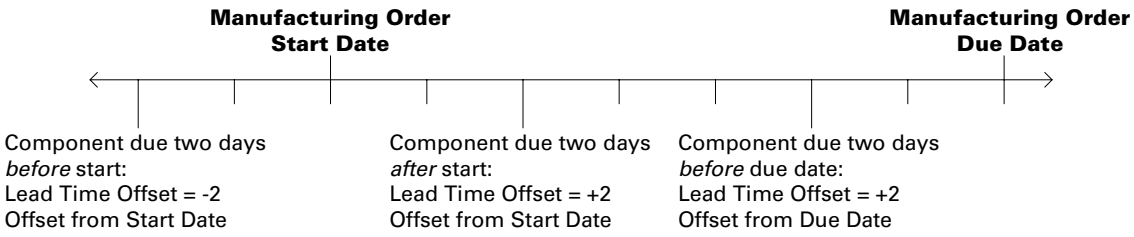
Component description	Backflush?
Phantom items	Not allowed.
By-product items	
Item Type is Services, Flat Fee, or Miscellaneous	You must backflush.
All other components.	You can choose to backflush or not.

Lead time calculations

You can specify a lead time for any or all components in a bill of materials. How lead times are calculated depends on your system setting—to have lead times offset from the manufacturing order start date or the manufacturing order due date—and a number you enter for a component in a bill of materials. You can choose to calculate component lead times based on the manufacturing order start date or due date.

- If you use the start date, you can enter positive or negative values for the component lead time. This allows you to specify that a component is needed a certain number of days before or after the start of the manufacturing order.
- If you use the manufacturing order due date, you can enter only positive values for the component lead time. You can't enter negative numbers because all components must be due before the manufacturing order is due.

Refer to the illustration for an example of how lead time is calculated.



Chapter 10: Position numbers

Each component on a bill of materials and each component item on a picklist has a position number. A position number is a number that indicates the order in which components are used to build a product. All new components and new picklist items will be assigned a position number. Because you assign a position number to each component on a bill a materials and each component item on a picklist, a component can be used more than once in the process. For example, if a component is used at the beginning and at the end of the process, you can add the component to the bill of materials twice, using a different position number for each instance. The position number will be displayed in windows where you can enter or view bill of materials and picklist information.

When you create a new bill of materials or add a new item to a bill of materials, a position number will be assigned to each component. The position number will be determined by the next available position number and the default incremental spacing specified in the BOM Preference Defaults window. You can change the default position number at any time to control the position number of the component on the bill of materials.

For more information about the BOM Preference Defaults window, refer to Setting up bills of materials system settings in Chapter 3, "Manufacturing core functions setup," of the Manufacturing Setup manual.

This information is divided into the following sections:

Position number incremental spacing

Incremental spacing is a setting in the BOM Preference Defaults window that is used to assign position numbers to new components automatically. The value entered in the New Component Position Number Incremental Spacing field will be used to determine the position numbers for new components.

Default incremental spacing values

The default incremental spacing value will be used to assign position numbers to new bill of material components and picklist items.

Refer to the following information about how the default values for position numbers are determined.

- The default incremental spacing from the New Component Position Number Incremental Spacing field in the BOM Preference Defaults window is used.

- If a default spacing hasn't been specified in the BOM Preference Defaults window, the default spacing for position numbers will be 1.

For more information about the BOM Preference Defaults window, refer to Setting up bills of materials system settings in Chapter 3, "Manufacturing core functions setup," of the Manufacturing Setup manual

Specified incremental spacing values

You can use the BOM Preference Defaults window to specify the spacing to use between position numbers. Before you set it up, you should decide how much space you will need to be available between the assigned position numbers. Leaving spaces will allow you to manually add new position numbers between existing position numbers later.

For example, you can decide to assign position numbers in multiples of 2—2, 4, 6, and 8—or in multiples of 10—10, 20, 30, 40. This will be helpful if you need to add components later. You can place new components between the existing components later without renumbering the existing components.

Refer to *Setting up bills of materials system settings* in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup manual for more information.

Position numbers in Manufacturing windows

When position numbers are assigned to new items automatically, you can change them manually. You also can change a position number when you open a picklist or bill of materials to edit. There are some rules related to when you can change the position number. There are also specific windows where you can change the position number of a component, and then there are windows where you can't change the position number of a component.

Position numbers can be changed from these windows:

- Bill of Materials Entry window
- Picklist window
- Add Picklist Entry window
- Quick MO Add Component Entry window
- Manufacturing Order Add Component Entry window
- Manufacturing Order Receipt Component Entry window
- Quick MO Add Component Entry window

Position numbers can't be changed from these windows:

- BOM/Routing Link window
- Bill of Materials View window
- BOM Copy window
- BOM Mass Updates window
- Manufacturing Component Transaction Entry window
- Manufacturing Component Transaction Inquiry window
- Manufacturing Order Receipt Entry window
- Quick MOs window

Special circumstances in windows

Refer to the following information about exceptions to the general position number rules.

Add Picklist Entry window If you add a phantom item to the picklist, the components of the phantom item will retain the position numbers from the phantom bill of materials.

BOM Routing Link window If you use the BOM Routing Link window to link an instance of a bill of materials component to multiple routing sequences, the item will appear once on a picklist for each sequence that it is linked to. A component on a bill of materials can be linked to more than one routing and each bill of materials/routing combination can have different position numbers assigned to the components.

For instance, the first bill of materials/routing combination that you create for an item will retain the position number from the bill of materials. You can't change the position number after the link has been created. If a bill of materials/routing combination already exists for a bill of materials component—if the amount in the Quantity Linked field is greater than zero but less than the amount in the Quantity to Link field—and you choose to create an additional link, the position number will be assigned. You can't change the position number. If you need to specify the position number of a component that is linked to more than one sequence, you should add that item multiple times to the bill of materials and then link each instance to a sequence.

Sales Configurator window When you create a bill of materials, the components you select to add to the bill of materials will retain the position numbers from the super bill of materials. You can't change these position numbers.

BOM Entry window If the item that you enter in the Alternate For field exists more than once on the first level of the bill of materials, a message will be displayed. When you choose OK, the Alternate Parts lookup window will open and display only instances of that item number on the first level of the bill of materials.

Position number guidelines

Refer to the following guidelines and requirements for using position numbers. Sometimes a message will be displayed and you'll need to make the necessary change before you can continue.

Position number value The position number value must be 1 or higher. It can't be zero or a negative number.

Position number limit The position number can't exceed the 9999 limit. Refer to *Position number limits* on page 94 for more information.

Duplicate components A component can be on a bill of materials more than once, but the position number must be different for each instance.

Duplicate position numbers A position number only can exist one time on each level of a bill of materials.

Duplicate item numbers on super bill of materials If an item number already exists on a super bill of materials, you can't add that item to the super bill of materials.

Component of a phantom item If an item is a component of a phantom item, you cannot change the position number in the picklist.

Duplicate item on configured bill of materials If an item number already exists on the first level of a configured bill of materials, you can't add that item to the configured bill of materials. If a configured bill of materials has more than one instance of an item on the first level, you can't enter or select the configured bill of materials in the Configured BOM field in the Sales Configurator window.

Assigning existing position numbers to components

Sometimes you may assign a position number to a new or modified component that has already been assigned to a component at the same level. When this happens, a message is displayed and you'll have the option to enter a different position number or to have the position number assigned to the new or modified component.

When you choose to assign the position number to the new or modified component, a new position number will be assigned to the component that originally had that position number. If any duplicate position numbers are created, the components with duplicate numbers will be renumbered automatically until no more duplicates are created. During this process, if a situation occurs where any of the position numbers would exceed the allowed limit, the bill of materials is not renumbered and the components retain their existing position numbers.

The following example demonstrates what will happen when you choose to assign the position number to the new or modified component and have the position number of the other component renumbered.

Assumptions:

- You entered position number 20 for item A.
- Item B already has a position number of 20.
- Position number 21 is already assigned to item C.

A message is displayed and you choose to continue. Item A will be assigned position number 20. Item B will be assigned position number 21. Item C will be reassigned position number 22.

Refer to the following for more information:

- *Position number guidelines*
- *Position number limits*

Position number examples

The following information explains how position numbers work in various situations.

These examples make the following assumptions:

- Item A is a first-level component on a bill of materials and it has been assigned a position number of 5.
- Item X is a first-level component and has a position number of 6.
- No first-level components have the position number of 7 or 8.
- Item Z has a position number of 9.

Add a new component Item B to the bill of materials with a position number of 5 You enter a position number of 5. A message is displayed because Item A already has been assigned a position number of 5. If you choose OK, the position number of 5 will be assigned to Item B, and the position number for Item A will change to 6. Because Item X was previously assigned a position number of 6, it will be renumbered to 7. Item Z will retain its position number of 9.

Change the position number for Item Z from 9 to 4 A message will not be displayed and no renumbering will occur because there are no other items that already have the position number 4.

Change the position number for Item Z from 9 to 6 Since Item X already has a position number of 6, a message will be displayed. If you choose OK, Item Z will be assigned a position number of 6, and the position number for Item X will be renumbered to be 7.

Remove Item A from the bill of materials A message will not be displayed and no renumbering will occur because removing an item from a bill of materials will not affect the position numbers of any other items.

You change the position number for Item A from 5 to 10 A message will not be displayed and no renumbering will occur because there are no other items that already have the position number 10.

Position number limits

Sometimes the position number that is assigned— automatically or manually—exceeds the limit allowed in Microsoft Dynamics GP. When this happens, a message is displayed and you'll have to enter a different position number or make more position numbers available before you can proceed. You can make more position numbers available by changing—or renumbering—the position numbers of existing components or by using phantom bills of materials to manage components.

Refer to the following topics for more information:

- *Changing position numbers of components*
- *Changing a bill of materials to a phantom bill of materials*
- *Position number guidelines*

Examples of when position numbers exceed the allowed limit

Refer to the table for examples of situations that occur when position numbers exceed the limit allowed in Microsoft Dynamics GP.

Situation	Result
A position number is automatically assigned to a new component and the number is higher than 9999.	The position number won't be assigned. You can enter a different position number.
You assign or change the position number to a number that is higher than 9999.	The position number won't be assigned. You can enter a different position number.
You add a component to a bill of materials and the position number is higher than 9999.	You can't add the item. You can change the position number or you can make more position numbers available before you can add a component to this bill of materials.
You add an item to a picklist and the position number is higher than 9999.	You can't add the item. You can change the position number or you can make more position numbers available before you can add a component to this bill of materials.
You add an item to a picklist and the position number already exists. You choose to have the previous item renumbered and numbering causes the item to have a position number higher than 9999.	You can't insert the item. You can change the position number or you can make more position numbers available before you can add a component to this bill of materials.
You add a component to a bill of materials and the position number already exists. You choose to have the previous component renumbered and numbering causes the item to have a position number higher than 9999.	You can't insert the item. You can change the position number or you can make more position numbers available before you can add a component to this bill of materials.
You select Mark All on a selected bill of materials in the BOM Mass Updates window and any position number would be higher than 9999.	Those items won't be selected.

Changing position numbers of components

Use the Bill of Materials Entry window to change the position numbers of existing components. Sometimes it is necessary to renumber the position numbers of existing components to make more position numbers available for new components. When a position number exceeds the limit allowed, you can renumber existing components to make more position numbers available for new components. Refer to *Position number limits* on page 94 for more information about position number limits.

Refer to the following for more information:

- *Position number guidelines*
- *Position number limits*
- *Changing a bill of materials to a phantom bill of materials*

To change the position numbers of components

Use the Bill of Materials Entry window to change the position numbers of existing components.

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the finished good or subassembly with the bill of materials that includes items that you want to work with. The manufacturing bill of materials will be displayed by default, but you can select any other bill of materials that includes the item.

3. If you selected an archived or configured bill of materials, enter or select the appropriate BOM name.

4. In the tree view, select a component. Information about the component will be displayed in the right pane of the window.

5. Change the position number. Refer to *Position number guidelines* on page 91 for more information.

6. Change any other information in the window, as needed.

7. Choose Save. Continue to change position numbers, as needed.

8. When you've finished entering information, close the window.

Changing a bill of materials to a phantom bill of materials

Use the Bill of Materials Entry window to change a bill of materials to a phantom bill of materials.

You can use a phantom bill of materials to manage components when you need to make more position numbers available. For instance, you can use a phantom bill of materials when a position number exceeds the limit allowed. Refer to *Position number guidelines* on page 91 for more information about position number limits.

Refer to the following for more information:

- *Position number limits*
- *Changing position numbers of components*
- *Position number guidelines*

To change a bill of materials to a phantom bill of materials:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the finished good or subassembly with the bill of materials that includes items that you want to work with. The manufacturing bill of materials will be displayed by default, but you can select any other bill of materials that includes the item.

3. If you selected an archived or configured bill of materials, enter or select the appropriate BOM name.

4. Change the bill of materials category to phantom.

5. Choose Save and close the window.

Chapter 11: Bill of Materials entry

Use the Bill of Materials Entry window to complete basic tasks, including creating, modifying, and deleting bills of materials.

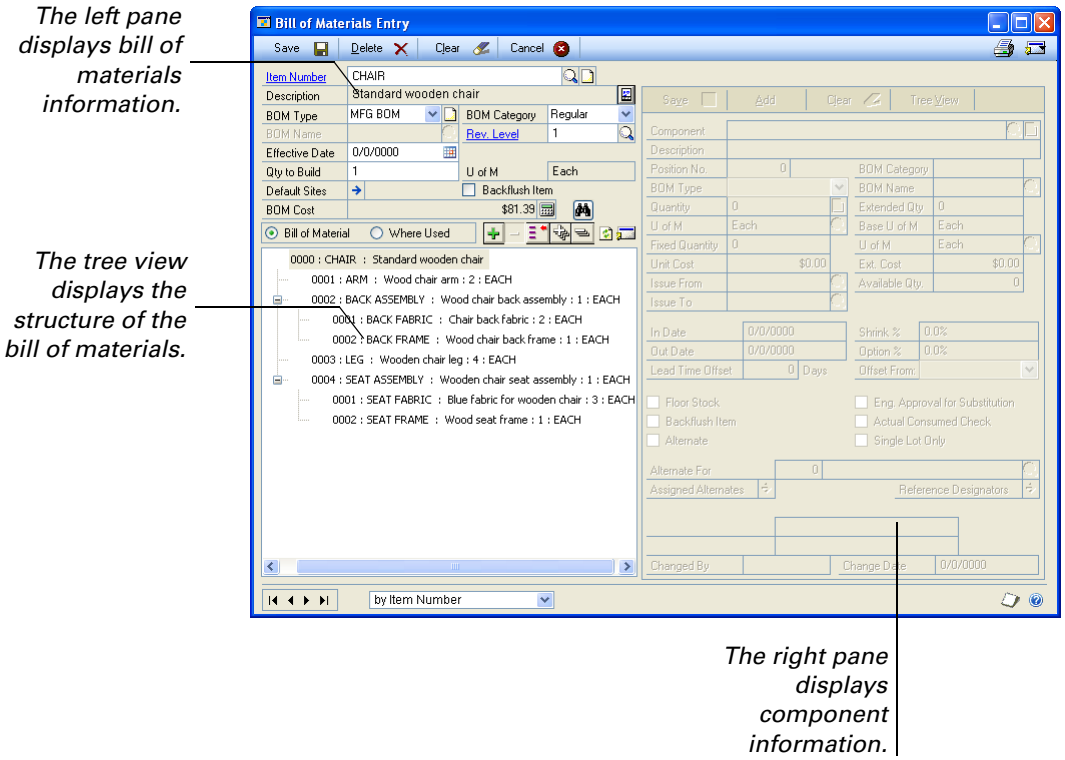
Besides listing the components and their quantities in bills of materials, you also can add information that will make the bills of materials more useful in your production process. You can indicate if component quantities can be backflushed, you can choose default sites for component and parent parts, and you can enter information about item substitutions.

This information is divided into the following sections:

Understanding the Bill of Materials Entry window

The Bill of Materials Entry window is the main window for Manufacturing Bill of Material. You can use the window to create, modify, and delete bills of materials.

The window has two major parts: the left pane, where you enter information about the bill of materials as a whole; and the right pane, where you can enter information about the components that make up the bill of materials. The left pane also includes a tree view where you can view the overall structure of a bill of materials.



Creating a bill of materials

Use the Bill of Materials Entry window to create or to modify a basic bill of materials.

As you add items to a bill of materials, the items will be displayed in the tree view. This window will list the components that are needed to build one unit of the final product.

Several options are available for the components that you add to a bill of materials. The information that you enter will depend on the component (whether it is made or bought, for example) and on your business practices. Refer to the following topics for more information:

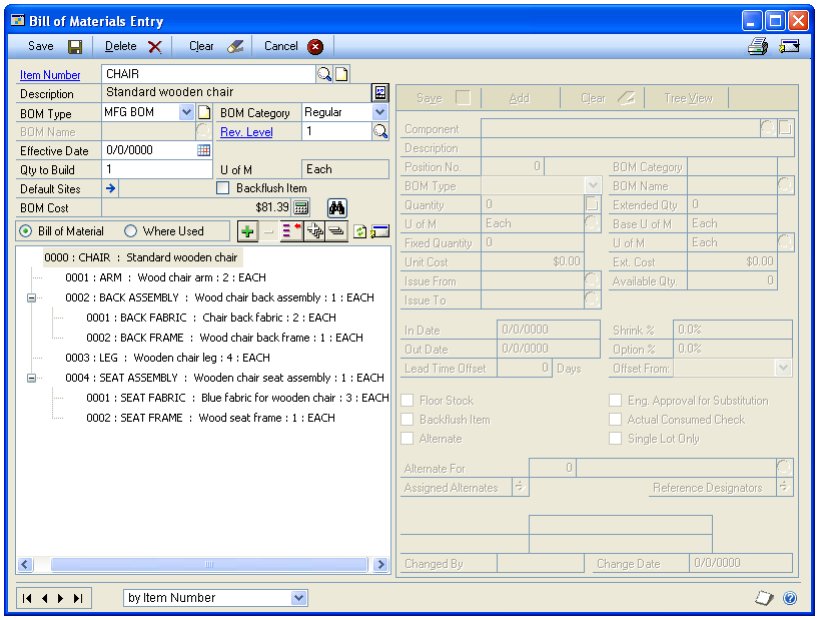
- *Requirements for bill of materials components* on page 104
- *Backflushing bill of materials components* on page 104
- *Shrinkage for bill of materials components* on page 105
- *How floor stock costs are applied* on page 105
- *Component fixed quantity* on page 106
- *Specifying an alternate component in a bill* on page 106
- *Bills of materials and component effective dates* on page 107
- *Adding user-defined information to bills* on page 109
- *Accounting for by-products in a bill of materials* on page 109
- *Component quantities and rounding* on page 110

For specific information about creating a bill of materials for a configured item, refer to *Creating a super bill of materials* on page 199.

To create a bill of materials:

1. In the navigation pane, choose the Manufacturing button, and then choose the Bill of Materials list.

2. Choose Bill of Materials to open the Bill of Materials Entry window.



3. In the Item Number field, enter or select a part number.

   Make items The replenishment method for most parent items should be Make. You can select the replenishment method for an item in the Item Resource Planning Maintenance window (Cards >> Inventory >> Item Resource Planning).

   Make or Buy items You can create a bill of materials for an item with a Make or Buy replenishment method. You can select the replenishment method for an item in the Item Resource Planning Maintenance window (Cards >> Inventory >> Item Resource Planning).

4. You can accept the default bill of materials type—Manufacturing—or you can select another. If you select Archived or Configured, you must enter a name for the bill of materials.

The recommended fulfillment method for configured items is Make to Order–Manual. If you select Super for the bill of materials type and the fulfillment method for the item is not Make to Order–Manual, a message appears and you'll have the option to change the fulfillment option, continue or cancel. For more information, refer to Creating a super bill of materials on page 199 and Fulfillment methods for configured items on page 201.

5. Enter an effective date. Refer to *Bills of materials and component effective dates* on page 107 for more information about effective dates.

6. Accept the default bill of materials category—Regular—or select another.

If you're creating a bill of materials for a subassembly and you don't want to have to create separate manufacturing orders for the item when it's needed for higher-order assemblies, be sure the category is Phantom. Although the purpose of creating a phantom bill of materials is to create a subassembly that doesn't need to be built with a separate manufacturing order, you also can create manufacturing orders for phantom items, if needed.

7. Accept the default revision level—1—or enter another. Refer to Chapter 17, "Revisions and archived bills," for more information about revision levels.

8. Decide whether to backflush all components in this bill of materials. Backflushing means that the component quantities aren't issued to work centers, but that they are accounted for when a manufacturing order associated with this bill of materials is closed.

Refer to Backflushing bill of materials components on page 104 for more information about backflushing options.

   - Mark Backflush Item in the left pane to have component quantities for all items in this bill of materials backflushed. You can change this setting for specific components later in the right pane of the window.

   - Unmark Backflush if materials should not be backflushed.

9. You can enter the default issue-to and issue-from locations for the components in the bill of materials. Click the expansion button on the Default Sites field to open the Bill of Materials Defaults window, where you can enter the sites.

   The issue-from site is the inventory site components are taken from. The issue-to site is the work center components are delivered to. You can override the default sites on a component-by-component basis, if needed.

10. To add an item to the bill of materials, click the button with the green plus sign just above the tree view. Fields in the right pane of the window will become available.

11. A message appears. Choose Yes to save your changes and to continue.

12. Enter or select a component to add to the bill of materials.

    Refer to *Requirements for bill of materials components* on page 104 for more information about which items can be added to a bill of materials.

13. Accept the position number assigned to the component or change it. Refer to *Position numbers* on page 89 for more information.

14. Enter information about the component in fields in the right pane.

15. Click Add to add the component information to the tree view in the left pane.

If you manually assigned a position number that is already assigned to a component on this bill of materials, you'll be able to choose a different position number for this component or have the existing number reassigned. Refer to Position numbers on page 89 for more information.

16. Repeat steps 12 through 15 to continue adding items to the bill of materials.

17. Choose Tree view.

18. Choose Save to save the bill of materials.

Adding a component to a bill of materials

Use the Bill of Materials Entry window to add components to an existing bill of materials. Refer to *Requirements for bill of materials components* on page 104 for information about what items can be bill of materials components.

To add a component to a bill of materials:

1. Open the Bill of Materials Entry window.
(Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the item with the bill of materials to add components to. The manufacturing bill of materials will be displayed, but you can select any other bill of materials for the selected item.

3. If you select Archived or Configured, enter or select the appropriate BOM Name.

4. Be sure the highlight in the tree view is on the parent item, and click the green plus sign button above the tree view.

5. Enter or select the new component in the right pane.

6. Accept the position number assigned to the component or change it. Refer to *Position numbers* on page 89 for more information.

7. Enter other information about the component in the fields in the right pane. You can override the default settings for the issue-to and issue-from sites, enter the quantity of the component needed for the bill of materials, and make other changes, as needed.

8. Click Add.

If you manually assigned a position number that is already assigned to a component on this bill of materials, you'll be able to choose a different position number for this component or have the existing number reassigned. Refer to Position numbers on page 89 for more information.

9. Continue with steps 5 through 8 for each component to add to the bill.

10. Click Tree view, and then click Save.

Changing component details

Use the Bill of Materials Entry window to change component information, such as whether all of the component requirements for a manufacturing order must be taken from a single lot or if the item requirements should be backflushed.

To change component details:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the finished good or subassembly with the bill of materials that includes items you want to work with. The manufacturing bill of materials will be displayed by default, but you can select any other bill of materials that includes the item.

3. If you selected an archived or configured bill of materials, enter or select the appropriate BOM Name.

4. In the tree view, select a component.

5. Click the select item expansion button. Information about the component will be displayed in the right pane of the window.

6. Change information in the window, as needed.

7. Choose Save and close the window.

Deleting a component from a bill of materials

Use the Bill of Materials Entry window to delete a component from an existing bill of materials.

To delete a component from a bill of materials:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the item with the bill of materials to remove components from. The manufacturing bill of materials will be displayed by default, but you can select any other bill of materials for the selected item.

3. Select the BOM Type—Engineering, Archived, Configured, or Super. If you select Archived or Configured, enter or select the appropriate BOM Name.

4. In the tree view, mark the component to delete.

5. Click the remove item from BOM button. The button has a red minus sign on it.

6. Repeat steps 4 and 5 to delete all unneeded components.

7. Choose Save and close the window.

Modifying a component bill of materials

If you're working with a multi-level bill of materials, your final product will include components that have their own bills of materials. You also can use the Bill of Materials Entry window to modify the bills of materials of the components.

To modify a component bill of materials:

1. In the navigation pane, choose the Manufacturing button, and then choose the Bill of Materials list.

2. Mark an item.

3. Choose Edit to open the Bill of Materials Entry window.

4. Enter or select an item that includes a subassembly. The manufacturing bill of materials will be displayed, but you can select any other bill of materials for the selected item.

5. Select the BOM Type—Engineering, Archived, Configured, or Super. If you select Archived or Configured, enter or select the appropriate BOM Name.

6. In the scrolling window, click the subassembly component item.

   Information about the subassembly bill of materials will be displayed in the left pane, and information about its components will be displayed in the right pane.

7. Modify the subassembly bill of materials using any of the following procedures.

   - *Adding a component to a bill of materials* on page 101
   - *Deleting a component from a bill of materials* on page 102
   - *Changing component details* on page 102

8. Choose Save and close the window.

Removing a bill of materials

Use the Bill of Materials Entry window to remove a bill of materials.

To remove a bill of materials:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the item with the bill of materials to remove. The manufacturing bill of materials will be displayed by default, but you can select any other bill of materials for the selected item.

3. Select the BOM Type—Engineering, Archived, Configured, or Super. If you select Archived or Configured, enter or select the appropriate BOM Name.

4. Choose Delete and close the window.

Requirements for bill of materials components

Not all items can be components of all bills of materials. Refer to the following guidelines.

- You can add a standard cost component to the bill of materials for an actual cost finished good.
- You can't add an actual cost component to a bill of materials for a standard cost finished good.
- You can't add an item with the Kit type to a bill of materials.
- If you add an item with the Services, Miscellaneous, or Flat Fee type to a bill of materials, those items must be backflushed.
- Average cost valuation methods can be used for finished goods or components. If you're working in an average cost environment, however, you should be sure that system settings prevent you from allowing your inventory to be negative. Refer to *Setting up manufacturing order processing* in Chapter 4, "Manufacturing production functions setup," in the Manufacturing Setup documentation for more information.
- The same item number can be listed multiple times as a component on a bill of materials, but it must have a different position number for each time it is listed.
- An item only can exist once on a super bill of materials, regardless of the position number.

Backflushing bill of materials components

Backflushing is a method of accounting for the use of resources—labor, machine time, and items—based on standards you've defined. Transactions to account for the use of backflushed resources are created when finished goods are received.

For example, your business might include a procedure for painting part numbers on items. The paint used for the procedure is minimal, so you estimate that 0.01 grams of paint are used per finished item. When you create the bill of materials for the finished item, you include the paint as a component of the finished item and you mark the item to be backflushed. Later, when you receive finished goods for a manufacturing order based on the bill of materials, inventory transactions will be created to account for the use of paint, according to the bill of materials and the manufacturing order quantity.

Backflushing is typically used when a component is used in very small quantities—such as in the paint example—or when the cost of the component isn't significant enough to warrant the expense of issuing and tracking components.

You can backflush entire bills of materials or specific components. You *must* backflush items whose Item Type (from the Item Maintenance window) is Services, Flat Fee, or Miscellaneous, or if the item is floor stock. You also can backflush phantom parent items or components of phantom parent items.

To backflush all components Mark Backflush Components in the Bill of Materials Entry window (Cards >> Manufacturing >> Bill of Materials).

To backflush only specific components Mark the Backflush option in the Bill of Materials Entry window for all the components that should be backflushed.

When an item is marked as backflushed in the Bill of Materials Entry window, the Backflush option in the Picklist window automatically will be marked.

Shrinkage for bill of materials components

When you enter or select an item to add to a bill of materials, the default shrinkage percentage for the item typically comes from the Item Resource Planning Maintenance window.

However, different rules apply if the replenishment method for the item is Make or if the item is a phantom item. Refer to the following table for more information.

Replenishment Method	Default shrinkage percentage
Buy	Comes from the Item Resource Planning Maintenance window.
Make	No default shrinkage percentage is supplied.
Make or Buy	A message appears when you add a make or buy item to a bill of materials, and you'll have the option to select the bill of materials type for the item. If you choose Yes—if quantities of this item should be made—you'll need to select a bill of materials type. If you choose Phantom, the default shrinkage percentages for the components of the phantom item will come from the Item Resource Planning Maintenance window. If you choose No—if quantities of the item should be purchased—no default shrinkage percentage is supplied.

Regardless of the default shrinkage percentages, you can change them in the Shrink % field for each component, if needed.

How floor stock costs are applied

Floor stock is a designation for items that don't need to be issued for a manufacturing order. Usually, the cost of floor stock items is not applied to the manufacturing order, but to an expense account you specify.

To apply costs to an expense account When you use the Floor Stock options in Manufacturing—either in the Item Engineering Data window when you enter item information or in the Bill of Materials Entry window when you create a bill of materials—the costs of the floor stock items are applied to an expense account you specify in the Manufacturing Order Preference Defaults window.

To apply costs to a manufacturing order Some companies prefer to have the costs of floor stock applied to the manufacturing order, but still don't want to have to issue the floor stock items. To use this kind of floor stock, be sure all floor stock options are cleared. You might need to check both the Item Engineering Data window for the item and the Bill of Materials Entry window for the bill of materials. Then specify the same site for the issue-from and issue-to sites for the component item in the bill of materials.

If you mark the floor stock option, the item won't be included in standard cost rollup calculations.

Component fixed quantity

Most components in a bill of materials go directly into a finished good. Therefore, the quantity information for a component is usually per finished good; for example, a wagon manufacturer would use four wheels per finished wagon, or an electronics manufacturer might use three resistors per unit.

Sometimes, however, manufacturing orders require components that don't go directly into finished goods. For example, you might use some components to check machine settings or calibration for each manufacturing order. This fixed quantity is per manufacturing order, not per finished good. The quantity stays the same, regardless of the number of finished goods being built from a particular manufacturing order.

You can enter a fixed quantity for any component in a bill of materials. Later, when you build a picklist based on the bill of materials, the fixed quantity is added to the component quantity required for the manufacturing order.

Specifying an alternate component in a bill

To substitute one component item for another in a manufacturing order, you must set up the bill of materials to use alternate items. You must be sure that the primary item, which is the original component, is included in the bill of materials. You also must add a secondary item, which is an alternate item, to the bill of materials. Finally, you must assign the secondary item to be an alternate for the primary item.

Use the Bill of Materials Entry window to specify an alternate item.

This procedure assumes that you've already created a bill of materials that includes a component that you're making the substitution for.

To specify an alternate component in a bill:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the finished good item number.

3. Select the BOM type and, if needed, the BOM name for the bill you're adding alternate information to.

4. Click the add item button, and add the component to substitute for the original component.

5. In the right pane, enter other information for the alternate item, such as the issue-from and issue-to sites. Refer to *Adding a component to a bill of materials* on page 101 for more information.

6. Mark the Alternate option.

7. The Alternate For field will be available. Enter or select the primary item.

8. Choose Save, and close the window.

You also can verify that one or more alternates has been assigned to an item, if needed. Refer to *Verifying alternate assignments*.

Verifying alternate assignments

Use the BOM Component Assigned Alternates window to see which secondary items have been assigned to be alternates for a primary item in a bill of materials.

To verify alternate assignments:

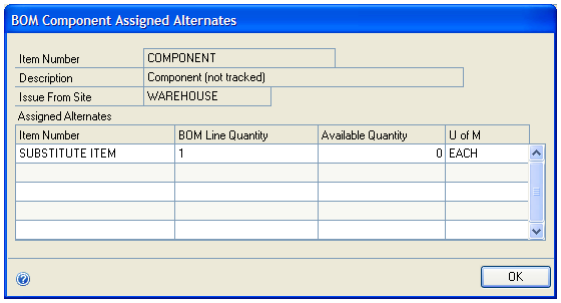
1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the finished good item number.

3. Select the BOM type and, if needed, the BOM name for the bill you're adding alternate information to.

4. In the tree view, click the component item that has one or more substitutes.

5. Choose the Assigned Alternates expansion button to open the BOM Component Assigned Alternates window.



Refer to Specifying an alternate component in a bill on page 106 for more information about assigning alternates.

6. View the information.

7. When you've finished, close the window.

Bills of materials and component effective dates

Manufacturing Bill of Materials includes two types of effective dates. You can enter an effective date for the bill of materials record, and you can enter separate effective in and out dates for each component in the bill of materials.

Bill of materials effective dates

The effective date for a bill of materials is the date when the bill of materials is available for use in production. No manufacturing orders can be based on a bill of materials before the effective date for the bill of materials, which you can enter in the Effective Date field in the left pane of the Bill of Materials Entry window.

For example, suppose a manufacturing company has designed a new radio. The company has submitted the plans for the radio to an agency, such as the Federal Communications Commission or Underwriters Laboratories. The company might want to prepare for production even though no manufacturing orders can be started for the radios until the approvals are received. The company could enter a bill of materials effective date that is far in the future, and then change the effective date

when the approvals are received. This allows the company to set up the bill of materials and other Manufacturing documents beforehand, so production can begin quickly when the approvals are received.

Component effective dates

You might need to add or remove components from a bill of materials on a specific date. For example, a toy manufacturer might have to add a safety warning label to a toy to meet new safety regulations on a certain date.

You can enter an In Date and an Out Date for each component in the Bill of Materials Entry window.

To add a component on a certain date Enter or select the date the component should be added to the bill of materials in the In Dt. (In Date) field in the Bill of Materials Entry window.

To remove a component on a certain date Enter or select the date the component should be removed from the bill of materials in the Out Dt. (Out Date) field in the Bill of Materials Entry window.

If the Out Date for a component is after the required date for a picklist, then the component won't be included in the picklist. Refer to How required dates are calculated in Chapter 6, "Manufacturing order overview," in the Manufacturing Production Functions documentation for more information.

Effects of engineering changes on bills

If your company is using Engineering Change Management, you can set preferences so messages will appear if you modify the bill of materials for an item that is being changed.

To view the Engineering Change Request, use the Engineering Change Request - View Only window. Refer to *Handling ECM notifications in other modules* in Chapter 10, "Engineering change inquiries," in the Manufacturing Management Functions documentation for more information.

Adding user-defined information to bills

You can add up to two fields of information for each component in each bill of materials. Refer to *Setting up bills of materials system settings* in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation for information about creating the labels that will appear on the user-defined fields.

Use the Bill of Materials Entry window to add user-defined information to bills of materials.

To add user-defined information to bills:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the item with the bill of materials to add component details to. The manufacturing bill of materials will be displayed, but you can select any other bill of materials for the selected item.

3. Select the BOM type—Engineering, Archived, Configured, or Super. If you selected Archived or Configured, enter or select the appropriate BOM Name.

4. In the tree view, highlight the component item to add details to.

5. Enter information in the fields for user-defined fields.

6. Choose Save and close the window.

Accounting for by-products in a bill of materials

Some manufacturing processes result in by-products—secondary products that are produced when a primary product is produced, usually at a predictable rate. For example, a lumber-milling business that cuts trees to specific sizes would have leftover pieces. Those leftover pieces could be scrapped, or they could be ground to sawdust for use in making pressed-wood products, such as plywood.

You can use the Bill of Materials Entry window to account for the by-products produced by your processes. To do this, add the by-product to the bill of materials as if the by-product item were a component of the bill of materials—*expressing the amount of by-product produced as a negative number.* Refer to *Adding a component to a bill of materials* on page 101.

For example, suppose a metal fabrication business produces one of its items by cutting shapes from sheets of metal. The metal that is left over from the process—between the cutout shapes—is a by-product that the business sells to a recycling center. Past experience shows that for every assembly cut from the metal, approximately one pound of scrap metal is produced as a by-product. To reflect the by-product amounts produced, the bill of materials for a single assembly would include an entry for -1 pounds of by-product. When finished goods are received for a manufacturing order based on that bill of materials, material transactions are created to add one pound of by-product to inventory for each assembly.

For more information about accounting for by-product quantities produced with manufacturing orders, refer to Manufacturing order receipts with by-products in Chapter 13, "Receipts and closing," in the Manufacturing Production Functions documentation.

Component quantities and rounding

You can add components to a bill of materials in various units of measure. However, because the information is stored in the base unit of measure, the result might not be what you expect, due to rounding.

Suppose a component on a bill of materials uses five decimal places for quantity information and you use a smaller unit of measure for the item than the base unit of measure. For example, your bill of materials calls for 15.12345 half-units of Component A, which uses units for its base unit of measure. To store that information, it is converted to the base unit of measure:

15.12345 x 0.5 = 7.561725

Notice that there are now six decimal places of information to the right of the decimal point. This has to be stored as five decimal places, so it's rounded to 7.56173. When the number is converted back to the unit of measure used in the bill of materials—by dividing by 0.5—the result is 15.12346, which doesn't match the originally entered amount.

To avoid this situation, you should enter component quantities in the base unit of measure if the component item uses five decimals for quantities.

Chapter 12: Links to routings

The component requirements in bills of materials are like the list of ingredients in a recipe, and routings are the instructions that explain how to use the components. Components and the routing information is all you need to produce a finished item in a manufacturing facility.

To produce a finished item, you can specify when certain components are needed in the process. You can use the BOM Routing Link window to create links to bills of materials and routings. You also can create links to bills of materials and routings for each position number on the bill of materials, even if the same component is listed multiple times with different position numbers.

Linking bills of materials and routings can help you manage the delivery of your component items. If you're building a house, for example, you won't want all the nails delivered to the site the first day—you'll want them delivered as they are needed. If you link your bills of materials and routings, you can more closely match the delivery of components to the work center when they are needed and where they are needed.

MRP Linking bills of materials and routing sequences helps Material Requirements Planning (MRP) and picklist operations indicate material use at the exact step in the process where those materials are required. This facilitates Just-In-Time (JIT) material planning.

Sales Configurator Links between bills of materials and routings are required for using the Manufacturing Sales Configurator. Refer to Chapter 24, "Bills and routings," for more information about using links with the Sales Configurator.

Outsourcing If you're using outsourcing, we recommend that you use links between bills of materials and routing sequences. This ensures that purchase orders are released and shipments are suggested at the appropriate time.

To use the BOM Routing Link window, you also must be using Manufacturing Order Processing, which includes routings windows.

This information is divided into the following sections:

Linking component usage to a routing sequence

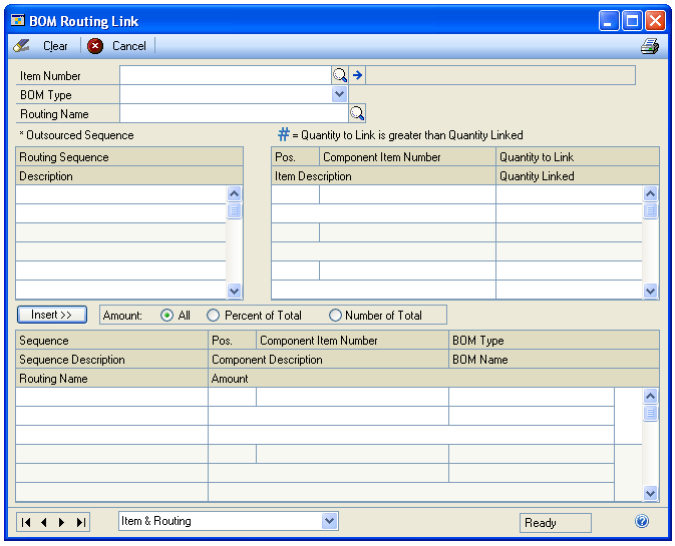
A routing sequence is the smallest part of a routing. It includes information about how and where a task should be done to build an item. Routing sequences also usually include information about the required labor codes and machines needed to complete the task, as well as information about the time needed to complete the task.

When a manufacturing order is created, raw material shrinkage is reflected in the picklist quantities if the manufacturing order uses a scheduling preference that applies raw material shrinkage. Therefore, if you're linking component quantities that have raw material shrinkage, link only the component quantity that would be needed if there were no shrinkage. Otherwise, your picklist quantities could be greater than what is actually needed.

Use the BOM Routing Link window to complete this procedure.

To link component usage to a routing sequence:

1. Open the BOM Routing Link window.
   (Transactions >> Manufacturing >> Bill of Materials >> BOM/Rtg Link)



2. Enter or select the parent part item with the bill of materials and routing to link. If the parent part has more than one bill of materials, use the BOM Type and Name fields to choose the appropriate bill of materials.

3. Enter or select the routing that includes the routing sequence to link to the bill of materials.

4. In the Routing Sequence scrolling window, mark the sequence to link to the component information. A black dot appears when you've marked a sequence.

5. In the Component Item Number scrolling window, mark the component number to link to the marked sequence. A black dot appears when you've marked a component.

6. Mark the option that determines what portion of the component quantity to link to the routing sequence.

   All Mark All to link the entire component quantity to the sequence.

   Percent of Total Mark Percent of Total to specify the component quantity to be linked as a percentage.

   Number of Total Mark Number of Total to specify the component quantity to be linked as a number of units.

7. If you marked Percent of Total or Number of Total, enter the percentage or number of units.

You can change these amounts later, if needed. Refer to Modifying bill of materials and routing links for more information.

8. Choose Insert. The routing and component information and the amount of the component linked to the sequence will be added to the lower scrolling window. Your changes will be saved when they're displayed in the lower scrolling window.

   When a manufacturing order is created, raw material shrinkage is reflected in the picklist quantities if the manufacturing order uses a scheduling preference that applies raw material shrinkage. If you're linking component quantities that have raw material shrinkage, link only the component quantity that would be needed if there were no shrinkage; otherwise, your picklist quantities could be greater than what is actually needed.

   The position number also will be displayed. The position numbers for the items in the lower scrolling window are assigned, based on the quantity of the item linked in the upper scrolling window.

   - If there isn't a quantity for the item linked, the position number assigned is the position number of the bill of materials item.
   - If there is a quantity for the item linked, the position number assigned is the next available number from all the items on the bill of materials routing link for the bill of materials and routing.

If the position number exceeds the allowed limit, you must renumber components and manually assign the position number before you'll be able to insert the item. Refer to Position number guidelines on page 91 for more information.

9. Repeat steps 4 through 8 to link components and routing sequences.

You can link a single component to multiple routing sequences, if you like.

10. When you've finished linking component requirements and sequences, close the window.

Modifying bill of materials and routing links

You can use the BOM Routing Link window to change the amount of the component usage linked to a particular sequence.

To modify bill of materials and routing links:

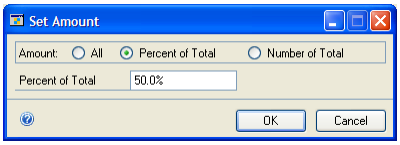
1. Open the BOM Routing Link window.
   (Transactions >> Manufacturing >> Bill of Materials >> BOM/Rtg Link)

2. Enter or select the item with the bill of materials and routing link.

3. If the item has more than one bill of materials, use the BOM Type and Name fields to choose the appropriate bill of materials.

4. Enter or select the routing that includes the routing sequence to link to this bill of materials.

5. In the lower scrolling window, locate the combination of component and routing sequence to change. Choose the expansion button for the line to open the Set Amount window.



6. Determine what portion of the component quantity to link to the routing sequence.

   All Mark All to link the entire component quantity to the sequence.

   Percent of Total Mark Percent of Total to specify the component quantity to be linked as a percentage.

   Number of Total Mark Number of Total to specify the component quantity to be linked as a number of units.

7. If you marked Percent of Total or Number of Total, enter the percentage or number of units.

8. Choose OK. The routing and component information and the amount of the component linked to the sequence will be added to the lower scrolling window in the BOM Routing Link window. Your changes will be saved when they're displayed in the lower scrolling window.

9. Close the window.

Unlinking components and routing sequences

Use the BOM Routing Link window to unlink components and routing sequences.

To unlink components and routing sequences:

1. Open the BOM Routing Link window.
   (Transactions >> Manufacturing >> Bill of Materials >> BOM/Rtg Link)

2. Enter or select the item with the bill of materials and routing link to remove. If the item has more than one bill of materials, use the BOM Type and Name fields to choose the appropriate bill of materials.

3. Enter or select the routing that includes the routing sequence to unlink from this bill of materials.

4. In the lower scrolling window, highlight the link to delete. Choose the delete icon button. Your changes automatically will be saved.

5. Close the window.

Viewing link information

You can use the drop-down list at the bottom of the BOM Routing Link window to view more information about the links that have been created for a specific bill of materials and routing. Refer to the following tables for more information about how you can use the drop-down list to learn more about the links.

Information in the following tables assumes that an item number is displayed in the BOM Routing Link window.

List selection is Item Number

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	All linked sequences

List selection is Item & Routing

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	Nothing
Selected	None selected	None selected	Only linked sequences from the selected routing

List selection is Item & Component Part

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	Nothing
None selected	None selected	One or more is marked	Only linked sequences for the marked item

List selection is Item, Routing & Component Part

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	Nothing
Selected	None selected	One or more is marked	Only linked sequences in the selected routing for the marked item

List selection is Item, Routing & Sequence

Refer to the table for more information.

Routing	Sequences	Components	Bottom scrolling window will display:
None selected	None selected	None selected	Nothing
Selected	One or more is marked	None selected	Only linked sequences in the selected routing for the marked sequence(s)

Chapter 13: Bill of Materials copies

You can create a new bill of materials by using the Bill of Materials Entry window. To create several similar bills of materials, you can copy and modify the original bill of materials.

This information is divided into the following sections:

Copying a bill of materials

You can use the BOM Copy window to create multiple bills of materials for the same item. For example, you might have an engineering bill of materials for a product that has been in development but that is ready for production. You can create the manufacturing bill of materials—which is the bill of materials for production use—by copying the engineering bill of materials. This is useful because engineers can continue to use the engineering bill of materials while maintaining a separate bill of materials for use in production.

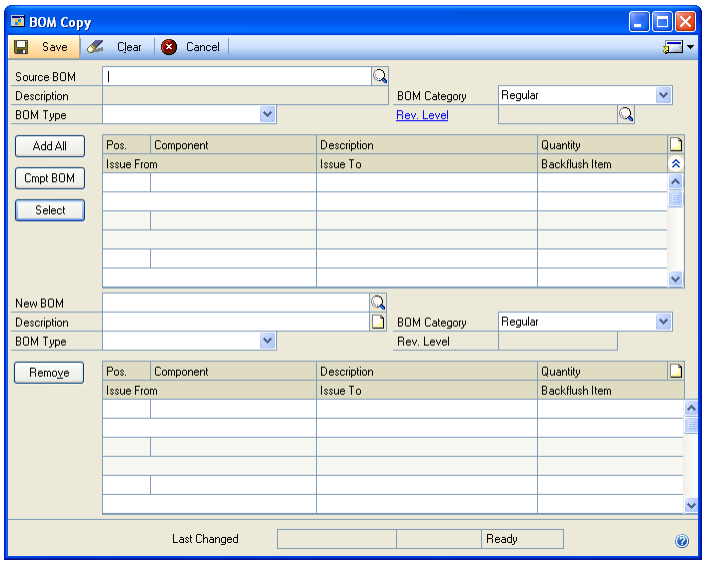
You also can use a copy of an existing bill of materials to be the basis of a bill of materials for a new item. For example, suppose a jewelry manufacturer has a bill of materials for a diamond necklace, but wants to use the same setting for an emerald necklace. The manufacturer could create a copy of the bill of materials for the diamond necklace, remove the requirements for diamonds and add new requirements for emeralds.

Links between bill of materials components and routing sequences are not copied when you copy a bill of materials.

Use the BOM Copy window to create new bills of materials based on existing bills of materials.

To copy a bill of materials:

1. Open the BOM Copy window.
(Transactions >> Manufacturing >> Bill of Materials >> Copy)



2. Enter or select the item with the bill of materials that will be the source BOM. This is the bill of materials to be copied. You must select a made or make or buy item.

3. The manufacturing bill of materials will be displayed, but you can select any other bill of materials for the selected item. To choose a different bill, select the BOM type—Engineering, Archived, Configured, or Super. If you choose Archived or Configured, a BOM Name field will appear. Enter or select the name of the specific bill of materials in that field.

4. In the New BOM field, enter or select the item to be produced with the new copy of the source bill of materials. If you enter a new item—one that hasn't yet been defined in the Item Engineering Data window—you must enter a description. You also must enter information about the item in the Item Engineering Data window.

Refer to Entering item engineering data on page 66 for more information about using the Item Engineering Data window.

5. Select the type of bill of materials to assign to the new bill of materials. Choices are Manufacturing, Archived, Engineering, Configured, and Super bills of materials. If you select Configured or Archived, enter a name for the bill of materials in the BOM Name field that appears. Refer to *Bill of materials types* on page 84 for more information about bill of materials types.

If a bill of materials already exists for the type you select—or, in the case of archived and configured bills of materials, for the type and name you specify—you'll overwrite the existing bill of materials.

6. Determine which components from the first level of the source bill of materials to copy.

- To copy all component requirements, choose Add All.
- To copy only a specific component and its quantity information, mark the component record in the upper scrolling window and choose Select. Add additional components, as needed.

7. To copy component requirements from any subassemblies in the source bill of materials, mark the subassembly in the upper scrolling window and choose Cmpt BOM. The component requirements for the subassembly will be displayed in the upper scrolling window.

   Each instance of the component position number for the component from the existing bill of materials will be copied to the new bill of materials. You can't change these position numbers.

8. Repeat steps 6 and 7 to add additional subassembly components to your new bill of materials.

9. Review the component requirements in the lower scrolling window.
   - To remove any of the component requirements, refer to *Removing copied component requirements* on page 119.
   - To add component requirements from another bill of materials, select a new source bill of materials and repeat this procedure.

10. Choose Save.

After you've defined the new bill of materials, you can modify it using the Bill of Materials Entry window.

Removing copied component requirements

Before you save a new bill of materials you've created in the BOM Copy window, you can remove any components that aren't needed. Use the BOM Copy window to complete this procedure

The following procedure assumes that you've copied component requirements into a new bill of materials using the BOM Copy window, but that you haven't saved the new bill of materials yet. If you have saved the new bill of materials, you must use the Bill of Materials Entry window to remove components. Refer to *Deleting a component from a bill of materials* on page 102 for more information about that procedure.

To remove copied component requirements:

1. In the lower scrolling window of the BOM Copy window, mark the component requirement to remove from the new bill of materials.

2. Choose Remove.

3. Mark and remove any additional components.

4. Choose Save and close the window.

Chapter 14: Standard costing revaluations

Standard costing is an accounting method used by some businesses to value their inventories. A company that uses standard costing—also known as periodic costing—revalues its inventory periodically to reflect significant changes in the cost of its items.

Manufacturing includes windows and features you can use to enter and adjust standard costing information. You can define the standard costs of raw materials, subassemblies, and finished goods. You can change standard cost information and then "roll up" those new costs so they're reflected throughout your system.

Most of the information in this document explains how to change material costs. For information about changing labor or machine costs or the overhead amounts associated with them, refer to Chapter 1, "Machines and labor codes."

This information is divided into the following sections:

Standard costing windows

Manufacturing includes several windows you can use to enter and update standard costing information for items. Basically, you can choose from two methods for updating standard costs: using the Standard Item Material Costs window, the Standard Cost Maintenance window, and the Roll Up and Revalue window, or using the Standard Cost Changes window. You can use either method or both methods, but you need to be aware of the limitations of each to get the expected results.

Method One

The first of the available methods for rolling up and revaluing standard costs involves three windows. This method has two advantages:

- You can enter an effective date for the pending cost information you enter. When you roll up and revalue the changes, only the pending changes that have an effective date that is the same as or earlier than the effective date for the roll up or revalue process will be reflected in the standard cost changes.

- You can override the cost and overhead amounts for any item before the pending amounts are reflected in new material costs.

Refer to the following information for an overview of the steps involved in this method.

Standard Item Material Costs window You can use this window to enter pending changes for costs, fixed overhead, and variable overhead for a bought item. You also can enter a date when the changes should become effective. Refer to *Entering pending changes for material costs* on page 123.

Standard Cost Maintenance window As an optional step, you can view information about how the proposed changes would affect the cost of a make or buy item. For bought items, the pending material cost is displayed, as well as the pending variable and fixed overhead. Information for these categories is displayed for make items, along with information about labor and machine costs, and the associated fixed overhead and variable overhead costs. In the Standard Cost Maintenance window, you can override the amount in any category, entering a different amount to be used when the standard cost items are revalued. Refer to *Overriding a pending standard cost change* on page 124.

Roll Up and Revalue window If you've entered standard cost changes in the Standard Item Material Costs window, you can roll up and revalue those entries with the Roll Up and Revalue window. Refer to *Rolling up material and overhead cost changes* on page 125 and *Revaluing all inventory items* on page 131.

Method Two

The second method involves using the Standard Cost Changes window, where you can enter changes for the standard costs of materials, and you can edit the formulas for calculating fixed and variable overheads.

If you use this method, you can experiment with different values for standard cost changes, viewing their effect on the cost of different components. You also can roll up and revalue items in this window to complete the process.

For more information about using the Standard Cost Changes window, refer to the following topics:

- *Using scenarios to make standard cost changes* on page 127
- *Specifying the standard quantity for a finished item* on page 131
- *Proposing changes to material fixed overhead* on page 129
- *Proposing changes to material variable overhead* on page 130
- *Interpreting the tree view* on page 130
- *Revaluing affected inventory items* on page 131

Comparison of rolling up and revaluing

Two of the main processes of standard costing are rolling up and revaluing. It's important to understand the difference between these two operations and how they are completed in Manufacturing.

Rolling up Rolling up is the process of applying calculations based on changes to standard cost information to items. If you change the cost of a raw material that is part of several subassemblies and finished goods, "rolling up" that change will result in calculations that will determine the new standard costs of the subassemblies and finished goods. Rolling up helps you to view the effects of standard cost changes before applying the costs to items.

Be sure that your bills of materials are accurate when working with rolling up standard cost changes. Fixed quantities for components are included in rollup calculations, but floor stock items are not.

Revaluing Revaluing is the process of finalizing rolled-up standard cost changes. Revaluing replaces existing standard cost information with new standard cost information. The new information will be used in your accounting processes.

As you change your standard cost information, you might roll up costs several times, but probably will revalue items only at certain points.

Revaluing inventory is an important process that might have significant impact on your business's accounting records. We recommend using process security to restrict authority for revaluing. Refer to Creating and modifying process security sets on page 18 in Chapter 2, "Security," of the Manufacturing Setup documentation.

Labor and machine costs are calculated from a manufacturing bill of materials and primary routing for an item, and are rolled up into the final cost of the item. Subassembly costs are directly rolled up into the accounts that incurred the cost, in what is called a "columnar rollup."

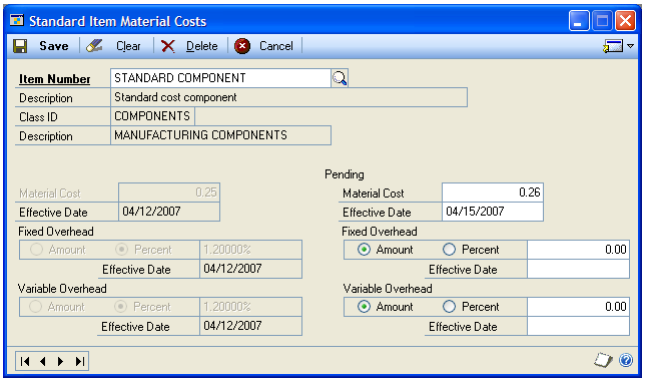
Entering pending changes for material costs

Use the Standard Item Material Costs window to enter the standard material costs of new raw materials.

If the item has been assigned to a class, the overhead calculation methods for the item class will be the default method for the item. Refer to *Defining overhead for a standard cost item class* on page 59 for information about setting default methods for calculating fixed and variable overhead for an item class.

To enter pending changes for material costs:

1. Open the Standard Item Material Costs window.
   (Cards >> Manufacturing >> Inventory >> Std Item Mat Costs)



2. Enter or select an item.

   Information about the current standard cost of the item will be displayed in the fields on the left side of the window.

3. Enter the pending material cost for the item.

4. Enter the effective date for the changes.

5. Determine how fixed overhead for the item should be calculated.

   Amount Mark Amount to calculate fixed overhead as a specific amount for each unit of the item. Enter the amount in the associated field.

   Percent Mark Percent to calculate fixed overhead as a percentage of the material cost of the item. Enter the percentage in the associated field.

6. Determine how variable overhead for the item should be calculated.

   Amount Mark Amount to calculate variable overhead as a specific amount for each unit of the item. Enter the amount in the associated field.

   Percent Mark Percent to calculate variable overhead as a percentage of the material cost of the item. Enter the percentage in the associated field.

7. Choose Save and close the window.

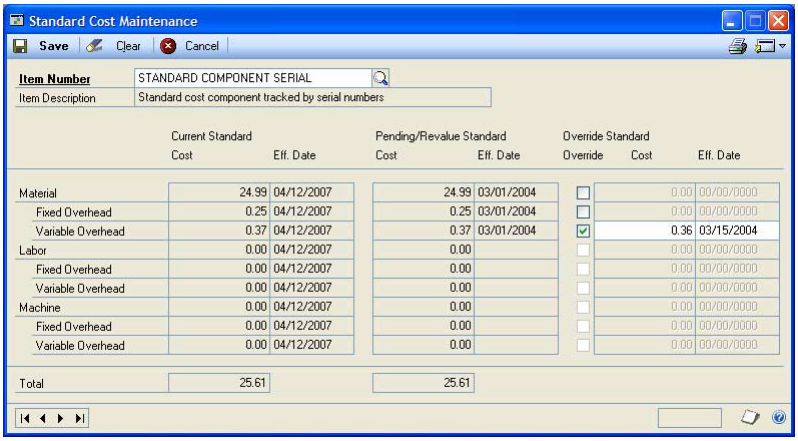
After you've entered and saved pending changes, you must roll up and revalue those changes so they're reflected in the costs of other items, if needed. Use the Roll Up and Revalue Inventory window to complete that procedure. Refer to *Rolling up material and overhead cost changes on page 125 and Revaluing all inventory items on page 131.*

Overriding a pending standard cost change

Use the Standard Cost Maintenance window to override any pending changes to information for your standard cost items. If the item is a bought item, you also can override the amounts for the fixed and variable overhead for labor and machine costs.

To override a pending standard cost change:

1. Open the Standard Cost Maintenance window.
   (Cards >> Manufacturing >> Inventory >> Std Cost Maintenance)



2. Enter or select an item. The current and pending/revalue standard cost information for the item—including overhead calculations for fixed and variable overhead for machine, labor and material costs—will be displayed in the window.

    - Pending/revalue material costs come from the Standard Item Material Costs window.
    - Pending/revalue labor costs come from the Labor Code Definition window and the primary routing for the item.
    - Pending/revalue machine costs come from the Machine Definition window and the primary routing for the item.

3. To override any amount, mark the check box in the Override column for the amount to be changed. For example, to override the fixed overhead amount associated with labor for this item, mark the Labor Fixed Overhead option in the Override column.
4. Enter the new amount.
5. Enter an effective date for the change.
6. Repeat steps 3 through 5 to override other values.
7. Choose Save and close the window.

After you've entered and saved pending changes, you must roll up and revalue those changes so they're reflected in the costs of other items, if needed. Use the Roll Up and Revalue Inventory window to complete that procedure. Refer to *Rolling up material and overhead cost changes on page 125 and Revaluing all inventory items on page 131.*

Rolling up material and overhead cost changes

Use the Roll Up and Revalue Inventory window to roll up labor, machine, material and overhead costs for all inventoried items. When the standard cost of a labor code, machine code, made item or bought item changes, you must update those records to maintain accurate cost information.

You can change material costs in standard costing windows, but to change labor or machine costs you must use the Labor Code Definition window or Machine Definition window.

The effective date you enter for the rollup process is the cutoff date for pending standard cost changes in the rollup process. For example, suppose the effective rollup date is June 30 and you have two sets of pending standard cost changes—the effective date for one set of changes is June 15, and the effective date for the other set of changes is July 1.

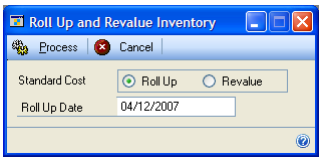
When you start the rollup process, only items with pending changes with effective dates that match or precede the effective date for the rollup will be included in the rollup calculations. The cost changes with June 15 effective dates will be included in the rollup. The cost changes with July 1 effective dates won't be included in the rollup.

If the rollup process includes raw materials or subassemblies, it will change the standard cost of the subassemblies and finished goods—including raw material or subassembly—unless one of these instances occur:

- The raw material or subassembly isn't part of the manufacturing bill of materials. However, items that aren't included in any bill of materials will be rolled up.
- The raw material or subassembly has an In Date or Out Date in the manufacturing bill of materials that excludes it from the manufacturing bill of materials on the rollup date.
- The raw material or subassembly is only an alternate for another item in the manufacturing bill of materials.
- The raw material is a floor stock item—that is, the Floor Stock option has been marked for the item in the Bill of Materials Entry window. (The cost of floor stock items is applied to an expense account.)

To roll up material and overhead cost changes:

1. Open the Roll Up and Revalue Inventory window.
(Microsoft Dynamics GP menu >> Tools >> Routines >> Manufacturing >> Roll Up and Revalue)



2. Mark the Roll Up option.
3. Enter the effective date for the rollup process.
4. Choose Process. A message will indicate when processing is complete.
5. When you roll up standard cost changes, the amounts in the pending columns will be displayed in the current standard cost columns in the Standard Cost Maintenance window. You can open that window and review the information.
6. Close the Roll Up and Revalue Inventory window.

Verifying rollup results

Before finalizing the changed standard costs, you can view the results of the rollup process in the Item Cost Revaluation report. Print the Item Cost Revaluation report from the Standard Cost Maintenance window.

To verify rollup results:

1. Open the Standard Cost Maintenance window.
   (Cards >> Inventory >> Item >> select a standard cost item >> Go To button >> Standard Cost Maintenance)

2. Choose the print icon button. The Item Pending Cost Revaluation report will list all items with standard cost information changed in the rollup process.

3. Close the Standard Cost Maintenance window.

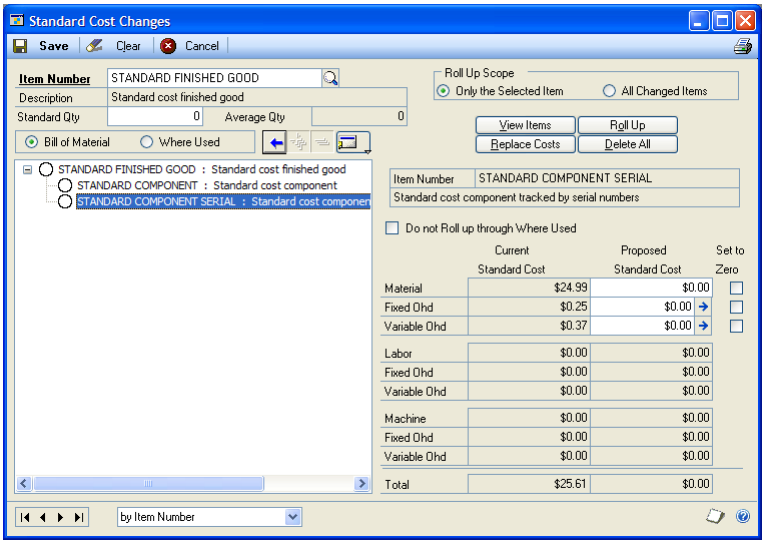
   After you've verified the rollup results, use the Roll Up and Revalue window to revalue standard cost items. Refer to *Revaluing all inventory items* on page 131.

Using scenarios to make standard cost changes

To experiment with how changes to the standard costs of certain items would affect bills of materials, you can use the Standard Cost Changes window to enter changes to your standard cost items.

To use scenarios to make standard cost changes:

1. Open the Standard Cost Changes window.
   (Cards >> Manufacturing >> Inventory >> Standard Cost Changes)



2. If you've entered other standard cost changes, you can keep those proposed changes or you can clear all proposed changes. To clear proposed changes, choose Delete All.

3. Enter or select an item. Information about the standard costs of the item and its associated items will be displayed in the tree view.

Information displayed in the tree view is determined by the item type—raw material, subassembly or finished good—and whether you marked the Bill of Material or Where Used option.

Type of item	Bill of Material option	Where Used option
Raw material (component)	Not applicable	All subassemblies and finished goods that meet criteria.
Subassembly	All items in the multi-level manufacturing bill of materials for this item. Substitute items are not included.	All subassemblies and finished goods that meet criteria.
Finished good	All items in the multi-level manufacturing bill of materials for this item. Substitute items are not included.	Not applicable

Refer to *Interpreting the tree view* on page 130 for more information.

The tree view will include costing information about all the subassemblies and finished goods that meet the following criteria:

- The raw material is part of the manufacturing bill of materials for the subassembly or finished good.
- The raw material must be a direct component of the manufacturing bill of materials—it can't be an alternate for another component.

If you decide you'd rather adjust the standard cost information for one of the other items in the tree view, mark the item that has the standard cost information you want to change.

4. Determine if the change in the cost should be applied to the related subassemblies and finished goods.
   - To apply the changes throughout the system, be sure the Do not Roll up through Where Used option is *not* marked.
   - To limit the changes to just the component item, mark Do not Roll up through Where Used. You can mark the option for the component or for any of its parents.
5. Enter new proposed costs for materials in the Proposed Standard Cost - Material field.

   You can set the material costs or fixed or variable material overhead costs to zero. Mark the appropriate options in the Set to Zero column.
6. To change the fixed or variable material overhead information, refer to *Proposing changes to material fixed overhead* on page 129 or *Proposing changes to material variable overhead* on page 130.
7. Choose Save to save your proposed changes.

8. Continue entering proposed changes for other items. You can choose to start again with step 2 of this procedure, or you can go to related item records. Be sure to choose Save each time you change a value.

9. When you've finished entering proposed standard cost changes, choose Roll Up to clear the fields in the window. Items with standard cost changes due to direct entries or due to rolled-up changes through bills of materials will be displayed. You can use the tree view to move to other items.

Choose View Items to see the effect of the rollup calculations in the tree view.

10. Determine how to proceed. You can enter more standard cost changes, delete all your proposed changes and start over, or finalize the changes you've entered so far.

    - To enter additional standard cost changes, choose Save and then select an item.
    - To delete the proposed changes, choose Delete All.
    - To finalize your changes and have them reflected in your accounts, complete a revaluation. Use the Standard Cost Changes window to revalue only those inventory items that are affected by your changes, or use the Roll Up and Revalue Inventory window to revalue all inventory items.

Refer to Revaluing affected inventory items on page 131 and Revaluing all inventory items on page 131.

Proposing changes to material fixed overhead

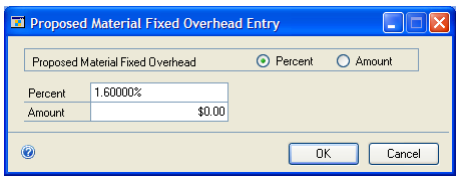
If you're using the Standard Cost Changes window to change standard cost information, use the Proposed Material Fixed Overhead Entry window to suggest changes for calculating material fixed overhead.

To propose changes to material fixed overhead:

1. Open the Standard Cost Changes window.
   (Cards >> Manufacturing >> Inventory >> Standard Cost Changes)

2. Enter or select an item.

3. Choose the expansion button on the Proposed Standard Cost - Fixed Ohd field. The Proposed Material Fixed Overhead Entry window will open.



4. Determine whether to base the overhead on an amount per unit of the item, or on a percentage of item cost.

   Amount Mark Amount to propose calculating fixed overhead as a specific amount for each unit of the item, and enter the amount.

Percent Mark Percent to propose calculating fixed overhead as a percentage of the material cost of the item, and enter the percentage.

5. Choose OK and close the window. Your proposed entry will be reflected in the Standard Cost Changes window.

Proposing changes to material variable overhead

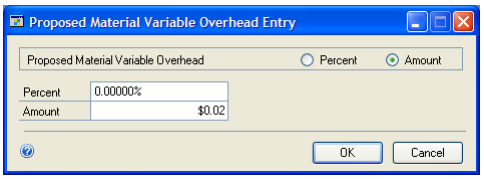
If you're using the Standard Cost Changes window to change standard cost information, use the Proposed Material Variable Overhead Entry window to suggest changes for calculating material variable overhead.

To propose changes to material variable overhead:

1. Open the Standard Cost Changes window.
(Cards >> Manufacturing >> Inventory >> Standard Cost Changes)

2. Enter or select an item.

3. Choose the expansion button on the Proposed Standard Cost - Variable Ohd field. The Proposed Material Variable Overhead Entry window will open.



4. Determine whether to base the overhead on an amount per unit of the item, or on a percentage of item cost.

Amount Mark Amount to propose calculating variable overhead as a specific amount for each unit of the item, and enter the amount.

Percent Mark Percent to propose calculating variable overhead as a percentage of the material cost of the item, and enter the percentage.

5. Choose OK and close the window. Your proposed entry will be reflected in the Standard Cost Changes window.

Interpreting the tree view

Symbols are used in the tree view to denote the various standard cost statuses that items can have. Refer to the table for information you can use to interpret those symbols.

Symbol	Meaning
Black circle	This item has a current standard cost but does not have a proposed standard cost.
Blue circle	This item has a proposed standard cost.
Red circle with slash	This item doesn't have a current standard cost and doesn't have a proposed standard cost.
Any circle with a question mark	This item has an item in its multi-level bill of materials that doesn't have a current standard cost and that doesn't have a proposed standard cost.

Revaluing affected inventory items

If you used the Standard Cost Changes window to enter and roll up changes to standard cost information, you can replace the current standard cost information with the new information. This revaluing process will affect only the inventory items that have standard cost changes.

Use the Standard Cost Changes window to complete this procedure.

Before beginning this procedure, be sure you've already entered and rolled up standard cost changes you want to make.

To revalue affected inventory items:

1. Open the Standard Cost Changes window.
   (Cards >> Manufacturing >> Inventory >> Standard Cost Changes)

2. Choose Replace Current Standards Costs.

   If a process security set has been assigned to the inventory revaluation process, enter the appropriate password. Refer to Process security and Creating and modifying process security sets—both in Chapter 2, "Security," in the Manufacturing Setup documentation—for more information.

3. Close the window.

Revaluing all inventory items

To finalize the standard cost changes you've made using the Standard Cost Maintenance window or the Standard Item Material Cost window, you must revalue inventory. This process updates the cost information for each standard cost item affected by the rollup process and revalues your inventory. Use the Roll Up and Revalue Inventory window to complete this procedure:

To revalue all inventory items:

1. Open the Roll Up and Revalue Inventory window.
   (Microsoft Dynamics GP menu >> Tools >> Routines >> Manufacturing >> Roll Up and Revalue)

2. Mark the Revalue option.

3. Choose Process.

   If a process security set has been assigned to the inventory revaluation process, enter the appropriate password. Refer to Process security and Creating and modifying process security sets—both in Chapter 2, "Security," in the Manufacturing Setup documentation—for more information.

Specifying the standard quantity for a finished item

When you set up options for standard costing, you have the option to prorate setup time based on either the standard quantity for the item or the average quantity for the item. You can use the Standard Cost Changes window to specify the standard quantity for a finished good that uses standard costing (that has a periodic valuation method). Use this procedure only if you're prorating setup time by the standard quantity.

The average quantity information comes from the Item Engineering Data window. Refer to Entering item engineering data in Chapter 8, "Item engineering data," in the Manufacturing Core Functions documentation for more information.

To specify the standard quantity for a finished item:

1. Open the Standard Cost Changes window.
   (Cards >> Manufacturing >> Inventory >> Standard Cost Changes)

2. Enter or select a parent item that has a periodic valuation method.

3. Enter the standard quantity for the item.

4. Choose Save, and close the window.

Chapter 15: Bill of Materials inquiries

Because bills of materials are critical to production processes, several users in your organization might want to view bills of materials at the same time. Users throughout your business can use the Bill of Materials View window to view bills of materials and to calculate component requirements simultaneously without affecting the bills of materials.

You also can use the Bill of Materials View window to view other information about your bills of materials. For example, you can enter the quantity of the finished good to build, and the extended quantity for the individual components will be calculated. The cost of the bill of materials also is displayed.

This information is divided into the following sections:

Types of bill of materials queries

You can use the Bill of Materials View window to get information from your bill of materials records in two different ways. You can start with a parent part and view information about the components included in the bill of materials for that item, or you can start with a component item and view information about all bills of materials that include that component.

Refer to the table for more information about the information you can view using the Bill of Materials View window. Refer to *Viewing components in bills of materials* on page 134 for more information about Bill of Materials queries, and to *Scanning bills of materials for specific items* on page 135 for more information about Where Used queries.

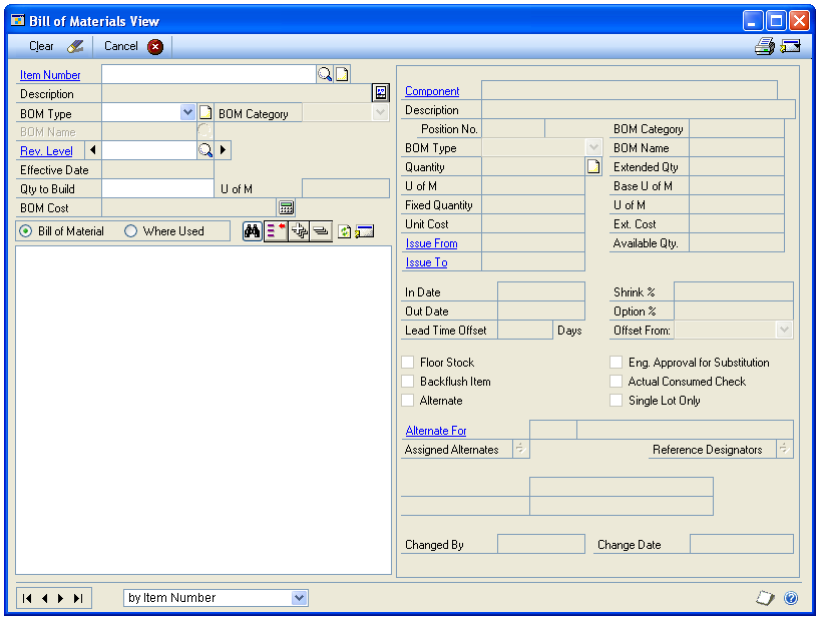
Item type	Bill of Material query	Where Used query
Component item	Not applicable	Lists bills of materials that include the selected item
Subassembly	Lists components included in the bill of materials for the item	Lists bills of materials that include the selected item
Final assembly	Lists components included in the bill of materials for the item	Not applicable

Viewing components in bills of materials

You can use the Bill of Materials View window to see basic information about bills of materials.

To view components in bills of materials:

1. Open the Bill of Materials View window.
(Inquiry >> Manufacturing >> BOM View)



2. Mark Bill of Material to display components listed in the bill of materials for an item.

Only make and make or buy items will be available in the Items lookup window if the Bill of Material option is marked.

3. Enter or select the item with the bill of materials to view.

4. The manufacturing bill of materials will be displayed, but you can choose a different bill. To choose a different bill, select the BOM type—Engineering, Archived, Configured, or Super. If you select Archived or Configured, a BOM Name field will appear. Enter or select the name of the specific bill of materials in that field.

5. View the information, as needed.

6. Close the window.

Scanning bills of materials for specific items

You can use the Bill of Materials View window to see which bills of materials include a specific component or subassembly. Manufacturing refers to reports generated this way as "where-used" reports because they list where a specific component is used.

To scan bills of materials for specific items:

1. Open the Bill of Materials View window.
   (Inquiry >> Manufacturing >> BOM View)

2. Enter or select an item number.

3. Enter or select the bill of materials type to search.

   For example, if the BOM Type that's displayed is MFG BOM, only bills of materials with the manufacturing type will be included in the search.

4. Mark Where Used to display a list of assemblies that include the selected item in their bills of materials.

5. View the information, as needed.

6. Close the window.

Calculating component requirements

You can use the Bill of Materials View window to calculate component requirements based on item usage in a particular bill of materials and the quantity you're building.

To calculate component requirements:

1. Open the Bill of Materials View window.
   (Inquiry >> Manufacturing >> BOM View)

2. Enter or select the item with the bill of materials to view.

3. The manufacturing bill of materials will be displayed, but you can choose a different bill. To choose a different bill, select the BOM type—Engineering, Archived, Configured, or Super. If you select Archived or Configured, a BOM Name field will appear. Enter or select the name of the specific bill of materials in that field.

4. Select the revision level you to view.

5. Enter the Qty to Build and use the tab key to move from the field.

   Highlight a component in the tree view. Information about its extended quantity requirements will be displayed in the right pane.

6. When you've finished, close the window.

Viewing cost information

You can use the Bill of Materials View window to quickly see costing information about items.

To view cost information:

1. Open the Bill of Materials View window.
   (Inquiry >> Manufacturing >> BOM View)

2. Enter or select the item with the bill of materials to view.

3. The manufacturing bill of materials will be displayed, but you can choose a different bill. To choose a different bill, select the BOM type—Engineering, Archived, Configured, or Super. If you select Archived or Configured, a BOM Name field will appear. Enter or select the name of the specific bill of materials in that field.

4. Select the revision level to view.

5. View the cost information in the BOM Cost field.

6. If the item uses the periodic valuation method, you can click the calculator button to open the Standard Cost Maintenance window, which displays information about the standard cost of the item.

7. When you've finished viewing the cost information, close the window.

Chapter 16: Reference designators

Some manufacturers use reference designators to specify the location of a component in an assembly. For example, a circuit board manufacturer might have a board assembly that uses three resistors. Reference designators are used to specify where on the circuit board those resistors should be placed.

You can use the Reference Designator Assignment window to enter reference designator information. You can use the Reference Designator Inquiry window to view the information.

This information is divided into the following sections:

Entering a reference designator

Use the Reference Designator Assignment window to enter reference designators for a component in a bill of materials. A reference designator is information that specifies where components should be used in an assembly, such as the placement of four resistors on a printed circuit board.

You can use the BOM Mass Updates window to add the same reference designators for a component that is part of several bills of materials. Refer to Chapter 18, "Mass updates," for more information.

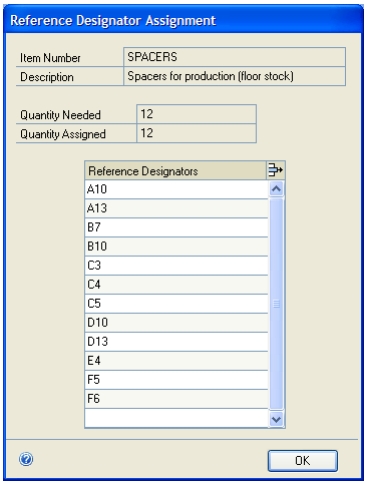
To enter a reference designator:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the bill of materials that includes the components to enter reference designators for.

3. Highlight the component in the tree view.

4. In the right pane, click the Reference Designators expansion button to open the Reference Designator Assignment window.



5. In the first blank line of the scrolling window, enter the first reference designator.

6. Continue, repeating step 5 until you've entered as many reference designators as you like.

   The quantity of the component is displayed in the window, as well as the number of reference designators that have been entered. The component quantity doesn't have to be equal to the number of reference designators.

7. When you've finished, click OK to save your changes and close the window.

Modifying or deleting a reference designator

You can use the Reference Designator Assignment window to modify or delete reference designation information.

To modify or delete a reference designator:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the bill of materials that includes the components to enter reference designators for.

3. Highlight the component in the tree view.

4. In the right pane, click the Reference Designators expansion button to open the Reference Designator Assignment window.

5. Modify information, as needed.

   To modify a reference designator Type over the incorrect information directly in the scrolling window.

To delete a reference designator Select the line to delete, and choose the delete row icon button in the upper right corner of the scrolling window.

6. When you've finished, click OK to save your changes and close the window.

Viewing a reference designator

You can use the Reference Designator Inquiry window to view the reference designation information that has been added to a component in a bill of materials. A reference designator is information that specifies where components should be used in an assembly, such as the placement of four resistors on a printed circuit board.

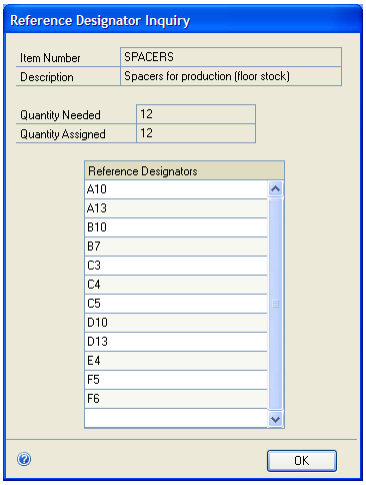
To view a reference designator:

1. Open the Bill of Materials View window.
(Inquiry >> Manufacturing >> BOM View)

2. Enter or select the bill of materials that includes the components to view reference designators for.

3. Highlight the component in the tree view.

4. In the right pane, click the Reference Designators expansion button to open the Reference Designator Inquiry window.



5. When you've finished viewing the information, close the window.

Chapter 17: Revisions and archived bills

Manufacturing includes two methods you can use to store historical information about your bills of materials. You can use revision history, archives for bills of materials, or both.

This information is divided into the following sections:

Revision levels and Archived bills of materials

It's helpful to understand revision levels and Archived bills of materials so that you can decide which method will work best for your business. The most significant difference is that you can create a manufacturing order based on an Archived bill of materials, but you can't create a manufacturing order based on any revision level for a bill of materials, except the most current revision level.

Revision levels

When you enter a bill of materials, you can enter a revision level for the bill of materials. Each combination of finished good item, bill of materials type, and (if the bill of materials type is Archived or Configured) bill of materials name can have multiple revision levels.

When you modify any bill of materials, you can specify a new revision level for the modified bill. When you enter a new revision level for the bill of materials, a message appears. You'll have the option to create a new revision level for the bill of materials. At the same time, a copy of the existing bill of materials (with its previous revision level) is stored.

When you select a bill of materials in the Bill of Materials Entry window, the newest revision level of the bill of materials is displayed. You can't edit the old revision levels of the bill of materials, but you can view them with the Bill of Materials View window. Revision level history can't be removed unless you remove the entire bill of materials.

Archived bills of materials

Another method for storing old bills of materials is to use the Archived bill of materials type. Bills of materials can become archived (that is, get the Archived bill of materials type) in any of these ways:

Manually If you want to archive a current bill of materials, use the BOM Copy window to create a copy of the current bill of materials, and then assign the Archived bill of materials type to it. (You'll also need to assign a BOM Name to the copy.)

Automatically for configured items Each time you use the Sales Configurator to configure an item and then build a manufacturing order for that item, a bill of materials with the Configured type is created. If you marked the option in the Manufacturing Order Preference Defaults window so that configured bills of materials automatically are archived when the manufacturing order is completed, Archived bills of materials will be created.

Automatically for mass-changed bills of materials If you marked the option in the BOM Preference Defaults window to automatically archive mass-changed bills of materials, bills of materials with the Archived type automatically will be created when you use the BOM Mass Updates window to modify multiple bills of materials at one time.

Bills of materials with the Archived type can be modified. You can purge old Archived bills of materials. Refer to *Removing Archived bills of materials* on page 144.

Creating a new revision level for a bill

You can use the Bill of Materials Entry window to create a new revision level for a bill of materials.

To create a new revision level for a bill:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the finished good item number and the BOM Type for the bill of materials you want to change.

3. If the BOM Type is Archived or Configured, you must enter or select a name for the bill of materials.

4. Select the text in the Rev. Level field, and enter the new revision level. A message will appear.

   - If the revision level already has been used for this combination of finished good and bill of materials type, you'll have the option to view the old version of the bill of materials.

   - If the revision level hasn't been used for this combination of finished good and bill of materials type, the message will state that the revision level does not exist. You'll have the option to move the current bill of materials to revision history (with its old revision number) and to create a copy of the bill of materials with the new revision level.

5. Change other information for the bill of materials, as needed.

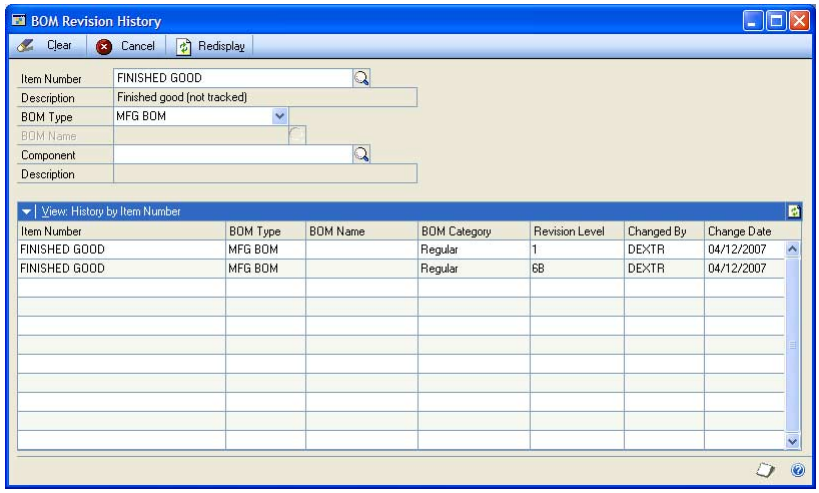
6. Click Save to save your changes and close the window.

Viewing past revisions of a bill of materials

You can use the BOM Revision History window to view the different revision levels for a combination of finished good and bill of materials type. You also can use the window to view which revision levels for which bills of materials include a particular component.

To view past revisions of a bill of materials:

1. Open the BOM Revision History window.
   (Inquiry >> Manufacturing >> BOM View >> click the Rev Level link)



2. Decide what kind of revision history you want to view.

   - To view revision history for a combination of finished good and bill of materials type, enter or select the combination of finished good and bill of materials type. If the bill of materials type is Configured or Archived, you also can enter or select a BOM Name.

   - To view all the bill of materials revision levels that include a specific component, enter or select the component.

3. Click Refresh.

4. View the information in the scrolling window.

5. To view more information about a specific revision level, double-click the record in the scrolling window. Information about the bill of materials at the specific revision level will be displayed in the Bill of Materials View window.

6. When you've finished viewing information, close the windows.

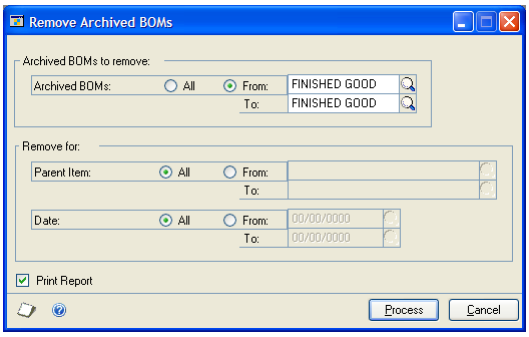
Removing Archived bills of materials

If you don't need to keep Archived bills of materials indefinitely, you might want to purge them occasionally using the Remove Archived BOMs window. There are no restrictions for purging Archived bills of materials.

You can use the Bill of Materials Entry window to delete an archived bill of materials.

To remove Archived bills of materials:

1. Open the Remove Archived BOMs window.
   (Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> Remove Archived BOMs)



2. Decide what Archived bills of materials to remove.

   You can remove all bills of materials with the Archived type, or you can remove a range of bills of materials.

3. You can mark the Print Report option to have a list of the removed bills of materials printed.

4. Click Process.

5. When processing is finished, close the window.

Chapter 18: Mass updates

Sometimes a company needs to make changes to a large number of its bills of materials. For instance, the company might need to replace all instances of one component with another, add or remove a component from a bill of materials, or change information about a component, such as whether it is backflushed or used as floor stock. You can use the BOM Mass Updates window to complete these changes.

This information is divided into the following sections:

Overview of mass updates for bills of materials

You can use the BOM Mass Updates window to change information about one component in multiple bills of materials. There are several types of changes you can make.

- You can replace one component with another component on several bills of materials.
- You can add a component to several bills of materials.
- You can remove a component from several bills of materials.
- You can update information about a component that already exists on several bills of materials.

When you make these changes, you can choose to make an identical change to all bills of materials (adding one unit of a widget to all bills of materials, for example) or you can make slightly different changes (adding one widget to some bills of materials, and two or more to other bills of materials). You also can use the BOM Mass Update Defaults window to choose the information that's the same for all of the changed bills of materials. For example, you might want to specify the issue-from site for all widgets, even though you're adding different quantities of widgets to different bills of materials. Regardless of whether you specify default values, you can adjust each bill of materials, as needed. When processing is complete, a report is generated that displays information about the bills of materials that were changed.

You can use settings in the BOM Preference Defaults window to choose how the mass updates will work in your company. You can choose to archive the original versions of the bills of materials that are updated, so that you have a record of the changes that are made. You can choose to exclude certain bill of materials types from updates. You also can set up process security, so that users must be part of a process security group or supply a password before the bills of materials can be updated.

For more information about the setup options, refer to Setting up bills of materials system settings in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation.

Terminology for mass updates to bills of materials

It's helpful to understand these terms when you're making mass updates to bills of materials.

Replaced item The item that will be removed from marked bills of materials when you process the mass update.

Replacement item The item that will be added or updated on marked bills of materials when you process the mass update.

Defaults values Values used in bills of materials that might apply to the replacement item in several bills of materials. For example, to change the issue-to site for a component from the North site to the South site, you could enter the name of the South site as a default value.

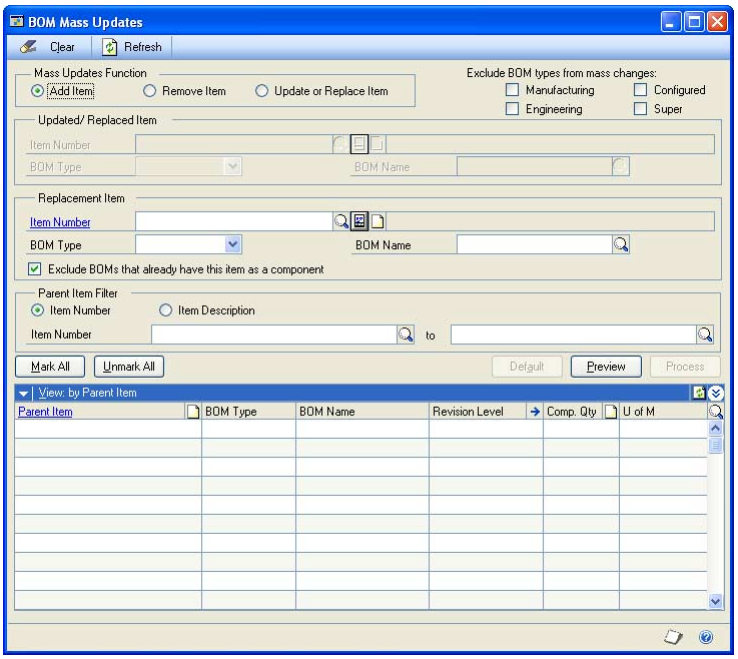
Adding an item to multiple bills of materials

You can use the BOM Mass Updates window to add a component to multiple bills of materials. You also can indicate which bill of materials types to include or exclude from the mass update.

This procedure assumes that you'll enter information about the component separately for each bill of materials. For information about how to set up default information for the component, refer to Changing default values for mass updates on page 153.

To add an item to multiple bills of materials:

1. Open the BOM Mass Updates window.
(Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> BOM Mass Updates)



2. Mark the bill of materials types to exclude from this mass change.

   Manufacturing Mark this option to exclude manufacturing bills of materials.

   Engineering Mark this option to exclude engineering bills of materials.

   Configured Mark this option to exclude configured bills of materials.

   Super Mark this option to exclude super bills of materials.

3. Enter or select the Replacement Item.

4. Select a BOM Type. If you select Archived or Configured for the BOM Type, enter or select a BOM Name.

   If you're adding a Buy item, or if you're adding a Make or Buy item to be treated as a Buy item in the bills of materials, skip this step.

5. Mark or unmark the option to exclude bill of materials that already have this item as a component.

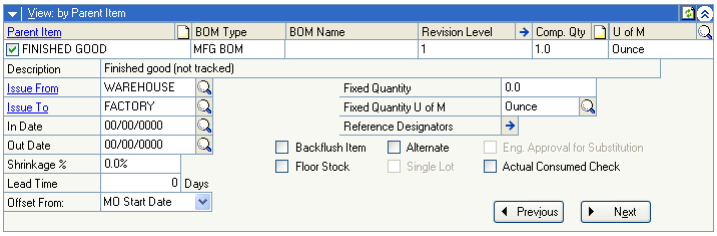
6. To restrict the bills of materials that will be displayed in the scrolling window, you can mark Item Number or Item Description and choose a range of bills of materials to display.

7. Choose Refresh. All the bills of materials where the item that you've selected could be added are displayed in the scrolling window.

The types that you did not exclude are displayed in the scrolling window. To display items that you chose to exclude, you can unmark the type to include and choose Refresh.

If you select an item that has a perpetual (actual) valuation method, for example, bills of materials for only those finished goods that have a perpetual valuation method are listed in the scrolling window. Items that use a perpetual valuation method can't be components of finished goods with periodic valuation methods, so those bills of materials automatically are filtered from the list.

8. Enter information directly in the scrolling window for each bill of materials where you want the component to be added. You can choose the show button for the scrolling window to view information about component information for the bill of materials.



9. When you've finished entering information for a bill of materials, mark the line. You can mark lines individually or you can use the Mark All button to mark all lines.

   When you mark an item—either individually or by choosing Mark All—a position number will be assigned. If any position numbers exceed the allowed limit, those components won't be selected. Refer to Chapter 10, "Position numbers." for more information.

   If any of the bills of materials can't be updated with the information you've entered, one or more messages will be displayed. You won't be able to successfully mark a line until all the information conforms to rules for adding components to a bill of materials.

   Refer to the following topics for more information about rules for components:

   - *Requirements for bill of materials components* on page 104
   - *Backflushing bill of materials components* on page 104
   - *Shrinkage for bill of materials components* on page 105
   - *Position number guidelines* on page 91

If you choose Mark All and one or more bills of materials can't be updated, a message is displayed. Mark lines individually to see messages that have more specific details about the issues that need to be addressed.

10. You can choose Preview to generate a report that will list how each marked bill of materials will be updated. You can make changes to the information in the scrolling window and generate the preview report again, as needed.

11. Choose Process to update the bills of materials and generate the BOM Mass Updates Report. When processing is complete, close the window.

Removing an item from multiple bills of materials

You can use the BOM Mass Updates window to remove a component from multiple bills of materials.

To remove an item from multiple bills of materials:

1. Open the BOM Mass Updates window.
(Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> BOM Mass Updates)

2. Mark Remove Item for the Mass Updates Function.

3. Mark the bill of materials types to exclude from this mass change.

   Manufacturing Mark this option to exclude manufacturing bills of materials.

   Engineering Mark this option to exclude engineering bills of materials.

   Configured Mark this option to exclude configured bills of materials.

   Super Mark this option to exclude super bills of materials.

4. Enter or select the Updated/Replaced Item.

   If you're removing a Buy item, or if you're adding a Make or Buy item that is treated as a Buy item, skip to step 5.

5. Select a BOM Type. If you select Archived or Configured for the BOM Type, enter or select a BOM Name.

6. Mark or unmark the option to exclude bill of materials that already have this item as a component.

7. To restrict the bills of materials that will be displayed in the scrolling window, you can mark Item Number or Item Description and choose a range of bills of materials to display.

8. Choose Refresh. All the bills of materials where the item that you've selected is a first-level component are displayed in the scrolling window.

The types that you did not exclude are displayed in the scrolling window. To display items that you chose to exclude, you can unmark the type to include and choose Refresh.

9. Mark lines for bills of materials where the component should be removed. You can mark lines individually, or you can choose the Mark All button to mark all lines.

10. You can choose Preview to generate a report that will list how each marked bill of materials will be updated. You can make changes to the information in the scrolling window and generate the preview report again, as needed.

11. Choose Process to update the bills of materials and generate the BOM Mass Updates Report. When processing is complete, close the window.

Updating an item in multiple bills of materials

You can use the BOM Mass Updates window to update the information for a component. For example, you can use the window so that a certain washer is always backflushed in all bills of materials.

This procedure assumes that you'll enter information about the component separately for each bill of materials. For information about how to set up default information for the component, refer to *Changing default values for mass updates on page 153.*

To update an item in multiple bills of materials:

1. Open the BOM Mass Updates window.
   (Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> BOM Mass Updates)

2. Mark Update or Replace Item for the Mass Updates Function.

3. Mark the bill of materials types to exclude from this mass change.

   Manufacturing Mark this option to exclude manufacturing bills of materials.

   Engineering Mark this option to exclude engineering bills of materials.

   Configured Mark this option to exclude configured bills of materials.

   Super Mark this option to exclude super bills of materials.

4. Enter or select the Updated/Replaced Item.

   If the item you're updating is a Buy item or a Make or Buy item treated as a Buy item, skip to step 5.

5. Select a BOM Type for the updated or replaced item. If you select Archived or Configured for the BOM Type, enter or select a BOM Name.

6. Mark or unmark the option to exclude bills of materials that already have this item as a component.

7. To restrict the bills of materials that will be displayed in the scrolling window, you can mark Item Number or Item Description and choose a range of bills of materials to display.

8. Choose Refresh. All the bills of materials that include the item in the first level are displayed in the scrolling window.

The types that you did not exclude are displayed in the scrolling window. To display items that you chose to exclude, you can unmark the type to include and choose Refresh.

9. Enter information directly in the scrolling window for each bill of materials. You can choose the show button for the scrolling window to view information about component information for the bill of materials.

10. When you've finished entering information for a bill of materials, mark the line. You can mark lines individually or you can use the Mark All button to mark all lines.

    When you mark an item—either individually or by choosing Mark All—a position number will be assigned. If any position numbers exceed the allowed limit, those components won't be selected. Refer to Chapter 10, "Position numbers." for more information.

    If any of the bills of materials can't be updated with the information you've entered, one or more messages will be displayed. You won't be able to successfully mark a line until all the information conforms to rules for adding components to a bill of materials.

    Refer to the following topics for more information about rules for components:

    - *Requirements for bill of materials components* on page 104
    - *Backflushing bill of materials components* on page 104
    - *Shrinkage for bill of materials components* on page 105
    - *Position number guidelines* on page 91

If you choose Mark All and one or more bills of materials can't be updated, a message is displayed. Mark lines individually to see messages that have more specific details about the issues that need to be addressed.

11. You can choose Preview to generate a report that will list how each marked bill of materials will be updated. You can make changes to the information in the scrolling window and generate the preview report again, as needed.

12. Choose Process to update the bills of materials and generate the BOM Mass Updates Report. When processing is complete, close the window.

Replacing an item in multiple bills of materials

You can use the BOM Mass Updates window to replace one item with another—replacing Component A with Component B, for example.

This procedure assumes that you'll enter information about the component separately for each bill of materials. For information about how to set up default information for the component, refer to Changing default values for mass updates on page 153.

To replace an item in multiple bills of materials:

1. Open the BOM Mass Updates window.
   (Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> BOM Mass Updates)

2. Mark Update or Replace Item for the Mass Updates Function.

3. Mark the bill of materials types to exclude from this mass change.

   Manufacturing Mark this option to exclude manufacturing bills of materials.

   Engineering Mark this option to exclude engineering bills of materials.

Configured Mark this option to exclude configured bills of materials.

Super Mark this option to exclude super bills of materials.

4. Enter or select the Updated/Replaced Item.

   If the item you're replacing is a Buy item or a Make or Buy item treated as a Buy item, skip to step 5.

5. Select a BOM Type for the updated or replaced item. If you select Archived or Configured for the BOM Type, enter or select a BOM Name.

6. Enter or select the Replacement Item. To update item information, the replacement item should be the same as the replaced item.

   If the replacement is a Buy item or a Make or Buy item that should be treated as a Buy item, skip to step 7.

7. Select a BOM Type for the replacement item. If you select Archived or Configured for the BOM Type, enter or select a BOM Name.

8. Mark or unmark the option to exclude bills of materials that already have this item as a component.

9. To restrict the bills of materials that will be displayed in the scrolling window, you can mark Item Number or Item Description and choose a range of bills of materials to display.

10. Choose Refresh. All the bills of materials that include the replaced item in the first level are displayed in the scrolling window. The new item will have the same position number as the item it replaced.

The types that you did not exclude are displayed in the scrolling window. To display items that you chose to exclude, you can unmark the type to include and choose Refresh.

11. Enter information directly in the scrolling window for each bill of materials. You can choose the show button for the scrolling window to view information about component information for the bill of materials.

12. When you've finished entering information for a bill of materials, mark the line. You can mark lines individually or you can use the Mark All button to mark all lines.

    When you mark an item—either individually or by choosing Mark All—a position number will be assigned. If any position numbers exceed the allowed limit, those components won't be selected. Refer to Chapter 10, "Position numbers." for more information.

    If any of the bills of materials can't be updated with the information you've entered, one or more messages will be displayed. You won't be able to successfully mark a line until all the information conforms to rules for adding components to a bill of materials.

Refer to the following topics for more information about rules for components:

- *Requirements for bill of materials components* on page 104
- *Backflushing bill of materials components* on page 104
- *Shrinkage for bill of materials components* on page 105
- *Position number guidelines* on page 91

If you choose Mark All and one or more bills of materials can't be updated, a message is displayed. Mark lines individually to see messages that have more specific details about the issues that need to be addressed.

13. You can choose Preview to generate a report that will list how each marked bill of materials will be updated. You can make changes to the information in the scrolling window and generate the preview report again, as needed.

14. Choose Process to update the bills of materials and generate the BOM Mass Updates Report. When processing is complete, close the window.

Default values for replacement items

When you add, replace, or update a component in bills of materials, default information about the component is supplied. For example, a default issue-from site is suggested when you add a component to a bill of materials.

The default values come from information you've entered in Manufacturing. Some of the values come from information about the component, while other values come from system preferences.

If the default values match the changes that you want to make to the bills of materials, this works well. In some cases, however, you might want to override the default values with different values. If you're updating many bills of materials at one time, it can be time consuming to change several values for each bill of materials.

You can use the BOM Mass Update Defaults window to specify default information for the components in the bills of materials you're updating. You can specify different default information for many values, or just one or two. The information that you specify will be the default information for the component for each bill of materials you're updating. You can accept these new default values as you work with the bills of materials, or you can change them on a case-by-case basis.

Changing default values for mass updates

If you're adding, replacing, or updating a component on many bills of materials, you might want to use the BOM Mass Update Defaults window to enter default information for the replacement component.

For example, suppose you're going to add a gummed label to all of the items in certain product lines. The labels are inexpensive and will be kept on the production floor, so you want them categorized as floor stock in all bills of materials.

You would use the BOM Mass Update Defaults window to enter the basic information for the labels. You could specify the quantity, unit of measure, and the floor stock option. That information automatically would be the default information for each of the bills of materials displayed in the scrolling window.

The following procedure assumes that you want to add a component to bills of materials. To use default values for updating or replacing an item, open the BOM Mass Update Defaults window before marking any lines in the scrolling window, and continue as usual.

To use default values for mass updates:

1. Open the BOM Mass Updates window.
(Microsoft Dynamics GP menu >> Tools >> Utilities >> Manufacturing >> BOM Mass Updates)

2. Select the mass update function. Default values for mass updates are available only if you're adding or updating or replacing an item.

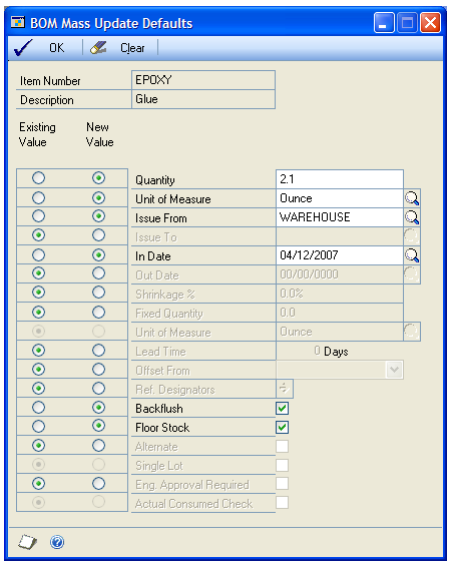
3. Enter or select the items involved.

   - If you're adding an item, select the Replacement Item.
   - If you're replacing or updating an item, select the Replaced Item and the Replacement Item.

Refer to Adding an item to multiple bills of materials on page 146 or Replacing an item in multiple bills of materials on page 151 for more specific information.

4. Choose Refresh to update the contents of the scrolling window.

5. Choose Default to open the BOM Mass Update Defaults window.



6. Mark New Value for each component value that you want to enter default information for.

   For example, if you're updating the issue-from site for a component, you'd mark the New Value radio button for Issue From.

7. Enter the default information for the component value. You might need to enter or select a site, for example, or mark or clear a check box.

8. Choose OK.

9. Continue working in the BOM Mass Updates window, entering additional information for the lines as needed and marking lines that you want to be updated.

If you choose Mark All and one or more bills of materials can't be updated, a message is displayed. Mark lines individually to see messages that have more specific details about the issues that need to be addressed.

10. You can choose Preview to generate a report that will list how each marked bill of materials will be updated. You can make changes to the information in the scrolling window and generate the preview report again, as needed.

11. Choose Process to update the bills of materials and generate the BOM Mass Updates Report. When processing is complete, close the window.

After processing is complete, any default bill of material information you entered in the BOM Mass Update Defaults window is cleared. Default values must be reentered each time you start to use the BOM Mass Updates window to update a group of bills of materials.

PART 4: SALES EXTENSIONS

Part 4: Sales extensions

This part of the documentation describes how to set up and use Manufacturing extensions to Sales Order Processing. It includes information you'll need when you enter sales orders in a manufacturing environment and tasks related to order fulfillment.

When you install Manufacturing, windows are added to your Sales Order Processing system. This part of the documentation describes the special considerations you'll need to make as you work with sales order issues and Manufacturing. It is a supplement to your Sales Order Processing documentation, so you'll need to refer to that documentation, as well.

The following information is discussed:

- Chapter 19, "Sales extensions overview," describes the tasks that can be completed with the extensions Manufacturing adds to the Sales Order Processing module.
- Chapter 20, "Sales order entry," contains information about the additional information that can be tracked with the extensions.
- Chapter 21, "Order fulfillment," describes how you can use Manufacturing windows to set up options for fulfilling your customers' orders.

Chapter 19: Sales extensions overview

The ability to track sales orders, shipping requirements and customer information accurately is vital to your company. An efficient sales order processing department can be your greatest marketing asset.

Microsoft Dynamics GP Sales Order Processing is a versatile tool for managing sales transactions, but in a manufacturing environment you might need more information; for instance, you might need to know if an order should be fulfilled with inventory quantities, or if a manufacturing order should be generated specifically for a sales order.

When you add Manufacturing to your Microsoft Dynamics GP system, additional windows are added to your Sales Order Processing module to help you manage this information. As you work with sales orders, the Sales Order Processing documentation will be your primary resource, but you also should refer to your Manufacturing documentation to find information specific to sales orders in a manufacturing environment.

This information is divided into the following sections:

Sales and Manufacturing documentation

Refer to the following table to learn where you can find additional information about the windows you'll use for Manufacturing and Sales Order Processing.

Window	Manual
Sales Order Fulfillment window	Microsoft Dynamics GP Sales Order Processing documentation
Sales Order Processing Setup window	
Sales Order Setup window	
Sales Transaction Entry window	
Manufacturing Series Sales Order Preferences window	Manufacturing Setup documentation
Order Fulfillment Setup window	
Entire Order History window	Manufacturing Core Functions documentation
Freight and Misc Adjustments window	
Fulfillment History Entry window	
Manufacturing Series Item Class Extras window	
Manufacturing Series Sales Item Detail window	
Order Fulfillment–Lot Inquiry window	
Order Fulfillment–Serial Inquiry window	
Total Estimated Weight window	

Some of these windows are Microsoft Dynamics GP Sales Order Processing windows and are described in the Sales Order Processing documentation. Others have slight modifications—such as the addition of a field or two; in-depth information about those windows also is in the Sales Order Processing documentation, with some specific procedures included in this documentation. Still other windows are specific to Manufacturing and are described in this documentation.

Sales terms

Refer here for information about some of the terms related to the extensions Manufacturing adds to Sales Order Processing.

Quote A company's offered price for an item that a customer or a potential customer has requested. Quotes can be transferred to another document type, deleted or voided.

Sales order A request for goods or services. Sales orders can be transferred to invoices or back orders. The Manufacturing enhancements provide the functionality to generate manufacturing orders automatically from sales orders.

Invoice An itemized bill of goods stating quantities, prices, shipping charges, and other fees.

Back order An order to be fulfilled when stock for items in shortage is replenished.

Return Merchandise returned by a customer to your company. Returns decrease the customer's balance on account and, if you choose, increase inventory quantities.

Promise date The date the customer has been told to expect receipt of the order.

Due date The date the item should be ready to ship to the customer.

Chapter 20: Sales order entry

Adding Manufacturing to your system requires you to consider how you want sales orders in your business to affect other modules. Manufacturing adds special features—such as item-specific due dates—to give you greater control over sales order processing. You also can specify a bill of materials and routing and then generate a manufacturing order directly from a sales order.

Procedures for entering quotes, sales orders, back orders, invoices and returns are explained in the Sales Order Processing documentation.The following information explains features specifically related to Manufacturing.

This information is divided into the following sections:

Tasks using the Manufacturing Series Sales Item Detail window

Tasks associated with the Manufacturing Series Sales Item Detail window can be grouped into two categories:

Generating manufacturing orders based on sales order documents If you're entering information for a quote sales order document, you can generate manufacturing orders with Quote/Estimate status from the Manufacturing Series Sales Item Detail window. If you enter a sales order for a back-order quantity, you can generate manufacturing orders with Open or Released status automatically, or you can require users to complete certain steps to generate manufacturing orders.

For more information about these tasks, refer to the following topics:

- *Manufacturing orders generated from sales* on page 162
- *Implications of generated manufacturing orders* on page 163
- *Creating a manufacturing order for a sales line* on page 164
- *Modifying default manufacturing order details* on page 166
- *Generating a quote-status manufacturing order* on page 167

Adding and adjusting details in sales order documents You can add in-house and promise dates to each sales order line item. The customer's part number for each line item also can be added.

For more information about these tasks, refer to the following topics:

- *Adjusting dates for sales items* on page 167
- *Adding customer part number information* on page 168
- *Calculating the shipping weight of an order* on page 169

Manufacturing orders generated from sales

Some companies want manufacturing orders to be created immediately to reflect the demand generated from sales. You can set up Manufacturing to automatically create manufacturing orders for the back-ordered quantity of an item, or you can indicate that a user must create each manufacturing order.

For information about applying priorities to generated manufacturing orders based on the customer priority, refer to Setting up manufacturing orders for sales orders in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation.

Two factors determine how Manufacturing handles back-order quantities for each line item:

Fulfillment method For each item with a Make replenishment method or Make or Buy replenishment method, you should specify a fulfillment method in the Item Engineering Data window. The options are Make to Order–Manual, Make to Order–Silent, and Make to Stock. Refer to *Fulfillment methods* on page 52.

Manufacturing sales order preference In the Manufacturing Series Sales Order Preferences window, you can mark options that allow users to generate manufacturing orders during the sales order entry process. Refer to *Setting up manufacturing orders for sales orders* in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation.

Refer to the table for more information about how back-order quantities of items are handled based on these settings.

Fulfillment method	Options marked †	Effects
Make to Stock	Enable Silent MO Generation	You can't generate a manufacturing order from sales. The Generate Quote and Generate MO buttons in the Manufacturing Series Sales Item Detail window are not available. Also, the Manufacturing Series Sales Item Detail window won't open if the fulfillment method for the item is Make to Stock.
	Enable Manual MO Generation	
	Both	
	Neither	
	† If the item is a configurable item—if it has a super bill of materials—you'll have the option to open the Sales Configurator window, no matter what sales order options are marked.	

Fulfillment method	Options marked †	Effects
Make to Order - Silent	Enable Silent MO Generation	**Item has super bill of materials** The Manufacturing Series Sales Item Detail window opens when you move off the sales order line. You can choose to generate a manufacturing order or quote, or you can open the Sales Configurator window. **Item doesn't have a super bill of materials** A manufacturing order is generated when you leave the sales order line. You can limit access with a password.
	Enable Manual MO Generation	**Item has super bill of materials** The Manufacturing Series Sales Item Detail window won't open when you move off the sales order line, but you can open the window to generate a manufacturing order. **Item doesn't have a super bill of materials** You'll have the option to open the Sales Configurator window.
	Both	**Item has super bill of materials** The Manufacturing Series Sales Item Detail window opens when you move off the line. You can choose to generate a manufacturing order or quote, or you can open the Sales Configurator. **Item doesn't have a super bill of materials** A manufacturing order is generated when you move off the sales order line. You can limit access with a password.
	Neither	You can't generate a manufacturing order from sales. The Generate Quote and Generate MO buttons in the Manufacturing Series Sales Item Detail window are not available. The Manufacturing Series Sales Item Detail window won't open automatically.
Make to Order–Manual	Enable Silent MO Generation	The Manufacturing Series Sales Item Detail window won't open when you move off the sales order line, but you can open the window to generate a manufacturing order or quote. If the item is a configured item, you'll have the option to open the Sales Configurator window.
	Enable Manual MO Generation	The Manufacturing Series Sales Item Detail window will open when you move off the sales order line. You can open the window to generate a manufacturing order. If the item is a configured item, you'll have the option to open the Sales Configurator window.
	Both	
	Neither	You can't generate a manufacturing order from sales. The Generate Quote and Generate MO buttons in the Manufacturing Series Sales Item Detail window are not available. The Manufacturing Series Sales Item Detail window won't open automatically.
No fulfillment method selected	Any combination of options	You can't generate a manufacturing order from sales. The Generate Quote and Generate MO buttons in the Manufacturing Series Sales Item Detail window are not available. Also, the Manufacturing Series Sales Item Detail window won't open automatically.
	† If the item is a configurable item—if it has a super bill of materials—you'll have the option to open the Sales Configurator window, no matter what sales order options are marked.	

Implications of generated manufacturing orders

Either of the two methods for generating manufacturing orders based on sales—automatically creating the manufacturing orders or requiring some user action to create a suggested order—will affect sales order processing. You should be aware of these issues:

- You can't delete a sales order or a line item that has an attached manufacturing order.
- You can't void a sales order that has an attached manufacturing order.
- If you're using auto-allocation for one or more sales documents, any sales order lines that are linked to manufacturing orders will be ignored. This is true even if only a part of the back order quantity or order quantity is linked to a manufacturing order.
- You can change the order quantity of a sales order line item with an attached manufacturing order *only* if a process security set has been specified for the process. Refer to *Setting up manufacturing orders for sales orders* in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation.

Creating a manufacturing order for a sales line

If you enter a sales order but don't have enough items in inventory to fulfill the order, a manufacturing order with Open or Released status can be created automatically to replenish your supply. This procedure assumes that you've marked Enable Silent MO Generation, Enable Manual MO Generation, or both in the Manufacturing Series Sales Order Preferences window, and that the fulfillment method for the item is Make to Order–Silent or Make to Order–Manual.

The status and priority of the generated manufacturing order depends on the option you've marked in the Manufacturing Series Sales Order Preferences window. Refer to Setting up manufacturing orders for sales orders in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation for more information.

To create a manufacturing order for a sales line:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)

Refer to your Sales Order Processing documentation for more information about entering sales orders.

2. Enter a sales order line item quantity greater than the inventory quantity. The Sales Quantity Shortage Options window will open.

You also can enter a quantity in the Quantity to Back Order field. The manufacturing order will be generated for that amount.

3. Mark either Back Order Balance or Back Order All from the Quantity Shortage Options list.

   Back Order Balance Mark this option to generate a manufacturing order quantity based on the difference between inventory and order quantities.

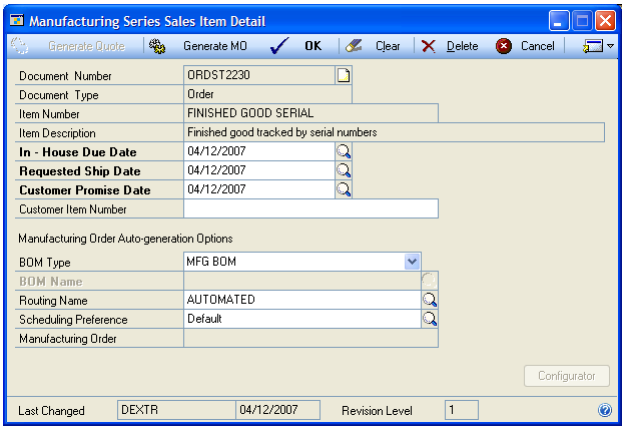
   Back Order All Mark this option to generate a manufacturing order quantity based on the entire order quantity.

Refer to Sales Order Processing documentation for more information about the Sales Quantity Shortage Options window.

4. Choose OK to close the window and return to the Sales Transaction Entry window.

5. Move off the line. Depending on the options and the item fulfillment method, the Manufacturing Series Sales Item Detail window might open. Otherwise, you must select Manufacturing Sales Item Detail from the Additional menu. Refer to *Manufacturing orders generated from sales* on page 162 for more information.

If the item uses the Make to Order–Silent fulfillment method, a manufacturing order is created when you move off the line.



6. Enter or adjust date information, as needed.

7. Enter any other related information in the Manufacturing Series Sales Item Detail window. Refer to *Adjusting dates for sales items* on page 167, *Adding customer part number information* on page 168 or *Modifying default manufacturing order details* on page 166 for more information.

8. Generate the manufacturing order. If you close the Manufacturing Series Sales Item Detail window without generating a manufacturing order, none of the auto-generation information—changes to the bill of materials, routing, or scheduling preference—will be saved.

   Refer to the table for more information about how you can generate a manufacturing order, based on the fulfillment method for the item and your system setup.

	Enable Silent MO Generation option	**Enable Manual MO Generation option**
Make to stock	No manufacturing orders are generated for Make to Stock items.	No manufacturing orders are generated for Make to Stock items.
Make to order–Silent	If the item doesn't have a super bill of materials, a manufacturing order is generated in the background when you move off the sales order line. Otherwise, the Manufacturing Series Sales Item Detail window opens and you can generate the manufacturing order there.	You can open the Manufacturing Series Sales Item Detail window and generate the manufacturing order.

	Enable Silent MO Generation option	Enable Manual MO Generation option
Make to order–Manual	You can choose to open the Manufacturing Series Sale Item Detail window or the Sales Configurator window to generate a manufacturing order.	The Manufacturing Series Sales Item Detail window opens. You can generate a manufacturing order there, or you can open the Sales Configurator window and generate a manufacturing order from there.

You can use the Sales Configurator for any configured item, regardless of the fulfillment method of the item, or your sales order options.

9. When you've finished generating the manufacturing order, you can continue adding more sales line items to the sales order, or you can save the information and close the windows.

Modifying default manufacturing order details

The manufacturing bill of materials, the primary routing and the default scheduling preference will be the default selections for manufacturing orders generated through the Manufacturing Series Sales Item Detail window. If you accept those default settings, you won't need to complete this procedure.

Use the Manufacturing Series Sales Item Detail window to modify the default options.

To modify default manufacturing order details:

1. Open the Sales Transaction Entry window.
(Transactions >> Sales >> Sales Transaction Entry)

2. Open a sales order document and select a line item.

3. From the Additional menu, choose Manufacturing Sales Item Detail.

4. Select the type of bill of materials to use for the manufacturing order. Choices are Manufacturing, Engineering, Archived, and Configured.

   If you selected Archived or Configured, enter or select the specific BOM Name to be used.

5. Enter or select the routing to use for the manufacturing order.

If the bill of materials you selected includes a component that has an Issue To site that is an outsourced work center, that work center must be included in the routing you select, as well.

6. Accept the scheduling method selection or change it.

7. Choose Save and close the window.

Generating a quote-status manufacturing order

If you're using the Manufacturing Series Sales Item Detail window to enter information for a quote document, choose Generate Quote to generate a quote/estimate manufacturing order.

If you transfer the sales order document to an order, the status of the manufacturing order automatically will be changed to Released if you marked the setup option in the Manufacturing Series Sales Order Preferences window to Change MO Status on Order Transfer.

To generate a quote-status manufacturing order:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)

2. Open a sales order quote document and select a line item.

3. From the Additional menu, choose Manufacturing Sales Item Detail.

4. Choose Generate Quote to create a manufacturing order with Quote/Estimate status.

To find the identifier of the manufacturing order created for each line of the quote sales document, open the quote in the Sales Transaction Entry window, highlight the appropriate line in the scrolling window, and choose Manufacturing Sales Item Detail from the Additional menu. The manufacturing order number will be displayed in the Manufacturing Series Sales Item Detail window.

Adjusting dates for sales items

You can use the Sales Transaction Entry window or the Sales Item Detail Entry window—both part of the core Sales Order Processing system—to enter different delivery dates for sales order line items. You can use the Manufacturing Series Sales Item Detail window to adjust the in-house dates for the items.

If you've set a Due Date Offset in the Manufacturing Series Sales Order Preferences window, use this procedure to override the default in-house due date. Refer to *Setting up manufacturing sales order due dates* in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation for more information about setting the due date offset.

To adjust due dates for sales items:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)

2. Open a sales order document and select a line item.

3. Decide what window you want to use to change the date.

   - To use the Sales Transaction Entry window, use the show icon button at the top right corner of the scrolling window to see card view information.
   - To use the Sales Item Detail Entry window, choose the Item Number expansion icon button.
   - To use the Manufacturing Sales Item Detail window, click the Additional menu and choose Manufacturing Sales Item Detail.

4. Enter the Requested Ship Date if none has been entered. You also can change the Requested Ship Date. Your changes will be reflected in other requested ship date fields for this line item.

   A message will appear, asking if you also want to update the in-house due dates. If you choose to update the in-house due date, that information is updated for the sales order but not for any manufacturing orders that have been generated for the manufacturing order.

   The in-house due date will precede the requested ship date by the number of days you've specified in the due date offset, unless the calculated in-house due date occurs on a down day. Then the in-house due date might be adjusted—depending on your system settings—to occur on the closest preceding or following production date.

   The in-house due date is used to calculate due dates for the manufacturing order. You might need to reschedule the manufacturing order to meet the new due date. Refer to *Rescheduling an entire manufacturing order* in Chapter 9, "Routings and rescheduling," in the Manufacturing Production Functions documentation for more information.

5. If you're using the Manufacturing Series Sales Item Detail window, you can enter the Customer Promise Date, which is the date the item must arrive at the customer location. If you enter a due date that is beyond the lead time needed to produce the item, a message will appear and you'll have the option to back order the item rather than fulfilling the quantity from on-hand inventory.

6. Repeat steps 2 through 5, as needed, for other sales order line items.

7. Choose OK and close the window.

Adding customer part number information

Depending on your organization and the organizations of your customers, you might need to track the customer's part number for each sales order line item. For example, some customers might require you to provide invoices and other documents reflecting their part-numbering scheme—not yours. Use the Manufacturing Series Sales Item Detail window to enter that information.

To add customer part number information:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)

2. Open a sales order document and select a line item.

3. From the Additional menu, choose Manufacturing Sales Item Detail.
4. Enter the customer's part number.
5. Repeat steps 2 through 4 for each line item.
6. Choose OK and close the window.

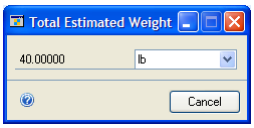
Calculating the shipping weight of an order

Use the Total Estimated Weight window to see a calculated total weight estimation—and to calculate the equivalent weight in a different unit of measure. Information in the Total Estimated Weight window is based on the weight information in the Item Engineering Data window.

Refer to Setting the unit of measure for shipping weight on page 68 for more information.

To calculate the shipping weight of an order:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)
2. Enter or select a sales order.
3. From the Additional menu, choose Total Estimated Weight to open the Total Estimated Weight window.



4. Review the information in the window. To calculate the equivalent weight in a different weight unit of measure, select the other unit of measure from the list. Close the window when you've finished reviewing information.

Effects of sales orders on MRP

Selling items means your stock of the items will be depleted. Manufacturing helps you track items by linking the Sales Order Processing and Material Requirement Planning (MRP) modules. When you enter sales orders, the system will plan the production of the items by generating new items on the Material Requirements Planning lists.

How sales order requirements are reflected in MRP quantities depends on settings in the MRP Preference Defaults window.

- If Put SO Back Orders in Firm Buckets is marked, shortage quantities will be treated as firm requirements. A manufacturing order or an MRP-planned manufacturing order might be created, depending on your setup options. (You also can set up Manufacturing so that no manufacturing orders are created or suggested.)

If your company uses MRP, we recommend that you mark Put SO Back Orders in Firm Buckets.

- If Put SO Back Orders in Firm Buckets isn't marked, shortage quantities will be reflected in the Required Planned requirement and won't appear in the Purchase Request Resolution window.

You can use the MRP Item Inquiry window—which you can open through the Additional menu when the Sales Transaction Entry window is open—to review the effect of sales on MRP. Refer to Viewing MRP information for a specific item in Chapter 13, "MRP inquiries," in the Manufacturing Planning Functions documentation for more information.

Limiting effects of sales allocations on MRP

To ensure accurate MRP information, we recommend that you choose not to allocate materials for sales orders until you're ready to fulfill the order. By waiting to allocate materials until order fulfillment, the quantity actually on hand can be calculated and a time-phased allocation can occur.

You can prevent allocation for an individual sales order by using the Sales Order Processing Setup window to create a new order ID that uses Document/Batch or None for the allocation method. If you choose to do this, however, no checking will be done when you enter sales order line item quantities. This means that when you enter a sales order line item, you should check inventory quantities in the Item Quantities Maintenance window or the MRP Item Inquiry window to be sure inventory quantities of the item are sufficient.

Because you can't fulfill an order without allocating materials to it, you must allocate the materials before fulfilling the order.

To limit effects of sales allocations on MRP:

1. Open the Sales Order Processing Setup window.
   (Microsoft Dynamics GP menu >> Tools >> Setup >> Sales >> Sales Order Processing)

2. Choose Order to open the Sales Order Setup window.

3. In the Order ID field, enter or select an Order ID. You also must enter the Order ID Next Number.

4. From the Allocate by list, select Document/Batch or None.

5. Choose Save and close the Sales Order Setup window.

6. Choose OK to close the Sales Order Processing Setup window.

Chapter 21: Order fulfillment

Sales Order Processing includes a complete order fulfillment system. Manufacturing includes additional features that you can use to track the order fulfillment and shipping history for each sales order line item. This is helpful if your company ships various line items at different times and in various ways. You can use these features to determine exactly what has been fulfilled—and what is yet to be fulfilled—on each order. Manufacturing helps you to maintain tight control over such information.

Sales Order Processing documentation describes in greater detail how to fulfill orders using Microsoft Dynamics GP features. Refer to that documentation for more information about sales order fulfillment.

This information is divided into the following sections:

Requirements for order fulfillment history

Manufacturing doesn't maintain order fulfillment history automatically—you must set up your Microsoft Dynamics GP sales order processing system so information is gathered as you fulfill sales orders. You also must determine which items to track shipping history for, and then use document setup windows to set up your system to reflect your choices.

Microsoft Dynamics GP order fulfillment settings

To track Microsoft Dynamics GP fulfillment history, order fulfillment must occur in the Sales Order Fulfillment window and document types must be set up in the document setup windows to use a separate fulfillment process. Refer to *Setting up document types for order fulfillment* on page 172 for more information.

Shipping history

You can determine if shipping history will be maintained for each inventory item. You can make this selection by item or by item class. Refer to *Setting up shipping history for an item class* on page 58 and *Starting to track shipping history for an item* on page 75 for more information about setting options to maintain shipping history for item classes and items.

Fulfill All button

If you decide to fulfill the entire quantity for a line item by using the Fulfill All button in the Sales Order Fulfillment window, you can't use the Fulfillment History Entry window. If you choose Fulfill All, a message appears to indicate that the order will be filled using the order fulfillment default values. Serial or lot numbers for the fulfilled items must be allocated manually. You'll have the option to continue.

- Choose Yes to continue fulfilling the order using the order fulfillment default selections. The amount in the Quantity Ready to Fulfill field also will be displayed in the Quantity Fulfilled field.

- Choose No if you don't want to use the order fulfillment default selections. You must enter the quantity to be fulfilled in the Quantity Fulfilled field; when you move off the line, the Order Fulfillment History window will open.

Quantity fulfilled

If you're using Manufacturing, the order fulfillment process will be slightly different than it is for non-Manufacturing users. Specifically, the value for the quantity fulfilled in the Sales Transaction Entry window will not be updated automatically if all of the following are true:

- The fulfillment order or invoice type is set to use a separate fulfillment method.

- The sales item is marked to maintain shipping history in the Fulfillment Detail window.

- You are not using the separate Order Fulfillment window.

This rule applies regardless of whether the sales order line is linked to a manufacturing order.

Setting up document types for order fulfillment

You'll use the Sales Order Setup window to set up Manufacturing order fulfillment to use with your system.

To set up document types for order fulfillment:

1. Open the Sales Order Setup window.
   (Microsoft Dynamics GP menu >> Tools >> Setup >> Sales >> Sales Order Processing >> Order button)

2. Select the order ID that will require order fulfillment history.

3. Mark Use Separate Fulfillment Process.

4. Choose Save.

5. Repeat steps 2 through 4 for other order IDs, as needed.

6. Close the window.

If you've created an order document type that fulfills against invoices, you should also create an invoice document type that requires a separate fulfillment process.

Entering order fulfillment history details

Use the Fulfillment History Entry window to change order fulfillment history details. You can enter details about the fulfillment of a line item only when you're fulfilling the line item requirement using the Sales Order Fulfillment window.

The Fulfillment History Entry window will open only if you have set up your system properly. Refer to *Setting up order fulfillment options* in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation for more information about system settings required for using Manufacturing order fulfillment.

Before beginning this procedure, be sure you've set up sales order document types to use a separate order fulfillment process. Refer to Setting up document types for order fulfillment on page 172 for more information.

To enter order fulfillment history details:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)

2. Enter or select a sales order document. The sales document must be a document type that has been set up to use a separate fulfillment process.

Refer to Sales Order Processing documentation for more information about creating sales document types.

3. Choose Options >> Allocate or Fulfill to open the Sales Allocation-Fulfillment Options window.

4. Mark Allocate and choose OK. Items will be allocated to the sales order line-item requirement, and the window will close.

It's important that you don't mark the Fulfill option in this window because quantities must be fulfilled through the Sales Order Fulfillment window for Manufacturing to track order fulfillment information.

5. Choose Save in the Sales Transaction Entry window. Note the document number as you save the information.

6. Open the Sales Order Fulfillment window.
   (Transactions >> Sales >> Order Fulfillment)

7. Select the sales document you just allocated.

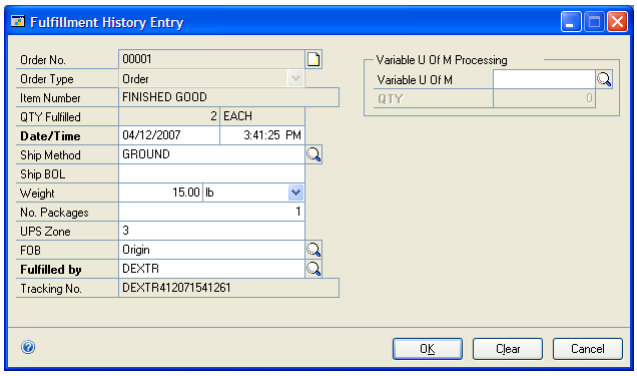
8. If the item to be fulfilled is tracked by serial or lot numbers, the Serial/Lot button will be available when you select the item in the scrolling window.

   - If you've set up Sales Order Processing to select serial and lot numbers automatically, you don't need to specify serial or lot numbers.

   - If you haven't set up Sales Order Processing to select serial and lot numbers automatically, you must specify which items—with which serial numbers or from which lot—will be used to fulfill the order quantity. Refer to *Assigning serial numbers for a sales order* on page 179 or *Assigning lot numbers for a sales order* on page 180 for more information.

9. The quantity ready to be fulfilled must be greater than the quantity fulfilled. In the Qty Fulfilled field, enter the total amount to be fulfilled, then move off the line.

   The Fulfillment History Entry window opens, displaying information based on the line item and on default entries from the Order Fulfillment Setup window.



Refer to Setting up order fulfillment options in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation for more information about the Order Fulfillment Setup window.

10. You can accept the default information—shipping method, FOB point and UPS zone—or you can change it.

    The shipping method will be the one specified in the Customer Maintenance window, or if no shipping method is specified there, the shipping method specified in the Order Fulfillment Setup window will be used.

11. Enter the shipping document number in the Ship BOL (Bill of Lading) field.

12. Enter the weight of the shipment in the Weight field. Select a unit of measure from the list.

Refer to Calculating the shipping weight of an order on page 169 for more information about using the Total Weight window to convert from one unit of weight measure to another.

13. Enter the number of packages shipped.

14. Your user ID will be displayed as the person who has fulfilled this order. Accept that information, or enter or select another user ID.

15. Enter or select an alternate unit of measure for the variable unit of measure. If you fulfill a line item in a different unit of measure than was entered on the order, the order prices will be updated based on the new unit of measure and the pricing schedule for that item.

    For example, suppose your business sells hams. You might enter orders in the Each unit of measure, but then adjust prices for the sales order line based on the weight of each ham as you fulfill the order.

16. Enter an alternate quantity used to measure the shipment in the QTY field.

17. Choose OK and close the Fulfillment History Entry window. Choose Save in the Sales Order Fulfillment window.

If you've marked the preference to Run Reconcile from Sales in the MRP Preference Defaults window, an MRP reconciliation will start after you save information in the Sales Order Fulfillment window and the order fulfillment is processed.

Viewing order fulfillment history

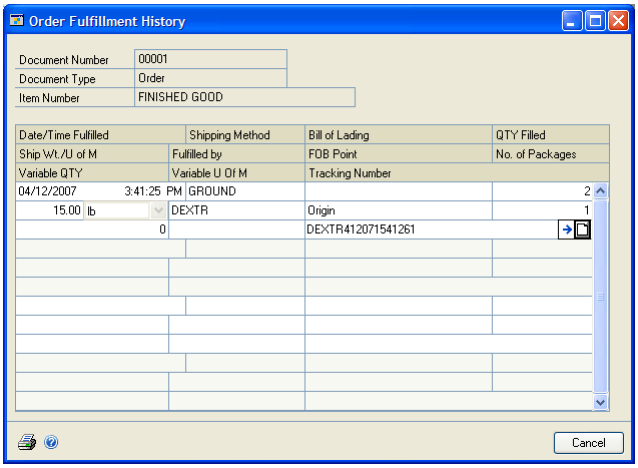
Use the Order Fulfillment History window to check the fulfillment progress of an order that has not yet had a corresponding invoice posted. You also can use this window to view weights and other shipping information.

If you can't view order fulfillment information, be sure you've set up options for the item and for order fulfillment properly. Refer to Requirements for order fulfillment history on page 171 for more information.

To view order fulfillment history:

1. Open the Order Fulfillment History window.
(Transactions >> Sales >> Order Fulfillment >> select an order >> select the Quantity Fulfilled for a line item >> Additional >> Fulfillment History)

   You can open the Order Fulfillment History window another way. If the Sales Transaction Entry window is open, choose Additional >> Order Fulfillment History.



2. View information in the window, as needed.

3. To view serial- or lot-number information about the items, choose the expansion button in any line of the scrolling window. The Order Fulfillment - Lot Inquiry or the Order Fulfillment - Serial Inquiry window will open if the item is tracked by lot or serial numbers, respectively.

Refer to Viewing serial number assignments for an order on page 182 or Viewing lot number assignments for an order on page 182 for more information.

4. When you've finished viewing information, close the windows.

Modifying entire order fulfillment information

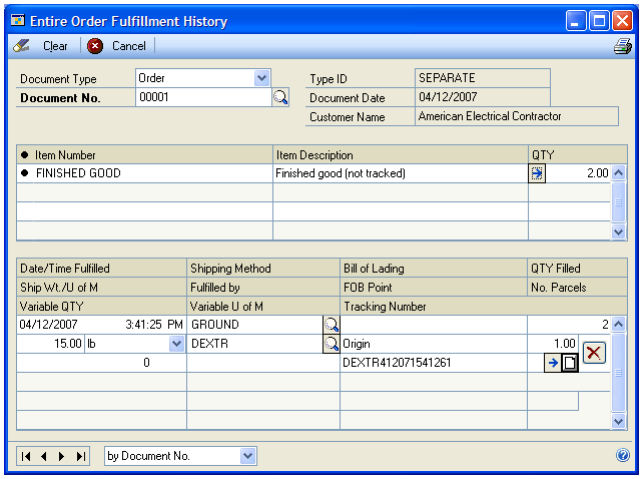
The Entire Order Fulfillment History window helps you to check the entire fulfillment history of an order or an invoice. You can also modify or delete fulfillment history records.

If you're unable to view order fulfillment information, be sure you've set up options for the item and for order fulfillment properly. Refer to Requirements for order fulfillment history on page 171 for more information.

To modify entire order fulfillment information:

1. Open the Entire Order Fulfillment History window.
   (Transactions >> Sales >> Sales Transaction Entry >> Additional >> Entire Order History)

   If the Sales Order Fulfillment window is open, choose Additional >> Entire Order Fulfillment History.



2. Enter or select a sales order document.

3. Choose the left corner of the line item in the top scrolling window. A black dot will appear next to the line item and the corresponding information will be displayed in the bottom scrolling window.

4. Review the information and make changes, as needed. Changes you enter in the bottom scrolling window will be saved as you make them.

5. For additional information about specific serial- or lot-number–tracked items, choose the expansion button at the bottom of the line item to open either the Order Fulfillment-Serial Inquiry or Order Fulfillment-Lot Inquiry window.

Refer to Viewing serial number assignments for an order on page 182 or Viewing lot number assignments for an order on page 182 for more information.

6. When you've finished reviewing the information and making changes, close the window.

Deleting an order fulfillment entry

Use the Entire Order Fulfillment History window to delete order fulfillment records. For example, if you created a record that shows you shipped something to a customer that wasn't shipped, you can delete that order fulfillment record.

You must have specified a process security set for the History Edit Security Set field in the Order Fulfillment Setup window to use this procedure. Refer to Setting up order fulfillment options in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation.

To delete an order fulfillment entry:

1. Open the Entire Order Fulfillment History window.
   (Transactions >> Sales >> Sales Transaction Entry >> Additional >> Entire Order History)

2. Enter or select a sales order.

3. Choose the left corner of the line item in the top scrolling window. A black dot will appear next to the line item and the corresponding information will be displayed in the bottom scrolling window.

4. In the lower scrolling window, select the order fulfillment entry to delete. Choose the delete icon button in that row of the scrolling window. Changes in the lower scrolling window will be saved as you make them.

If you delete a transaction, that order will be available again to fulfill. If a transaction was for a serial- or lot-number–tracked item, the items that were assigned to be used to fulfill that sales order line item will be available again.

5. Close the window.

Changing freight or miscellaneous charges

Use the Freight and Misc Adjustments window to change freight and miscellaneous charges attached to a sales order or invoice. Freight and miscellaneous charges entered in this window will appear on the sales document.

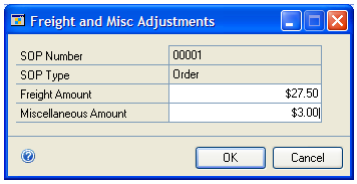
You must mark options in the Order Fulfillment Setup window that will allow you to override freight and miscellaneous charges to complete this procedure. Refer to Setting up order fulfillment options in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation for more information.

To change freight or miscellaneous charges:

1. Open the Sales Order Fulfillment window.
   (Transactions >> Sales >> Order Fulfillment)

2. Enter or select a sales order or invoice.

3. Choose Additional >> Freight and Misc Adjustments to open the Freight and Misc Adjustments window.



4. Change the freight and miscellaneous charges amounts, as needed.

5. Choose OK and close the window.

Generating a history report for a document range

You can print fulfillment history report that can be helpful in tracking historical information for your shipping department. Use the Sales Document Range Inquiry window to generate this report for a range of order fulfillment records.

Order fulfillment history is tracked only for those items you specify. Refer to Setting up shipping history for an item class on page 58 and Starting to track shipping history for an item on page 75 for more information.

To generate a history report for a document range:

1. Open the Sales Document Range Inquiry window.
(Inquiry >> Sales >> Sales Range Inquiry)

2. Enter or select an inquiry ID. If you're entering a new inquiry ID, the Sales Inquiry Restrictions window will open. Use that window to define the range of sales documents to include in the range of documents for your report. Refer to your Microsoft Dynamics GP Sales Order Processing documentation for more information about creating sales inquiry ranges.

3. Determine which documents should be included in the report.

   Unposted Mark to include sales documents that haven't been invoiced and posted.

   History Mark to include sales documents that have been invoiced and posted.

4. Choose Additional >> Fulfillment History Report. The Fulfillment History report summarizes order fulfillment information about the order, including shipping method, weight and number of parcels.

Generating a history report for a single order

You can generate a history report for a single sales order using either the Sales Transaction Entry window or the Sales Order Fulfillment window.

Order fulfillment history is tracked only for those items you specify. Refer to Setting up shipping history for an item class on page 58 and Starting to track shipping history for an item on page 75 for more information.

To generate a history report for a single order:

1. Open the Sales Transaction Entry window or the Sales Order Fulfillment window.
   (Transactions >> Sales >> Sales Transaction Entry *or* Transactions >> Sales >> Order Fulfillment)

2. Enter or select a sales order document.

3. Choose Additional >> Fulfillment History Report. The Fulfillment History report summarizes order fulfillment information about the order, including shipping method, weight and number of parcels.

Assigning serial numbers for a sales order

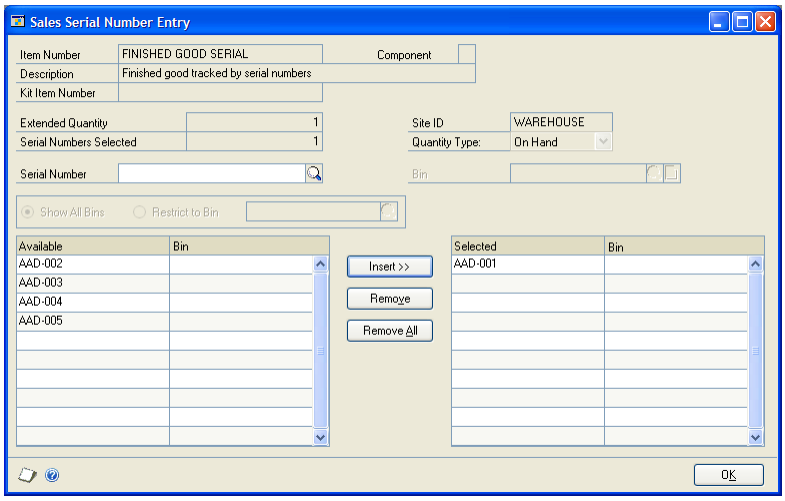
If an item you're fulfilling is tracked by serial numbers, you must specify which items—with which serial numbers—are being used to fulfill a sales order requirement. Use the Sales Serial Number Entry window to choose items to fulfill a sales order.

Assigning serial numbers for a sales order must be completed as you're entering order fulfillment details. The Sales Serial Number Entry window automatically will open if you're fulfilling one of those items, and if the Auto-Assign Serial Numbers option isn't marked in the Sales Order Processing Setup Options window. Refer to your Sales Order Processing documentation for more information about the Sales Order Processing Setup Options window.

The window will open only if you're fulfilling a sales order quantity in the Sales Order Fulfillment window and you choose Serial/Lot.

To assign serial numbers for a sales order:

1. Open the Sales Serial Number Entry window.
   (Transactions >> Sales >> Sales Transaction Entry >> Item Number expansion button >> Serial/Lot button)



2. To use an item with a serial number that has already been defined, mark the appropriate serial number in the Available scrolling window and choose Insert.

3. To use an item with a serial number that hasn't been defined, enter the serial number in the Serial Number field and choose Insert.

4. Repeat steps 2 and 3, as needed, until you've assigned serial numbers to the line item requirement to fulfill.

5. Choose OK. The Sales Order Fulfillment window will open. When you move the highlight from the field, the Fulfillment History Entry window will open, and you can resume entering order fulfillment details. Refer to *Entering order fulfillment history details* on page 173 for more information.

Assigning lot numbers for a sales order

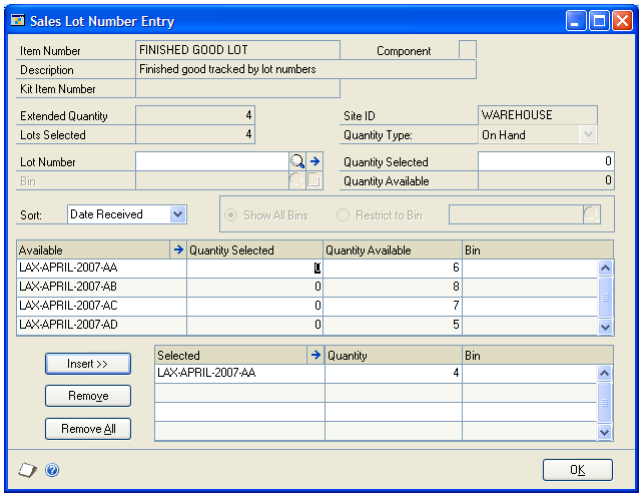
If an item you're fulfilling is tracked by lot numbers, you must specify which items—from which lot—are used to fulfill a sales order requirement. Use the Sales Lot Number Entry window to choose which items will be used to fulfill a sales order.

Assigning lot numbers must be completed as you're entering order fulfillment details. The Sales Lot Number Entry window automatically will open if you're fulfilling one of those items, and if the Auto-Assign Lot Numbers option isn't marked in the Sales Order Processing Setup Options window. Refer to your Sales Order Processing documentation for more information about the Sales Order Processing Setup Options window.

This window opens only if you're fulfilling a sales order quantity in the Sales Order Fulfillment window and you choose Serial/Lot.

To assign lot numbers for a sales order:

1. Open the Sales Lot Number Entry window.
(Transactions >> Sales >> Sales Transaction Entry >> Item Number expansion button >> Serial/Lot button)



2. In the upper scrolling window, select the lot to take items from to fulfill the sales order. In the Quantity Selected column in the appropriate row of the scrolling window, enter the number of units to be used from that lot.

3. Choose Insert.

4. Repeat steps 2 and 3 until you've selected lot quantities that equal the sales order line item requirement.

5. Choose OK. The Sales Order Fulfillment window will open. When you move off the field, the Fulfillment History Entry window will open, and you can resume entering order-fulfillment details. Refer to *Entering order fulfillment history details* on page 173 for more information.

Viewing bin information for an order

You can use the Order Fulfillment - Bin Inquiry window to view the bins for items used to fulfill a sales order.

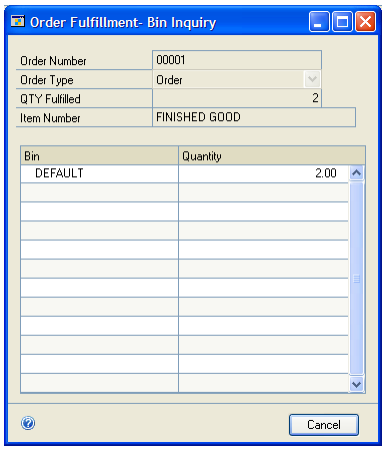
To view bin information for an order:

1. Open the Entire Order Fulfillment History window.
(Transactions >> Sales >> Order Fulfillment >> Additional >> Entire Order History)

2. Enter or select the sales document that includes the line item requirements to view.

3. Mark the sales order line item requirement for an item that is not tracked by lot or serial numbers. If any of that requirement has been fulfilled, information about the fulfillment will be displayed in the lower scrolling window.

4. Review the information in the lower scrolling window. Choose the expansion button for any line to open the Order Fulfillment–Bin Inquiry window.



5. When you've finished reviewing the information, close the window.

Viewing serial number assignments for an order

Use the Order Fulfillment–Serial Inquiry window to view which serial-number–tracked items were used to fulfill a sales order requirement.

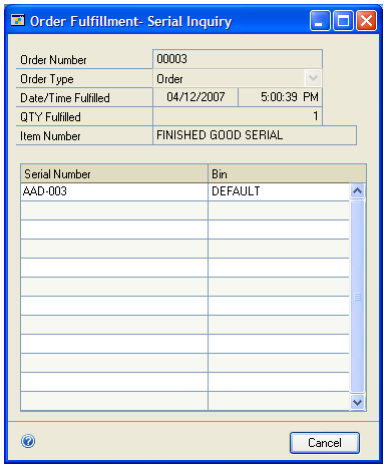
To view serial number assignments for an order:

1. Open the Entire Order Fulfillment History window.
(Transactions >> Sales >> Order Fulfillment >> Additional >> Entire Order History)

2. Enter or select the sales document that includes the line item requirements to view.

3. Mark the sales order line item requirement for a serial-number–tracked item. If any of that requirement has been fulfilled, information about the fulfillment will be displayed in the lower scrolling window.

4. Review the information in the lower scrolling window. Choose the expansion button for any line to open the Order Fulfillment–Serial Inquiry window.



5. When you've finished reviewing the information, close the window.

Viewing lot number assignments for an order

Use the Order Fulfillment–Lot Inquiry window to view which lot-number–tracked items were used to fulfill a sales order requirement.

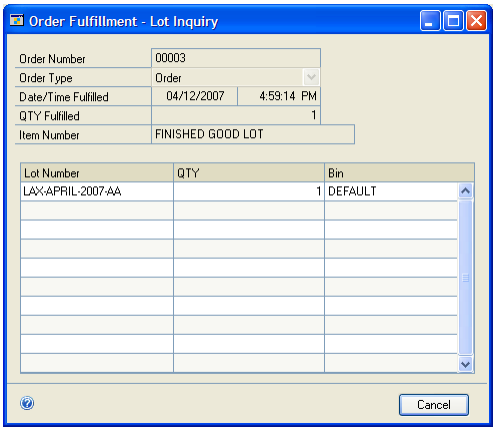
To view lot number assignments for an order:

1. Open the Entire Order Fulfillment History window.
(Transactions >> Sales >> Order Fulfillment >> Additional >> Entire Order History)

2. Enter or select the sales document that includes the line item requirements you want to view.

3. Mark the sales order line item requirement for a lot-number–tracked item. If any of that requirement has been fulfilled, information about the fulfillment will be displayed in the lower scrolling window.

4. Review the information in the lower scrolling window. Choose the expansion button for any line to open the Order Fulfillment - Lot Inquiry window.



5. When you've finished reviewing the information, close the window.

PART 5: SALES CONFIGURATOR

Part 5: Sales Configurator

This part of the documentation includes information that will help you set up and use the Manufacturing Sales Configurator and describes extra steps you'll need to define "configured" items—complex products with many optional components or accessories—and to enter sales orders for those items.

After you've set up the configured items, salespersons in your organization can use the Sales Configurator to help customers specify the options and accessories they want for their purchases.

The following information is discussed:

- Chapter 22, "Sales Configurator overview," contains information about the terms and concepts you should know before using the Sales Configurator module.
- Chapter 23, "Options and promotions," describes options—groups of features or accessories customers can choose from when they order a configured item—and explains how to set them up. The section also contains information about setting up promotions for special pricing you might offer for a specific option.
- Chapter 24, "Bills and routings," explains how to set up the bills of materials and routings for the configurable items.
- Chapter 25, "Pricing and sales transactions," explains how pricing is calculated for configured items. The section also describes how to use the Sales Configurator window for entering information about customer orders and inquiries.
- Chapter 26, "Configurator manufacturing orders," describes how to work with the manufacturing orders for configured items. Special rules for calculating the material cost for standard cost configured finished goods also is included.

Chapter 22: Sales Configurator overview

Many companies today have designed products that are built only in response to specific customer specifications. For example, a computer manufacturer might market a basic computer that customers can configure—or customize—for the tasks they'll use that computer for. A graphic artist might want a larger monitor, while a software developer might be more interested in getting a lot of RAM.

Sales Configurator helps you define items manufactured by your business. You can incorporate information from several modules—Inventory Control, Bill of Materials, Routings, and Sales Order Processing—and generate manufacturing orders for the configured items as you enter information about the items. You also can include or exclude certain options based on customer specifications; for example, you can require a customer who wants to use a large monitor to specify more video RAM.

Sales Configurator can be used to enhance your sales process, too. For example, you can set up promotions to remind your sales personnel of special offers.

This information is divided into the following sections:

Sales Configurator terms

Refer here for information about some of the terms related to the Sales Configurator module:

Super bill of materials or "super BOM" Lists all the component items that can possibly be included in the bill of materials for a finished item. For example, if your company builds office chairs with either plastic or wooden arms, both types of arms would be listed in the super bill of materials, but you would select only one arm type for a specific, configured bill of materials.

Configured bill of materials The customized bill of materials created when you select components from a super bill of materials. When you use the Sales Configurator to specify options, a configured bill of materials is created and is assigned a unique identifier.

Configured cost and configured price The configured cost of the item is how much it will cost you to build the item with a particular set of options. The configured cost is the total of the cost of the components and the labor involved. The configured price is the suggested price you'll charge the customer. The configured price is based on your finished goods price schedule and the specific options you select.

Configured working routing A routing based on the options you choose as you create a configured bill of materials. For example, if you created a configured bill of materials for office chairs and chose plastic components rather than wooden ones, the routing would be modified to exclude the sequences for staining and varnishing the wooden components.

Options and option categories A choice you must make about which component item to use when building a finished good. An option category is a group of related options. For example, a furniture manufacturer might have several upholstery fabrics—solid, flecked or plaid—that customers can specify. Each of the fabric patterns is an option; together they are an option category called "Fabrics."

Exclusions (of options) Options that are disallowed because of another option selection you've made. For example, a furniture manufacturer might offer certain items in a selection of wood types—oak, pine and cherry. If you chose an oak dining table, you might create an exclusion to limit the customer's selections for dining chairs to oak.

Inclusions (of options) Options that are automatically added to the configured bill of materials because of another option selection. For example, a computer manufacturer might include different manuals with a computer, depending on the options selected by the customer.

Promotions Special pricing you offer on a particular option during a certain period. For example, a computer manufacturer might offer special pricing on RAM modules.

Requirements for using the Sales Configurator

Before using the Sales Configurator you must complete the following tasks. Some are described here; others are described in other Manufacturing documentation.

- Be sure all components included in a super bill of materials have been defined in Inventory Control. Refer to Inventory Control documentation and to Chapter 8, "Item engineering data."
- Specify Sales Configurator system preferences. Refer to *Setting up Sales Configurator options* in Chapter 3, "Manufacturing core functions setup," in the Manufacturing Setup documentation.
- Create option categories and indicate option item inclusions and exclusions. Refer to *Creating an option category* on page 189 and *Creating an option exclusion or inclusion* on page 191.
- Create a super bill of materials for the configurable item. Refer to *Creating a super bill of materials* on page 199.
- Assign option categories to the finished good. Refer to *Assigning an option category to an item* on page 194.
- Create a routing for the configurable finished good. Refer to *Routings for configured items* on page 202.
- Use the BOM Routing Link window to link options in the super bill of materials to specific routing sequences. If the item linked to a sequence isn't added to the configured bill of materials, the linked sequence won't be included in the routing. Refer to *Linking component usage to a routing sequence* on page 111.

Chapter 23: Options and promotions

One of the greatest benefits of using Sales Configurator is being able to define groups of options that customers can choose from. You can use Sales Configurator to specify how certain selections will limit or expand the other selections that customers will have.

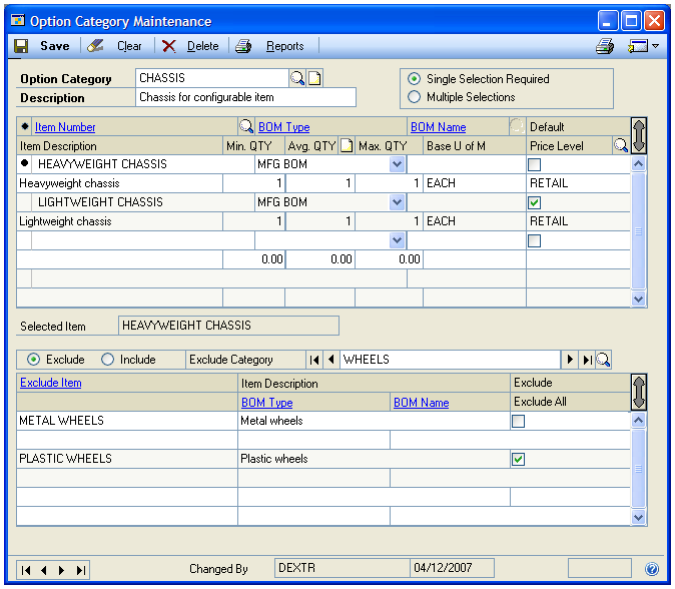
This information is divided into the following sections:

Creating an option category

Use the Option Category Maintenance window to create option categories—groups of options that customers can choose from.

To create an option category:

1. Open the Option Category Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Options)



2. Enter the name of the option category. For example, if you produce chairs and have an option category for various types of upholstery fabrics, you might create a "fabrics" option category.

3. Enter a brief description for the option category.

4. Determine how many selections customers can make from this group.

   - Mark Single Selection Required if customers *must* choose one option from this category. For example, a furniture manufacturer would require customers to choose one fabric to be used for the pieces they order.

   - Mark Multiple Selections if customers can choose multiple options—or no options. For example, a computer manufacturer might have an option called "Peripherals" that could include removable storage, scanners and printers. Customers can choose as many of these options as they like.

5. In the upper scrolling window, select a blank line and then select an item to include in the option category. The description of the item and its minimum and maximum allowable quantities will be displayed.

6. If the selected item has a Make replenishment method (or if the item has a Make or Buy replenishment method and you want to use it as a made item in the configured bill of materials) choose its BOM Type; if the type is Archived or Configured, enter or select the BOM Name.

7. To specify an option within the category as the default selection, mark Default. You can override the default selection when configuring an actual item.

Be sure that no default option items are exclusions for other items.

8. Enter quantity information.

   Refer to the table for more information.

Quantity	Rules	How it's used
Minimum	--	Is the smallest quantity of the item that's allowed for a configured item
Average	Can't be less than the minimum quantity or greater than the maximum quantity	Is the default quantity of the item for a configured item.
Maximum	--	Is the greatest quantity of the item that's allowed for a configured item

   For example, a furniture manufacturer might build desks with two, three or four drawers. To allow for the different numbers of drawers, the manufacturer can create a Drawers option that has a minimum quantity of 2 and a maximum quantity of 4. Later, when the Sales Configurator is used to record customer choices, the user can specify if the customer wants two, three or four drawers for the desk.

9. Enter or select the base unit of measure for the item.

10. Enter or select the price level for the item. Pricing for the option item when it is used in the configured item will be based on the price level you specify.

11. Repeat steps 5 through 10 until you've added all the different options for the option category. Your changes automatically will be saved as you enter them in the scrolling window.

Creating an option exclusion or inclusion

While creating an option category, you can limit or expand the options available based on earlier option selections. Use the Option Category Maintenance window to create item exclusions and inclusions.

For the most flexibility in configuring items, minimize the number of inclusions and exclusions as much as possible. If you specify too many inclusions and exclusions, you'll greatly reduce the number of available configurations.

To create an option exclusion or inclusion:

1. Open the Option Category Maintenance window.
(Cards >> Manufacturing >> Sales Configurator >> Options)

2. Enter or select an option category.

3. Mark an option in the upper scrolling window. A black dot will appear, and the item will be displayed in the Selected Item field.

4. Determine whether to exclude or include other options based on a customer's selection of this option.

    - Mark Exclude to limit the customer's other option selections.

    - Mark Include to automatically include the item in the configured bill of materials when the selected item is added to the configured bill of materials. For example, a computer manufacturer might offer systems in tan or in black. The computer manufacturer could create an inclusion so that when the customer selects a black computer, a black keyboard automatically is added to the configured bill of materials for the item.

5. Use the lookup button at the top of the lower scrolling window to select an option category that includes options to include or exclude. The lower scrolling window will display the options available in that category.

6. Mark the items to include or exclude.

    - To specify individual items, mark Include or Exclude for specific options.

    - To mark all items, choose Include All or Exclude All at the top of the lower scrolling window.

7. Choose Save and close the window.

Modifying an option category

You can modify an option category, if needed. You can change the designation of the category as a single-selection or multiple-selection category, or you can add or remove options. Use the Option Category Maintenance window to complete this procedure.

To modify an option category:

1. Open the Option Category Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Options)
2. Enter or select an option category.
3. To change the category description or its designation as a single-selection or multiple-selection category, make your change and then choose Save.
4. To change an option in the upper scrolling window, make your change in that scrolling window. Your changes automatically will be saved.
5. When you've finished, close the window.

Removing an item from an option category

Use the Option Category Maintenance window to remove items (options) from a category.

To remove an item from an option category:

1. Open the Option Category Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Options)
2. Enter or select an option category.
3. In the upper scrolling window, mark the line item to be removed.
4. From the Edit menu, choose Delete Row. A message will appear.
   - Choose Delete to remove the item. Your changes automatically will be saved.
   - Choose Cancel to return to the Option Category Maintenance window without deleting the item.
5. Close the window.

Deleting an option category

Use the Option Category Maintenance window to delete option categories.

Before you can delete an option category, you must be sure it isn't assigned to any configurable items. Refer to *Unassigning option categories on page 195* *for more information about using the Item Option Assignment window to see which items an option category is assigned to and to remove the option category from them.*

To delete an option category:

1. Open the Option Category Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Options)

2. Enter or select an option category.

3. Choose Delete and close the window.

Generating a basic option category report

Use the Option Category Maintenance window to generate a basic report about the displayed option category. An Item Option Assignment report lists the option categories that have been assigned to a finished item.

To generate a basic option category report:

1. Open the Option Category Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Options)

2. Enter or select an option category.

3. From the File menu, select Print.

4. In the Report Destination window, mark the option to indicate where you want to see the final report.

5. Choose OK and close the window.

Sales Configurator option category assignments

After you've created option categories, you can assign them to finished goods. By assigning the option categories to finished goods, you can select items in those categories when you configure a bill of materials for a finished good.

Only finished goods that have a super bill of materials can have option categories assigned to them. If you select an item that doesn't have a super bill of materials, a message will appear, indicating that you must create a super bill of materials for the item before proceeding.

The order in which option categories appear in the scrolling window is important because it affects how item exclusions and inclusions are applied. You should assign option categories to an item in the order you want your customer to consider the choices.

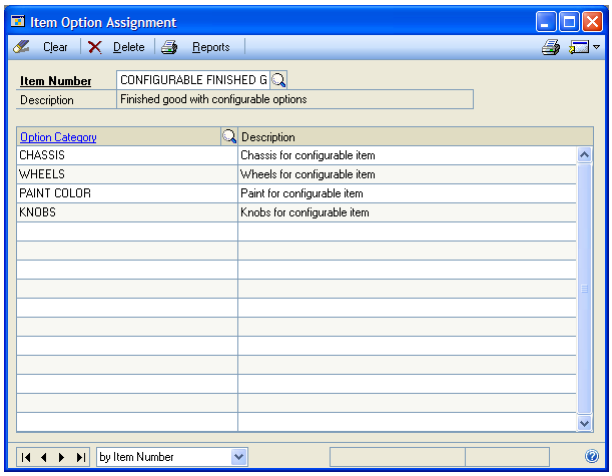
For example, a computer manufacturer should assign option categories for memory and processors before option categories for monitors and other peripherals. That's because the selections the customer makes about the computer's speed and power will affect which monitors and peripherals will work best with the system.

Assigning an option category to an item

Use the Option Assignment window to assign an option category to an item.

To assign an option category to an item:

1. Open the Item Option Assignment window.
(Cards >> Manufacturing >> Sales Configurator >> Option Assignment)



2. Enter or select the configurable item that option categories should be assigned to.

3. Enter or select an option category to assign to this item. If you enter an option category that doesn't exist, a message will appear when you move off the field and you'll have the option to define the option category in the Option Category Maintenance window. If you choose Yes, the Option Category Maintenance window will open.

4. Continue, repeating steps 2 and 3 to add as many option categories as you like. Your changes automatically will be saved in the scrolling window.

5. Close the window.

Changing the order of option assignments

The order in which you assign option categories to an item is important. To insert an option category between two already-assigned categories in the Item Option Assignment window, you can change the order of your existing assignments.

To change the order of option assignments:

1. Open the Item Option Assignment window.
(Cards >> Manufacturing >> Sales Configurator >> Option Assignment)

2. Enter or select the item that includes the option categories you want to change the order of.

3. In the scrolling window, mark the option category to be moved lower in the assignment order.

4. From the Edit menu, select Insert Row. A new row will be inserted above the marked option category.

5. Enter or select an option category for the new line in the scrolling window. Your changes automatically will be saved.

6. Close the window.

Unassigning option categories

Use the Item Option Assignment window to remove an option category from an item. You can remove a single option category or all option categories.

To unassign option categories:

1. Open the Item Option Assignment window.
(Cards >> Manufacturing >> Sales Configurator >> Option Assignment)

2. Enter or select the item from which option categories are to be removed.

3. Determine whether to remove a single option category or all option categories.

   To remove a single category Mark the option category, then select Delete Row from the Edit menu. A message will appear.

   - Choose Delete to remove the option category.

   - Choose Cancel to end the procedure without deleting an option category.

   To remove all assigned option categories Choose Delete. A message will appear.

   - Choose Delete to remove all of the assigned categories from the record.

   - Choose Cancel to end the procedure without deleting option categories.

4. Your changes automatically will be saved. Close the window.

Generating an item option assignment report

An Item Option Assignment report lists the options that have been assigned to a specific option category. You can print item option assignment reports from the Item Option Assignment window or through the Item Engineering Report Options window. Refer to Chapter 28, "Manufacturing reports," for more information about using the Item Engineering Report Options window to generate this report.

To generate an item option assignment report:

1. Open the Item Option Assignment window.
(Cards >> Manufacturing >> Sales Configurator >> Option Assignment)

2. Enter or select an option category.

3. From the File menu, choose Print. The report will be generated and displayed on your screen. You can send the report to a printer, view it on your screen or print it to a file.

Creating an option promotion

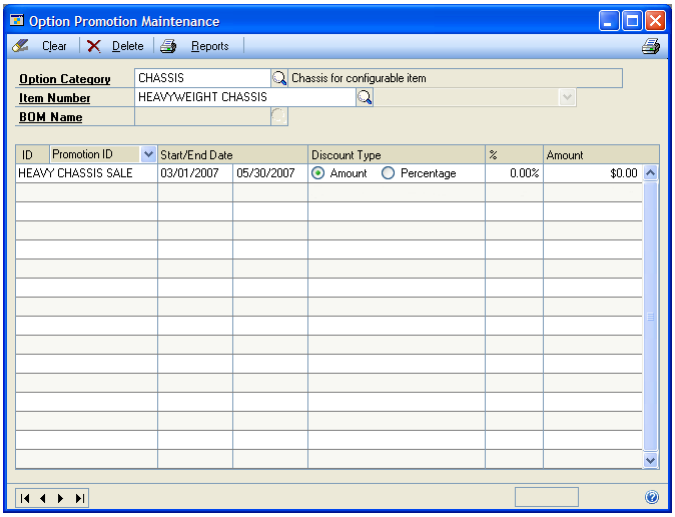
If you're offering special pricing or discounts on certain items, you can create option promotions. Use the Option Promotion Maintenance window to define promotions you'll offer customers who choose a specific option item.

Option promotions can be used only when the finished good has a pricing method of Currency or Percent of List. Refer to Sales Configurator pricing calculations on page 205 for more information.

Use the Option Promotion Maintenance window to create promotions.

To create an option promotion:

1. Open the Option Promotion Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Promotions)



2. Enter or select an option category and an item to promote.

3. If the item is a made item, select its BOM Type from the list. If you select Archived or Configured, enter or select a BOM Name.

4. Enter a promotion ID, a unique identifier for the promotion.

5. Use the list at the top of the scrolling window to determine if the records in the window will be displayed by start date or by promotion ID.

6. Enter the effective dates—the start and end dates—for the promotion in the appropriate line in the scrolling window.

7. Determine how the promotion will be calculated.

    - Mark Amount to deduct a set amount from the price of the option item. Enter the currency amount.

    - Mark Percentage to deduct a percentage of the price of the option item from its usual price. Enter the percentage.

8. Your entries automatically will be saved in the scrolling window. Close the window.

Modifying a promotion

Use the Option Promotion Maintenance window to make changes to a promotion you've created.

To modify a promotion:

1. Open the Option Promotion Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Promotions)

2. Enter or select an option category and an item.

3. Make changes in the scrolling window, as needed. Your changes will be automatically saved in the scrolling window. Close the window.

Deleting a promotion

Use the Option Promotion Maintenance window to delete option promotions.

To delete a promotion:

1. Open the Option Promotion Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Promotions)

2. Enter or select an option category and an item number.

3. Mark a promotion ID to delete.

4. From the Edit menu, select Delete Row. A message will be displayed, and you'll have the option to remove the promotion.

    - Choose Yes to remove the promotion.

    - Choose Cancel to end the procedure without changing the promotion.

5. Close the window.

Deleting all promotions for an option

Use the Option Promotion Maintenance window to delete all the promotions associated with a particular option.

To delete all promotions for an option:

1. Open the Option Promotion Maintenance window.
   (Cards >> Manufacturing >> Sales Configurator >> Promotions)

2. Enter or select an option category and an item number.

3. Choose Delete. A message will be displayed, and you'll have the option to delete the record, which includes all the promotions that have been assigned to the option category-item number combination.

   - Choose Delete to remove all the promotion IDs.

   - Choose Cancel to leave the record unchanged.

4. When you've finished, close the window.

Chapter 24: Bills and routings

To use the Sales Configurator, you must create special bills of materials and routings that include all options for a particular product. Setting up the bills of materials and routings properly will ensure that the manufacturing records generated from the Sales Configurator are accurate, usable documents that can be easily used to produce finished items.

Because creating a bill of materials for use with the Sales Configurator requires you to consider a different set of issues and requirements than other bills of materials, these procedures are described in this section. You also can refer to documentation about bills of materials for more information.

Bill of Materials windows and features specific to the Sales Configurator are described in this documentation. For general information about the Bill of Materials module, refer to these chapters:

- Chapter 9, "Bill of Materials overview"
- Chapter 11, "Bill of Materials entry"
- Chapter 12, "Links to routings"
- Chapter 15, "Bill of Materials inquiries"

This information is divided into the following sections:

Creating a super bill of materials

Use the Bill of Materials Entry window to create a super bill of materials. When you add components to the super bill of materials—by using the tree view on the right side of the window—you must enter every possible component item that you can use for a configured item. For example, a computer manufacturer would need to include all the processors, all the RAM amounts, and all the hard disks to create a super bill of materials for configuring computers.

A super bill of materials also must include all items that are required in all versions of the configured item. For example, a computer manufacturer would need to include a power cord in the bill of materials for all systems.

To create a super bill of materials:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)

2. Enter or select the item number of the finished item to be built using the super bill of materials.

3. Select Super BOM from the BOM Type list. Select Regular from the BOM Category list. Other options—Modular, Phantom and Option—can't be used with a super bill of materials.

If the fulfillment method for the configurable item is Make to Stock, a message appears and you'll have the option to change the fulfillment method, continue, or cancel. Refer to *Fulfillment methods for configured items on page 201* *for more information.*

4. Enter the date that the super bill of materials is to be available for configuring items.

5. Accept the default quantity to build—1—or enter another.

6. Accept the default BOM category. The BOM Category for a super bill of materials must be Regular.

7. Accept the default revision level—1—or enter another. Refer to Chapter 17, "Revisions and archived bills," for more information about revision levels.

8. Decide whether to backflush all components in this bill of materials. Backflushing means that the component quantities aren't issued to work centers, but that they are accounted for when a manufacturing order associated with this bill of materials is closed.

Refer to *Backflushing bill of materials components on page 104* *for more information about backflushing options.*

   - Mark Backflush Item in the left pane to have component quantities for all items in this bill of materials backflushed. You can change this setting for specific components later in the right pane of the window.

   - If materials should not be backflushed, be sure the option is unmarked.

9. You can enter the default issue-to and issue-from locations for the components in the bill of materials. Click the expansion button on the Defaults field to open the Bill of Materials Defaults window, where you can enter the sites.

   The issue-from site is the inventory site that components are taken from. The issue-to site is the work center that components are delivered to. You can override the default sites on a component-by-component basis, if needed.

10. To add an item to the bill of materials, click the button with the green plus sign just above the tree view.

11. A message appears. To save your changes, choose Yes to continue.

12. Decide whether to add a regular component—one that is included in all configurations of the item—or an option category—a group of components that customers will choose from, such as different fabrics for an upholstered chair.

    - To add a regular component, go to step 13.

    - To add an option category, go to step 16.

13. To add a regular component, enter or select a component to add to the bill of materials.

    Refer to *Requirements for bill of materials components* on page 104 for more information about which items can be added to a bill of materials.

14. Enter information about the component in fields in the right pane.

    The information that you enter will depend on the component (whether it is made or bought, for example) and on your business practices. Refer to the following topics for more information:

    - *Requirements for bill of materials components* on page 104
    - *Backflushing bill of materials components* on page 104
    - *Shrinkage for bill of materials components* on page 105
    - *How floor stock costs are applied* on page 105
    - *Component fixed quantity* on page 106
    - *Specifying an alternate component in a bill* on page 106
    - *Bills of materials and component effective dates* on page 107
    - *Adding user-defined information to bills* on page 109
    - *Accounting for by-products in a bill of materials* on page 109
    - *Component quantities and rounding* on page 110

15. Click Add to add the component information to the tree view in the left pane, then skip to step 18.

16. To add the components in an option category, choose Add Option >> Add Items from Option Category.

17. In the Option Category Lookup window, select an option category. Double-click the option category to add all its options to the super bill of materials.

When you add an option category to a bill of materials, the focus of the window switches to the left pane. To add more components or other option categories, choose the green plus sign button above the tree view, so that the right pane of the window is active.

18. Continue, starting at step 12 until you've finished adding components and option categories to the super bill of materials.

19. If the right pane is active, choose Tree View so that the left pane of the window is active.

20. Choose Save to save the bill of materials.

Fulfillment methods for configured items

When you create a super bill of materials for an item, you're signalling that you'll be using the Sales Configurator to choose from among the item options. You must enter the customer's selections for a configured item, so it's unlikely that an item with a super bill of materials would have a Make to Stock or Make to Order–Silent fulfillment method. Creating a configurable item with a Make to Stock or Make to Order–Silent fulfillment method will affect Manufacturing.

Refer to the table for more information.

Fulfillment method	Effect for configurable items
Make to Stock	You can't select an existing bill of materials to generate a manufacturing order from the Manufacturing Series Sales Item Detail window.
Make to Order–Silent	The system won't automatically create a manufacturing order for the configured item, but the Manufacturing Series Sales Item Detail window will open when you move off the sales order line. Choose Configurator in that window to use the Sales Configurator window.

Modifying a super bill of materials

The Bill of Materials Entry window includes many fields you can use to create a super bill of materials, but Manufacturing also includes other windows and options you can use to add to the basic bill of materials information. Refer to the following topics for more information about modifying your bill of materials information:

Adding items to a bill of materials Refer to *Adding a component to a bill of materials* on page 101 for more information about adding components to a bill of materials.

Removing items from a bill of materials Refer to *Deleting a component from a bill of materials* on page 102 for more information about removing components from a bill of materials.

Changing component information Refer to *Changing component details* on page 102 for more information about changing component details that will affect a bill of materials.

Deleting a bill of materials Refer to *Removing a bill of materials* on page 103 for more information about deleting an obsolete bill of materials.

If you need to make the same change to a group of bills of materials, you also can use the BOM Mass Updates window. Refer to Chapter 18, "Mass updates," for more information.

Routings for configured items

If your configured items require assembly or other manufacturing processes, you must create a routing to use in conjunction with the super bill of materials. If your configured items don't require assembly—for example, a configured item for a kit that customers assemble themselves—no routing is required.

Creating a routing for a configured item requires two steps—creating a routing and linking sequences and option items.

Create a routing

You must create a routing that includes separate routing sequences for adding each option item and each standard item to the configured item. For example, a computer manufacturer's routing for a configurable computer system might include routing sequences for installing option items—several different processors—even though only one processor can be installed in each unit. The routing also must include the sequences for adding the standard items—such as a power cord—to the configured item.

Link sequences and option items

You must use the BOM Routing Link window to link option items—items that might or might not be included in the final product—to the routing sequences. For example, a furniture manufacturer might offer a table with a wood top or a plastic top. The manufacturer could create a routing sequence for adding the wood top—possibly including information about varnishing that top. The manufacturer also could create a routing sequence for adding the plastic top.

If the manufacturer linked each of these sequences to the appropriate table-top item in the super bill of materials, when a customer chose the wood top, only the routing sequence for adding the wood top and varnishing it would be in the configured routing. If a customer chose the plastic top, the configured routing would include the sequence for adding the plastic table top.

You should link items to sequences only if the sequence should be excluded when that item isn't on the configured bill of materials. For example, a computer manufacturer shouldn't link a routing procedure for putting the cover on a configured tower unless the cover is optional. If the cover must be included in all configurations of the product—in all possible variations that customers can order—then the cover shouldn't be linked to a routing sequence.

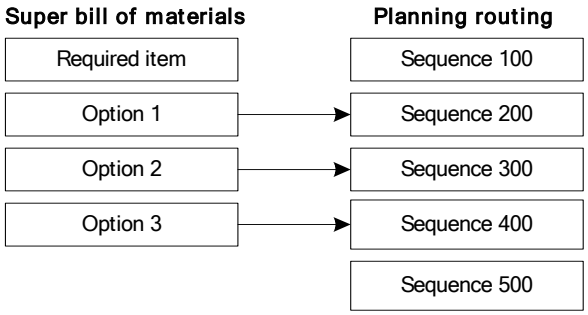
To learn about creating routings, refer to Chapter 2, "Routing entry," in the Manufacturing Production Functions documentation.

To learn about linking bills of materials items to routing sequences, refer to Chapter 12, "Links to routings," in the Manufacturing Core Functions documentation.

How super bills and routings work together

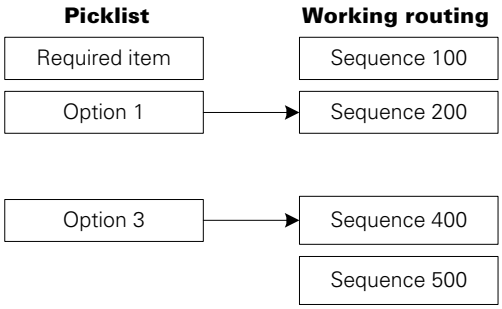
The links between the components in a super bill of materials and the routing for a configurable item are the key to successfully creating a manufacturing order for configured items.

Suppose you've set up a super bill of materials that includes one item that is required for all configurations, and three option items. Your super bill of materials and routing might look like the following illustration:



Each option item in the super bill of materials is linked to a separate routing sequence.

Suppose then that a customer places an order for the configured item. The customer wants the finished good to include options 1 and 3. The picklist and the working routing for the configured item might look like the following illustration:



Note that only the routing sequences that were linked to options that were not selected are excluded in the working routing. That is, if a routing sequence is not linked at all, then that sequence will always be part of the working routing.

Chapter 25: Pricing and sales transactions

After you've completed the setup tasks for using the Sales Configurator—creating option categories, options and promotions, creating a super bill of materials and a routing with sequences linked to optional items—you can start using the Sales Configurator.

However, using the Sales Configurator requires some understanding of how pricing calculations are made for configured items. The price method assigned to the finished item, the use of Multicurrency Management, and option promotions can all affect how prices for items are calculated with the Sales Configurator.

This information is divided into the following sections:

Sales Configurator pricing calculations

When you open the Sales Configurator window from the Manufacturing Series Sales Item Detail window, the finished goods price method affects how the Sales Configurator calculates prices. If you open the Sales Configurator window through the menu (Transactions >> Manufacturing >> Sales Configurator), pricing isn't calculated.

The Sales Configurator doesn't support items with Markup-Standard Cost or Margin-Standard Cost price methods.

Pricing for currency and percent of list items

If a finished good has a price method of Currency or Percent of List, the Sales Configurator window will display the item price for each available option item in the lower scrolling window. The total price of the finished good—displayed near the bottom of the window—will be the value from the Item Pricing Maintenance window. The price that's calculated includes the prices for all the default item options specified in the Option Category Maintenance window.

As you add and remove option items from the item, the total price will be recalculated by adding and subtracting the item prices of the options that are added or removed from the original total price. Unit price information in the Sales Transaction Entry window will be updated to reflect the new total cost. Any markdown amounts will be included and the extended price will be recalculated. The unit cost will reflect the total cost value.

For example, a furniture manufacturer might have chairs that have a selling price—in the Item Pricing Maintenance window—of $250. The default base for the chairs is a plastic base with a selling price of $40. One customer prefers a chair with a wooden base with a selling price of $75. To calculate the selling price for the chairs if the wooden base is used, the system would start with the chair's total price ($250, including the default plastic base), remove the selling price of the plastic base ($40) and then add the selling price of the wooden base ($75). The total price of the chair will increase by $35, the difference between the prices of the two types of bases. The chair's new price is $285.

Percent markup-current cost or percent margin-current cost

If the finished good has a Percent Markup-Current Cost or Percent Margin-Current Cost price method, the Sales Configurator window displays the item price for each available option item in the lower scrolling window. In this case, the prices for component items aren't used when calculating the selling price of the finished good. Instead, the Sales Configurator adds up all the component items costs and machine and labor costs for the sequences required by the configured bill of materials to determine the total cost of the finished good item.

After the costs are added, the price method of the finished good is used to calculate the selling price for the item. The unit price lines in the Sales Transaction Entry window are updated with the new selling price information. The unit cost is updated with the total cost value.

For example, a furniture manufacturer might have an item that includes several default options. The total cost of the item—with all the default options—is $150, and includes the machine and labor costs from the routing. If the price method for the finished item is Percent Markup-Current Cost, and the markup is 50%, the selling price of the finished good would be $225. In this case, if a customer wanted a $30 wood base instead of the $12 plastic base, the total cost of the finished item would be increased by $18, the difference between the costs of the two types of bases. The selling price for the chair would then be recalculated based on the new total cost—$168—and the 50% markup. The new selling price would be $252.

Effects of Multicurrency Management on pricing

Using Multicurrency Management can affect pricing calculations. If you've set up multicurrency price lists—including one for the specific item, currency and unit of measure—pricing calculations will be based on those currency amounts rather than on multicurrency calculation scripts. That is, the pricing will be based on the amounts entered in your price lists rather than on mathematical formulas for converting from one currency to another.

Effects of promotions on pricing

Option promotions can be used only when the finished good has a price method of Currency or Percent of List. If an item in an option category has a valid promotion but the option category is assigned to a finished good that doesn't have a Currency or Percent of List price method, the promotion won't be displayed when you configure the item.

As you add and remove option items from the configured item, the individual item prices are added and subtracted to calculate the total price of the finished good. If an option item in the configured bill of materials has a valid promotion, the promotion option (Pro.) will be marked in the Sales Configurator window, and the markdown amount will be added to the total in the Markdowns-Promotions field. The total markdowns will be subtracted from the total price of the finished good to determine the selling price.

For example, a furniture manufacturer might have an office chair with a selling price—from the Item Pricing Maintenance window—of $200. When you configure options for the office chair, suppose you choose a more expensive upholstery fabric. The new fabric has a price of $60, but also has a valid $15-off promotion—that is, the date you're entering the configured sales transaction falls between the promotion's start and end dates. When you remove the default fabric from the configured item, the cost of the default fabric—$35—will be subtracted from the total price. When you add the new fabric to the item, the difference between the cost of the fabric and the promotion—$45—will be added. The new total price for the chair will be $210.

How option items affect material costs

If you open the Sales Configurator window through the Manufacturing Series Sales Item Detail window, a bill of materials information about the basic (not optional) components of the configured item is copied. Information about the cost of the component items also is included.

When you select an option for the configured item, the cost of the option item components is added to the overall material costs for the configured item. The increase in material costs is immediately reflected in the cost information in the Sales Configurator window.

If you later have to remove an option from the bill of materials, the component cost that's removed from the bill of materials will match the component cost that was added to the bill of materials most recently—regardless of whether the cost of the item has changed since the component was added to the bill of materials.

Configuring an item

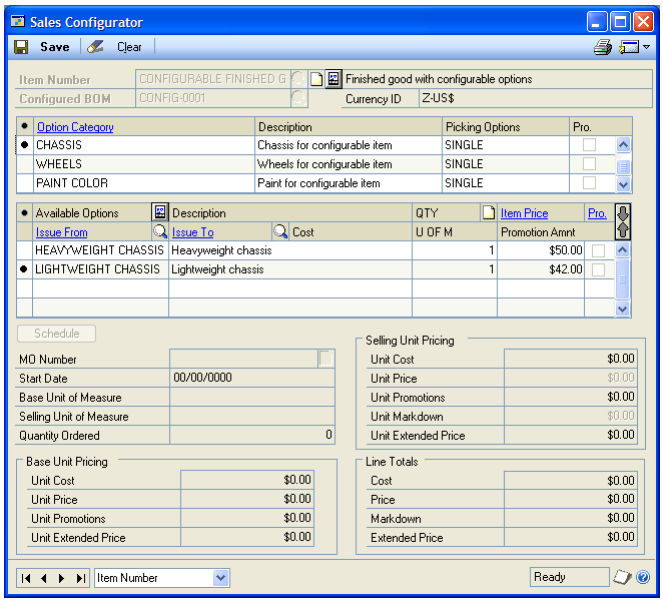
Use the Sales Configurator window to select options to build a configured item.

This procedure pertains to sales situations in which you want to quickly configure a bill of materials without calculating costs and pricing.

For other sales situations—such as phone orders placed by customers who know which options they want and are ready to have sales orders generated—refer to *Adding a newly configured item to a sales order* on page 209 or *Adding a previously configured item to a sales order* on page 211.

To configure an item:

1. Open the Sales Configurator window.
(Transactions >> Manufacturing >> Sales Configurator)



2. Enter or select an item number.

3. Enter a name for the configured bill of materials you'll create. Option categories assigned to the finished good will be displayed in the top scrolling window.

If you open the Sales Configurator window through the menu, information in the window will be displayed in functional currency only, and the multicurrency icon button will not be displayed. Refer to *Blank Sales Configurator fields* on page 209 for more information.

4. Mark an option category. You should make selections from option categories in the order they appear in the scrolling window. The options included in the option category will be displayed in the lower scrolling window.

5. The default option selection will be marked in the lower scrolling window. You can accept that selection or change it. If the option category is a multiple-selection option category, you can choose as many options as you like. If the option category is a single-selection option category, you can choose only one option.

   - To add an option item, mark the item. A black dot will appear in the left column of selected items.

   - To remove an option item, unmark the item. The black dot will disappear from the left column.

If you select an item option that is excluded by an earlier option selection—for example, if you select a 21-inch monitor for a system that supports only monitors through 17 inches, a message will be displayed to indicate that the item selections are incompatible. You can continue adding other options.

6. You can change the amount in the Quantity field. The default value will be the minimum quantity for the option that you specified in the Option Category Maintenance window.

7. Repeat steps 4 through 6, adding options from each option category.

8. Choose the print icon button to generate a report that lists the options you've selected for the configured item.

9. Determine if a bill of materials based on the selections should be created.

    - To generate a configured bill of materials—one that includes only the components that are required for the item you've configured—choose Save. You can modify the configured bill of materials in any of the Bill of Materials module windows and can generate manufacturing orders based on it.

    - If you don't want to create a configured bill of materials, choose Clear. Information about your configured item won't be saved.

Blank Sales Configurator fields

Several fields in the lower scrolling window in the Sales Configurator window will be blank if you open the Sales Configurator through the menu. If you open the Sales Configurator window through the Manufacturing Series Sales Item Detail window, information will be displayed in the following fields:

- Item Price will be displayed only if the finished item has a Currency or Percent of List price method.

- Due Date.

- Currency fields will be displayed only if the Sales Configurator calculates costs and prices—which it does only when you open it from the Manufacturing Series Sales Item Detail window.

Adding a newly configured item to a sales order

This information pertains to sales situations when customers want to generate sales orders and they know which options they want, and you need to create a new configured bill of materials for them.

For sales situations when the customer wants to consider other options, but might not make a decision about purchasing the item until a later date, refer to *Configuring an item* on page 207. For sales situations when the customer wants to generate a sales order for an existing configuration, refer to *Adding a previously configured item to a sales order* on page 211.

The following procedure assumes that you've already completed the initial steps of entering a sales order in the Sales Transaction Entry window, such as selecting a document type and entering customer information. Refer to the Sales Order Processing documentation for more information.

Before you can open the Sales Configurator window from the Sales Transaction Entry window, a default price level must be entered on the price list of each option assigned to the configured item.

To add a newly configured item to a sales order:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)

2. Enter or select a sales document.

3. Enter or select a new sales order line item, or mark an existing sales order line item.

   - If you're entering a new sales order line item, the Manufacturing Sales Item Detail window automatically opens when you move off the line.

   - If you're configuring a sales order line item that already has been entered, choose Additional >> Manufacturing Sales Item Detail to open the Manufacturing Series Sales Item Detail window.

4. Choose the Configurator button in the Manufacturing Series Sales Item Detail window.

5. You can enter a manufacturing order number for the manufacturing order that's created.

If you don't want to use the default manufacturing order number—which would be the next manufacturing order number that's available—you must enter the manufacturing order number before you enter information in the Configured BOM field.

6. Enter a name for the configured bill of materials you'll create. Option categories assigned to the finished good will be displayed in the top scrolling window.

   When you move off the field, processing will occur. Information about the option categories that have been assigned to the item and the selections that are available for each option category will be displayed in the scrolling windows.

7. Mark an option category. You should make selections from option categories in the order they appear in the scrolling window. The options included in the option category will be displayed in the lower scrolling window.

8. The default option selection will be marked in the lower scrolling window. You can accept that selection or change it. If the option category is a multiple-selection option category, you can choose as many options as you like. If the option category is a single-selection option category, you can choose only one option.

   - To add an option item, mark the item. A black dot will appear in the left column of selected items.

   - To remove an option item, unmark the item. The black dot will disappear from the left column.

If you select an item option that is excluded by an earlier option selection—for example, if you select a 21-inch monitor for a system that supports only monitors through 17 inches, a message will be displayed to indicate that the item selections are incompatible. You can continue adding other options.

9. You can change the amount in the Quantity field. The default value will be the minimum quantity for the option that you specified in the Option Category Maintenance window.

10. Repeat steps 7 through 9, adding options from each option category.

11. Choose the print icon button to generate a report that lists the options you've selected for the configured item.

12. To update the due date for the manufacturing order, choose Schedule.

13. Choose Save. The bill of materials and routing for the manufacturing order will be created based on the options selected, and the Sales Configurator window and the Manufacturing Series Sales Item Detail window will close. You'll be returned to the Sales Transaction Entry window, where you can continue to enter sales order information.

Adding a previously configured item to a sales order

This information pertains to sales situations when customers want to generate sales orders and they know which options they want, and you want to use an existing configured bill of materials.

For sales situations when the customer wants to consider other options, but might not make a decision about purchasing the item until a later date, refer to *Configuring an item* on page 207. For sales situations when the customer wants to generate a sales order for a new configuration, refer to *Adding a newly configured item to a sales order* on page 209.

The following procedure assumes that you've already completed the initial steps of entering a sales order in the Sales Transaction Entry window, such as selecting a document type and entering customer information. Refer to the Sales Order Processing documentation for more information.

Before you can open the Sales Configurator window from the Sales Transaction Entry window, a default price level must be entered on the price list of each option assigned to the configured item.

To add a previously configured item to a sales order:

1. Open the Sales Transaction Entry window.
(Transactions >> Sales >> Sales Transaction Entry)

2. Enter or select a sales document.

3. Enter or select a new sales order line item, or mark an existing sales order line item.

    - If you're entering a new sales order line item, the Manufacturing Sales Item Detail window automatically opens when you move off the line.

    - If you're configuring a sales order line item that already has been entered, choose Additional >> Manufacturing Sales Item Detail to open the Manufacturing Series Sales Item Detail window.

4. Change the BOM Type to Configured BOM, and select the BOM Name.

5. Determine if the manufacturing order should be created now or later.

   - Choose Save to save your bill of materials selection without generating a manufacturing order.
   - Choose Generate MO to generate a manufacturing order for the sales order line. If process security has been set up for creating manufacturing orders, you might need to supply a password.

6. If you chose Generate MO but there were problems with the manufacturing order, a message will be displayed and you'll have the option to view more information.

Refer to Viewing warnings for generated manufacturing orders on page 31 in Chapter 5, "MPS manufacturing orders," in the Manufacturing Planning Functions documentation for more information.

7. After you've saved the information or finished viewing manufacturing order information, the Sales Configurator window and the Manufacturing Series Sales Item Detail window will close. You'll be returned to the Sales Transaction Entry window, where you can continue to enter sales order information.

Deleting a configured bill of materials

Use the Bill of Materials Entry window to delete a configured bill of materials.

To have configured bills of materials removed, archived or both when the corresponding manufacturing order is closed, refer to Setting up manufacturing order processing in Chapter 4, "Manufacturing production functions setup," in the Manufacturing Setup documentation.

To delete a configured bill of materials:

1. Open the Bill of Materials Entry window.
   (Cards >> Manufacturing >> Bill of Materials)
2. Enter or select an item number.
3. Select Configured BOM from the BOM Type list.
4. Enter or select the name of the configured bill of materials.
5. Choose Delete and close the window.

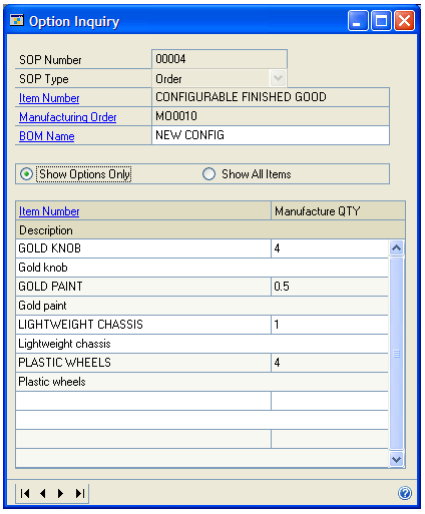
Viewing options for a sales line item

Use the Option Inquiry window to view the options that have been selected for a particular configured item.

To view options for a sales line item:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)
2. Enter or select a sales order that includes at least one configured item.
3. Mark the line item.

4. Choose Additional >> Option Inquiry to open the Option Inquiry window.



- Mark Show Options Only to see which options were selected for the specific sales order line item.
- Mark Show All Items to see all items in the configured bill of materials, including ones for the basic product that aren't included in option categories.

5. Close the window.

Modifying a configured bill of materials

If you open the Sales Configurator window through the Manufacturing Series Sales Item Detail window, you can modify a configured bill of materials.

You can modify a configured bill of materials only if the status of manufacturing orders based on the bill is Quote/Estimate or Open.

To modify a configured bill of materials:

1. Open the Sales Transaction Entry window.
(Transactions >> Sales >> Sales Transaction Entry)

2. Enter or select a sales document.

3. Mark the sales order line item that has the configured bill of materials to modify.

4. Choose Additional >> Manufacturing Sales Item Detail.

5. In the Manufacturing Series Sales Item Detail window, choose Configurator. The item number and bill of materials name will be displayed in the Sales Configurator window that opens.

If your company is using Multicurrency Management, information in the Sales Configurator window will be displayed in the currency selected in the Sales Transaction Entry window. Choose the multicurrency icon button to switch between originating and functional currency views, or choose the appropriate currency from the View menu.

6. If sales promotions were changed or deleted since the configured bill of materials was saved, a message will be displayed and you'll have the option to keep or discard the promotion information you're using.

7. To check for new promotions that have been added since the configured bill of materials was saved, choose Configuration >> Apply New Promotions.

As you add and remove items from the configured bill of materials, cost and price amounts will be recalculated in the fields at the bottom of the window.

8. When you've finished making changes, determine if the changes should be saved.

    - To save changes, choose Save. The configured bill of materials will be saved, the manufacturing order and picklist will be updated, and the sales orders fields will be adjusted.

    - To close without saving your changes, close the window without choosing Save. A message will be displayed and you'll have the option to save or discard your changes. Choose Discard if you don't want to update the records.

Adjusting markdown amounts

Use the Sales Configurator window to adjust the markdown amount for a configured item.

You can adjust the markdown amounts for a configured bill of materials only if the status of manufacturing orders based on the bill is Quote/Estimate or Open.

To adjust markdown amounts:

1. Open the Sales Transaction Entry window.
(Transactions >> Sales >> Sales Transaction Entry)

2. Enter or select a sales document.

3. Mark a sales order line item for a configured item.

4. Choose Additional >> Manufacturing Sales Item Detail.

5. Choose Configure to open the Sales Configurator window.

6. The total markdowns for the configured item will be displayed in the Markdown field. You can accept the calculated markdown total or change it. Enter the markdown amount in the Unit Markdown field.

- To increase the markdown amount, enter a positive number.
- To decrease the markdown amount, enter a negative number.

When you move off the field, the unit markdown amount will be reflected in the Line Totals region.

7. Choose Save and close the window.

Viewing a configured-item drawing

If you've attached electronic files to the finished item record, you can view them through the Sales Configurator window. Refer to *Viewing a drawing attached to a record* on page 44.

Chapter 26: Configurator manufacturing orders

The costs for manufacturing orders for configured items are calculated differently than costs for other manufacturing orders.

This information is divided into the following sections:

Material costs for configured manufacturing orders

You can use Sales Configurator to specify options for either actual or standard cost finished goods. Material costs for configured items are calculated differently, depending on the valuation method.

Actual cost configured items

If the configured good has a perpetual valuation method, material costs come from the actual costs for the items used in the manufacturing order. For example, suppose a manufacturing order for a configured item required two widgets. The cost of the first widget was $10 and the cost of the second widget was $12. In this case, the cost of widgets for the manufacturing order would be $22.

However, the sales invoice cost of an item that has a perpetual valuation method will be based on the valuation method. That is, if you've built several configured items for inventory and then sold one of those items, the cost for that item on the sales invoice will follow the LIFO/FIFO rules of the item's valuation method. If you need to ensure that the cost of the item made for a sales order by the linked manufacturing order is the cost that's reflected on the sales invoice, you'll need to track the configured item by serial number and then be sure to select the specific serial number when you fulfill the sales order line.

Standard cost configured items

If the configured good has a periodic valuation method, standard cost information is captured when the configured bill of materials and its associated manufacturing order are created. A one-level standard cost rollup for the routing and the items in the configured bill of materials is calculated. That total is the "configured standard cost" for the manufacturing order. Later, when the manufacturing order is closed, the configured standard cost is compared to the actual costs to calculate the manufacturing order variances.

For example, suppose a manufacturing order for a configured item required two widgets. The standard cost of widgets when the configured bill of materials and manufacturing order were created was $10—and so the total cost of widgets for the manufacturing order would be $20.

It's important to note that the standard cost rollup is a single-level rollup. Only the standard costs of the components that are in the top level of the bill of materials are included in the rollup.

When you use the Sales Configurator to create configured bills of materials, you have the option to save the configured bills of materials for future use. (Configured bills of materials also can be created directly in the Bill of Materials Entry window.)

You can use configured bills in the Manufacturing Order Entry window, the Quick MOs window, or even with automatic manufacturing order generation in the Manufacturing Series Sales Item Detail window to create new manufacturing orders.

However, the single-level standard cost rollup is calculated only if a super bill of materials exists for the finished item and the manufacturing order is linked to a sales order. If no super bill of materials exists or if the manufacturing order isn't linked to a sales order, the standard inventory cost for the finished good is used to calculate manufacturing order variances.

Verifying dates for configured items

When you save a configured bill of materials and the associated manufacturing order, the manufacturing order automatically is scheduled. You can use this procedure to check the due date for the manufacturing order.

To schedule a manufacturing order for a configured item, you must open the Sales Configurator window by choosing Configurator in the Manufacturing Series Sales Item Detail window.

To verify dates for configured items:

1. Open the Sales Transaction Entry window.
   (Transactions >> Sales >> Sales Transaction Entry)

2. Enter or select a sales document.

3. Mark a sales order line item for a configured item.

4. Choose Additional >> Manufacturing Sales Item Detail.

5. Choose Configure to open the Sales Configurator window.

6. Choose Schedule.

7. When you've finished reviewing the manufacturing order due date information, close the window.

Tracking a configured-item manufacturing order

Use the Manufacturing Order Entry window to determine which manufacturing orders are for configured items.

To track a configured-item manufacturing order:

1. Open the Manufacturing Order Entry window.
   (Transactions >> Manufacturing >> Manufacturing Orders >> Entry)

2. Use the browse buttons to move among the manufacturing order records. If the manufacturing order you're interested in was created recently, you might want to use the rightmost browse button to move to the last manufacturing order record. Use the second browse button to move back through manufacturing order records. The description of the manufacturing order for the configured item will be "FROM SO" and then the sales document number.

3. Close the window when you've finished.

Unlinking manufacturing and sales orders

If you generate a manufacturing order when you configure a bill of materials and later want to delete the manufacturing order, you must unlink the manufacturing order from the sales order. Refer to *Removing sales order-manufacturing order links* in Chapter 11, "Manufacturing/sales order link," in the Manufacturing Production Functions documentation for more information about using the Manufacturing/Sales Order Cross-reference window to complete this procedure.

PART 6: MANUFACTURING REPORTS

Part 6: Manufacturing reports

This part of the documentation includes information that will help you set up and use the Manufacturing reports. You can create report options and print Manufacturing reports from various Manufacturing windows. You need to create a report option only once; you can print it again at any time without having to redefine the option. This information describes how to create options and how you can save them to use in the future.

After you've defined report options, others in your organization can use them to quickly generate reports. The reports can be printed to the screen, to a printer or to a file.

The following information is discussed:

- Chapter 27, "Reports overview," provides basic information about the report options windows and the terms used to describe report options.
- Chapter 28, "Manufacturing reports," contains information that can be applied to all report options windows, such as how to create a report option and how to generate a report.

Chapter 27: Reports overview

Manufacturing includes several report windows you can use to customize Manufacturing reports. Use the windows to create report options, which are groups of range restrictions and sorting methods that you can use to specify how information should appear on reports. Reports can be produced in hard copy format, stored in a designated file on your computer, or viewed on your computer screen.

This information is divided into the following sections:

Manufacturing report options

Use any of the following windows to define report options for Manufacturing modules. For more information about any of the windows, refer to online help.

- BOM Report Options window
- CRP Report Options window
- Drawings Report Options window
- ECM Report Options window
- Item Engineering Report Options window
- Job Costing Report Options window
- Machine Reports Options window
- Manufacturing Order Routing Reports window
- MOP Report Options window
- MPS Report Options window
- MRP Report Options window
- Planning Routing Reports window
- QA Report Options window
- Option Group Report Selector window
- Sales Forecasting Report Options window
- WIP Report Options window
- Work Center Report Options window

Manufacturing report terms

Several terms can be used to describe how you can print Manufacturing reports.

Report option You must create and save a report option before you can generate a Manufacturing report, if you've opened the report window from the Reports menu rather than by choosing the print icon button or Go To button. A report option is a collection of entries that specify the amount of information or the type of information that will appear on a report. A report option includes one or more range restrictions that you specify and can include a sorting order. Multiple report options can be created.

Range restriction A range restriction limits the records included in a report. For example, you can limit inventory records to only those items that have item numbers that are within a certain range of item numbers. Depending on the records that can be included in a report, you can limit information based on other criteria, such as dates, statuses, or types.

Each report option can include multiple range restrictions. The restrictions are cumulative—each range restriction will limit your report further. For example, suppose that you want to generate a report about inventory items. If the report option includes one restriction that limits the report to Made items, and another restriction that limits the report to a certain range of item numbers, only those items that meet *both* criteria will be included in the report.

Sorting method A sorting method determines the order that report items are listed in. For example, a report based on employee records might be sorted by employees' last names or employees' first names.

Where used "Where used" describes a group of reports and functions that let you scan records to find parent parts—including subassemblies—that include a certain component. For example, if your company manufactures electronics, you could run a "where used" report to see all instances where a certain resistor is used.

Organizations frequently use reports like this to be sure that changes in component schematics or requirements do not inadvertently affect other parent parts.

Report types Some Manufacturing reports are available in two formats: text and graphic. Both report types include the same information. Text reports are plain, text reports. Graphic reports include special formatting such as shading, borders, and fonts.

The default selection for printing text or graphic reports is a user preference. Refer to General user preferences for Manufacturing in Chapter 7, "Manufacturing basic user setup," in the Manufacturing Setup documentation for more information.

Chapter 28: Manufacturing reports

Although Manufacturing has several report option windows, all the windows work in basically the same way—you must create and save a report option before you can generate a report, if you're generating the report from windows opened from the menus. You can generate reports from other Manufacturing windows without creating report options.

This information is divided into these sections:

Creating a report option

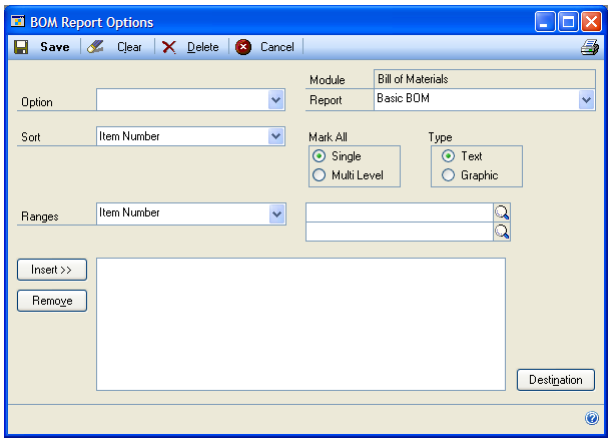
You can use any of the windows to create a report option—the procedure is basically the same in any of the windows.

The BOM Report Options window—the window displayed in the following procedure—is just one of the several Manufacturing report options windows you can use.

You can open report option windows from other Manufacturing windows. Often, if no record is displayed in a Manufacturing window when you choose the print icon button, the associated report option window will open.

To create a report option:

1. Open a report options window.
   (Reports >> Manufacturing >> module of your choice >> Report Options)



2. Enter a report option name.

3. Mark the Include in Report List option to include this report option in the report list.

Only one of the reports for each report option can be included in the report list.

4. Select a report.

5. Select a sorting method for the report information.

6. Select a report type. Text- and graphic-type reports include the same information, but graphic reports add special shading and borders.

The default selection for printing text or graphic reports is a user preference. Refer to General user preferences for Manufacturing in Chapter 7, "Manufacturing basic user setup," in the Manufacturing Setup documentation for more information.

7. Set up other report features, as needed. For example, some reports allow you to add your own report title.

8. Create a range restriction. To include all information in the report—if the report should include all items or all bills of materials, for example—leave the Ranges field blank to include all records.

Be sure to check online help for specific field information for report option windows.

- Select an attribute—a piece of information about the records—to limit the report information. For example, if you create a report about machines in your organization, you could include only those machines that are in specific work centers. In that case, "Machine Location" is the attribute you would use to restrict the report.

- Specify the information to be included in the report. If you select some attributes—such as item numbers or dates—you must enter From and To information. These entries will be the first and last records in your report.

  When you select other attributes—such as Status or Type—you must mark the statuses or types to be included in the report. For example, you could generate a bill of materials report based only on configured bills of materials.

9. Choose Insert to add the range information to the scrolling window.

10. Continue, repeating steps 8 and 9, to add more range restrictions to the report.

11. Choose Save to save the report option, and close the window.

Adding a range restriction to a report option

Use a report options window to add a restriction to an existing report option.

To add a range restriction to a report option:

1. Open a report options window.
   (Reports >> Manufacturing >> module of your choice >> Report Options)

2. Select a report option.

3. Create a range restriction. To include all information in the report—if the report should include all items or all bills of materials, for example—leave the Ranges field blank to include all records.

   - Select an attribute—a piece of information about the records to limit the report information.

   - Specify the information to be included in the report. If you select some attributes—such as item numbers or dates—you must enter From and To information. These entries will be the first and last records in your report.

   When you select other attributes—such as Status or Type—you must mark the statuses or types to be included in the report. For example, you could generate a bill of materials report based only on configured bills of materials.

4. Choose Insert to add the range information to the scrolling window.

5. Choose Save and close the window.

Deleting a range restriction from a report option

Use a report options window to remove a restriction from an existing report option.

To delete a range restriction from a report option:

1. Open a report options window.
   (Reports >> Manufacturing >> module of your choice >> Report Options)

2. Select a report option.

3. In the Range restriction window, highlight the restriction to remove from the report option.

4. Choose Remove.

5. Choose Save and close the window.

Generating a Manufacturing report

Use Manufacturing report windows to choose reports and report options.

To generate a Manufacturing report:

1. Open a report option window.
   (Reports >> Manufacturing >> module of your choice >> Report Options)

   You also can open report option windows from other Manufacturing windows. Often, if no record is displayed in a Manufacturing window when you choose the print icon button, the associated report option window will open.

2. Enter or select a report option.

3. Select a report.

4. Choose Destination to open the Report Destination window. You can choose to send the report to a printer, to your screen or to a file. The default selection for the report destination comes from your user preference settings.

5. Choose OK in the Report Destination window.

6. Choose the print icon button.

   In some report option windows, the report is printed and the report option is saved when you choose the print icon button. In other windows, a message will be displayed and you'll have the option to save the report option you've created.

   - Choose Yes to save the report option and print the report.
   - Choose No to return to the report options window. The option won't be saved, and no report will be printed.

Viewing manufacturing reports in the report list

Use a report list window to view manufacturing reports in the report list.

To view manufacturing reports in the report list:

1. Open a report list window.
   (Reports >> Manufacturing >> module of your choice >> Report List).

   The report list window displays the report options for the module that you selected.

2. When you have finished viewing reports, close the window.

Adding a report option to the report list

Use a report options window to add an existing report option to the report list.

To add a report option to the report list:

1. Open a report options window.
   (Reports >> Manufacturing >> module of your choice >> Report Options)

2. Select a report option.

3. Mark the Include in Report List option to include the report option in the report list.

Only one of the reports for each report option can be included in the report list.

4. Choose Save and close the window.

Removing a report option from the report list

Use a report options window to remove a report option from the report list.

To remove a report option from the report list:

1. Open a report options window.
   (Reports >> Manufacturing >> module of your choice >> Report Options)

2. Select the report option to remove from the report list.

3. Unmark the Include in Report List option to remove the report option from the report list.

4. Choose Save and close the window.

Changing report page orientation

Use the Print Setup window to change between portrait and landscape versions of your reports.

To change report page orientation:

1. Open the Print Setup window.
(Microsoft Dynamics GP >> Print Setup)

2. Mark Portrait if reports should be printed in a vertical format; mark Landscape if reports should be printed in a horizontal format.

3. Choose OK and close the window.

Deleting a report option

Use a report options window to delete report options.

To delete a report option:

1. Open a report options window.
(Reports >> Manufacturing >> module of your choice >> Report Options)

2. Select a report option.

3. Choose Delete. A message will be displayed and you'll have the option to cancel the removal of the report option.

    - Choose Yes to delete the report option.

    - Choose No to keep the report option unchanged.

Glossary

Acceptable Quality Level table
A representation of testing standards and sample sizes. AQL tables include information about appropriate sample sizes and the maximum number of pieces that can fail inspection in an acceptable lot. You'll probably set up several AQL tables to reflect different inspection standards for different items.

Active routing
See Manufacturing order routing.

Actual costing
An inventory tracking method that involves constantly updating inventory each time an item is added or removed.

Actual demand
The total quantity of an item requested on all firm manufacturing orders.

Actual expenses (Job Costing)
The total of all applied expense transactions linked to a job.

Actual margin (Job Costing)
A measure of the overall profitability of a specific job. The actual margin for a job is calculated by dividing the actual profit by the actual revenue, and then multiplying the result by 100.

Actual profit (Job Costing)
The difference between actual expenses and actual revenues for a job.

Actual revenues
The total of all applied revenue transactions linked to a job.

Allocate
To reserve materials needed for a manufacturing order.

Alternate routing
Any planning routing for an item other than the primary routing.

Alternate work center
A work center to which work can be shifted if the customary work center for a specific task is not available. If the primary work center is temporarily shut down, or if demand exceeds the capacity of the primary work center, the work load can be shifted to the alternate work center.

Apply
To add the amount of a revenue or expense linked to a job to the financial information about the job. If a transaction isn't applied to a job, its amount won't be reflected in the overall financial information about the job. Applying transactions in Job Costing can happen manually or automatically.

AQL table
See Acceptable Quality Level table.

ARCH BOM
See Archived bill of materials.

Archived bill of materials
A bill of materials stored in a separate area of your computer system. Bills of material might be archived as they become obsolete.

Assemble to order
A type of manufacturing facility that puts a group of components together according to customer specifications.

Back order
An order to be fulfilled when stock for items in shortage is replenished.

Backflushing
A method of accounting for the use of resources—labor and machine time, and items—based on standards you've defined. Transactions to account for the use of backflushed resources are created when a manufacturing order is closed.

Backward finite scheduling
A scheduling method that starts from a due date and works out a plan for the flow of work through the plant with the assumption that there are only a limited number of resources (machines and workers) available to complete the task.

Backward infinite scheduling
A scheduling method that starts from a due date and works out a plan for the flow of work through the plant with the assumption that the plant has unlimited machine and worker capacity.

Batch cards
See Manufacturing order.

Bill of materials
A list of the components and subassemblies needed to build one unit of a product. The bill of materials also shows quantities for each component.

Bill of operations
See Routing.

Bin
A storage device to hold discrete items.

Blanket purchase order
A purchase order that is delivered gradually to the buyer.

Bucket
A time period used for calculating MRP requirements. Manufacturing supports daily, weekly, and monthly bucketing options.

Buy items
Items that are supplied to your plant by a supplier.

Buyer ID
Code that identifies the person who purchases the item from a supplier.

By-product
A finished good that is created incidentally to another finished good.

Child part
See Component.

Class
A method for grouping similar parts or products.

Co-product
See By-product.

Company data
Company data is the information you enter about your organization, such as its applicants, employees, benefits systems, training programs, and organizational structure.

Component
Items used to build a product. Component parts can be items (nuts, screws, diodes) or subassemblies (axles, circuit boards).

Component transaction
A line on a pick document to allocate, reverse allocate, issue, reverse issue, scrap, or reverse scrap components for a manufacturing order.

CONFIG BOM
See Configured bill of materials.

Configuration data
In Bill of Materials, information about the product's overall design. It includes the design authority for the product, the unit of measure, and the revision level.

Configured bill of materials
A bill of materials that is built by selecting options from a super bill of materials.

Configured cost
The calculated cost of building a specific configured item, depending on the options a customer selects. The configured cost reflects the cost of the component items and the labor required to manufacture the item.

Configured price
The suggested price to charge the customer for a configured item, based on your finished goods price schedule and the selected options.

Configured routing
A routing based on the selected options. For example, if you created a configured bill of materials for office chairs and chose plastic components rather than wooden ones, the routing would be modified to exclude the sequences for staining and varnishing the wooden components. Also known as a "configured working routing."

Configured Working Routing
See Configured routing.

Consume
To use up the quantity that has been issued to WIP—for materials, labor time, or machine time—for a manufacturing order.

Cost variance
The difference between the actual costs—for materials, machine time and labor—and the estimated costs for a manufacturing order. Cost variances can be positive or negative.

Customer record
A record that shows all the information you need to conduct sales transactions, such as address information, billing and shipping instructions, credit history and other data for that customer.

Cycle time
The total amount of time it takes to make one part, such as setup time, labor time, machine time, queue time and move time.

Default inventory site
The location commonly used to store raw materials or finished goods.

Defect code
An identifier for a particular type of item failure. For example, if an item is too long and fails a specification for length, you might create a defect code called LENGTH. Defect codes are used in Manufacturing reports to help summarize information.

Denial code
An identifier for the reason why an engineering change request wasn't approved.

Destination routing
A routing that you copy from another routing. You can add sequences to the destination routing.

Direct labor
The time spent by one or more production workers on filling a specific manufacturing order.

Discrete item
An item that is manufactured as a distinct unit. Examples of discrete items include computers, automobiles, and radios.

Disposition code
An identifier for a method for handling defective items. For example, you might decide to scrap certain defective items, and might assign a SCRAP disposition code to those items.

Double-booking
A situation where a job might inadvertently be charged twice for the same expense.

Down day
A day when the facility—the entire shop floor or a specific work center—is not in production.

Drawing
A schematic or other illustration. You can "attach" electronic drawing files—such as CAD illustrations, bitmaps and even .AVI movies—to records.

Drawing group
A set of related drawing files. For example, a drawing group might include several views of the same item.

Due date
The date when the items on a sales order should be ready to ship.

ECM
See Engineering change management (ECM).

ECO
See Engineering change order (ECO).

ECR
See Engineering change request (ECR).

Element
An order or transaction that can be linked to a job, such as a manufacturing order, a sales order, a purchase order line, a receiving line, or inventory transaction.

Employee allocation
The assignment of workers to work areas. Each employee can be assigned an efficiency rating for a particular task. The number of hours per shift spent on a task can also be specified. Total scheduled employee hours for the work center are also displayed.

Employee efficiency percentage
A ranking of how an employee performs a given task. You can use this field different ways, depending on how your organization handles its employee efficiencies. Some organizations complete time studies of various tasks, and set task goals for workers based on those figures. Employees earn efficiency ratings based on their ability to meet those criteria. In other organizations, the top producer is assigned a value of 100% (or less) and all other employees would be ranked in comparison to the top producer.

ENG BOM
See Engineering bill of materials.

Engineering bill of materials
A proposed bill of materials. Designs that are only in the prototype stage of development, for example, may have engineering bills of materials. In this way, the costs of producing a design can be studied without impacting the material requirements that the system generates.

Engineering change management (ECM)
The systems that a company has in place to ensure that changes to its product specifications are properly monitored.

Engineering change order (ECO)
The second stage of the engineering change management process. An engineering change order is a change that has been approved for incorporation.

Engineering change request (ECR)
The proposal stage of the engineering change management process. An engineering change request is a proposed change.

Estimated expense
A projection of the expenses for a job, entered in the Job Maintenance window.

Estimated margin
A job costing calculation based on estimated revenues and estimated expenses for a specific job. The estimated margin is calculated by dividing the estimated profit by the estimated revenues, and the multiplying the result by 100.

Estimated profit
The difference between the estimated expenses and the estimated revenues for a specific job.

Estimated revenue
A projection of the revenues for a job, entered in the Job Maintenance window.

Exclusions (MRP)
A method of marking an item, site or item-site combination so it isn't included in MRP calculations.

Exclusions (Sales Configurator)
Options that are disallowed because of another option selection.

Expensed floor stock
A bill of materials component that has been designated—regardless of its issue-to and issue-from sites—as a floor stock item. The cost of expensed floor stock is applied to an expense account, rather than to the cost of the finished item. *See also* Floor stock.

Explode
To determine the total quantities of components needed for a manufactured item. To explode a bill of materials, the quantity ordered is multiplied by the quantity used for each of its components. Exploding continues throughout the bill of materials, so component requirements for subassemblies are also calculated.

Filled order
An order that has had all its requirements met and can be closed.

Finished goods
An item that is manufactured for sale. Also, the final products that a company sells.

Finite scheduling
A scheduling method that assumes that limited capacity for labor and machines is available.

Fixed order quantity
An order policy type that calculates order size for a day's requirements based on one or more of these variables: standard order quantity, order increment size, minimum order size, and maximum order size.

Fixed quantity
The quantity of a component that is required for each manufacturing order, regardless of how many finished goods are produced with the order. For example, if you use two widgets to calibrate equipment each time you begin a new manufacturing order, the fixed quantity for widgets would be 2 for the finished good bill of materials.

Floor stock
A bill of materials component that uses the same site for its issue-from and issue-to sites. The cost of this type of floor stock is applied to the cost of the finished item. *See also* Expensed floor stock.

Forecasted demand
An estimate of how much of an item should be produced over a specific period of time.

Forward infinite scheduling
A scheduling type based on a starting date for an order, with the assumption that the plant has unlimited machine and worker capacity for the work order.

Full regeneration
An MRP process that recalculates your MRP data, including all sales orders, purchase orders, sales forecasts, and manufacturing orders. *See* Net change regeneration.

Functional currency
The currency type (such as dollars or pounds) used by your organization for its accounting. *See also* Originating currency.

General ledger variance
The difference between costs that have been added to WIP and the costs that have been removed from WIP for a specific manufacturing order.

Header record
The information that ties the pieces of a larger record together. For example, the header record of a routing includes information about the type of routing, the routing name, the date the routing was created and so on. This information ties sequence records together to create one routing record.

Hours per shift
The amount of time per shift actually spent working on the assigned tasks. To determine hours available per shift, subtract any non-task related activities from the total number of available hours. For example, if an employee is scheduled for an eight-hour shift but has a one-hour meeting and two quarter-hour breaks that day, the total available time would be 6.5 hours.

Inclusions
Option items automatically added to a configured bill of materials when a customer selects a certain option. For example, a computer manufacturer might offer a computer system in tan and black. If the customer selects the option for a tan computer, the computer manufacturer might set up the super bill of materials so that the tan keyboard automatically is included as part of the purchase.

Indirect labor
The time spent on tasks that are not directly related to filling a specific manufacturing order. Examples of indirect labor include meetings and training.

Instruction sheet
See Routing.

Infinite scheduling
A scheduling method that assumes that all required capacity for labor and machines is always available.

Invoice history
The information tracked about past invoices. Invoice history allows you to determine what historical information you will need for tracking sales activity. History information can include transaction detail and/or account distributions.

Issue
A type of component transaction. When components are issued for a manufacturing order, they are removed from inventory and added to WIP.

Issue-from location
The site where the components used in the manufacturing process are stored prior to beginning the manufacturing order, such as with a vendor, or in a department, a warehouse, or another plant.

Issue-to location
The site where the finished product will be stored prior to delivery to the customer, such as in a department, a warehouse, or another plant.

Item type
A code to designate the accounting class for the item, such as inventory, discontinued, and misc. charge.

Item-specific inventory valuation
An accounting method that places a value on each item that you produce, based upon either standard cost or current cost.

Job
A series of business activities that, when completed, will fulfill a high-level objective.

Job category
Groupings that you can create to organize the titles and descriptions of jobs within your company. Each job category must include a set of values that can be used to sort all jobs. For example, you might create a job category called REGION so you could track jobs from specific geographical areas. Values for that job category might be East, West, North and South-or might be states, provinces, countries/regions or other areas.

Job costing element
A type of element that can be linked to a job.

Job costing transaction
An instance of a job element that is linked to a specific job, capturing information about a specific revenue or expense associated with the job. Job costing transactions aren't accounting transactions: they won't affect the General Ledger or any subsidiary ledgers.

Job order
See Manufacturing order.

Job transaction list
A selection of transactions to be applied to a specific job. You can use transaction lists to specify the kinds of transactions that should be applied to jobs, and to specify the transactions to be applied automatically to jobs.

Kit
A group of finished items that compose a set.

Labor code
A code that is used to tie a job function to a specific pay grade. Usually, jobs requiring fewer skills have lower pay grades and are compensated at lower rates. Jobs requiring more skills or education have higher pay grades and higher pay rates.

Labor time
The number of employee hours required to complete the operation.

Lead time
The minimum amount of time required for production of an item.

Location
A work site. Some businesses are organized as a single company or division, but may have multiple sites.

Lot-for-lot
An order policy for ordering the exact quantity needed, provided that the order quantity is between the minimum and maximum order quantities.

Lot-numbered item
Any inventoried item that is part of a group that is assigned a unique identifier, which can be letters, numbers or a combination of letters and numbers.

Lot-number–tracked item
See Lot-numbered item.

Lot-sample size
The number of item units that should be inspected to determine if a group of items meets specifications.

Lot-tracked item
See Lot-number–tracked item.

Low-level code
A code that identifies the deepest level an item has in any bill of materials in your manufacturing records.

Machine
Any tool, device or implement that you use in your manufacturing process.

Machine allocation
The assignment of a machine to a work area. Each allocation record displays available machine hours, the efficiency rating, and utilization rate for that machine. Total scheduled machine hours for the work center are also displayed.

Machine definition
The record of a machine in your plant that allows you to track statistics for each machine, including vendor information, warranty period, and operating costs.

Machine efficiency
A measure of how a machine is suited for a specific task. The higher the efficiency rating, the more effectively the machine works.

Machine time
The number of machine hours needed to complete the operation.

Machine utilization
A measure of how much of the available machine capacity is actually being used. For example, if a machine is capable of producing 100 items per eight-hour day and you are only producing 80 items, the machine utilization rate is 80 percent.

Make item
An item that is produced by your plant.

Make or Buy item
An item that can be bought or manufactured by your company.

Make to order
An order fulfillment method for made items. When make-to-order items are sold, manufacturing orders to build the items required to fulfill the manufacturing orders are created. Manufacturing orders are used to respond to specific sales orders

Make to stock
An order fulfillment method for made items. When make-to-stock items are sold, the quantities required to fulfill the sales order are taken from inventory quantities. Manufacturing orders are used to keep inventory levels up so that sales orders can be fulfilled.

Manufacturing bill of materials
The bill of materials used to build a parent part in your organization. A manufacturing bill of materials is the "real" bill of materials, and is used to figure material requirements for your organization.

Manufacturing data sheets
See Routing.

Manufacturing order
A set of documents conveying the authority to manufacture parts or products in specified quantities. Manufacturing orders are also called batch cards, job orders, production orders, run orders, shop orders, or work orders.

Manufacturing order receipt
A document where material, labor, and machine costs in WIP are applied to finished goods that are received in inventory. Costs for backflushed materials, labor, and machine time also are applied to the finished goods cost.

Manufacturing order routing
A routing used to complete a specific manufacturing order, which includes all the necessary requirements to fill the order, such as workers, machine time, and raw materials. Also known as "manufacturing routing."

Manufacturing picklist
A list of the items and quantities of items that are required to fill a manufacturing order.

Material Requirements Planning
A series of data collection and interpretation procedures that allow you to forecast resource requirements over a specified time period (days, weeks or months).

Maximum order size
One of the variables that can be used to calculate order quantities for fixed or period order quantity order policies. Maximum order size puts a limit on the size of automatically generated purchase and manufacturing orders. If demand is greater than the maximum order size, an additional order will be created.

MFG BOM
See Manufacturing bill of materials.

Minimum order size
One of the variables that can be used to calculate order quantities for fixed or period order quantity order policies. It is similar to standard order quantity, and is used in its place if the standard order quantity is zero. If the standard order quantity is greater than zero, the standard order quantity supersedes the minimum order size.

Module security
A way to see if other users are working with records that prevent you from completing certain processes. Module security also allows you to unlock records and remove users from MRP.

Move in
To adjust the due dates of existing manufacturing orders and purchase orders to meet potential shortages identified by MRP calculations. If MRP calculations uncover a shortage of an item and if there's an existing order for the item in the future, the order will be flagged to be "moved in" to prevent the shortage.

Move out
To reschedule certain manufacturing orders or purchase orders to prevent stock overages on the current due date. An appropriate future date to move the order to cover a future net requirement is proposed

Move time
The number of hours needed to physically move an item to the next operation.

MRP
See Material Requirements Planning.

MRP shortage
A lack of resources to produce the required amount of an item to fill outstanding orders. Manufacturing orders can be entered regardless of current stock of available materials.

Multi-level bill of materials
A bill of materials that lists all the components directly or indirectly involved in building the parent part, together with the required quantity for each item. For example, if a subassembly is used in the parent part, the multi-level bill of materials will show all the components needed to build the subassembly, including purchased parts and materials. *See also* Single-level bill of materials.

Negative WIP
The situation that occurs if you enter and post a manufacturing order receipt where more is consumed from WIP than was in WIP for the manufacturing order. When finished goods are received into inventory before materials have been issued to the order or before labor or machine time data collection transactions have been completed, this can occur. You must set up Manufacturing Order Processing to be able to enter receipts that would cause negative WIP.

Net change regeneration
An MRP process that updates MRP information based on changes to manufacturing orders, sales orders, purchase orders, and inventory quantities. *See also* Full regeneration.

Nettable item
An item, site or item-site combination that is included in MRP calculations.

Non-nettable item
Any item, site, or item-site combination that is not included in MRP calculations.

Non-Standard Report
A report for internal use that summarizes information about defects identified in a group of items. An NSR might also include information about the disposition of the defective items.

NSR
See Non-Standard Report.

Op code
See Operation code.

Operation
A specific task within the manufacturing process. You can use operations as templates for routing sequences.

Operation chart
See Routing.

Operation code
A code assigned to a particular task within the manufacturing process. For example, in a company that makes electrical components, the operation code for testing the validity of a certain characteristic might be "110." Also, op code.

Operation list
See Routing.

Operations sheets
See Routing.

Option
In sales configurator, an option is one of the available choices for some aspect of a configured item. For example, a computer manufacturer might offer 15-, 17- and 21-inch monitors as options for a computer.

Option bill of materials
A bill of materials for a component signifying that the component won't be identical in all finished products.

Option category
A group of related items that customers can choose from, such as various sizes of computer monitors.

Option setting
A setting that controls the information that appears on a report, such as sorting method, detail level, and range restriction.

Order increment
A variable that can be used to calculate order quantities for fixed or period order quantity order policies. The order increment is the number of item units that can be added to the standard order quantity to increase the order size to meet demand.

Order policy
A method for calculating the order sizes of automatically generated purchase and manufacturing orders. Manufacturing includes three order policies: lot-for-lot, fixed order quantity and period order quantity.

Originating currency
The alternate currency that a multicurrency transaction was conducted in. *See also* Functional currency.

Outsourced item
A finished good that requires one or more outsourced services.

Outsourced service
A service that is part of manufacturing processes that is purchased from a vendor.

Outsourcing
The practice of using outside vendors to perform certain manufacturing tasks.

Outsourcing routing
A routing that includes one or more sequences that are completed by an outsourcing vendor.

Outsourcing vendor
A vendor that you purchase outsourced services from.

Outsourcing work center
A work center where outsourced services are performed. An outsourcing work center can be on-site or can be at the vendor site.

Overhead
Costs incurred that cannot be directly related to the products or serviced produced. These costs, such as light, heat, supervision, and maintenance can be grouped and distributed to units of products or services by some standard allocation method.

Parallel routing
A routing that includes some routing sequences that run concurrently.

Parent part
An item built from the component parts. A parent part can be a subassembly or a final product.

Pegging
To trace an item requirement through the MRP system to find the source of the requirement quantity. Pegging will reveal whether a requirement is driven by a manufacturing order, sales order, purchase order or picklist.

Period order quantity
An order policy type that calculates order size for requirements for a period you specify, based on one or more of these variables: standard order quantity, order increment size, minimum order size and maximum order size.

Periodic costing
See Standard costing.

Periodic inventory
An inventory tracking method that involves taking inventory on a recurring basis, such as monthly, quarterly or yearly. This is the same as "standard" costing.

Perpetual inventory
An inventory tracking method that involves constantly updating inventory each time an item is added or removed.

Phantom bill of materials
A bill of materials used to describe the components of a parent part that will be built as part of a higher-level parent part. The term "phantom" is used to indicate that the part never really exists as a stocked item, but is built along with the production of the higher-level part that is driving an overall production order. Creating bills of materials as phantoms allows the manufacturing order picklist and the Material Requirements Planning (MRP) features to explode through the phantom item down to the lower-level parts.

Pick document
A group of component transactions that share a type such as Allocate, Issue, Reverse Issue, and that are posted together. A pick document can include component transactions for multiple manufacturing orders, items, or sites.

Picklist
A list of the items and quantities of items that are required to fill a manufacturing order.

Planner ID
A code that identifies the individual responsible for the production of the item.

Planning routing
A routing used to determine resource requirements for a potential manufacturing order. If negotiations with the customer are successful, the planning routing can be converted into an active routing and used to fill a manufacturing order.

Pointer routing
A pointer routing is used to outline a series of steps that are common to all items produced by your plant. For example, if each item needs to be tested by quality assurance, packaged and shipped, a routing can be defined to cover these steps for all items that you manufacture.

Post-to site
The site where the finished product will be stored prior to delivery to the customer. This location can be a department, a warehouse, or another plant.

Primary routing
A routing that provides the instructions for building an item. It is a basis for scheduling and resource estimates. The primary routing information is used to determine the required lead time for manufacturing the product. Each item can have only one active primary routing.

Process security
A type of security that allows you to restrict access to certain procedures or processes within Manufacturing.

Process security set
A password or list of user IDs you define to restrict authority for completing a Manufacturing process. You can use one process security set for all restricted procedures, or you can create different process security sets for different procedures.

Production variance
The difference between the actual and estimated costs for a manufacturing order, based on the working routing, the picklist, and labor and machine codes.

Promise date
The date that the customer has been told to expect receipt of the order.

Promotion
Special pricing offered on a particular option for a configured item.

A special pricing offered on a particular option for a configured item.

Purchase order
A formal request for goods or services. The purchase order shows the quantity of goods ordered, expected receipt date, and supplier name. The purchase order may also include other information pertaining to the delivery of the item, such as Free On Board (F.O.B.) points.

QA Required
A designation for purchased items that must pass a quality inspection before being added to your inventory.

Quantity damaged
The total items, if any, damaged during shipping.

Quantity ordered
The amount of the item requested on a single purchase order.

Quantity received
The amount of the item received from the supplier.

Quantity to fill
An amount of a product that was ordered but has not been received.

Query
A search through a specific set of records for certain information.

Queue time
The number of hours spent waiting for the operation to begin.

The number of hours spent waiting for an operation to begin.

Quick manufacturing order
A manufacturing order that doesn't require you to collect information about labor and machine time and material costs when the order is closed.

Quote
A company's offered price for an item that a customer or a potential customer has requested. Quotes can be transferred to another document type, deleted or voided.

Raw materials
Items used to build products. They can be individual items like nuts, screws and diodes, or they can be subassemblies.

Record
A group of computer data tied together by a common key. (All of one item's information—from quantity and site information to engineering data to bill of materials data—is the item's record.)

Reference designator
Information that specifies where components should be used in an assembly, such as the placement of four resistors on a printed circuit board.

Regular bill of materials
A simple, single-level bill of materials.

Replaced item
An item in a mass update to bills of materials that is removed from bills of materials. A replacement item might or might not be substituted for the replaced item.

Replacement item
An item in a mass update to bills of materials that is added to bills of materials. A replacement item might be an addition to a bill of materials, or might be a substitution for a replaced item.

Return
An item or merchandise returned by a customer to your company. A return decreases the customer's balance on account and, if you choose, increases inventory quantities.

Revalue
To finalize rolled-up standard cost changes. Revaluing replaces existing standard cost information with new standard cost information, which is used in your accounting processes. As you change your standard cost information, you might roll up costs several times, but probably will revalue items only at certain points.

Revenue/expense code
A short identifier used to categorize expenses and revenues linked to a job.

Reverse allocate
A component transaction type where items that have been allocated to a manufacturing order are unallocated. *See also* Allocate.

Reverse Issue
A component transaction type where components that were issued to a manufacturing order (which removes them from inventory and adds them to WIP) are removed from WIP and put again in inventory. *See also* Issue.

Reverse Scrap
A component transaction type where components that were scrapped for a manufacturing order are restored to the issued (and not scrapped) quantity for the order. *See also* Scrap.

Roll up
To apply calculations based on changes to standard cost information to items. If you change the cost of a raw material that is part of several subassemblies and finished goods, "rolling up" that change will result in calculations that will determine the new standard costs of the subassemblies and finished goods.

As you change your standard cost information, you might roll up costs several times, but probably will revalue items only at certain points.

Routing
A detailed set of instructions that describes how to create a particular item. Routings include operations to be performed, the scheduling sequence, machines and work centers involved, and hours required for setup and run times. Routings also can include information about tooling, operator skill levels, inspection needs, testing requirements, and so on.

In engineering change management, a routing is a list of users who must review an engineering change request before it becomes a change order, and who must review a change order before it's finalized.

Routing preference
An individual user choice on how information is displayed or processed for update in the routings subsystem. Preferences can control such actions as substituting one description for another or appending work center operations notes on to routing notes.

Routing sequence
A single step in the manufacturing process. Some routings will contain multiple steps while others will have only a single step. Examples of a sequence include assembly, painting, drying, etc.

Routing sheets
See Routing.

Run labor code
A labor code that identifies the skill requirements to perform the operation as defined.

Run orders
See Manufacturing order.

Sales order
A request for goods or services. Sales orders can be Open (ready to be filled) or Planned (hold pending credit check or other criteria).

Sampling
A statistical process of selecting a portion of a large group of items to be inspected. From the sample you select—and your inspection results for the sample—you can draw inferences about the overall quality of the entire item quantity.

SCAR
See Supplier Corrective Action Request.

Scheduling data
The lead time needed to manufacture an item on a bill of materials and the amount of scrap materials produced by the manufacturing process.

Scheduling preference
A user preference that controls the allocation of resources to a particular manufacturing order. Scheduling preferences identify additional resources that may be available and define waiting periods for a sequence.

Scrap
A component transaction type where components that are issued to a manufacturing order are flagged to be scrapped. Scrapped component costs are applied to the manufacturing order costs, but the quantities aren't.

Sequence number
A number assigned to a particular step in a routing. Each step (or sequence) represents an operation in the manufacturing process. The sequence number controls the order in which steps are executed.

Serial-numbered item
An inventoried item that is assigned a unique identifier, which can be letters, numbers, or a combination of letters and numbers.

Serial-number–tracked item
See Serial-numbered item.

Serial-tracked
See Serial-numbered item.

Setup cost
The cost of preparing a work area for production. Setup costs might include the cost of calibrating machines or gathering the necessary tools and resources.

Setup labor code
A labor code that identifies the skill requirements for the person preparing the work area prior to performing the manufacturing task.

Setup time
The number of hours needed to prepare the work area prior to the operation.

Ship date
The date when a sales order leaves your warehouse or office.

Shipping method
The manner in which the items are transported from the supplier to the manufacturer. Examples of shipping methods include FedEx, rail, air freight, etc.

Shop calendar
A calendar of up and down days—days when the plant is in production and when it isn't—for an entire manufacturing facility.

Shop order
See Manufacturing order.

Shop rate
The average pay rate for the pay grade. It is the figure that is used when labor costs are estimated for a manufacturing order.

Shrinkage
The loss of materials. You might have raw material shrinkage—such as when some component items are defective and can't be used in manufacturing—or you might have parent part shrinkage—such as when not all manufactured items meet your product standards.

Single-level bill of materials
A bill of materials that lists components and subassemblies, including the quantities of each, that make up the parent part. *See also* Multi-level bill of materials.

Site
A location that you have defined for storing items. A site could be a department, a plant, or a warehouse. The number of sites depends on your organizational structure.

Source routing
A previously defined routing that contains one or more steps that you want to use in a new routing.

Standard cost variance
The difference between the actual costs for a manufacturing order for a standard cost item, and the standard cost of the item.

Standard costing
An accounting method used by some businesses to value their inventories. A company that uses standard costing—also known as "periodic costing"—revalues its inventory periodically to reflect significant changes in the cost of its items.

Standard order quantity
A variable that can be used to calculate order quantities for fixed or period order quantity order policies. It is similar to a minimum order quantity, requiring no less than a set amount for an order, but it can be increased, either by increments or multiples of the standard order quantity.

Subassembly
A part that is both a component and a parent part. An assembly that is used in the manufacture of a higher-order assembly.

Super bill of materials
A list of all the component items that can possibly be included the bill of materials for a finished item. For example, a computer manufacturer might develop a super bill of materials that includes several options for hard disks, RAM, monitors, keyboards, mice and other peripherals. No computer can include all the options, but all the options must be included in the super bill of materials.

SUPER BOM
See Super bill of materials.

Supplier
A person or company that supplies goods or services to a manufacturer.

Supplier Corrective Action Request
A formal report to be sent to a supplier to involve the supplier in resolving problems with defective parts. SCARs describe the problems you've found—including item numbers, lot numbers, dates and test results—and might outline possible areas for the supplier to research to prevent the defect from recurring. Suppliers usually are required to respond to the SCAR reports with information about the cause of the defect and the steps to be taken to prevent its recurrence.

Template
A routing outline that you can use to quickly and efficiently build new routings. Each time you need to create a new routing, you can customize the template and give it a unique routing name.

Time fence
The minimum amount of time required for production of an item. When MRP is used to create planned manufacturing orders or purchase orders, the orders automatically are scheduled outside the time fence.

Total costs
The cumulative total of all expenses associated with a manufacturing order, plus any overhead that might not be directly connected to the order.

Trade discount
A price reduction, usually granted to a certain customer because of the customer's special status. Customers with an excellent credit history might be offered a trade discount.

Unit costs
The value of time and resources consumed to create one unit of product for this order.

Unmet forecasted demand
The difference between forecasted demand (the anticipated amount of an item that will be required to meet projected orders) and actual production.

Up day
A day when the facility—the entire shop floor or a specific work center—is in production.

User-defined field
A field that can be used to track information specific to your company.

Valuation method
The process used to track inventory value (FIFO Perpetual, FIFO Periodic, LIFO Perpetual, LIFO Periodic, Average Perpetual).

Variance
The difference between two values, such as the difference between estimated and actual expenses.

Where used
A Manufacturing query that scans your bills of materials and routings to find where items, machines and other things you've defined are used. If you performed a "where used" search for all items in your plant that use a certain machine, for instance, the system would generate a list of all items that have a step involving that machine.

Window security
A system that allows you to specify which windows each user in your organization will be able to use.

WIP
See Work In Process (WIP).

Work center
A self-contained unit of the manufacturing process, or an entire plant. A work center might be an assembly area, a shipping and receiving area or a painting area. Machines and employees are the main components of work centers.

Work center calendar
A calendar of up and down days—days when the plant is in production and when it isn't—for a specific work center.

Working routing
See Manufacturing order routing.

Work In Process (WIP)
A system that helps you to track and analyze the costs associated with a particular manufacturing order and view the progress of the manufacturing order.

Work order
See Manufacturing order.

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