COSTING

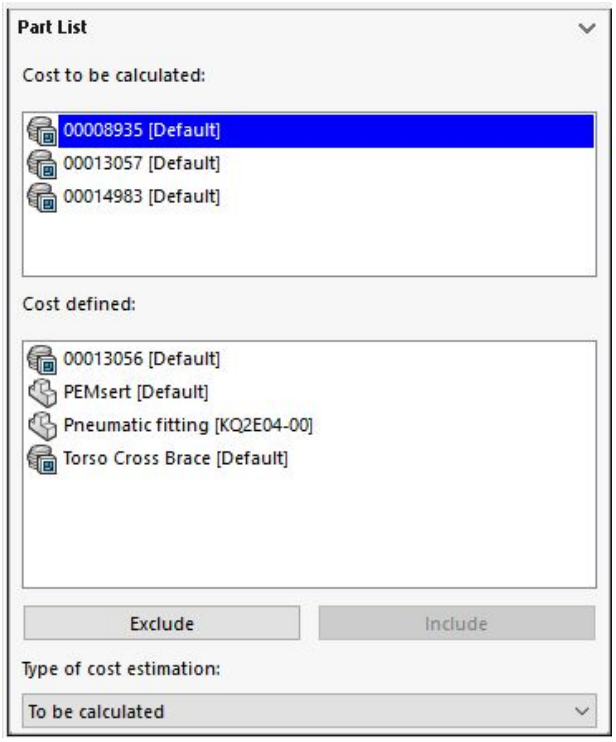
The SOLIDWORKS Costing tool helps you calculate how much it costs to manufacture sheet metal, machined, and multibody parts, as well as plastic molded, cast, 3D printed parts, and multibody weldments by automating the cost estimation and quotation process.

You can access SOLIDWORKS Costing by selecting ***Tools > SOLIDWORKS Applications > Costing*** or by selecting ***Costing*** on the Evaluate tab of the CommandManager.

SOLIDWORKS Costing is available in SOLIDWORKS Professional and SOLIDWORKS Premium.

SOLIDWORKS Costing 2016 has the following enhancements:

- Assembly Costing Rollup
- Costing Assemblies Report
- Costing Template Enhancements
- Bounding Box Nesting
- Costing Performance Improvements
- Rules-based Costing



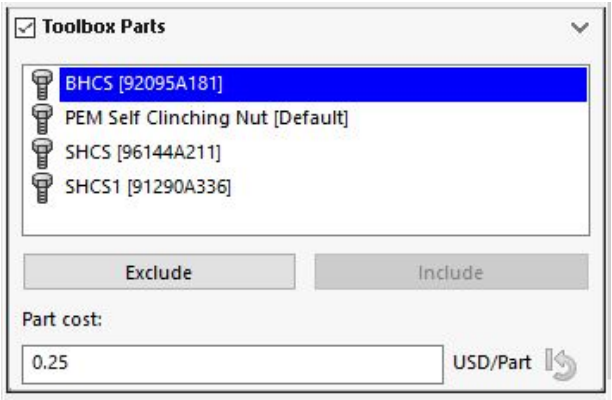
Assembly Costing Rollup

SOLIDWORKS 2016 now allows you to use Costing for assemblies. You can calculate the total cost of the assembly by calculating the cost of all parts and adding them together with all hardware and other purchased component costs. You can also recognize welding operations and add custom operations such as painting to the top-level assembly. You can select how Costing assigns a cost to each part by selecting the type of cost estimation.

Types of cost estimation:

- **To be calculated**: Cost is calculated if the part does not have a cost assigned. Cost will be recalculated if you manually choose this option for a part with a saved or purchased cost.
- **Saved Cost:** Cost that has been saved to the part if the part has been costed.
- **Purchased Cost:** Cost that is assigned automatically if you have set a custom property or cost in the template. You can manually override this cost and it is saved at the assembly level.

- **Toolbox Parts:** You can include or exclude all Toolbox components if needed. To save time, Toolbox parts are not run through Costing. You can add costs to them manually or define them in the template, or through custom properties.

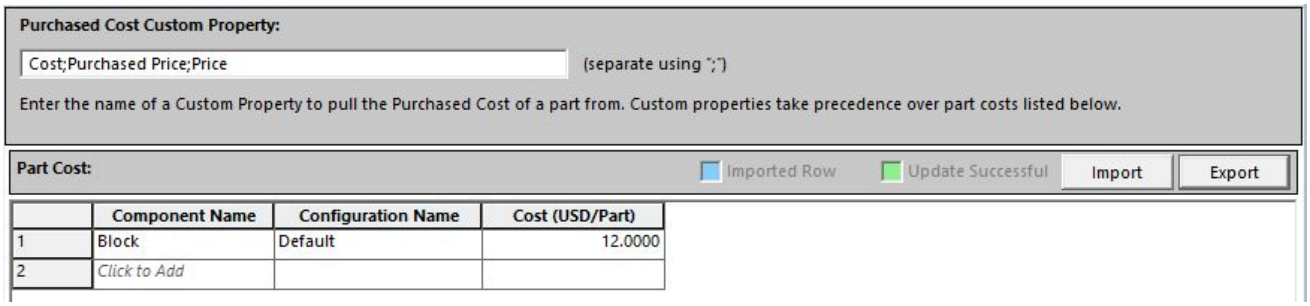


The Costing Task Pane for assemblies includes:

- **Costs to be calculated:** Parts with no cost data saved to them and no purchased costs associated with them. Parts that appear here by default are not costed.
- **Cost Defined:** Parts already costed, defined in the template, or manually assigned purchased costs. The parts that appear by default have already been costed, have a custom cost in the template, or are a manually added purchased cost. Costing is not run on these parts.
- **Purchased Parts:** Parts with purchased costs defined in the chosen template or a template set to a custom property with a defined purchased cost.

The multibody Costing template for assemblies includes:

- **Purchased Parts tab:** You can enter the name of one or more custom properties under Purchased Cost Custom Property and it automatically uses the value of these properties for the purchased cost of the part. You can also define the Component Name, Configuration Name, and Cost (USD/Part).



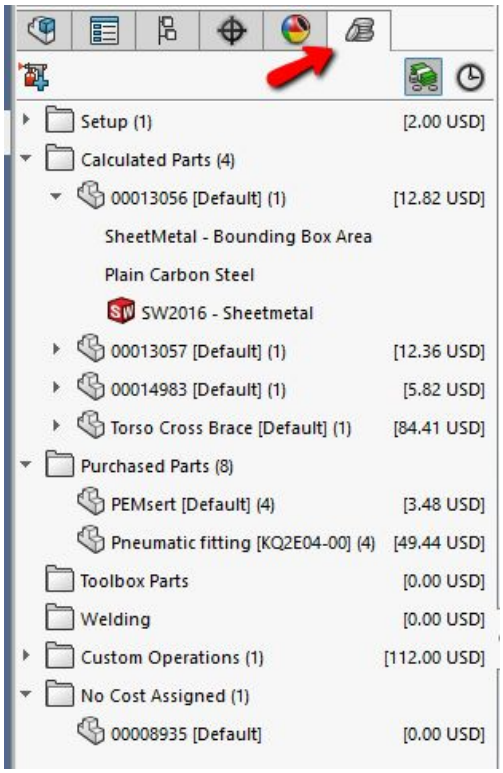
	Component Name	Configuration Name	Cost (USD/Part)
1	Block	Default	12.0000
2	*Click to Add*		

- *The costs defined under Purchased Cost Custom Property take precedence over values defined in Part Cost.*

COSTING

The **CostingManager** tab displays the parts with their types and materials in their appropriate folders. The CostingManager for assemblies includes:

- **Setup:** Setup costs for custom operations at the top-level assembly.
- **Calculated Parts:**
  - Method and stock type
  - Template
  - Stock material
- **Purchased Parts**
- **Toolbox Parts**
- **Welding:** Displays the welding operations of the top-level assembly.
- **Custom Operations:** Displays custom operations of the top-level assembly.
- **No Cost Assigned:** Displays bodies excluded from the Costing calculation and bodies without assigned costs.

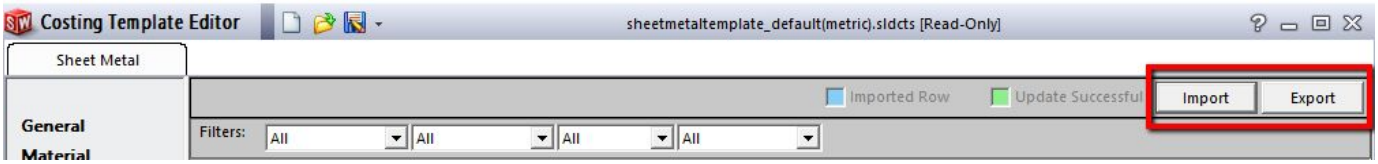


Costing Assemblies Report

You can customize the assemblies Costing report template to present the results of the cost analysis. You can generate assembly Costing reports in Word and Excel formats.

Costing Templates

- Importing and Exporting in Costing Templates
  - Use *Import* and *Export* tools for **Weld Bead**, **Fillet Bead**, and **Purchased Cost** in a multibody template, as well as for all **Materials** in the machining and sheet metal templates.
  - Use *Import* to extract information relating to materials from an Excel template into a blank or partially populated Costing template.
  - Use *Export* to transfer the information from a material tab to an Excel spreadsheet.
  - When you use *Import*, new lines of materials and changed costs of previous lines of material are updated.



Bounding Box Nesting

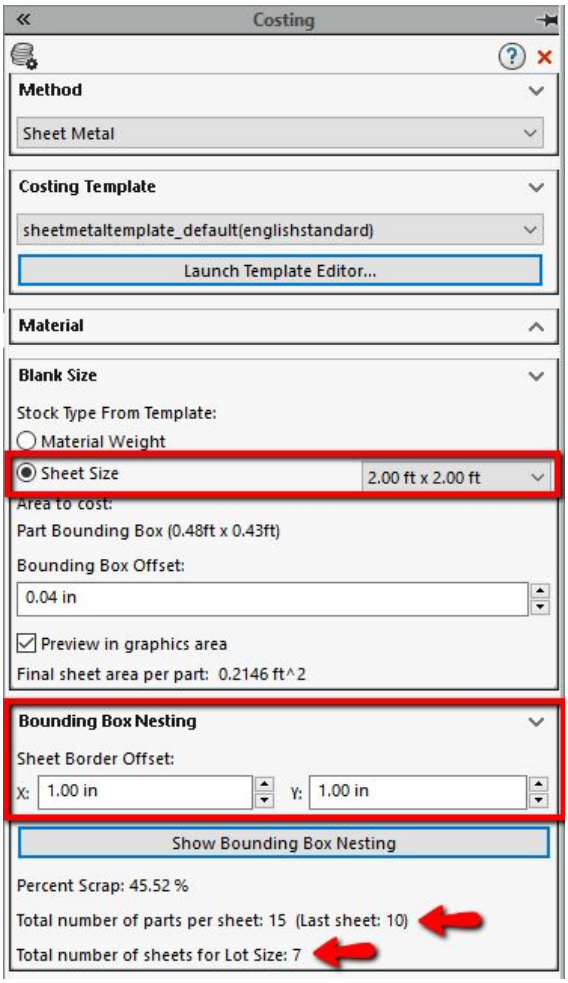
To estimate material usage and costs of nested sheet metal parts:

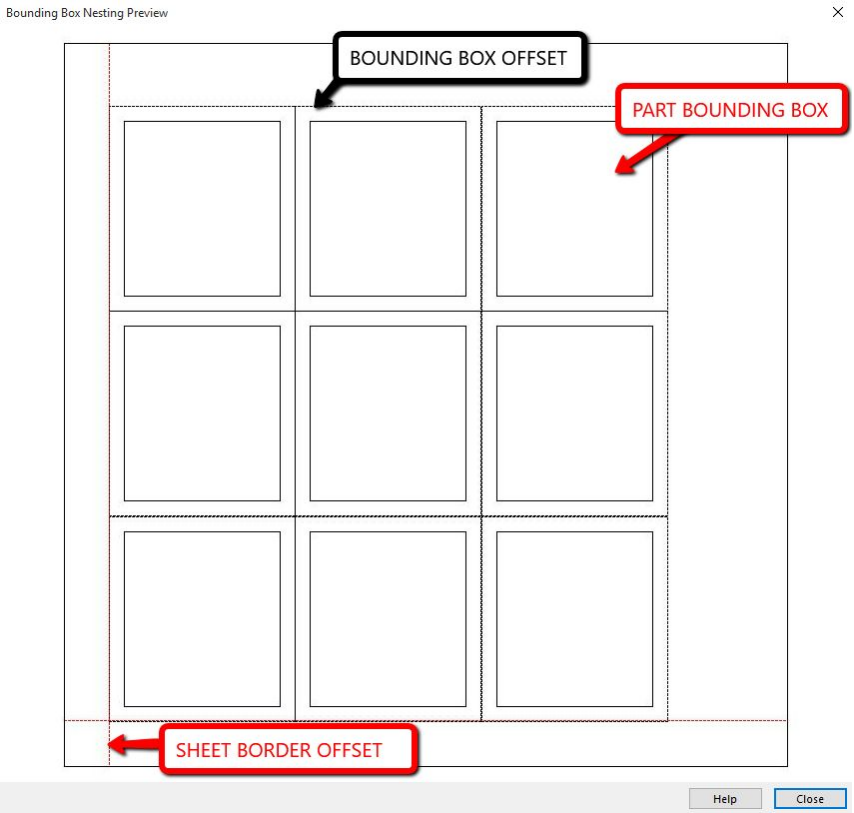
- Choose the sheet size
- Estimate the number of parts that can fit on a sheet
- Determine the number of sheets necessary

Types of offsets include:

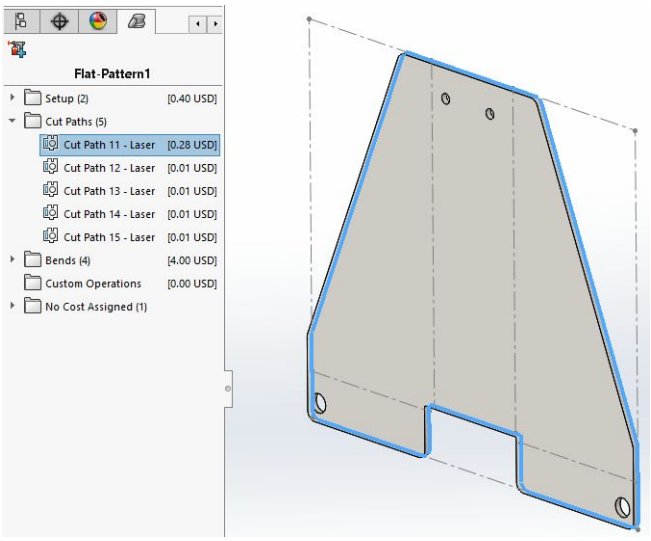
- **Bounding Box offset:** You can apply offsets to all sides on the exterior of the bounding boxes in a sheet.
- **Sheet Border offset:** You can define the sheet border offset for the X axis to the bottom and the Y axis to the left of the sheet.

You can also preview the nested parts with or without offsets along the X and Y dimensions. Previously, you had to select materials that were estimated per pound.





Costing Performance Improvements

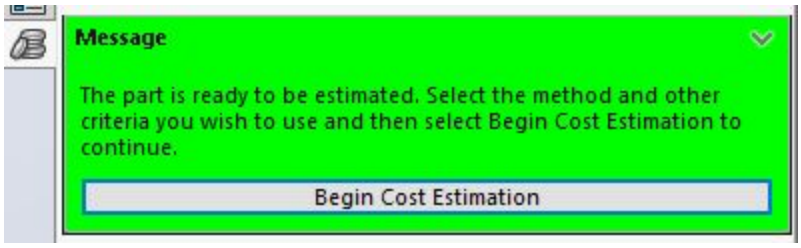


Sheet Metal

- Hovering over **Cut Paths** in the CostingManager, highlights the cut paths on the sheet metal flattened state.
- When you right-click **Cut Paths** and click **Map Cut Paths** on folded state, you can toggle it on or off by clicking it.
- *Mapping may cause slower performance on parts with more complex geometry.*

Machined Parts

- The performance is enhanced for volume on machined parts. When a rebuild occurs and there are many volume features, Costing takes less time to update the part cost.
- When you cost a part, Costing does not run immediately so that you can make changes to the method and other settings before running the analysis. When you are ready, you can click **Begin Cost Estimation** and the costs are automatically updated.



- *Previously, you had to wait for Costing to process the part before changing the method and other calculations.*

Rules-based Costing

You can customize machining templates to more accurately reflect the manufacturing process for creating parts. The machining templates include customizable rules for handling special geometry cases such as large holes or stock body selection.

The List of Rules under the Rules tab includes:

IF

- **CONVERT large drilled holes to milled circular pockets IF the hole diameter is a certain size**: Mills certain holes that are larger than a specific diameter rather than drill them.
- **ADD material to the machining stock body IF machining is selected**: Sets an amount of additional stock to always add to the machining stock body.
- **ADD material to the cylinder stock body IF machining method is selected**: Sets an amount of additional stock to add to the cylinder stock body.
- **Select a larger plate thickness for plate stock body IF machining method is selected**: Sets a larger plate thickness to use for the plate stock body.

IF/THEN

- **IF a material is chosen, THEN add a custom operation:** Adds a custom operation like painting or inspection whenever you choose a specific material.
- **IF a material is chosen, THEN add a markup/discount to the total material/cost:** Adds a markup or discount to the total cost or cost of material whenever you choose a specific material.
- **IF no appropriate drill tool is available, THEN use a different tool:** Lets you choose a tool for drilling operations if a tool is not available in the template.
- **IF no appropriate mill tool is available for roughing, THEN use a different tool:** Lets you choose a tool for milling operations if a tool is not available in the template.
- **IF no appropriate mill tool is available for finishing or semi-finishing, THEN use a different tool:** Lets you choose a tool for finishing and semi-finishing operations if a tool is not available in the template.