

COSTIMATOR[®]

*Three
Estimating
Methods now
available with
Costimator*



- . Detail Based*
- . Feature Based*
- . Product Based*

Costimator®

This is new! This is exciting! This is ground-breaking cost estimating at its best! This version of Costimator is a major leap toward making the estimating of discrete manufactured parts a painless process. No longer does it take hours or days to calculate the costs of a part. You are going to be able to estimate in minutes and seconds!

With this newest version of the Costimator system you'll get to enjoy the benefits of extremely quick-and-accurate cost calculations for products made in-house or purchased from Suppliers. Both Suppliers and original equipment manufacturers (OEM's) will enjoy the user-friendliness which enables more personnel access to manufactured time and costs of parts.

The part print does not have to be a solid model, a stick model, a 2D drawing or even a sketch. The new capabilities in Costimator actually let the user estimate on the phone or at the customer's location if preferred. A supplier could actually estimate parts right at the customer's location, right then and there. No waiting. . . as in the past.

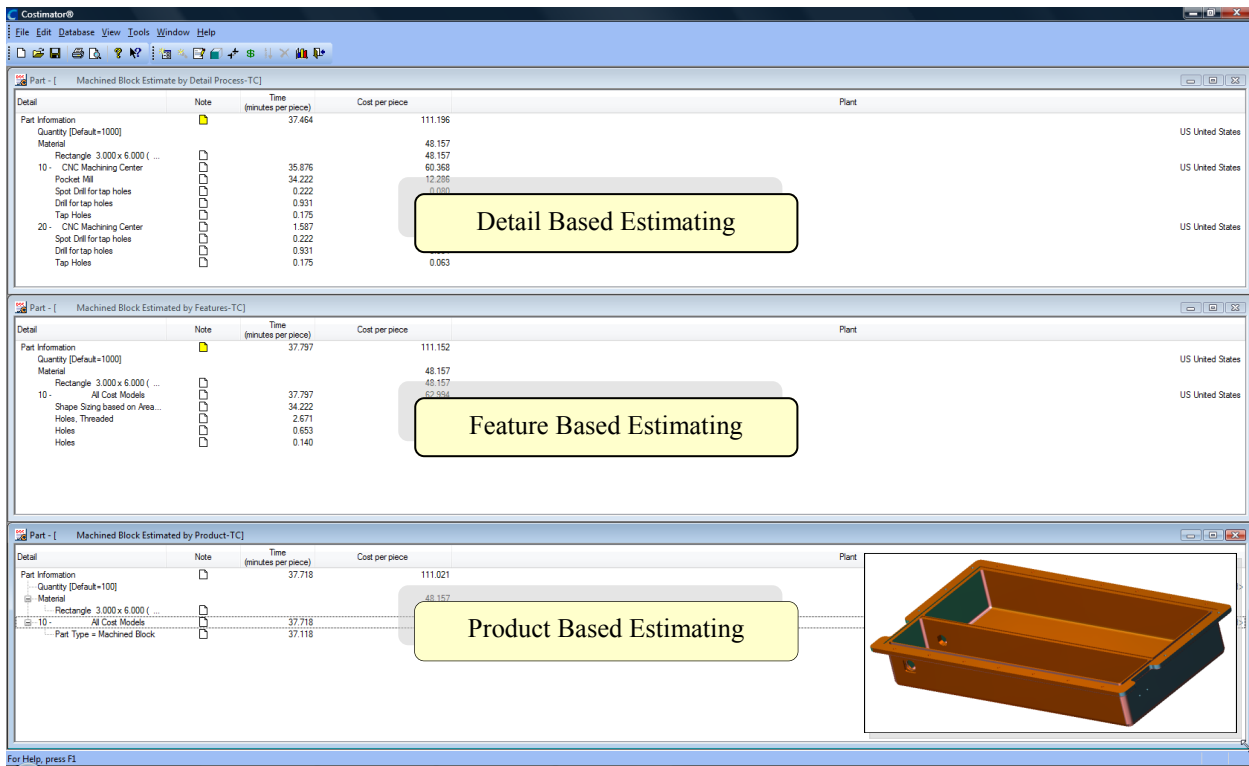
The purpose of this pamphlet is to introduce you to some of the new and many different methods now available in this very powerful version of the Costimator program.

Here are (3) of those methods of estimating now made possible with this new version of the program:

- Detailed Based Estimating (bottoms-up)
- Feature Based Estimating
- Product Based Estimating

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Detail Based Estimating is the tried and true method that all of the customers of MTI Systems have been using since 1982. At this level, the Costimator program enables the creation of an estimate and process plan for each part. Calculations for speeds and feeds, number of cuts, etc. are performed during this process. A Manufacturing Engineer is best suited for this type of estimating.

Feature Based Estimating with the new Cost Modeler Engine inside Costimator enables the user to calculate manufacturing times and cost based on the part features. Because the Costimator Cost Model Engine utilizes the same speeds, feeds and formulas that exists in the detail method, the same degree of accuracy is obtained. The good news is those calculations are being performed in the background and do not require user input during the estimate. The user can be a Design engineer, Value Engineer, Sales Engineer or Manufacturing Engineer.

Product Based Estimating is the ultimate for those companies who have products or families of parts that need to be estimated. The user is presented with a screen model that only asks pertinent information about the product. An example would be a machined part like a manifold block. In the model, the user simply keys in the size of the block and selects threaded hole sizes or any other pertinent information about the part. The program calculates the proper tooling based on the part size. Furthermore, it calculates the speeds, feeds, number of cuts and more based on the proven detail method of Costimator. The user can be a Buyer, a Customer, Design Engineer, Estimator or anyone that needs the information.

The following screenshots show a sample part estimate completed by all three methods of estimating.

Detail Based Estimating

Costimator® - [Part - [Machined Block Estimate by Detail Process-TC]]

File Edit Database View Tools Window Help

Detail	Note	Time (minutes per piece)	Cost per piece
Part Information		37.464	111.196
Quantity [Default=1000]			
Material			48.157
Rectangle 3.000 x 6.000 (Alu...			48.157
10 - CNC Machining Center		35.876	60.368
Pocket Mill		34.222	12.286
Spot Drill for tap holes		0.222	0.080
Drill for tap holes		0.931	0.334
Tap Holes		0.175	0.063
20 - CNC Ma			
Spot Drill fo			
Drill for tap			
Tap Holes			

Drill - Spot Drill

Tool Material: Carbide

Tool Diameter: 0.250 in

Depth of hole: 0.200 in

Number of holes: 20

Revolutions per minute: 2000 RPM

Feed Rate per minute: 18,000 IPM

Cutting Speed: 131 FPM

Feed Rate per revolution: 0.00900 IPR

Multiples: 1.000

Time per piece: 0.222 minutes

Cost per piece: 0.080

Count as Tool:

Note the detail that is calculated here for spot drilling to prepare for the drilling and tapping of the hole. The program calculates the time based on the speeds and feeds for the material chosen. It also refers to the work center capability such as horsepower, efficiency, minimum and maximum spindle speeds including tool change time.

The same type of calculations are also performed for the drill and tap processes.

Detail Based Estimating

is the process that all of MTI Systems customers have been using for years. This method is the core used for calculating the Feature and Product Based Methods presented on the following pages.

Feature Based Estimating

The screenshot shows the Costimator software interface. The main window displays a table with columns for Detail, Note, Time (minutes per piece), and Cost per piece. The table lists various part features and their associated costs and times. A dialog box titled 'Cost Modeler - [Holes, Threaded]' is open, showing input fields for Thread Size, Thread (Tap) Depth, Drill Depth, Number of Holes, Spot Drill, Drill, Tap, Time per piece, and Cost per piece. The dialog box also includes buttons for OK, Cancel, Note..., Show Data..., and Data Notes.

Detail	Note	Time (minutes per piece)	Cost per piece
Part Information		37.797	111.152
Quantity [Default=1000]			
Material			48.157
Rectangle 3.000 x 6.000 (Alu...			48.157
10 - All Cost Models		37.797	62.994
Shape Sizing based on Area+De...		34.222	11.407
Holes, Threaded		2.671	0.890
Holes		0.653	0.218

Cost Modeler - [Holes, Threaded]

Thread Size: 0.250 (1/4-20)

Thread (Tap) Depth: 0.300 in

Drill Depth: 0.300 in

Number of Holes: 40.000

Spot Drill: 0.573 minutes

Drill: 1.400 minutes

Tap: 0.349 minutes

Time per piece: 2.671 minutes

Cost per piece: 0.890

Feature Based Estimating

works by the program calculating the time based on the material and the part features selected.

Notice that the time and cost per piece for the part is very close to the same time as in the detail method. The reason for this is the fact that the Feature Model is utilizing the same speeds and feeds for the material chosen as does the Detail Method.

Feature Based Estimating also refers to the work center capability such as horsepower, efficiency, minimum and maximum spindle speeds including tool change time just like the detail method. All that data is automatically being calculated in the background, and does not require user input such as spot drill, drill and tap sizes. In this example, the user only had to input the thread size, depth and quantity.

This is one of the new methods of estimating available now in Costimator.

Product Based Estimating

The screenshot displays the Costimator software interface. The main window shows a table with columns for Detail, Note, Time (minutes per piece), and Cost per piece. The table lists various part information and cost models. A 'Cost Modeler - [Product = Block]' dialog box is open, allowing users to input specific parameters for estimating.

Detail	Note	Time (minutes per piece)	Cost per piece
Part Information		37.524	110.697
Quantity [Default=1000]			
Material			48.157
Rectangle 3.000 x 6.000 (Alu...			48.157
10 - All Cost Models		37.524	62.540
Product = Block		37.464	12.488

Length	9.750	in	OK
Width	6.000	in	Cancel
Thickness	3.000	in	Note...
Cutout Area ?	77.000	sq in	Show Data...
Cutout Depth ?	1.000	in	Data Notes
Holes Finish Dia ?		in	
Depth		in	
Quantity			
Tap Holes ?	0.250 (1/4-20)		
Tap Hole Depth	0.300	in	
Number of Tap Holes	40.000		
SAE Ports? Number			
Number of Ports			
Time per piece	37.464	minutes	
Cost per piece	12.488		

Product Based Estimating

calculates the time based on multiple Feature Models incorporated into one. The user needing the estimate simply enters the data presented on the menu screen as shown here.

Based on the size of the part and its features, tool sizes and selections are performed in the background. The user need only to input items that refer to the part or design directly.

Just like with Detail method and Feature method, the Product Model is utilizing the same data including speeds and feeds for the material chosen. Like Detail and Feature, it also refers to the work center capability such as horsepower, efficiency, minimum and maximum spindle speeds etc..

This is another one of the new methods of estimating available now in Costimator Version 9.

Show Data

The screenshot displays the Costimator software interface. At the top, the title bar reads 'Costimator® - [Part - [Machined Block Estimated by Product-TC]]'. Below the title bar is a menu bar with 'File', 'Edit', 'Database', 'View', 'Tools', 'Window', and 'Help'. A toolbar with various icons is located below the menu bar.

The main window shows a 'Detail' table with the following data:

Detail	Note	Time (minutes per piece)	Cost per piece
Part Information		37.524	110.697
Quantity [Default=1000]			
Material			48.157
Rectangle 3.000 x 6.000 (Alu...			48.157
10 - All Cost Models		37.524	62.540
Product = Block		37.464	12.488

Overlaid on the main window is the 'Cost Modeler - [Product = Block]' dialog box. It contains the following fields:

- Length: 9.750 in
- Width: 6.000 in
- Thickness: 3.000 in
- Cutout Area?: 77.000 sq in
- Cutout Depth?: 1.000 in
- Holes Finish Dia?: in
- Depth: in
- Quantity: in
- Tap Holes?: 0.250 (1/4-20)
- Tap Hole Depth: 0.300 in
- Number of Tap Holes: 40.000
- SAE Ports? Number: in
- Number of Ports: in
- Time per piece: 37.464 minutes
- Cost per piece: 12.488

Buttons for 'OK', 'Cancel', 'Note...', and 'Show Data...' are visible in the Cost Modeler dialog.

Overlaid on the Cost Modeler dialog is the 'Showing detail for [Product = Block]' dialog box. It displays a table of variables and their formulas:

Variable Name	Display Name	Formula	Output Val
TimePiece	Time per Piece	Topcuttime+Sidecuttime+Endcut...	2247.844
Envelope		.250	0.250
Lgt	Length		9.750
Wdth	Width		6.000
Thk	Thickness		3.000
Partwgt		StockDensity() *Lgt*Wdth*Thk	17.199
FacemilDia2		IIF(Wdth <= 2.0 , 2 , 0)	0.000
FacemilDia4		IIF(Wdth > 2.0 And Wdth <= 10...	4.000
FacemilDia6		IIF(Wdth > 10 , 6 , 0)	0.000
FacemilDia		FacemilDia2+FacemilDia4+Face...	4.000
Approach		(FacemilDia/2)+.100	2.100
Topcuttime		Mill_Facemil_Positive_Insert(1 , ...	0.208
Sidecuttime		Mill_Facemil_Positive_Insert(1 , ...	0.086
Endcuttime		Mill_Facemil_Positive_Insert(1 , ...	0.053
Pocketarea	Cutout Area ?		77.000
Cutoutdepth	Cutout Depth ?		1.000

The 'Showing detail' dialog also includes a 'Labor Rate = 20.000' field and a 'Close' button.

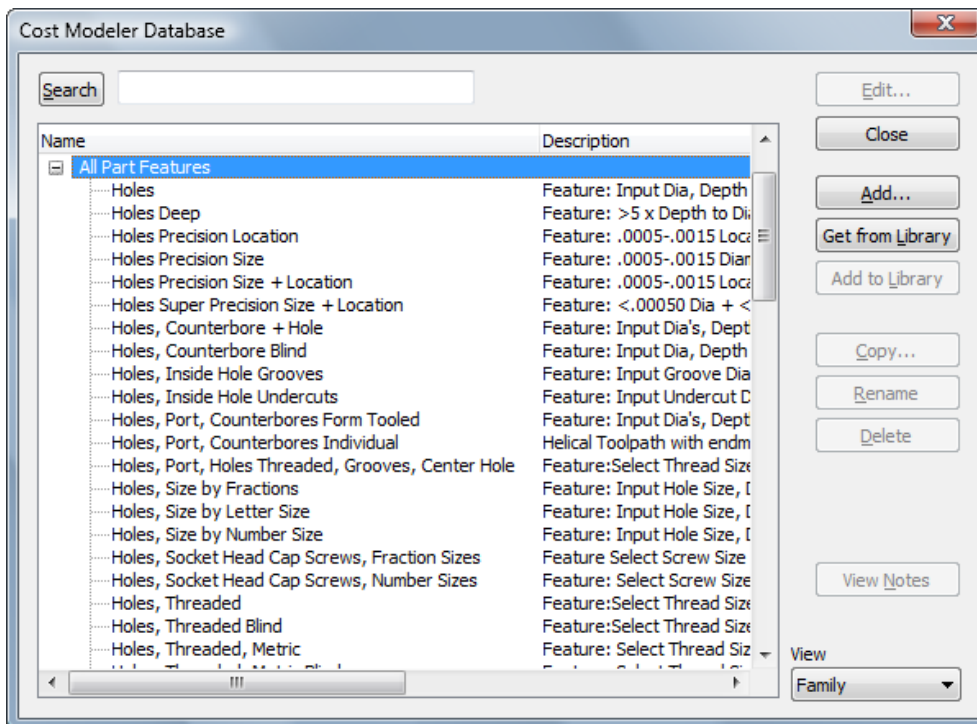
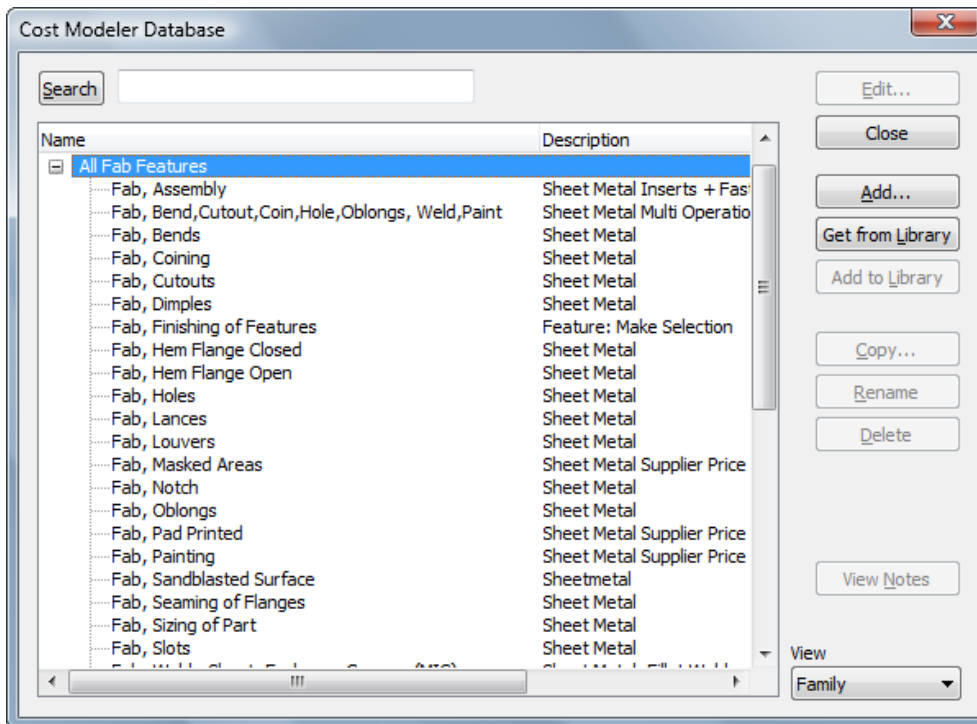
Show Data

Here is a sample of what the detail looks like in the background.

Note that the program is checking for part size in order to select the right Face mill cutter size.

Note that the program is pointing to the same process as used in detail mode for calculating the milling time for the top, bottom and sides of the block.

The user doesn't have to worry about these details. They're already in the program doing their job behind the scenes. The Cost Model insures that the estimate is done consistently no matter who does the estimate.



Here are a few of the available 200 Models already built by MTI Systems engineers.

All Models can be opened and edited by the trained user.

Thanks for taking the time to review this new and exciting version of the Costimator program. You will be as excited as we are once you get your copy of the new . . .

Costimator®

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