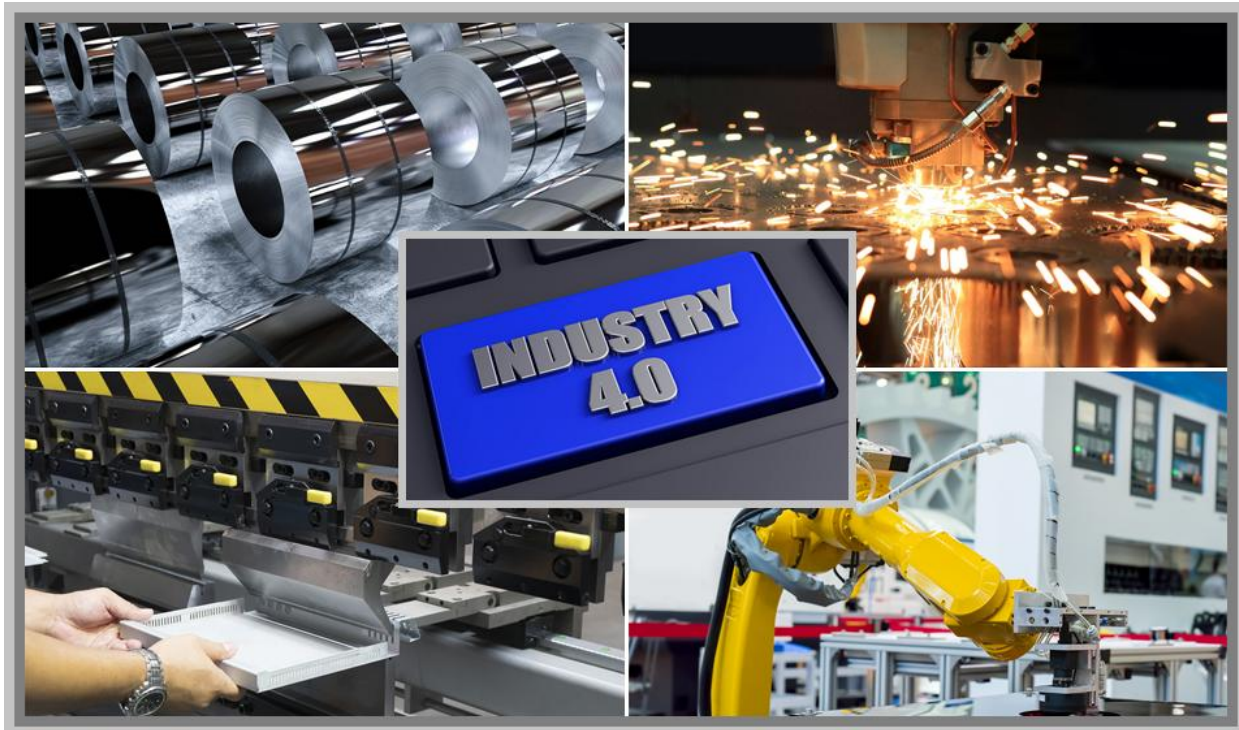




Global Edge® Engineering Assistant



Workflow #: 1 – Design Engineering (Single Part Process & Test)

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Demo Section 1: Design Engineering Workflow

Global Edge Engineering Assistant provides Design Engineering Workflow capabilities that includes **"Single Part Process and Test"** to illustrate how a Design Engineer can design a sheet metal part and test it to make sure that it can be successfully fabricated on the shop floor.

- **1.1 – Automated Sheet Metal Part Processing**
- **1.2 – Automated CAD Part Analysis**
- **1.3 – Automated Routing Generation**
- **1.4 – Automated Manufacturability Testing**

Design Engineering Workflow illustrates **"Design For Manufacturing"** capabilities that provide an automated approach for the design engineering and prototyping process to identify and eliminate potential fabrication errors based on the parameters of your bending machine tools.

Step 1.1: Starts with **"Automated Sheet Metal Part Processing"** of a 3D CAD model during the design phase that includes Design For Manufacturing (DFM) capabilities to make sure that the part can be successfully fabricated before leaving engineering.

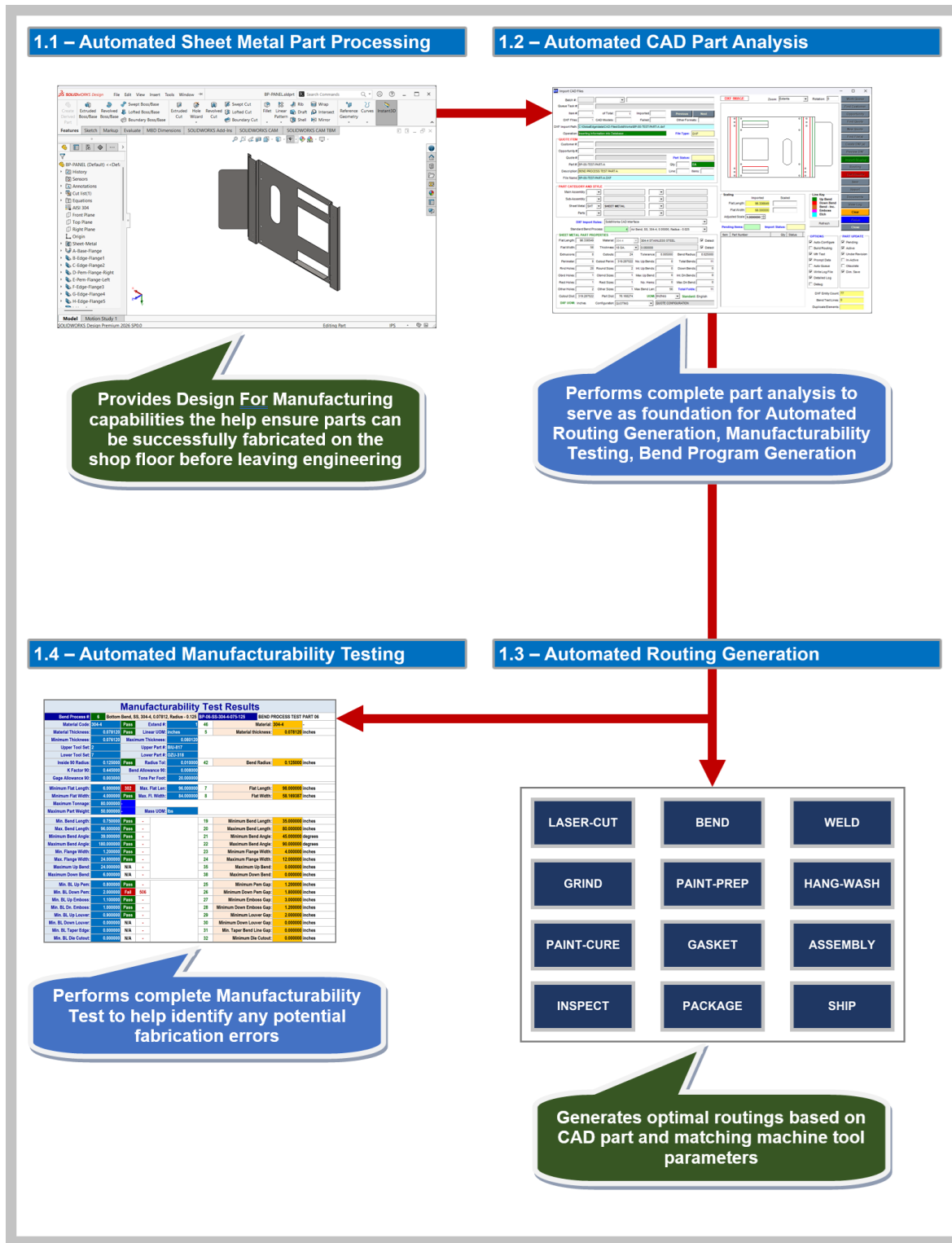
Step 1.2: Includes **"Automated CAD Part Analysis"** of complete sheet metal part parameters to serve as a foundation for Manufacturability Testing, Automated Routing, Bend Program and Sales Quote Generation.

Step 1.3: Includes **"Automated Routing Generation"** that compares CAD part parameters with matching manufacturing processes and machine tools parameters to generate optimal routing steps.

Step 1.4: Performs **"Automated Manufacturability Testing"** that compares CAD part parameters with a matching bend process to identify any potential fabrication errors that may occur before leaving engineering.

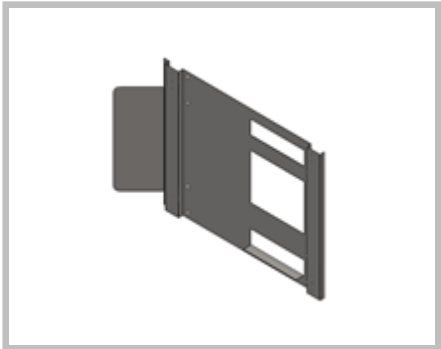
Workflow #: 1 – Single Part Process & Test (Design Engineering Diagram)

This workflow scenario is to illustrate how a Design Engineer can design a sheet metal part and test it to make sure that it can be successfully fabricated on the shop floor.

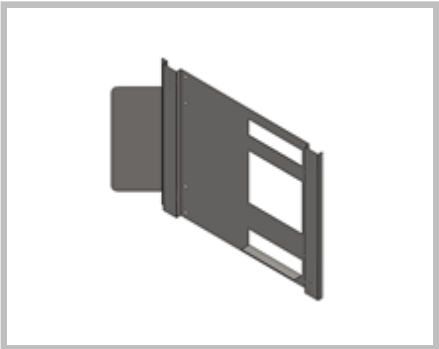


Workflow #: 1 – Single Part Process & Test

** No Work Queue Batch



BP-PANEL
BEND PROCESS PANEL PART



BP-PANEL-FIXED
BEND PROCESS PANEL PART (FIXED)

Workflow #: 1	BP-PANEL	18 GA - Thick: 0.05000 - Bend Rad: 0.025	BP-PANEL.sldprt	C	304-4
Workflow #: 1	BP-PANEL-FIXED	18 GA - Thick: 0.05000 - Bend Rad: 0.025	BP-PANEL-FIXED.sldprt	C	304-4

1.1 – Automated Sheet Metal Part Processing

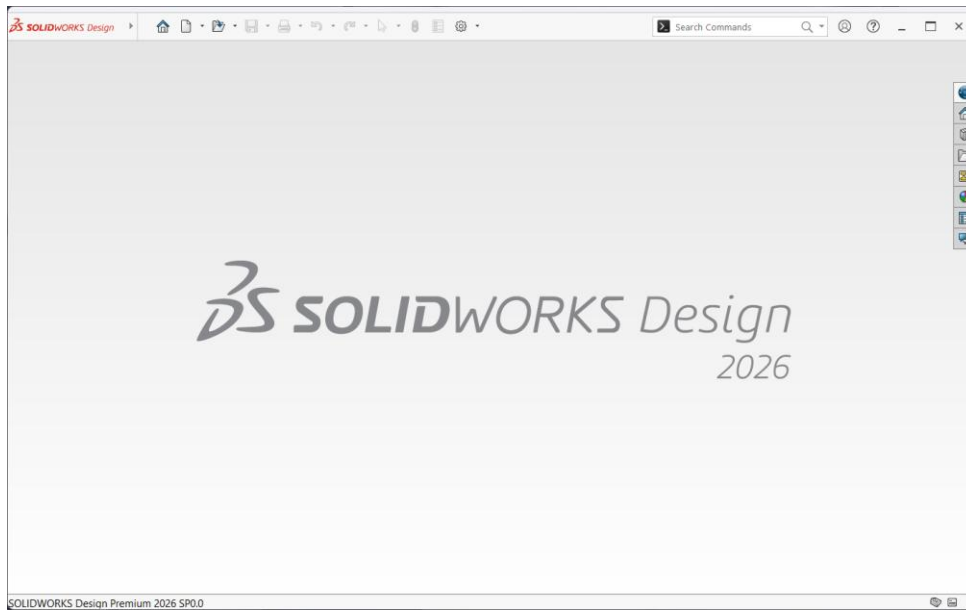
These steps illustrate the single part processing of a SolidWorks sheet metal part.

Workflow Steps

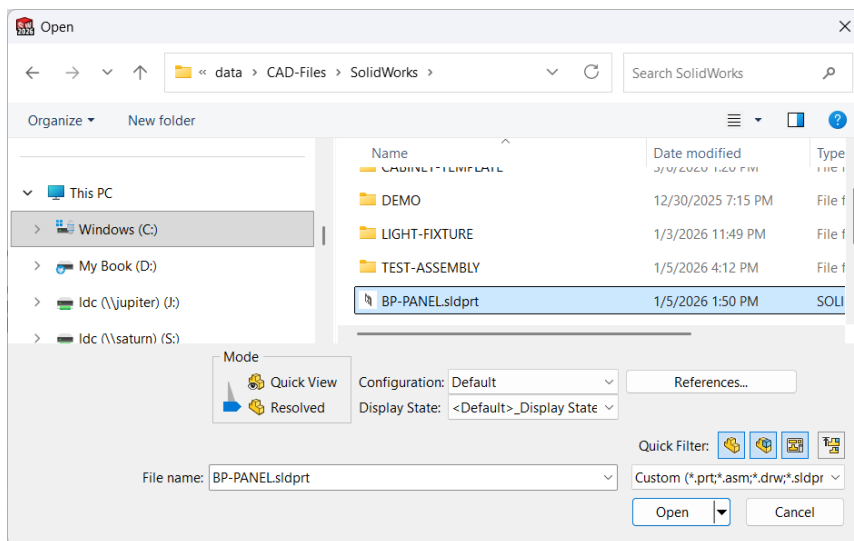
GE-01.1-Avatar-A.mp4

Automated Sheet Metal Part Processing starts with launching SolidWorks and selecting a sheet metal part.

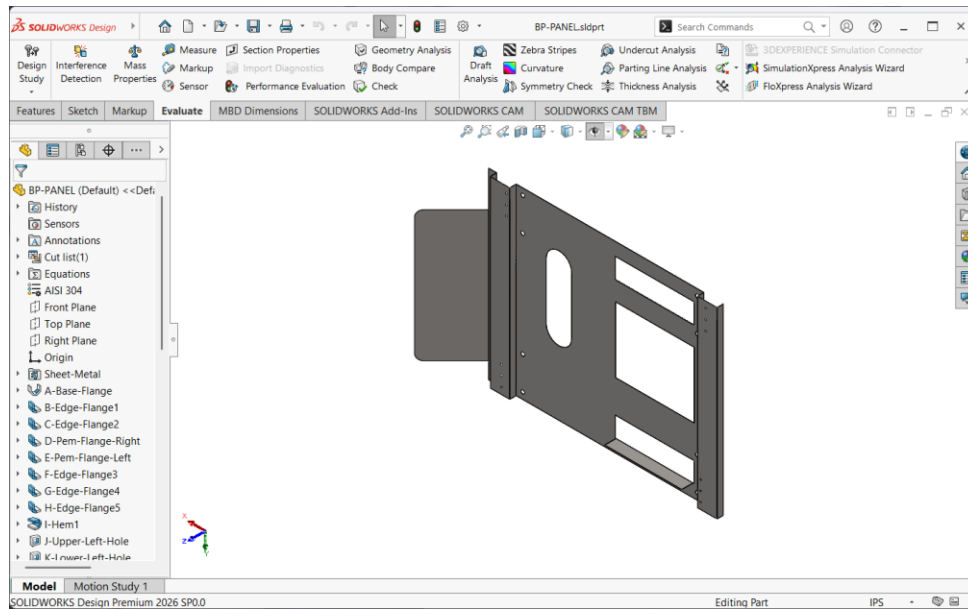
1. The first step is to launch SolidWorks:



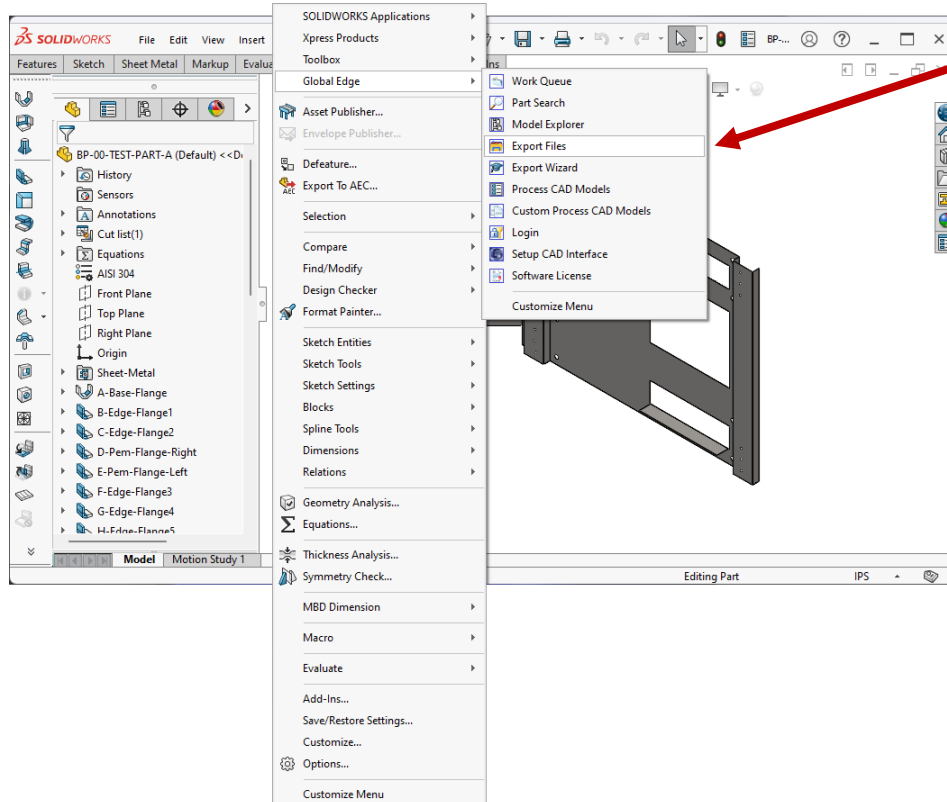
2. Select **"File > Open"** and select **"BP-PANEL.sldprt"** SolidWorks part file:



3. This will display the following:



4. Select “Tools > Global Edge > Export Files” option:



GE-01.1-Avatar-B.mp4

This is followed by selecting the Tools, Global Edge, Export Files option which will display the following File Export screen and menu options.

5. Select the **“Select All”** option including checking **“Data Import”**, **“Silent Mode”**, **“Save Model Changes”**, and **“Manufacturability Test”** check boxes so the software will analyze and test the above selected sheet metal part (**“BP-PANEL”**):

Global Edge Engineering Assistant - Version: 2026.01 - Build: 2 - File Export

Batch #: Type: Date/Time: Status: Processing Task: Of: Thickness:

Processing Part #: Part Type: Material:

Bend Process: File Path:

Operation: Ready to Export Open Part Total Tasks:

Task#	Doc#	File	Material	Thickne...	Bend Ra...	Mt Test Res...	Status
☐	--	C:\GlobalEdge\data\CAD-Files\SolidWorks\BP-PANEL.sldprt	--	--	--	--	Pending

EXPORT OPTIONS

☒ DXF Files - Version: R2013 ☐ Rewrite ☐ STEP File - Version: AP203 ☐ STL Files ☐ Additive Manufacturing ☐ 3D Manufacturing ☐ JPEG File

☐ DWG Files - Version: R2013 ☐ Rewrite ☐ ACIS(SAT) Files ☐ IGES Files ☐ 2D PDFs ☐ 3D PDFs

☒ Document Link ☒ Data Import ☒ Silent Mode ☐ Save Model Changes ☒ Manufacturability Test ☐ Debug Mode

Default Sheet Metal Category: SHT SHEET METAL

Default Sheet Metal Style:

Bend Allowance: None

DXF Import Rules: SolidWorks CAD Interface

Output Directory: ☐ Save Location C:\GlobalEdge\data\Output\DXF

1 Total Files
1 Open Files

Output Location: %

Username: informix

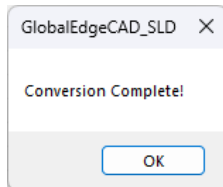
GE-01.1-Avatar-C.mp4

The purpose of this screen is to generate DXF flat files from a SolidWorks sheet metal part and includes the following export options. These options include the ability to perform an importation of complete CAD part parameters which serve as a foundation for Manufacturability Testing, Automated Routing Generation, and Automated Bend Program Generation. This includes the automated incorporation of extended data into the DXF flat files that can be directly imported into CAM bending software. This process eliminates the manual programming of sheet metal part files for Press Brakes, Robotic Folders, and Panel Benders.

GE-01.1-Avatar-D.mp4

Select the “Export” button to start the processing of the selected sheet metal part with the output options that were selected below.

6. Select the “**Export**” option to start the export process. As the software executes the following actions will take place:
 - A. Flat Pattern DXF File Generated for Each Sheet Metal Part
 - B. DXF Analysis Performed
 - i. Material / Thickness / Bend Radius
 - ii. Blank / Flat (Length & Width)
 - iii. Minimum / Maximum Bend Length
 - iv. Minimum / Maximum Bend Angle
 - v. Minimum / Maximum Flange Width
 - vi. Minimum Pem Hole to Bend Line Gap
 - vii. Minimum Embossment to Bend Line Gap
 - viii. Minimum Louver to Bend Line Gap
 - ix. Maximum Up / Maximum Down Bend
 - x. Fold / Hem / Extrude Counts
 - xi. Minimum Taper / Die Cut to Bend Line Gap
 - C. Software Saves DXF Flat File to Output Location
7. When the file conversion process is complete, the following message is displayed:



1.2 – Automated CAD Part Analysis

GE-01.2-Avatar-A.mp4

As the sheet metal is processed with Automated CAD Part Analysis functionality, the part is fully analyzed, and complete CAD part parameters are inserted into the Global Edge database. The software then utilizes these CAD part parameters to perform a Manufacturability Test which compares these parameters with matching shop floor machine tools. This process provides Design For Manufacturing functionality that identifies potential fabrication errors at the design stage to help ensure sheet metal parts can be successfully fabricated before reaching the shop floor.

8. The following is an example of the CAD Part Parameters that are analyzed and imported into the *Global Edge* system:

Part Number	Description	UOM	Type	Cat.	Style	Mtl.
BP-06-SS-304-4-075-125	BEND PROCESS TEST PART 06	EA	C	SHT	-	304-4
Setup Cost:	104.2500	Material: 304-4-STAINLESS STEEL				
Process Cost:	18.7399	Ship Weight: 110.97				
Component Cost:	525.1589	Ship Weight UOM: lbs				
Rollup Cost:	648.1488	Standard Cost: 648.1488				

CAD Part Parameters							
Par. #	Parameter Name	Value	UOM	Par. #	Parameter Name	Value	UOM
1	Sheet Length:	0.000000	inches	25	Minimum Pem Gap:	1.200000	inches
2	Sheet Width:	0.000000	inches	26	Minimum Down Pem Gap:	1.800000	inches
3	Blank Length:	0.000000	inches	27	Minimum Emboss Gap:	3.000000	inches
4	Blank Width:	0.000000	inches	28	Minimum Down Emboss Gap:	1.200000	inches
5	Material thickness:	0.078120	inches	29	Minimum Louver Gap:	2.000000	inches
6	Perimeter:	312.338773	inches	30	Minimum Down Louver Gap:	0.000000	inches
7	Flat Length:	98.000000	inches	31	Min. Taper Bend Line Gap:	0.000000	inches
8	Flat Width:	58.169387	inches	32	Minimum Die Cutout:	0.000000	inches
9	Round Hole Count:	20.000000	-	33	Up Bend Count:	6.000000	-
10	Round Sizes Count:	2.000000	-	34	Internal Up Bends Count:	0.000000	-
11	Oround Hole Count:	0.000000	-	35	Maximum Up Bend:	0.000000	inches
12	Oround Sizes Count:	0.000000	-	36	Down Bend Count:	5.000000	-
13	Rectangular Hole Count:	1.000000	-	37	Internal Down Bends Count:	0.000000	-
14	Rectangular Sizes Count:	1.000000	-	38	Maximum Down Bend:	0.000000	inches
15	Other Hole Count:	0.000000	-	39	Fold Count:	11.000000	-
16	Other Sizes Count:	0.000000	-	40	Hem Count:	1.000000	-
17	Number of Cutouts:	21.000000	-	41	Extrude Count:	0.000000	-
18	Cutout Perimeter:	262.558000	inches	42	Bend Radius:	0.125000	inches
19	Minimum Bend Length:	35.000000	inches	43	Cutting Method:	Open	-
20	Maximum Bend Length:	80.000000	inches	44	Cutter Ref. Number:	-	-
21	Minimum Bend Angle:	45.000000	degrees	45	Certified Material:	No	-
22	Maximum Bend Angle:	90.000000	degrees	46	Material:	304-4	-
23	Minimum Flange Width:	4.000000	inches	47	Cutout Distance:	382.601221	inches
24	Maximum Flange Width:	12.000000	inches	48	Part Distance:	78.084693	inches

1.3 – Automated Routing Generation

GE-01.3-Avatar-A.mp4

Select the **“Routing”** button to display the routing steps that were generated during the processing of the sheet metal part.

- Select the **“Routing”** button to display the routing steps that were generated during the processing of the selected sheet metal part:

Part Routing								
Trans #	Seq. #	Process	Description	UOM	Setup Time	Setup Cost	Process Time	Std. Proc. Cost
986	1	LASER-CUT	Laser Cut Operation	hours	0.010000	1.50	0.100000	15.0000
987	2	BEND	Press Brake Bending Operation	hours	0.500000	37.50	0.010000	0.7500
988	3	TIG-WELD	TIG Weld	hours	0.500000	22.50	0.150000	6.7500
989	4	DEBURR	Deburring Operation	hours	0.200000	9.00	0.068824	3.0971
990	5	SAND-PAINT-PREP	Sand / Paint / Preparation Operation	hours	0.150000	6.00	0.016035	0.6414
991	6	HANGING	Hanging Operation	hours	0.150000	3.75	0.020000	0.5000
992	7	WASHING	Washing Operation	hours	0.150000	3.75	0.010000	0.2500
993	8	PAINTING	Painting Operation	hours	0.150000	6.00	0.032069	1.2828
994	9	CURING	Curing Operation	hours	0.250000	6.25	0.050000	1.2500
995	10	ASSEMBLY	Assembly Operation	hours	0.250000	12.50	0.050000	2.5000
996	11	GENERAL-LABOR	General Labor Operation	hours	0.250000	12.50	0.050000	2.5000
997	12	FINAL-INSPECT	Final Inspection Operation	hours	0.250000	8.75	0.050000	1.7500
998	13	PACKAGE	Package Operation	hours	0.250000	8.75	0.050000	1.7500
999	14	SHIPPING	Shipping Operation	hours	0.150000	5.25	0.050000	1.7500
					3.210000	\$144.00	0.706928	\$39.7713

GE-01.3-Avatar-B.mp4

Select the **“Close”** button to return to the Import screen and select the **“Test Results”** button to access the results of the Manufacturability Test that was performed during the processing of the sheet metal part.

- Select the **“Close”** button to return to the Import screen and select the **“Test Results”** button to access the results of the Manufacturability Test that was performed during the processing of the sheet metal part.

1.4 – Automated Manufacturability Testing

GE-01.4-Avatar-A.mp4

The “Test Part” tab displays the individual tests that were performed on the selected sheet metal part. The “CAD Value” column displays each of the CAD Part Parameters that are contained in the sheet metal CAD model. The “Test Limit” column displays the test limit values that are defined in the matching bend process. The “Status” column displays whether the CAD Part Parameter value falls within the bend process limit by indicating either “Pass”, “Fail”, or “Warning” which indicates it could be a potential issue.

11. Select “**Test Results**” option to display following screen form:

The screenshot shows the 'Global Edge Engineering Assistant - Version: 2026.01 - Build: 2 - File Export' dialog box. The 'BEND PROCESS PANEL' is active, showing parameters for 'BP-PANEL' (Sheet Metal, Material: 304-4, Thickness: 0.0500, Bend Radius: 0.025, Processing Task: 1, Ot: 1, Status: Pending). The 'Test Results' tab is selected, displaying a table with columns: Task#, Doc#, File, Material, Thickness, Bend Radius, Mfr Test Res., and Status. The table contains one row: Task# 10, Doc# 1001, File C:\GlobalEdge\data\CAD-Files\SolidWorks\BP-PANEL.sldprt, Material 304-4, Thickness 0.0500, Bend Radius 0.0250, Mfr Test Res. Pass, Status Pending. The 'EXPORT OPTIONS' section includes checkboxes for DXF Files (R2013), DWG Files (R2013), ACIS(SAT) Files, IGES Files, 2D PDFs, 3D PDFs, STEP File (AP203), STL Files, Additive Manufacturing, 3D Manufacturing, J-Peg File, Document Link, Data Import, Silent Mode, Save Model Changes, Manufacturability Test, and Debug Mode. The 'Output Directory' is C:\GlobalEdge\data\Output\DXF. The 'DXF Import Rules' are set to SolidWorks CAD Interface. The 'Total Files' section shows 1 Total Files, 1 Open Files, and 100% completion. The 'Database: Worksheet' and 'Username: informix' are also visible.

Task#	Doc#	File	Material	Thickness	Bend Radius	Mfr Test Res.	Status
10	1001	C:\GlobalEdge\data\CAD-Files\SolidWorks\BP-PANEL.sldprt	304-4	0.0500	0.0250	Pass	Pending

12. Select “Row 4” for results of failed Parameter (Maximum Flat Length):

The screenshot displays the 'Global Edge Engineering Assistant' software interface. The main window is titled 'Test Part: DXF Image Dimensions/Parameters'. On the left, there's a 'Test Part' section with fields for 'Part #', 'Part Type', 'Test Run', 'Test Description', 'Date/Time', 'Run By', 'WQ Task #', 'Export Model DXF File - Manufacturability Test', 'Route #', 'Seq #', 'Process', 'Proc Type', 'Std Proc #', 'Air Bend SS, 304-4, 0.05000, Radius - 0.025', and 'Asset #'. Below this is a 'Test Status' section showing 'Fail' in red, 'Task Status: Closed', and 'Test Trans #: 52'. A table of test results is shown, with Row 4 highlighted in blue. The table has columns: Row #, Type, Parameter, CAD Value, Logic, Test Limit, and Status. Row 4 shows a failed test for 'Maximum Flat Length' with a CAD Value of 96.336549 and a Test Limit of 96.000000. On the right, the 'Test Item' section shows 'Row #: 4', 'Type: Dimension', 'Status: Fail', 'Parameter: Maximum Flat Length', 'Dim Name: Flat_Length', 'Part Value: 96.336549', 'Log: 96.000000', 'Test Value: 96.000000', 'UOM: ', 'Warning Value: ', and 'Parameter Status: Fail'. Below this, the 'Results' section shows 'FAILED - Part Exceeds Parameter Limit'. An 'Error #' section shows '302 Part Exceeds Maximum Flat Length' in a red box. A 'Warn #' section is empty. At the bottom, there are 'Generate', 'Report', and 'Close' buttons. A red arrow points from the 'Maximum Flat Length' parameter in the table to the 'Maximum Flat Length' parameter in the 'Test Item' section.

Row #	Type	Parameter	CAD Value	Logic	Test Limit	Status
1	Decimal	Min. Material Th...	0.05	>=	0.040000	Pass
2	Decimal	Max. Material Th...	0.05	<=	0.050000	Pass
3	Decimal	Minimum Flat Le...	96.336549	>=	6.000000	Pass
4	Decimal	Maximum Flat Le...	96.336549	<=	96.000000	Fail
5	Decimal	Minimum Flat W...	56	>=	4.000000	Pass
6	Decimal	Maximum Flat W...	56	<=	84.000000	Pass
7	Decimal	Maximum Bend ...	56	<=	96.000000	Pass
8	Decimal	Minimum Bend L...	23.5	>=	0.750000	Pass
9	Decimal	Minimum Flange...	3.572	>=	1.200000	Pass
10	Decimal	Maximum Flange...	5.924	<=	24.000000	Pass
11	Decimal	Maximum Up Be...	16.008	<=	24.000000	Pass
12	Decimal	Maximum Down...	5.924	<=	6.000000	Pass
13	Decimal	Minimum Bend ...	45	>=	39.000000	Pass
14	Decimal	Maximum Bend ...	140	<=	135.000000	Fail
15	Decimal	Minimum Embos...		>=	1.100000	N/A
16	Decimal	Minimum Down ...		>=	1.000000	N/A
17	Decimal	Minimum Louver...		>=	0.900000	N/A

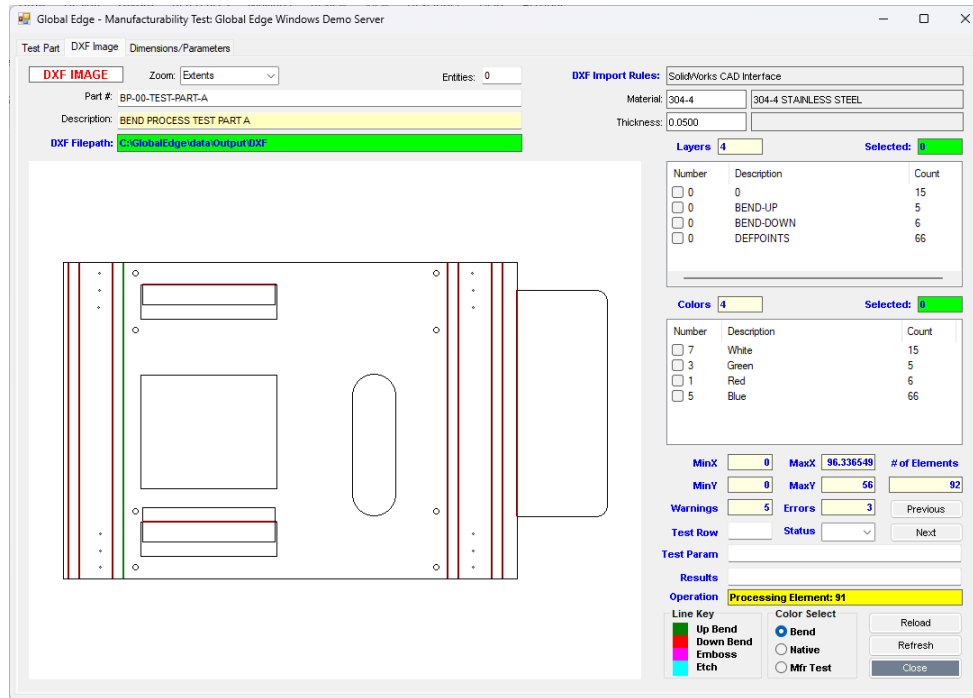
Global Edge Engineering Assistant as part of the “**Manufacturability Test**” process, the software will automatically match each sheet metal part being processed with the appropriate Bend Process. This is accomplished by comparing Material, Thickness, and Bend Radius with the matching user defined Bend Process. Within each Bend Process, the user can define the appropriate Design Parameter Rules to match the machine tool tooling capabilities.

On the above screen form, the results of the “**Manufacturability Test**” lists a failed parameter with the result “**Maximum Flat Length**” where the Flange Length is 96.337 inches in length, when the maximum allowed is 96.000 inches. This is one of 22 tests that are performed on each sheet metal part. To correct this error, the Design Engineer can then make the appropriate change to the SolidWorks Sheet Metal Part, then repeat the above steps and retest the part.

GE-01.4-Avatar-B.mp4

The “DXF Image” tab displays an image of the DXF flat file. This screen provides the ability to scroll “Next” and “Previous” through each of the CAD part test parameters and the test results.

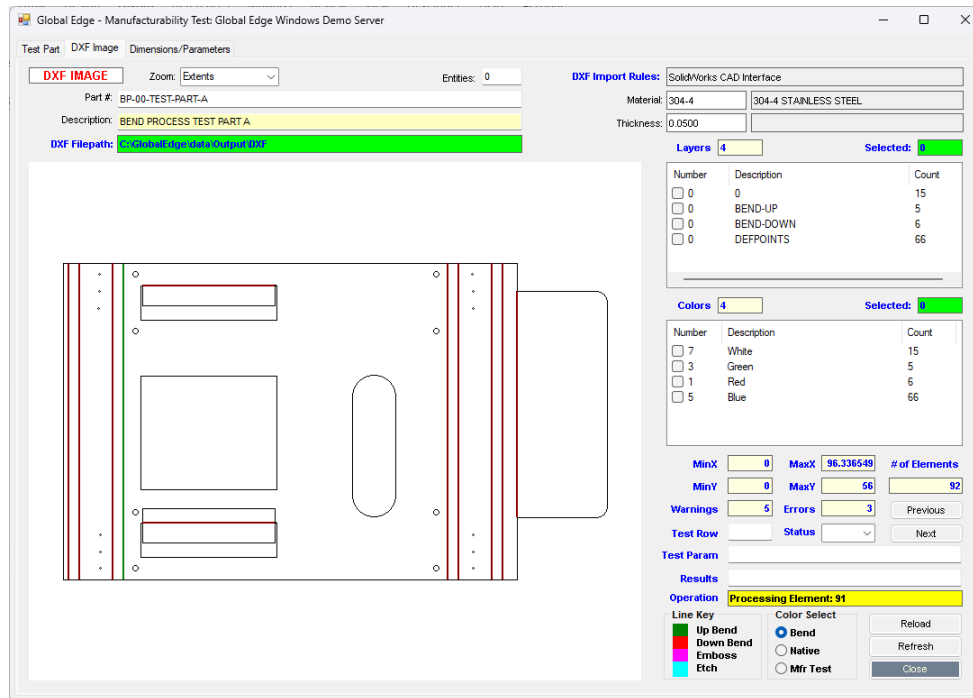
13. Select “**DXF Image**” tab to display DXF Image:



GE-01.4-Avatar-C.mp4

When selecting the **“Manufacturability Test”** option in the lower right-hand corner of the screen, the DXF flat file image will highlight an error in red. In our example, the following PEM holes appear in red because they were identified as being too close to a bend line.

14. Select the **“Manufacturability Test”** option in the lower right-hand corner of the screen, the DXF flat file image will highlight an error in red. In our example, the following PEM holes appear in red because they were identified as being too close to a bend line. **“DXF Image”** tab to display DXF Image:



GE-01.4-Avatar-D.mp4

The **“Dimensions / Parameters”** tab provides a complete listing of each of the imported CAD part parameters. These CAD part parameters provide the foundation throughout the **Global Edge** system for Automated CAM Bend Program Generation, Automated Routing Generation, Automated Production Job Generation, and Automated Sales Quote Generation.

15. Select **“Dimension/Parameters”** tab to display the dimension part parameters for the current part:

The screenshot displays the 'Global Edge - Manufacturability Test: Global Edge Windows Demo Server' window. The 'Dimensions/Parameters' tab is active, showing a form for 'Part Information' and a table of dimensions.

Part Information:

- Part #: BP-00-TEST-PART-A
- Revision: [Active]
- Part Type: Component
- Part UOM: EA
- List Price: \$0.00
- Alias Of: []
- BEND PROCESS TEST PART A
- MTL TYPE: SS - AISI 304
- 18 GA - Thick: 0.05000 - Bend Rad: 0.025
- Origin: Manufactured
- Mfr Part #: []
- Category: SHT
- Style: []
- CAD Material: AISI 304
- Material: 304-4
- LDC Manufacturing
- Serial: None
- Ship Wt: 62.777787 lbs
- Linked To: []

Dimension / Parameter Detail:

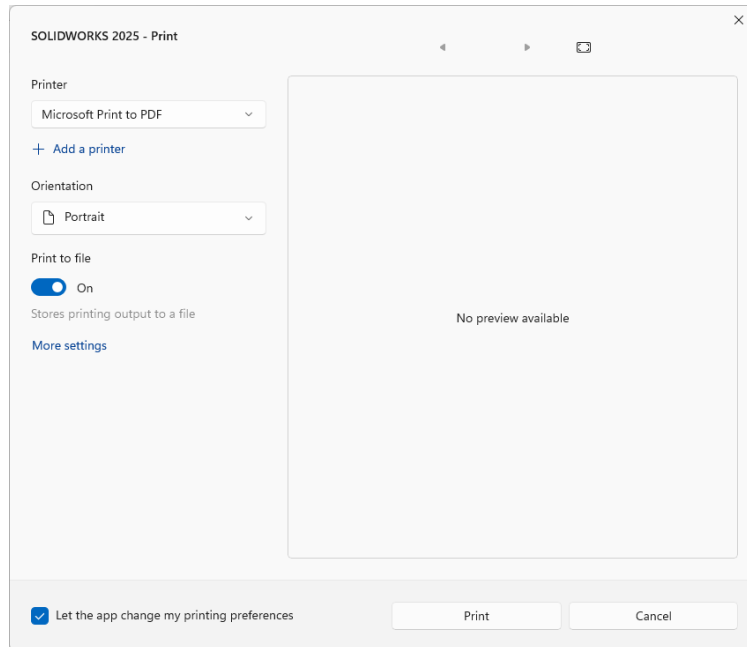
Dim #	DIMENSION / PARAMETER	VALUE
1	Sheet_Length	0.000000 inches
2	Sheet_Width	0.000000 inches
3	Blank_Length	0.000000 inches
4	Blank_Width	0.000000 inches
5	Material_Thickness	0.050000 inches
6	Perimeter	299.885590 inches
7	Flat_Length	96.336549 inches
8	Flat_Width	56.000000 inches
9	Round_Holes	20.000000
10	Round_Sizes	2.000000
11	Oround_Holes	1.000000
12	Oround_Sizes	1.000000
13	Rectang_Holes	1.000000
14	Rectang_Sizes	1.000000
15	Other_Holes	2.000000
16	Other_Sizes	1.000000
17	Num_Cutouts	24.000000
18	Cutout_Perimeter	308.998005 inches
19	Min_Bend_Length	23.500000 inches
20	Max_Bend_Length	56.000000 inches
21	Min_Bend_Angle	45.000000 inches
22	Max_Bend_Angle	90.000000 inches
23	Min_Flange_Width	4.000000 inches
24	Max_Flange_Width	12.000000 inches
25	Min_Pem_Gap	0.346674 inches
26	Min_Dn_Pem_Gap	1.800000 inches

Dimension / Parameter Detail:

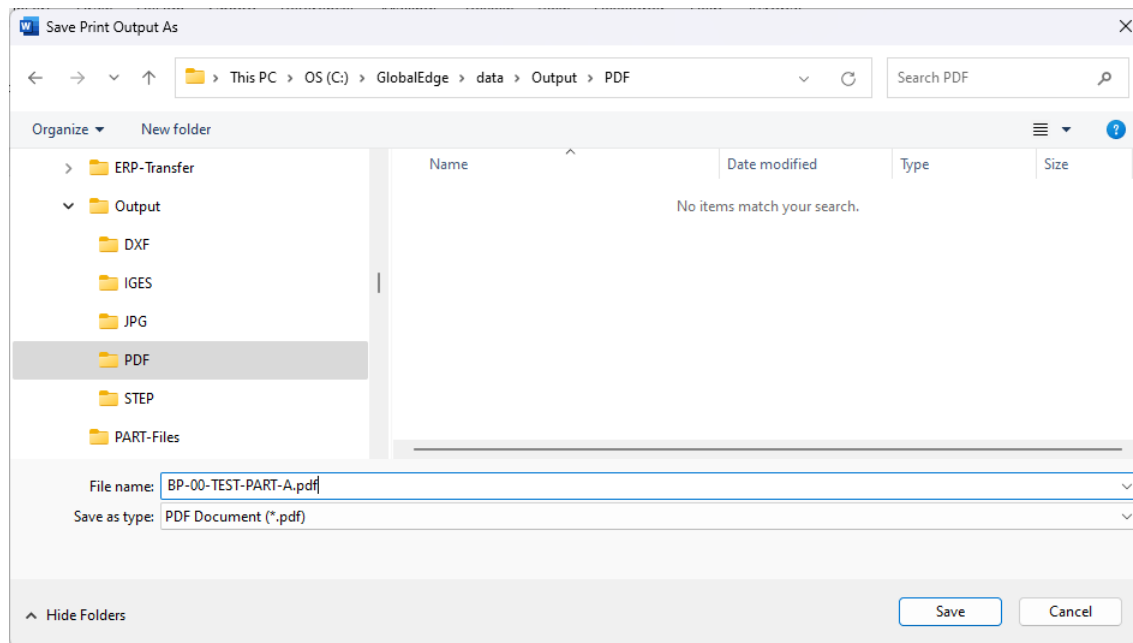
- Dim #: [] of: []
- Dim Type: []
- UOM: []
- Constraint: []
- Option List: []
- Quote Display: []
- Config Description: []
- UOM Relationship: []
- Factor: []
- Dimension Description: []
- Config Param: []
- CAD Attribute: []
- CAD Param: []
- Active: []

Close

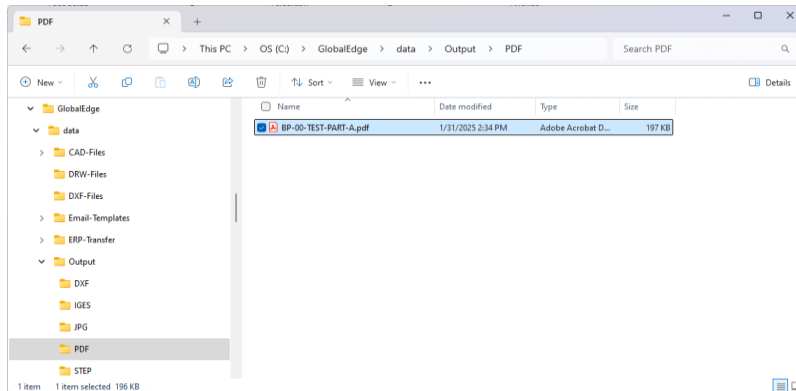
16. Select **“Report”** option to display the following screen:



17. Select **“Report”** option to display the following screen:



18. Select **“Report”** option to display the following screen:



Global Edge CAD Part Parameter Report

Menu Home BP-00-TEST-PART-A.pdf x + Create Sign in

All tools Edit Convert E-Sign Find text or tools AI Assistant

DateTime: 01-31-2025 14:34:49 Page: 1

Global Edge CAD Part Parameter Report

PART # / DESCRIPTION		Category: SHEET METAL	
BP-00-TEST-PART-A		Material: 304-4 STAINLESS STEEL	
BEND PROCESS TEST PART A		Ship Weight: 62.7778 lbs	
MTL TYPE: SS - AISI 304		Setup Cost: 0.00	
18 GA - Thick: 0.05000 - Bend Rad: 0.025		Process Cost: 0.00	
		Component Cost: 0.00	
		Rollup Cost: 0.00	
		Standard Cost: 0.00	

CAD Part Parameters

Par #	Parameter Name	Value	UOM	Par #	Parameter Name	Value	UOM
1	Sheet_Length:	0.000000	inches	32	Min_Die_Cutout:		inches
2	Sheet_Width:	0.000000	inches	33	Up_Bends:	5	-
3	Blank_Length:	0.000000	inches	34	Int_Up_Bends:	0	-
4	Blank_Width:	0.000000	inches	35	Max_Up_Bend:	0.000000	-
5	Material_Thickness:	0.050000	inches	36	Down_Bends:	6	-
6	Perimeter:	299.885590	inches	37	Int_Down_Bends:	0	-
7	Flat_Length:	96.336549	inches	38	Max_Down_Bend:	0.000000	-
8	Flat_Width:	56.000000	inches	39	Fold_Count:	11	-
9	Round_Holes:	20	-	40	Hem_Count:	1	-
10	Round_Sizes:	2	-	41	Extrude_Count:	0	-
11	Obround_Holes:	1	-	42	Bend_Radius:	0.025000	inches
12	Obround_Sizes:	1	-	43	Cutting_Method:		
13	Rectang_Holes:	1	-	44	Cutter_Ref_Num:		
14	Rectang_Sizes:	1	-	45	Certified_Mtrl:		
15	Other_Holes:	2	-	46	Material:	304.4	
16	Other_Sizes:	1	-	47	Cutout_Distance:	380.320072	inches
17	Num_Cutouts:	24	-	48	Part_Distance:	68.597719	inches
18	Cutout_Perimeter:	308.998005	inches	49	Blank:		
19	Min_Bend_Length:	23.500000	inches	50	Emboss:		
20	Max_Bend_Length:	56.000000	inches	51	Turret:		
21	Min_Bend_Angle:	45.000000	inches	52	Laser:		
22	Max_Bend_Angle:	90.000000	inches	53	Plasma:		
23	Min_Flange_Width:	4.000000	inches	54	Water_Jet:		
24	Max_Flange_Width:	12.000000	inches	55	Press_Brake:		
25	Min_Pem_Gap:	0.346674	inches	56	Panel_Bender:		
26	Min_Dn_Pem_Gap:	1.800000	inches	57	Pem_Nuts:		
27	Min_Emboss_Gap:	3.000000	inches	58	Pem_Studs:		
28	Min_Dn_Emboss_Gap:		inches	59	Grain:		
29	Min_Louver_Gap:		inches	60	Weld:		
30	Min_Dn_Louver_Gap:		inches	61	Deburr:		
31	Min_Taper_Bl_Gap:	0.000000	inches	62	Paint:		

8.50 x 11.00 in