

Catalyst *manufacturing*[®]

Parametric Modeling User Manual

**Accelerating the Way
You Do Business[™]**



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Using Parametric Modeling

Parametric Modeling is an optional module that allows for the rapid development of quote configurations for cabinets, cases, and molding. In general, a base model configuration is created to represent the basic build structure of an end item. For example, a three-dimensional cabinet may vary by its width, height, and depth for each customer order. Since each order may vary slightly in one or all dimensions, it is desirable to translate the changes in the overall base dimensions to the material requirements that comprise the cabinet such as board stock, cut panels, hardware, molding, etc. Using parametric modeling, the mathematical relationships between these dimensions is taken into account so the material requirements calculations for a custom job are performed automatically. Most custom jobs will still need some final adjusting and review, but the parametric model gets the designer/planner to an approximate configuration much faster than if the quote had been worked up by hand.

Due to the rich dimensional inventory functionality in Catalyst, shop orders and inventory can be created and tracked that relates to the dimensions of the product. For example, if Catalyst calculates that you need to produce 30 front door panels that measure 2' x 3', Catalyst will let you create a shop order specifying those dimensions as well as track the inventory for that particular size. With dimensional inventory, however, you do not need separate item numbers for parts that are identical in all respects except dimension. It is only necessary to create a single item and then refer to the dimension codes accordingly. This feature saves time in data maintenance and results in improved data integrity.

You can get more details about the steps required to setup parametric modeling by referring to the section on Parametric Modeling Setup. To learn how to enter quote lines and create quote configurations for parametric models, refer to the Enter Quote Lines section under Create/Maintain Customer Orders.

Parametric Modeling Setup

The procedure for setting up parametric models and BOM components to generate customer quotes is described in the steps that follow. As you proceed through the steps, it is helpful to remember that you are laying the groundwork for the product configuration of the base model. Once the base configuration has been created, the process of generating custom quotes can be accomplished at a much faster pace.

1. Enable Parametric Configuration in the Company Master.
 - The parametric configuration flag enables the parametric modeling features and functionality in Catalyst.
 - To set the parametric configuration flag, open the Company Master (**Data Maintenance > Create/Maintain Company**), select the **Manufacturing** page, and select the **Parametric Config.** check box. This step enables the

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Create/Maintain Parametric Items menu option in the **Data Maintenance** menu and parametric setup of items in the Item Master.

2. Create base model item in the Item Master
 - The base model is the template that you will use to generate quote configurations for related products. When determining which items to setup as base models, categorize the end items that you sell into product families that share many of the same operations and materials. The base model is the starting point for all other quote configurations that share the same structure and build requirements. It does not necessarily have to be an actual item.
 - The steps for creating a base model item are as follows:
 - i. Create a new item according to the instructions in the Item Master help topic.
 - ii. Mark the **Parametric** check box on the Planning page of the Item Master.
 - iii. Click the cube button adjacent to the Parametric field to open the Parametric Item Master. Follow the instructions in the Parametric Item Master to create a base model.

3. Create the parametric bill-of-material components in the Item Master
 - The parametric components are those items required by the base model item that vary in one or more dimensions with the base model. For example, the front/back, side, and top/bottom panels of a cabinet all vary in their width and length dimensions when the width, height, and depth dimensions of the base model change. It is only necessary to specify the items needed to build the base model so Catalyst can calculate the custom dimensions of all the required components when building the custom quote configuration.

A base model consists of both parametric and non-parametric components. The parametric components vary in dimension with the base model and the non-parametric components do not vary in dimension, but may vary in the calculated quantity required. The parametric components, therefore, will always be setup as dimensional inventory items and the non-parametric items as non-dimensional. In addition, if a non-parametric item is listed as the component of a parametric, dimensional item, the quantity required is calculated based on the change in the parent dimensions if the non-parametric component has either a square feet (SF) or linear feet (LF) stock unit of measure. This feature allows board stock requirements to be calculated as a lower-level item on the based model. For example, if the parent base model is a 24" x 24" table with a first level parametric dimensional component consisting of a 24" x 24" finished tabletop, the quantity required of a 4' x 8' board stock used to make the tabletop is 4 square feet. If a custom 36" x 36" table is entered for a custom quote, Catalyst will create a quote configuration consisting of a 36" x 36" base table that requires a 36" x 36" tabletop at level 1 and 9 square feet of the board stock at level 2.

- The steps for creating a base model item are as follows:

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- i. Create a new item according to the instructions in the Create/Maintain Item Master section.
 - ii. Mark the **Dim. Inv.** check box on the Inventory page and the **Parametric** check box on the Planning page of the Item Master.
 - iii. Click the cube button adjacent to the Parametric field to open the Parametric Item Master. Follow the instructions in the Parametric Item Master to create a parametric component.
4. Create a product configuration for the base model item and lower-level bill-of-material components as required
 - The product configuration for the base model identifies the structure and build requirements to make the model and, thus, any new quote configurations based on the model. Refer to the instructions in Create/Maintain Product Configurations section to create the necessary product configurations for each bill-of-material level.
5. Create a model type for the base model
 - The final step in the setup process involves creating a model type for the base model configuration. The selection of the model type on a quote line creates the association between the quote line and the base model configuration created in the previous step. Refer to the instructions in the Create/Maintain Quote Models section to create the necessary model types.

You are now ready to begin entering quotes for custom jobs using the base model configurations you just created. To learn how to enter quote lines and create quote configurations for parametric models, refer to the Enter Quote Lines section under Create/Maintain Customer Orders.

Create / Maintain Parametric Items

The Parametric Item Master can be accessed from the Planning page of the Item Master or from the Data Maintenance menu (**Data Maintenance > Create/Maintain Parametric Items**). For a complete review of the setup requirements for parametric modeling, refer to the Parametric Modeling Setup section. There are basically two types of parametric items that can be created in Catalyst:

1. [Base Models](#)
2. [Components](#)

Creating Parametric Base Models

A parametric base model can be a cabinet, case, table, or any three-dimensional product manufactured and sold as custom, engineer-to-order item. The base models are not setup as dimensional inventory items on the Item Master since the outer dimensions vary by height,

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width, and depth instead of thickness, width, and length. Instead, the base model dimensions are specified on the **Parametric Item Master** as shown below.

1. To create a new parametric base model, open the base model item in the Item Master, select the Planning page, and mark the **Parametric** check box. Select the **Save** button to save changes. Click the cube button adjacent to the **Parametric** check box to open the **Create New Parametric Item** screen. Note, if the **Parametric Item Master** is opened directly from the Data Maintenance menu, select the **New** button to create a new parametric item.
2. On the **Create New Parametric Item** screen, select the 'Base Model' **Parametric Type** option and a base model item number from the **Item No.** dropdown list. The **Item No.** field contains a list of all items marked as parametric in the Item Master that have not yet been setup in the **Parametric Item Master**. The parametric description defaults from the Item Master, but can be modified as required. Select the **Save** button to save the new base model.

The screenshot shows a dialog box titled "Create New Parametric Item". It contains a "Parametric Type" section with two radio buttons: "Base Model" (selected) and "Component". To the right, there is a dropdown menu for "Item No." showing "536443" and a text field for "Description" containing "MDF Base Table". At the bottom, there are "Save" and "Cancel" buttons.

3. On the **Parametric Item Master** screen, enter the base model height, width, and depth dimensions in inches or centimeters as shown below. Select the **Save** button to save the changes.

Parametric Item Master

Item Number	536443
Description	MDF Base Table
Parametric Type	Base Model
Base Width	24 inches or centimeters
Base Depth	24 inches or centimeters
Base Height	0.625 inches or centimeters

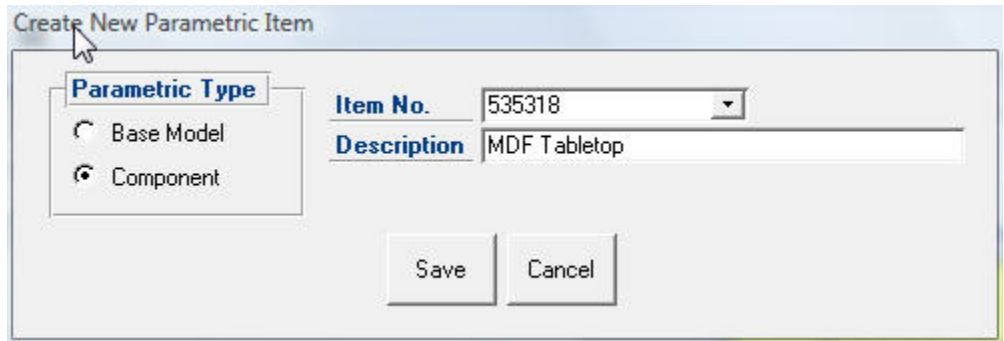
Save New Delete Reset Close ?

Width

Creating Parametric Components

The parametric components are those items required by the base model item that vary in one or more dimensions with the base model. The parametric components are setup as follows:

1. To create a new parametric component, open the item in the Item Master, mark the **Dim. Inv.** check box on the Inventory page and the **Parametric** check box on the Planning page. Select the **Save** button to save changes. Click the cube button adjacent to the **Parametric** check box to open the **Create New Parametric Item** screen. Note, if the **Parametric Item Master** is opened directly from the Data Maintenance menu, click the **New** button to create a new parametric item.
2. On the **Create New Parametric Item** screen, select the 'Component' **Parametric Type** option and a component item number from the **Item No.** drop-down list. The **Item No.** field contains a list of all items marked as dimensional inventory and parametric in the Item Master that have not yet been setup in the **Parametric Item Master**. The parametric description defaults from the Item Master, but can be modified as required. Select the **Save** button to save the new parametric component.



The screenshot shows a dialog box titled "Create New Parametric Item". It features a "Parametric Type" section with two radio buttons: "Base Model" and "Component", with "Component" selected. To the right, there is a dropdown menu for "Item No." showing "535318" and a text field for "Description" containing "MDF Tabletop". At the bottom, there are "Save" and "Cancel" buttons.

3. On the **Parametric Item Master** screen, select the **Parametric Component** option based on how the component is used in the base model. The parametric component types include front/back panels, side panels, top/bottom panels, rails, and stiles. The horizontal rails need to be specified in pairs for the width and depth regardless of whether or not they are cut and assembled as a single piece. Next, specify the dimensions required for the base model in the **Parametric Dimensions** section. Convert all dimensions to inches or centimeters and enter physical rather than nominal dimensions. Please refer to the instructions below when establishing the parametric dimensions.
 - For front/back panels, specify the component width as the base model width and component length as the base model height.
 - For side panels, specify the component width as the base model depth and component length as the base model height.
 - For top/bottom panel, specify the component width as the base model width and component length as the base model depth.
 - For rails that run the width of the base model, specify the component length as the base model width. The component thickness and width are fixed.
 - For rails that run the depth of the base model, specify the component length as the base model depth. The component thickness and width are fixed.
 - For stiles, specify the component length as the base model height. The component thickness and width are fixed.
 - Assign the panel and trim items to the base model product configuration so that the component dimensions match the base model illustration on the **Parametric Item Master** screen.

Select the **Save** button to save the changes.

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Parametric Item Master

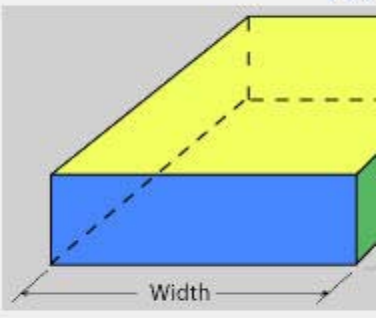
Item Number: 535318
Description: MDF Tabletop
Parametric Type: Component

Parametric Component

- Front/Back Panel
- Side Panel
- Top/Bottom Panel
- Rail - Width
- Rail - Depth
- Stile

Parametric Dimensions

	Thickness	Width	Length
	0.625	24	12
	0.625	24	24
	0.625	24	36
	0.625	36	36
*			



The diagram shows a 3D perspective view of a table component. The top surface is yellow, the front and back vertical surfaces are blue, and the side vertical surface is green. A dashed line indicates the 'Base' of the component. A dimension line at the bottom indicates the 'Width' of the component.

Save New Delete Reset Close ?