

# estimate

estimate • analyze • plan • control

What's New in SEER for  
Manufacturing  
Christopher Rush  
April 10<sup>th</sup> 2008

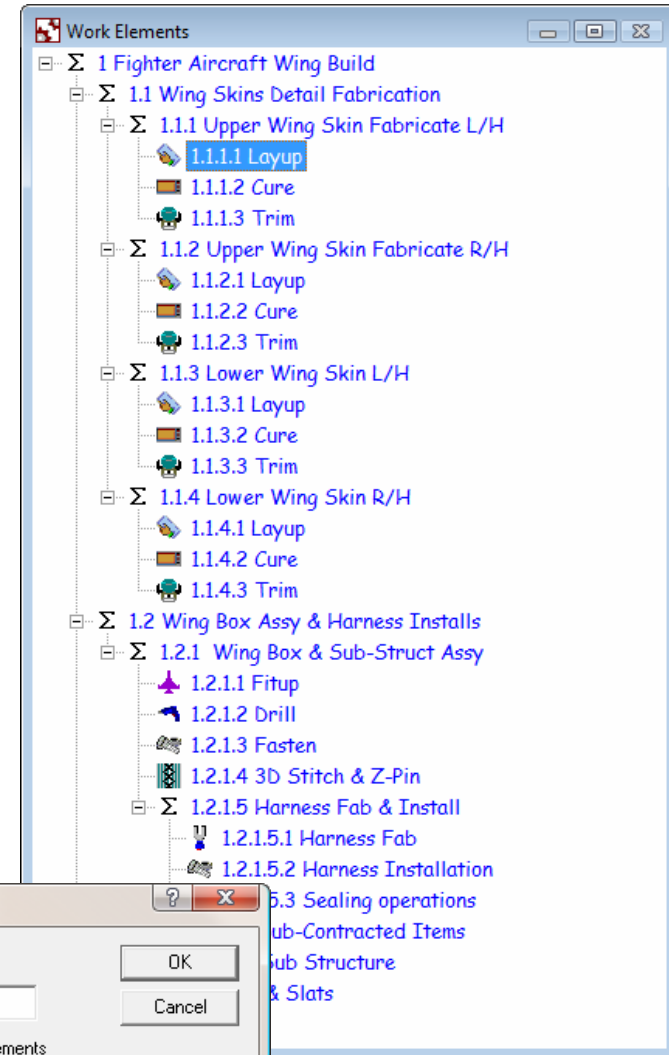
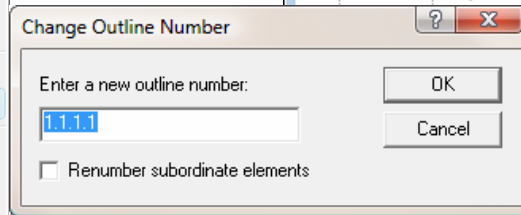
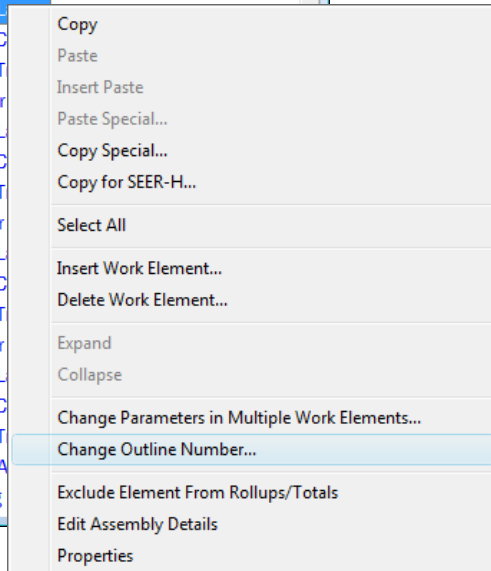
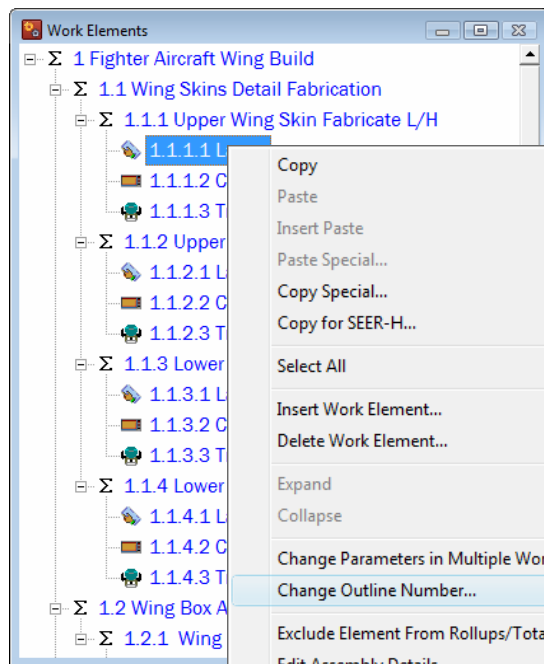


# Contents

- What's new in SEER MFG 6.0 Beta
- What's planned for SEER MFG 6.0 Final Release
- Plans for SEER MFG 6.1 and beyond...

# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...

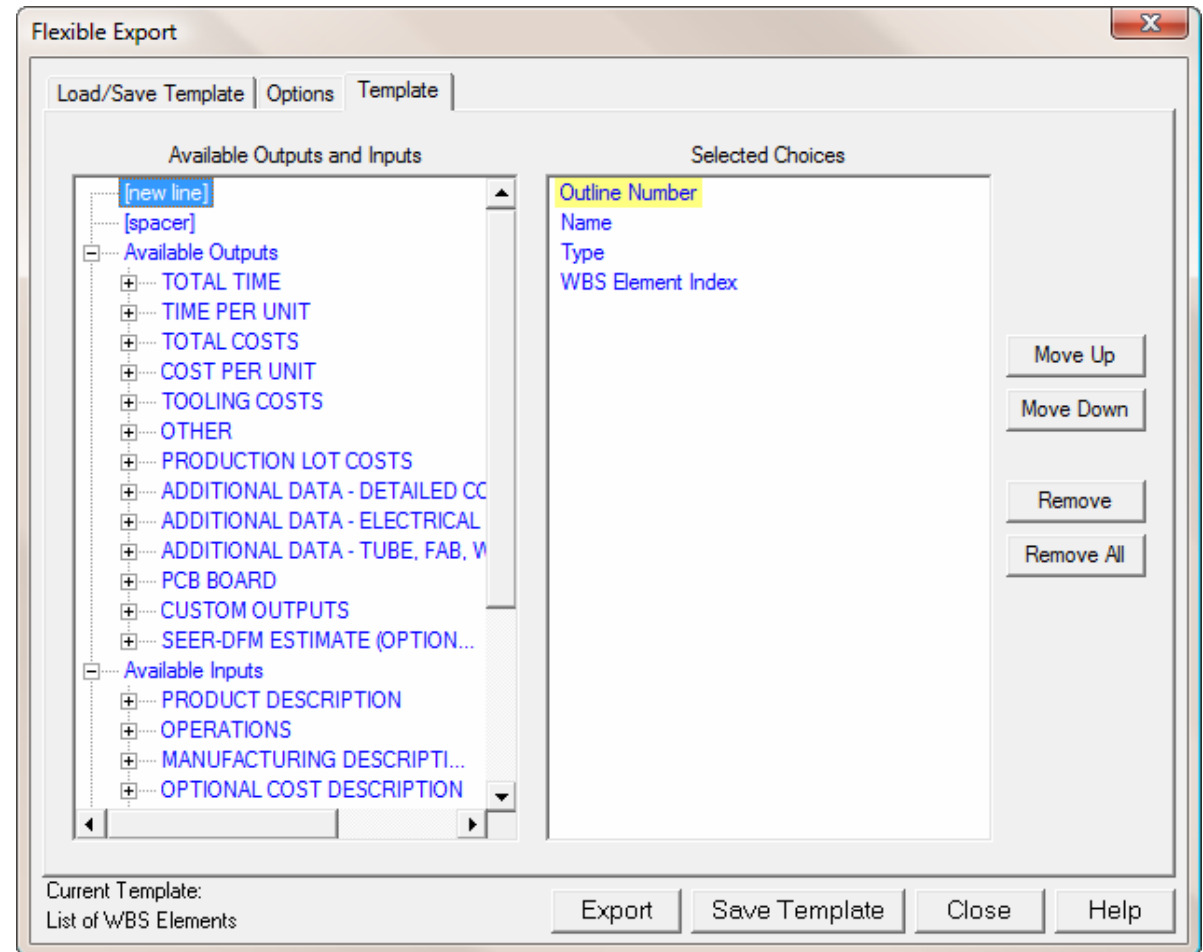
- Enhanced WBS structure, Drag & Drop, Copy & Paste Multiple Elements including Rollups etc.
- Enhanced Parameter Views
- Change Outline Number...



# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...

- Enhanced Flexible Export Output Structure

- Resized
- Categorized collapsible lists of available Outputs and Inputs
- Drag and Drop available Outputs and Inputs



# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...

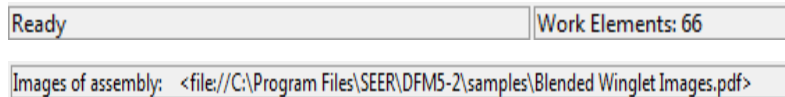


- **New Tool Bars:**

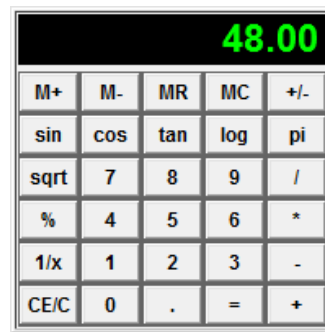


- **Print Preview Reports:**

- **New Status Bar:**



- **New Calculator Linked to Parameters**



Print Preview

Previous Page 2 Next Zoom Out Zoom In Print... Close

SEER-DFM(TM) Design for Manufacturability Vers. 6.0.1 9/27/07 4:25:18 PM

Project: () MACHINING 1.1

Detailed Analysis

	Minutes/Unit	Cost/Unit	Cost for 1000 Units
LABOR TOTAL	8.45	0.00	0.00
Manufacturing Labor Total	8.45	0.00	0.00
Set-up	0.12	0.00	0.00
Direct	0.00	0.00	0.00
Inspection	8.33	0.00	0.00
Rework	0.00	0.00	0.00
Assembly Labor Contribution	0.00	0.00	0.00
ADDITIONAL COST		0.00	0.00
Material		0.00	0.00
Tooling		0.00	0.00
Other		0.00	0.00
TOTAL COST		0.00	0.00

CURRENCY & EXCHANGE RATE

Currency	United Kingdom, Pounds
Code	GEP
Rate	1.00

ADDITIONAL DATA

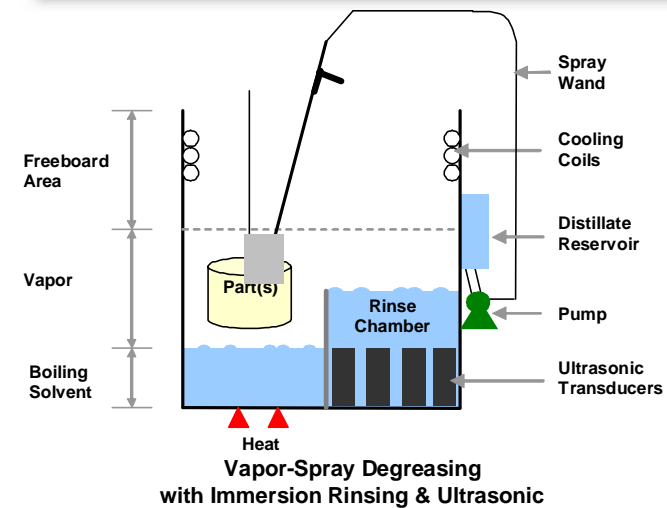
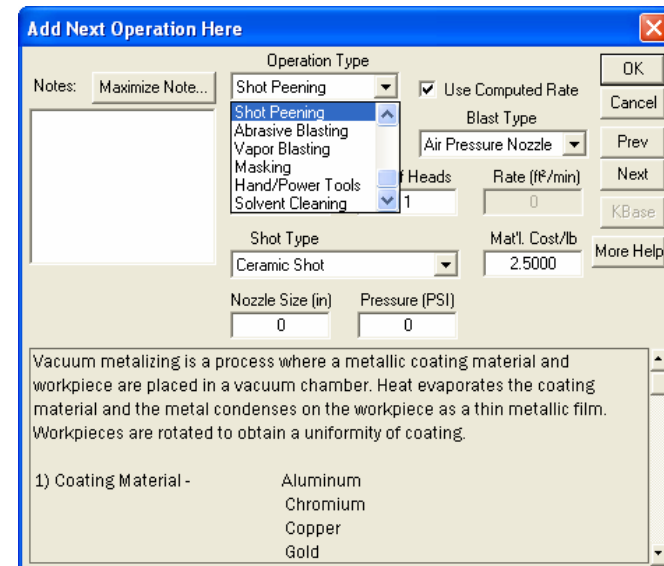
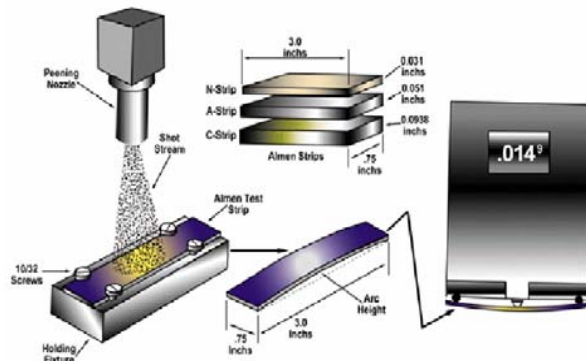
Manufacturing Index	0.00
Finished Weight (lb)	0.00
Remove Tools (min)	0.00
Clean Tools (min)	0.00
Prep Tools (min)	0.00
Package Tools (min)	0.00
Mark Part (min)	0.00
Package Part (min)	0.00
TOTAL SET-UP & PROCESS (min)	0.12
In Process Inspection (min)	0.00
In Process Rework (min)	0.00
Inspection Delay (min)	0.00

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# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...

- New Finishing Processes:

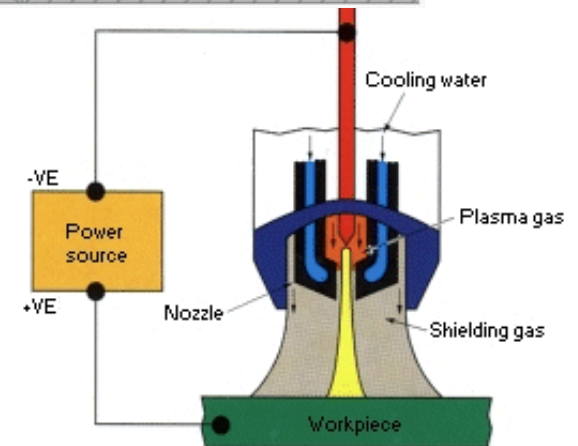
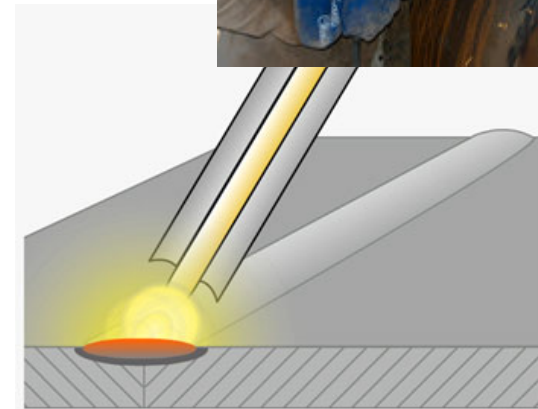
- Shot Peening
- Abrasive Blasting
- Vapor Blasting
- Masking
- Solvent Cleaning
- Hand/Power Tools
- Shape Complexity
- Report Load/Unload



# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...



- New Mechanical Assembly Processes:
  - Added Part Area for Adhesive Bonding
  - Added new Welding Options:
    - Gas Tungsten Arc Welding
    - Gas Metal Arc Welding
    - Plasma Arc Welding
    - Shielded Metal Arc Welding
- New Fabrication parameters:
  - Shape Complexity and Tooling Process Capability for all processes



# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...



- New Rate Parameters for Mark and Package Part ops

Notes: Maximize Note... Operation Type: Electric Pencil

Description:

Quantity	Setup (min)	Rate (min/each)
10	0.61	0.0111

More Help

The Add Next Here parameter allows you to enter up to ten part marking operations. Each operations is defined using the following parameters:

- 1) Operation Type - Choose an operation type from the available options to add a mark setup and direct time to the overall setup and direct time. See more help for details about each Mark Type operation.
- 2) Description - Enter a description for the marking operation

Notes: Maximize Note... Operation Type: Screw Cap

Description:

Pack/Remove: Pack & Remove

Quantity	Setup (min)	Pack Rate
0	7.00	0.1790

Remove Rate: 0.1790

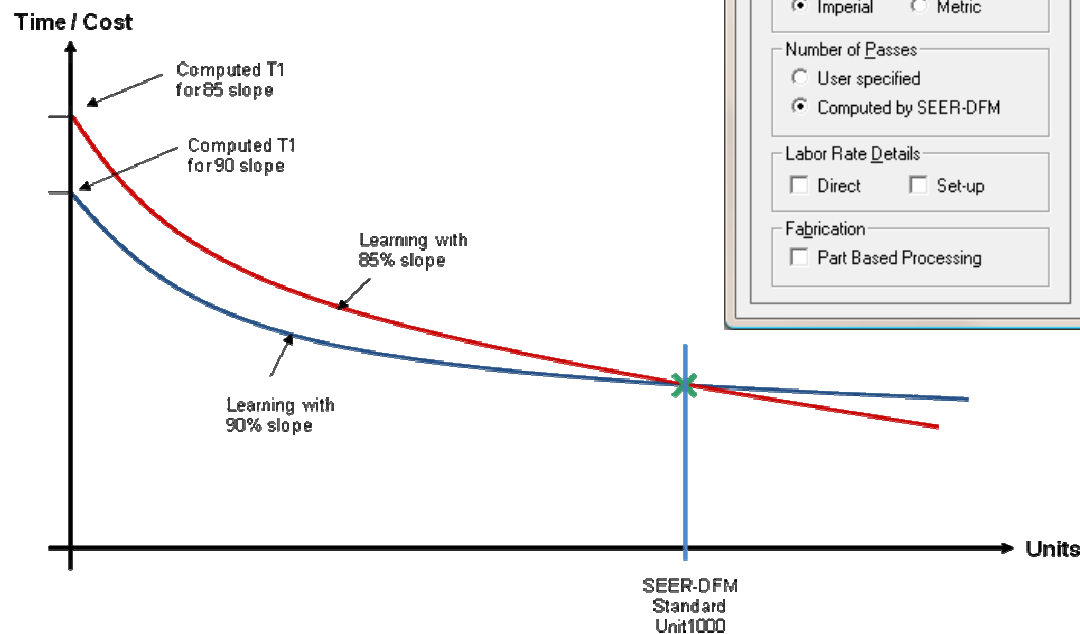
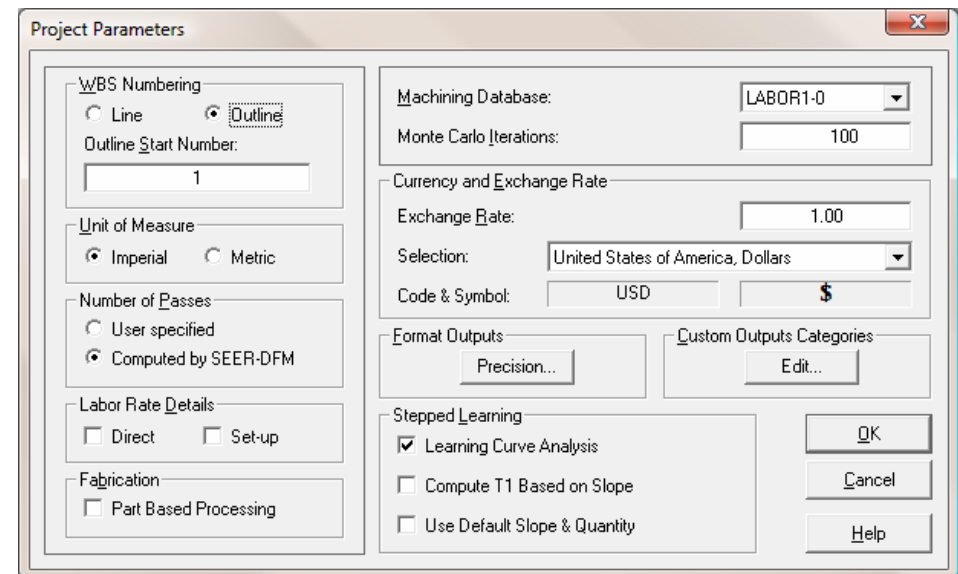
More Help

The Add Next Here parameter allows you to enter up to 10 package part operations. Each operation is defined using the following parameters:

- 1) Description - Enter a package description.
- 2) Quantity - Enter the number of operations or number of layers of wrap as required by the operation type.
- 3) Package Type - Choose a package type from the available options. This

# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...

- Enhancements to Learning Curve options – automatically compute T1 Based on user slopes for MFG & Aerostructure elements
- Fabrication: Part Based Processing

- Select Currency for reports

# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...

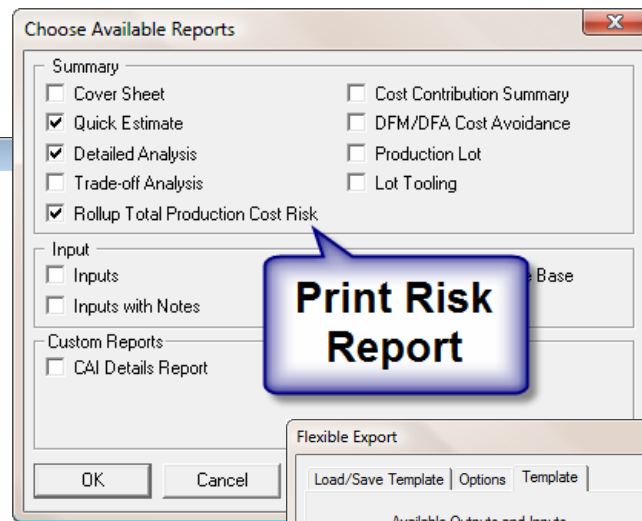
- Print Risk Reports

Rollup Total Production Cost Risk		
Work Elements: Confidence Level	Independent Total Cost	Dependent Total Cost
10%	6.68	5.98
20%	6.92	6.41
30%	7.09	6.77
40%	7.25	7.11
50%	7.45	7.37
60%	7.70	7.73
70%	8.13	8.21
80%	8.48	8.68
90%	9.11	9.39

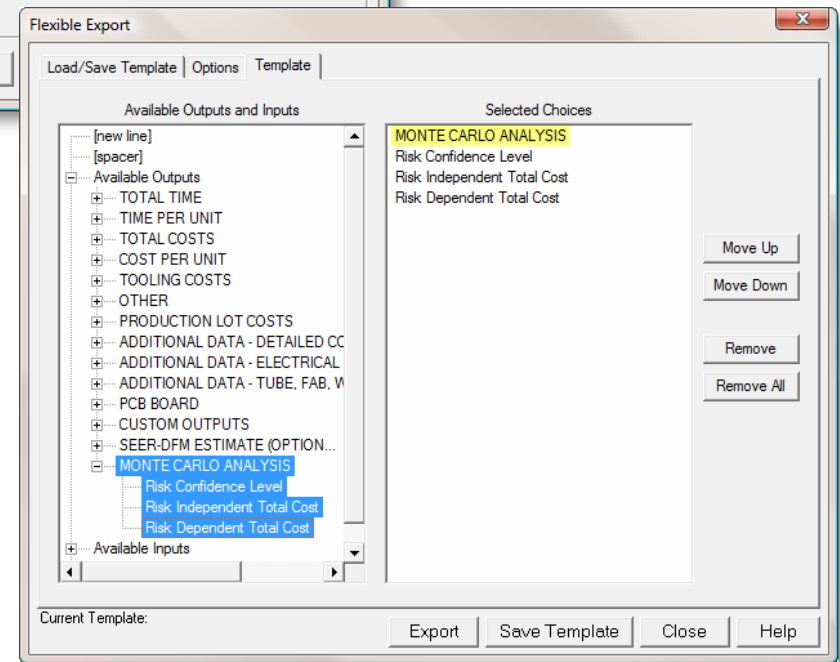
(Based on 100 iteration sampling)

WBS Allocation Of Most Likely Production Cost			
	Median Prod Cost	% of Total	
+ : TRANSMISSION ASSEMBLY	7.45		( 0.93)
+ 1.1: SERVO PISTON P/N 2-10A			
+ 1.1.1: ASSEMBLE SERVO PISTON			
- 1.1.1.1: Assemble Servo Piston Unit	0.65	8.68%	( 0.07)
- 1.1.1.2: Assemble Servo Piston Unit (Opt)			
- 1.1.1.3: Install Lip Seal	0.15	2.00%	( 0.03)
- 1.1.1.4: Install Shaft Seal	0.24	3.17%	( 0.03)
+ 1.1.2: SERVO SHAFT 120 X 12			
+ 1.1.2.1: Shaft-Raw Stock Option			
- 1.1.2.1.1: SHAFT (machine)	3.16	42.36%	( 0.91)
+ 1.1.2.2: Shaft-Die Cast Option			
- 1.1.2.2.1: SHAFT (Die Cast)			
- 1.1.2.2.2: SHAFT (Finish Machine)			
+ 1.1.2.3: Shaft/Retainer-Die Cast Option			
- 1.1.2.3.1: SHAFT/ RETAINER (Die Cast)			
- 1.1.2.3.2: SHAFT/RETAINER (Finish Machine)			
+ 1.1.3: SERVO PISTON 75 MM			
- 1.1.3.1: Die Cast Piston Blank	1.70	22.75%	( 0.07)
- 1.1.3.2: Machine Piston	1.01	13.58%	( 0.26)
+ 1.1.4: SHAFT SEAL 12 MM			
- 1.1.4.1: Compression Mold Shaft Seal	0.00	0.00%	( 0.00)
- 1.1.4.2: Machine Shaft Seal	0.48	6.51%	( 0.12)
+ 1.1.5: LIP SEAL 75 MM			
- 1.1.5.1: Inj Mold Lip Seal	0.07	0.95%	( 0.01)



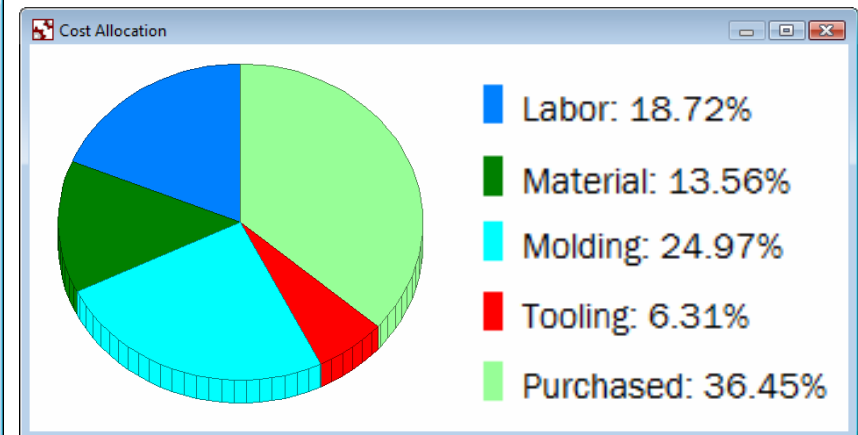
- Export Risk Data



# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...

- Purchased Parts:
  - Now reported and charted as Purchased Parts

	Minutes/Unit	Cost/Unit (£)	Cost for 1 Unit
LABOR TOTAL	60.02	50.02	50.02
Manufacturing Labor Total	60.02	50.02	50.02
Set-up	0.00	0.00	0.00
Direct	56.84	47.37	47.37
Inspection	2.13	1.77	1.77
Rework	1.05	0.88	0.88
Assembly Labor Contribution	0.00	0.00	0.00
ADDITIONAL COST		39.49	39.49
Purchased		11.95	11.95
Material		26.15	26.15
Vendor		0.00	0.00
Tooling		1.39	1.39
Other		0.00	0.00
TOTAL COST		89.50	89.50
CURRENCY & EXCHANGE RATE			
Currency	United Kingdom, Pounds		
Code	GBP		
Rate	1.00		



## Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...



- Detailed Composites: Number of Plies and Number of Plies per Layer added to Detailed Analysis report and Flexible Export
- Exchange Rate and Currency displayed on Detailed Analysis Report
- New MFGData.INI file specifically for process rates etc.
- Maintenance Updates and Bug Fixes.

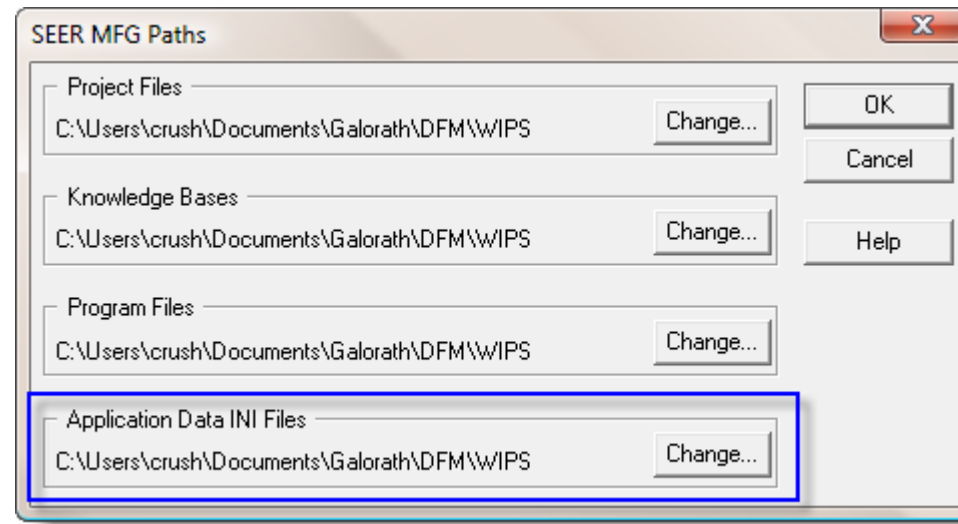
The screenshot shows a window titled 'Detailed Analysis' with a table of cost data. The table has four columns: 'Minutes/Unit', 'Cost/Unit (\$)', and 'Cost for 1 Unit'. The data is organized into sections: LABOR TOTAL, Manufacturing Labor Total (with sub-items: Set-up, Direct, Inspection, Rework), Assembly Labor Contribution, ADDITIONAL COST (with sub-items: Purchased, Material, Vendor, Tooling, Other), and TOTAL COST. A separate section at the bottom, 'CURRENCY & EXCHANGE RATE', is highlighted with a blue border and shows 'United States of America, Dollars', 'USD', and '1.00'.

	Minutes/Unit	Cost/Unit (\$)	Cost for 1 Unit
LABOR TOTAL	4.93	4.93	4.93
Manufacturing Labor Total	4.93	4.93	4.93
Set-up	0.01	0.01	0.01
Direct	4.49	4.49	4.49
Inspection	0.38	0.38	0.38
Rework	0.06	0.06	0.06
Assembly Labor Contribution	0.00	0.00	0.00
ADDITIONAL COST		2.38	2.38
Purchased		0.00	0.00
Material		2.32	2.32
Vendor		0.00	0.00
Tooling		0.07	0.07
Other		0.00	0.00
TOTAL COST		7.32	7.32
CURRENCY & EXCHANGE RATE			
Currency		United States of America, Dollars	
Code		USD	
Rate		1.00	

# Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...



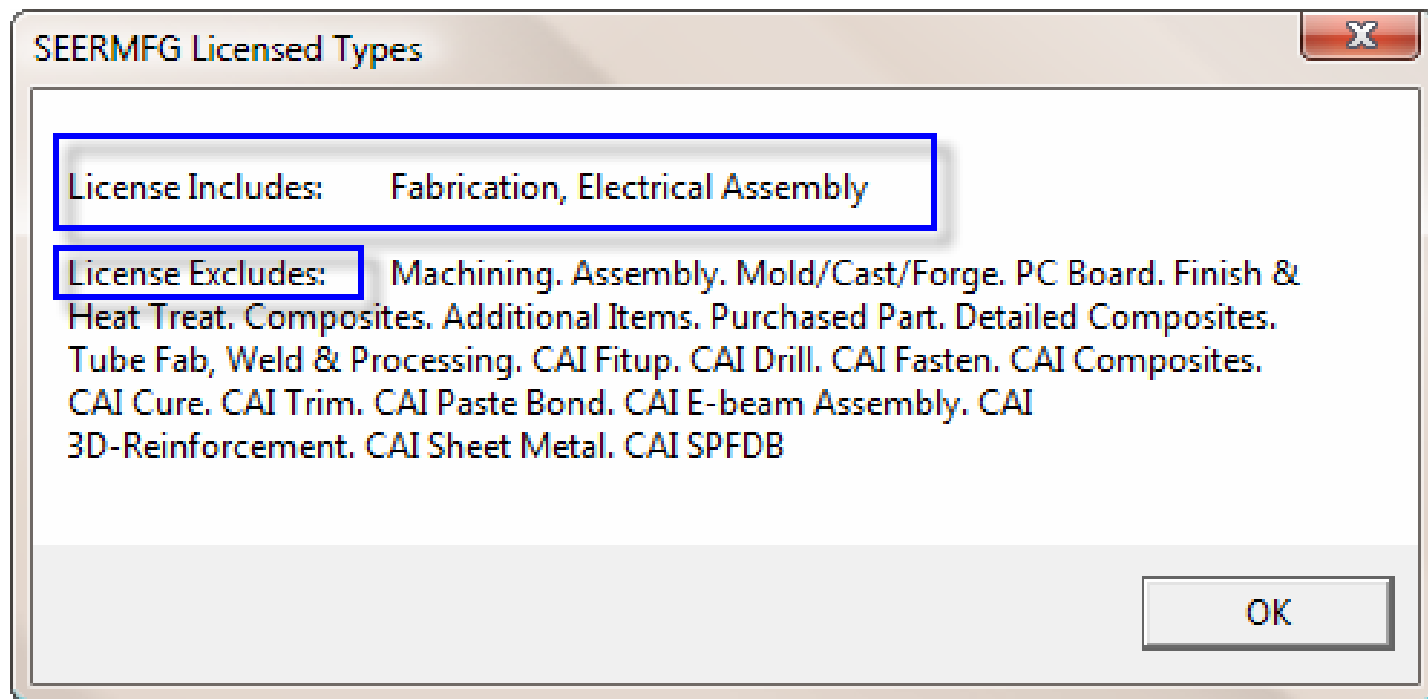
- VISTA Support
  - Document Data Files (Sample Projects, Tools, KBases, Flexible Export Templates) now stored in local user writable directories
  - Application Data Files (\*.INI files) now stored in local user writable directories
  - Set Path now includes Application Data INI files



## Looking Ahead: SEER for MFG 6.0 Beta (Apr 2008)...



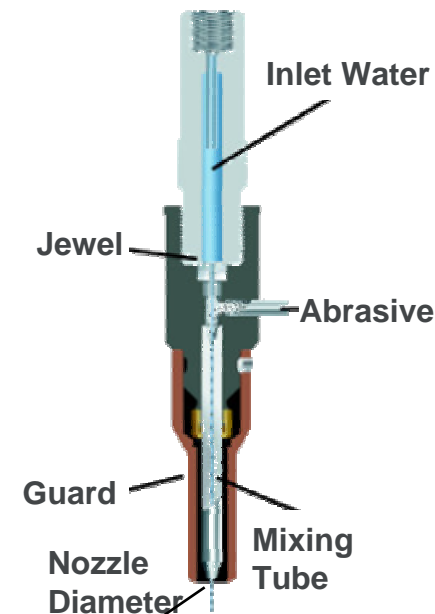
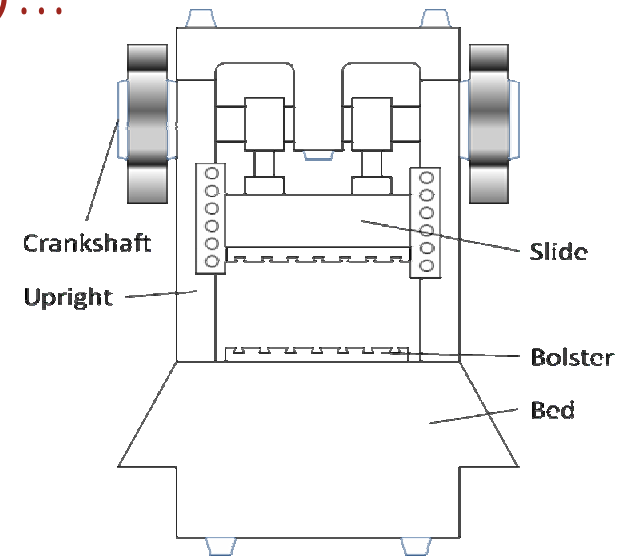
- License Feature Flags
  - License Specific Work Element Types
  - View non licensed elements as 'read only'



# Looking Ahead: SEER for MFG 6.0 (Beta to Final)...



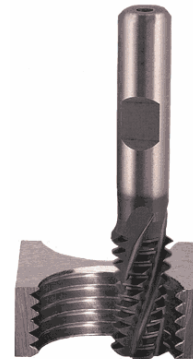
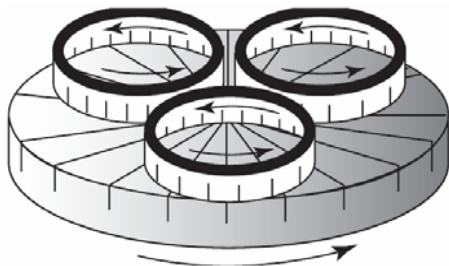
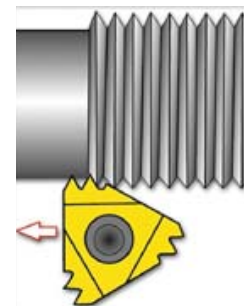
- New Fabrication Processes:
  - Bolster Press
  - Brake Press
  - Rubber Die Press (Draw Rubber)
  - Joggle Cold Press
  - Joggle Hot Press
  - Abrasive (Water Jet) Cutting
  - Drop Hammer Forming
  - Drop Hammer Rubber Forming
  - Stretch Forming
  - True Up (Hand Hammer)
- New Fabrication Tooling Estimates
  - Choose the tools to include in your estimates
  - Add custom tooling data



# Looking Ahead: SEER for MFG 6.1 (2008/9)

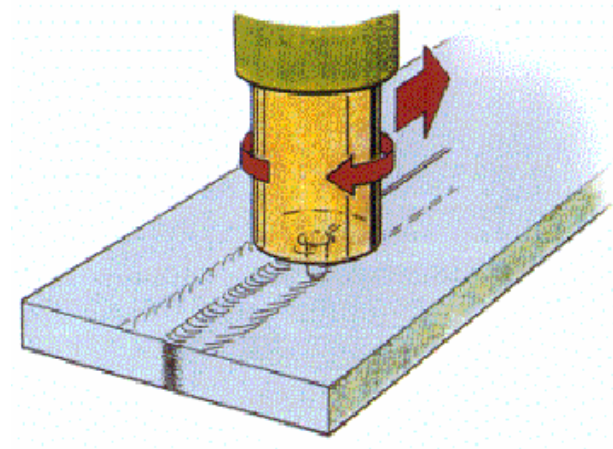
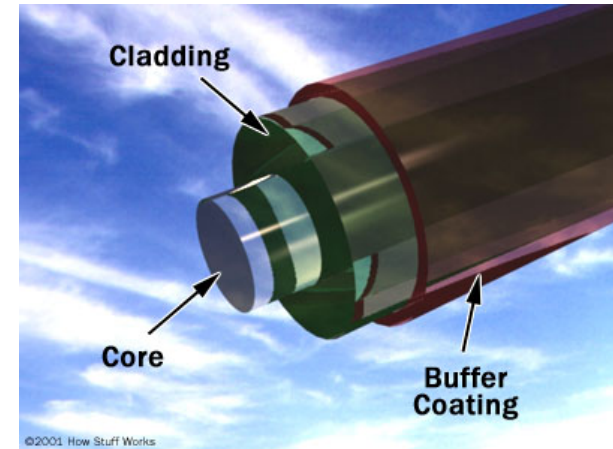
- New Machining Processes:

- Lapping
- Honing
- Thread Cutting – Rolling, Milling, Single Point
- Multi Operation Drilling
  - Drill, Ream, & Tap
  - Drill, & Ream
  - Drill & Tap
  - Drill, C-Sink, Ream, & Tap
  - Drill, C-Sink, & Tap
  - Drill, C-Sink, & Ream



# Looking Ahead: SEER for MFG 6.1 (2008/9)

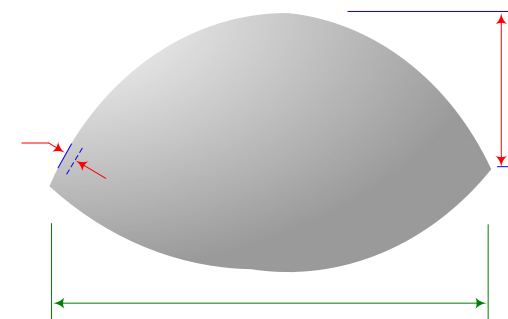
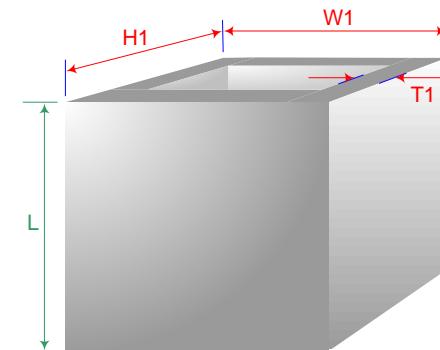
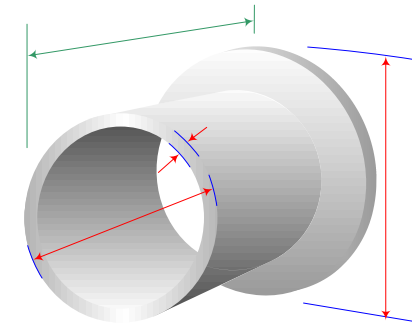
- New Electrical Assembly Processes:
  - Fiber Optic Cables & Connectors
  - Cable/Harness Installation
- New Mechanical Assembly Processes:
  - Friction Stir Welding
  - Add your own Fasteners
- New Tube, Fab, Weld & Processing Processes:
  - Tube Installation



# Looking Ahead: SEER for MFG 6.1 (2008/9)



- New Detailed Composites Modifications:
  - New Shapes
    - Sleeves with ends
    - Flanged Tubes
    - Boxes
    - Spherical Domes
  - More Build ups and Cores
  - Add Additional Plies Table



## Looking Ahead: SEER for MFG 6.1 (2008/9)

- Mold/Cast/Forge Processes:
  - Updates to injection molding
  - Revise Parameter Settings
- New Stitching Work Element
- New Tooling Lists for each work element (Including SEER Aero)
- Add more parameters to Rollups, Profit %, Purchase Burden %.
- Rollup Production Lot Report
- Your Ideas and Nominations could also be included!
- Please Speak up and let us know what you need 😊