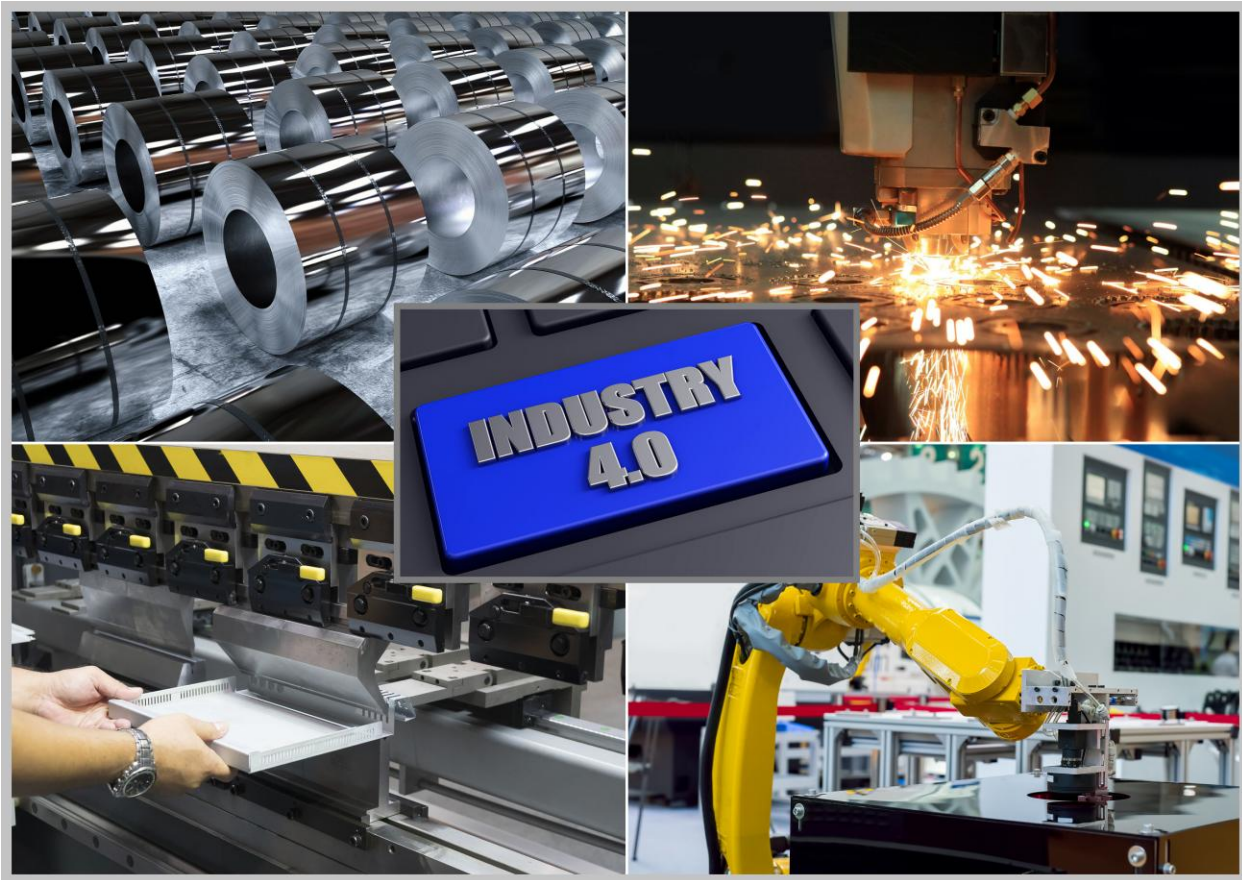




**Global Edge<sup>®</sup> Engineering Assistant**



# Product Guide

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## Product Overview

**Global Edge® Engineering Assistant** is an innovative workflow system that is designed for sheet metal fabricators to significantly increase engineering productivity to prepare accurate and timely information for the shop floor. **Global Edge** directly addresses labor intensive workflow areas with four automated steps that include:

### Step 1: Automated CAD Model Analysis

- Eliminates Manual Analysis of Sheet Metal CAD Parts
- Provides Automatic Selection of Standard Bend Processes
- Automates Generation of Optimal Routings Based on CAD Part Parameters

### Step 2: Manufacturability Testing (Design For Manufacturing)

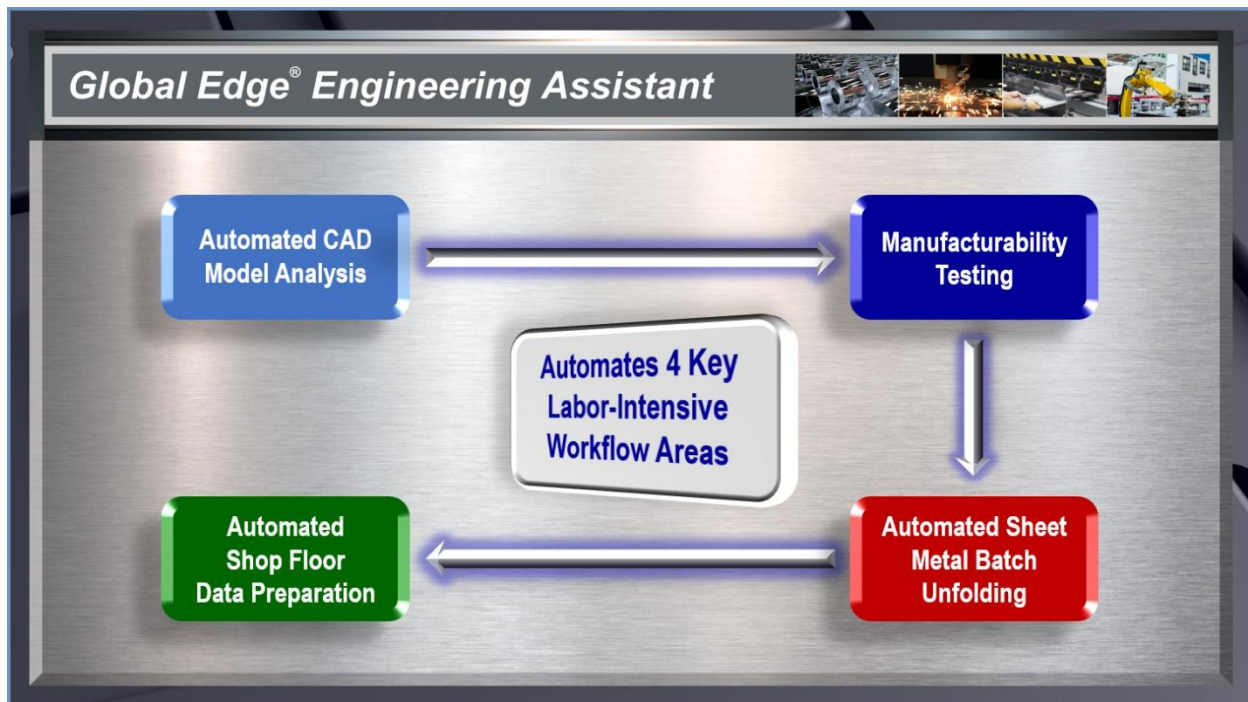
- Compares CAD Part Parameters with Machine Tool Parameters
- Identifies Costly Part Design Errors Before Reaching Shop Floor
- Helps Reduce Engineering and Manufacturing Cycle Times

### Step 3: Automated Sheet Metal Batch Unfolding

- Automates Generation of DXF Flat Files from 3D CAD Models
- Provides Automated Bend Radius / K-Factor Adjustment

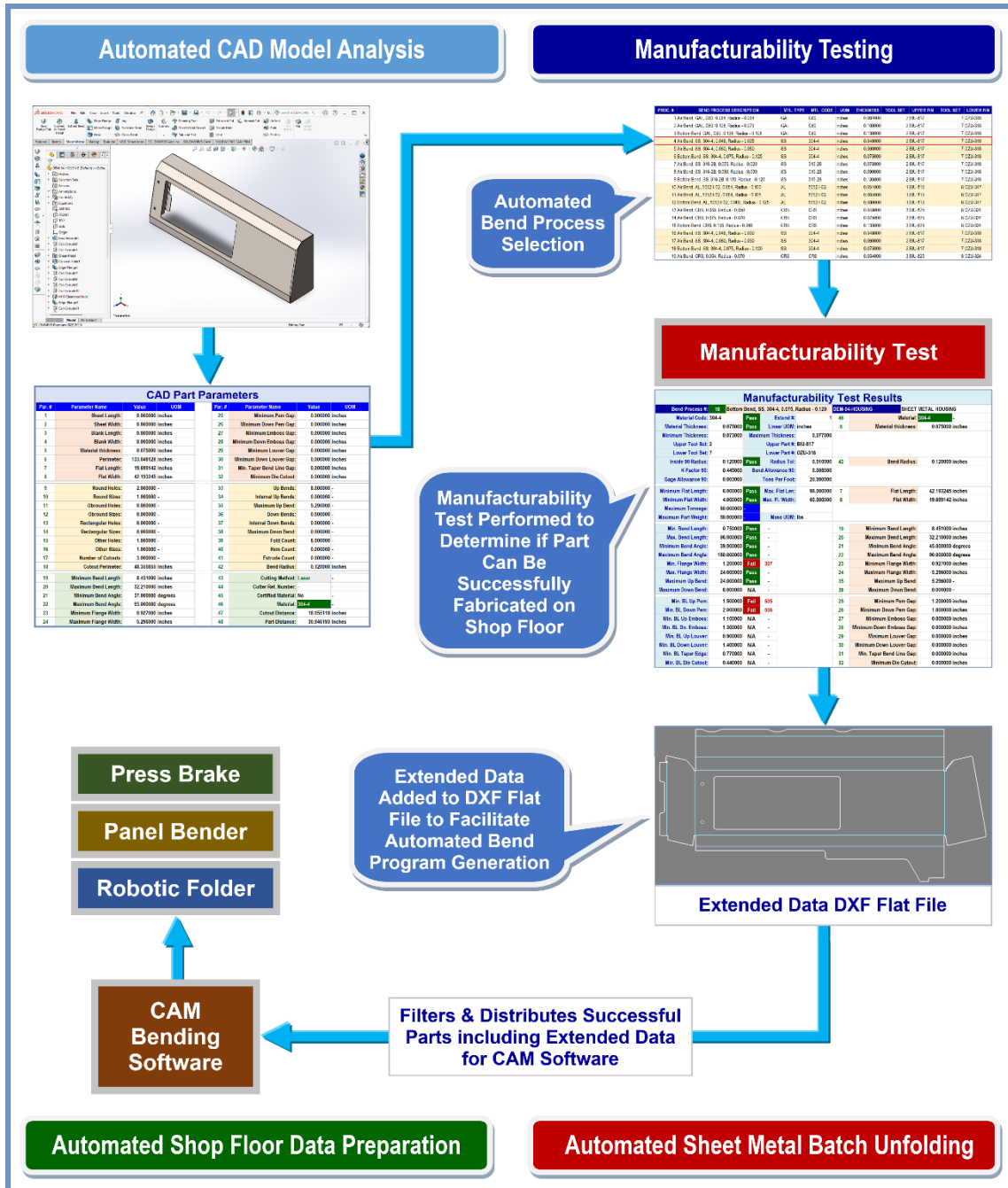
### Step 4: Automated Shop Floor Data Preparation

- Incorporates Extended Data to Facilitate Automated Bend Program Generation
- Provides Information Needed for Automated CAM Program Generation
- Automatically Distributes Information to CAM, MES, and Scheduling
- Provides Shop Floor with Accurate and Timely Information



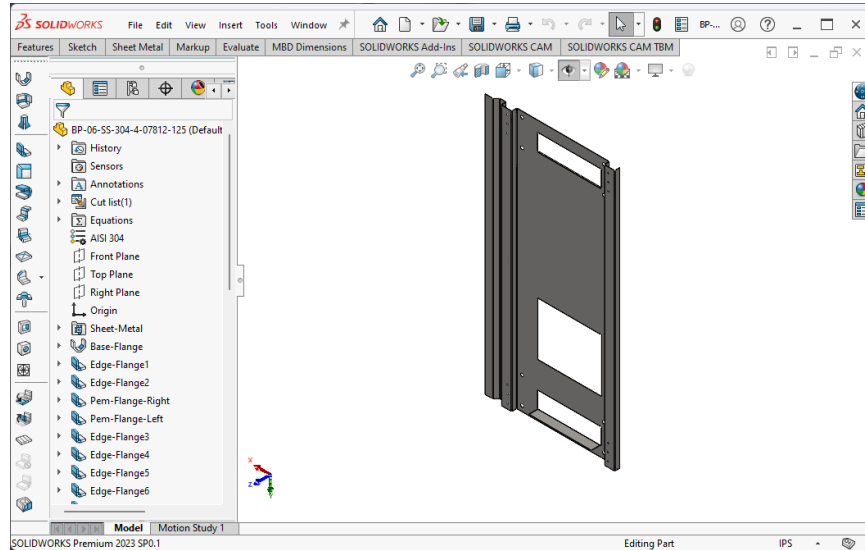
## Automated Workflow Chart

**Global Edge® Engineering Assistant** provides workflow automation that automatically analyzes sheet metal CAD part parameters and generates DXF Flat Files. This also includes the automated selection of your standard bend processes and the incorporation of extended data in your DXF flat files to facilitate Automated Bend Program Generation, Manufacturability Testing of each part with the filtering and distribution of sheet metal parts to your CAM Bending Software.



## Step 1: Automated CAD Model Analysis

**Global Edge® Engineering Assistant** starts with the ability to automatically analyze and store CAD part parameters with your sheet metal parts to serve as a foundation for manufacturability testing and to facilitate automated bend program generation.



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			

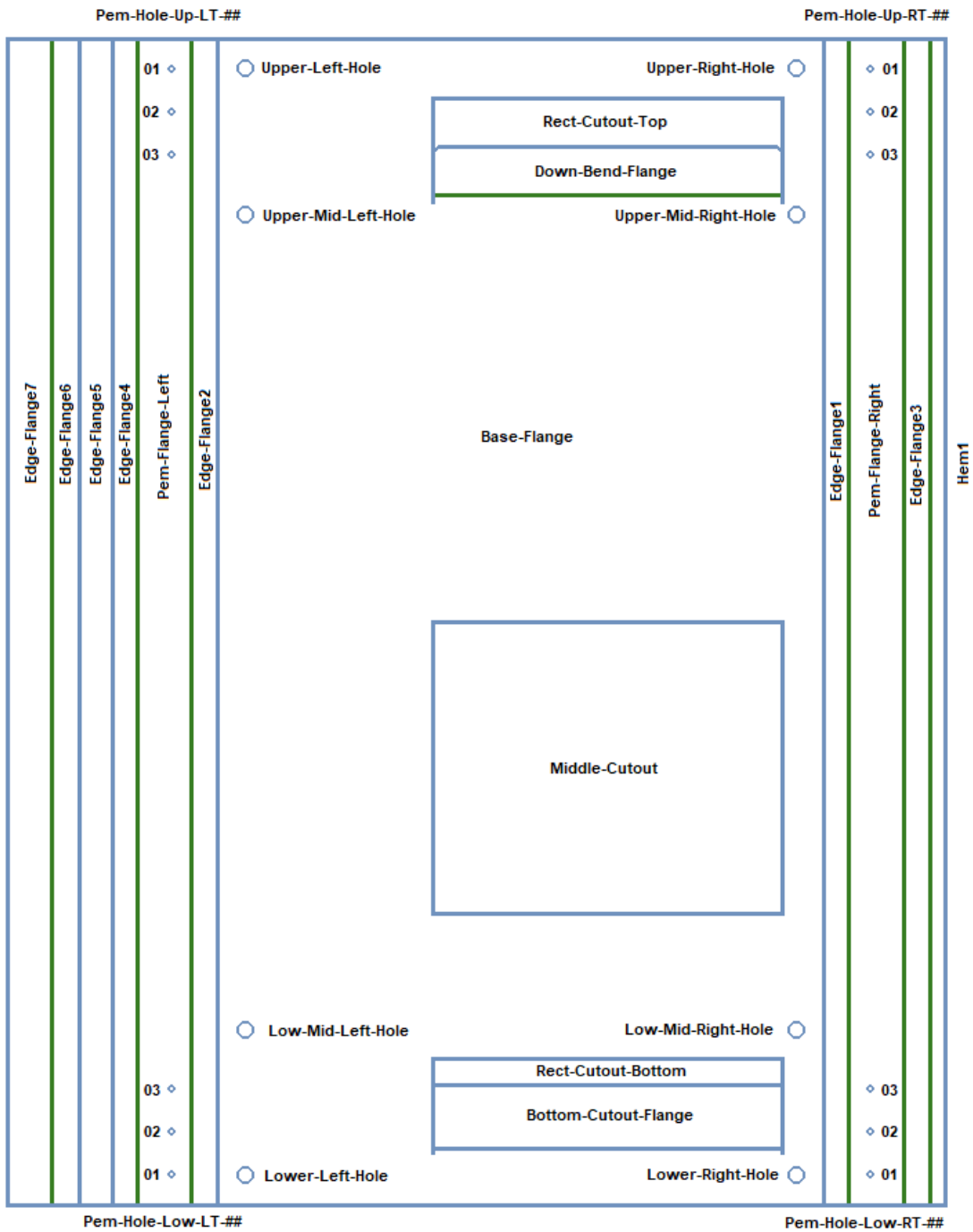
CAD Part Parameters							
Par. #	Parameter Name	Value	UOM	Par. #	Parameter Name	Value	UOM
1	Sheet Length:	0.000000	inches	25	Minimum Pem Gap:	1.200000	inches
2	Sheet Width:	0.000000	inches	26	Minimum Down Pem Gap:	1.800000	inches
3	Blank Length:	0.000000	inches	27	Minimum Emboss Gap:	3.000000	inches
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	Obround Hole Count:	0.000000	-	35	Maximum Up Bend:	0.000000	inches
12	Obround 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



**Sheet Metal Part Entities / Measurements**

**Global Edge® Engineering Assistant** automatically identifies and stores the parameters contained in a sheet metal part including the specific measurements of each part:

**Sheet Metal Part Parameters / Measurements**



## Sheet Metal Part Measurements

ELE. #	Element Name	Length	Width	Diameter	BL Dist. 1 (Inner)	BL Dist. 2 (Outer)
1	Overall Flat:	80.000	62.394	0.000	0.000	0.000
2	Base-Flange:	80.000	39.727	0.000	0.000	0.000
3	Edge-Flange1:	80.000	1.727	0.000	0.000	0.000
4	Edge-Flange2:	80.000	1.727	0.000	0.000	0.000
5	Pem-Flange-Right:	80.000	3.727	0.000	0.000	0.000
6	Pem-Flange-Left:	80.000	3.727	0.000	0.000	0.000
7	Edge-Flange3:	80.000	1.856	0.000	0.000	0.000
8	Edge-Flange4:	80.000	1.727	0.000	0.000	0.000
9	Edge-Flange5:	80.000	2.294	0.000	0.000	0.000
10	Edge-Flange6:	80.000	1.910	0.000	0.000	0.000
11	Edge-Flange7:	80.000	2.979	0.000	0.000	0.000
12	Hem1:	80.000	0.993	0.000	0.000	0.000
13	Rect-Cutout-Top:	6.658	24.000	0.000	0.000	0.000
14	Down-Bend-Flange:	3.294	24.000	0.000	0.000	0.000
15	Middle-Cutout:	20.000	24.000	0.000	0.000	0.000
16	Rect-Cutout-Bottom:	6.136	24.000	0.000	0.000	0.000
17	Bottom-Cutout-Flange:	4.364	24.000	0.000	0.000	0.000
18	Upper-Left-Hole:	0.000	0.000	1.000	0.000	0.000
19	Upper-Mid-Left-Hole:	0.000	0.000	1.000	0.000	0.000
20	Upper-Right-Hole:	0.000	0.000	1.000	0.000	0.000
21	Upper-Mid-Right-Hole:	0.000	0.000	1.000	0.000	0.000
22	Lower-Left-Hole:	0.000	0.000	1.000	0.000	0.000
23	Lower-Mid-Left-Hole:	0.000	0.000	1.000	0.000	0.000
24	Lower-Right-Hole:	0.000	0.000	1.000	0.000	0.000
25	Lower-Mid-Right-Hole:	0.000	0.000	1.000	0.000	0.000
26	Pem-Hole-Up-LT-01:	0.000	0.000	0.375	1.411	2.316
27	Pem-Hole-Up-LT-02:	0.000	0.000	0.375	1.411	2.316
28	Pem-Hole-Up-LT-03:	0.000	0.000	0.375	1.411	2.316
29	Pem-Hole-Low-LT-01:	0.000	0.000	0.375	1.411	2.316
30	Pem-Hole-Low-LT-02:	0.000	0.000	0.375	1.411	2.316
31	Pem-Hole-Low-LT-03:	0.000	0.000	0.375	1.411	2.316
32	Pem-Hole-Up-RT-01:	0.000	0.000	0.375	1.411	2.316
33	Pem-Hole-Up-RT-02:	0.000	0.000	0.375	1.411	2.316
34	Pem-Hole-Up-RT-03:	0.000	0.000	0.375	1.411	2.316
35	Pem-Hole-Low-RT-01:	0.000	0.000	0.375	1.411	2.316
36	Pem-Hole-Low-RT-02:	0.000	0.000	0.375	1.411	2.316
37	Pem-Hole-Low-RT-03:	0.000	0.000	0.375	1.411	2.316

## Step 2: Manufacturability Testing (Design For Manufacturing)

**Global Edge® Engineering Assistant** provides Design for Manufacturing / Manufacturability Testing capabilities that allows you to test sheet metal parts with the capabilities of your bending machine tools before they leave engineering. This is accomplished by comparing CAD part parameters with your company's Bend Processes to determine whether the part can be successfully fabricated. This can save your company a significant amount of time and money by identifying and eliminating errors at the engineering level before discovering problems on the shop floor.

Manufacturability Test Results									
Bend Process #:	6	Bottom Bend, SS, 304-4, 0.07812, Radius - 0.125			BP-06-SS-304-4-075-125	BEND PROCESS TEST PART 06			
Material Code:	304-4	Pass	Extend #:	1	46	Material:	304-4	-	
Material Thickness:	0.078120	Pass	Linear UOM:	inches	5	Material thickness:	0.078120	inches	
Minimum Thickness:	0.076120		Maximum Thickness:	0.080120					
Upper Tool Set:	2		Upper Part #:	BIU-817					
Lower Tool Set:	7		Lower Part #:	OZU-318					
Inside 90 Radius:	0.125000	Pass	Radius Tol:	0.010000	42	Bend Radius:	0.125000	inches	
K Factor 90:	0.445000		Bend Allowance 90:	0.008000					
Gage Allowance 90:	0.003000		Tons Per Foot:	20.000000					
Minimum Flat Length:	6.000000	302	Max. Flat Len:	96.000000	7	Flat Length:	98.000000	inches	
Minimum Flat Width:	4.000000	Pass	Max. Fl. Width:	84.000000	8	Flat Width:	58.169387	inches	
Maximum Tonnage:	80.000000	-							
Maximum Part Weight:	50.000000	-	Mass UOM:	lbs					
Min. Bend Length:	0.750000	Pass	-		19	Minimum Bend Length:	35.000000	inches	
Max. Bend Length:	96.000000	Pass	-		20	Maximum Bend Length:	80.000000	inches	
Minimum Bend Angle:	39.000000	Pass	-		21	Minimum Bend Angle:	45.000000	degrees	
Maximum Bend Angle:	180.000000	Pass	-		22	Maximum Bend Angle:	90.000000	degrees	
Min. Flange Width:	1.200000	Pass	-		23	Minimum Flange Width:	4.000000	inches	
Max. Flange Width:	24.000000	Pass	-		24	Maximum Flange Width:	12.000000	inches	
Maximum Up Bend:	24.000000	N/A	-		35	Maximum Up Bend:	0.000000	inches	
Maximum Down Bend:	6.000000	N/A	-		38	Maximum Down Bend:	0.000000	inches	
Min. BL Up Pem:	0.800000	Pass	-		25	Minimum Pem Gap:	1.200000	inches	
Min. BL Down Pem:	2.000000	Fail	506		26	Minimum Down Pem Gap:	1.800000	inches	
Min. BL Up Emboss:	1.100000	Pass	-		27	Minimum Emboss Gap:	3.000000	inches	
Min. BL Dn. Emboss:	1.000000	Pass	-		28	Minimum Down Emboss Gap:	1.200000	inches	
Min. BL Up Louver:	0.900000	Pass	-		29	Minimum Louver Gap:	2.000000	inches	
Min. BL Down Louver:	0.000000	N/A	-		30	Minimum Down Louver Gap:	0.000000	inches	
Min. BL Taper Edge:	0.000000	N/A	-		31	Min. Taper Bend Line Gap:	0.000000	inches	
Min. BL Die Cutout:	0.000000	N/A	-		32	Minimum Die Cutout:	0.000000	inches	

### \*\* Error Log

**302:** Part Exceeds Maximum Flat Length

Flat Length: 98.000000 inches – [7 – Maximum Flat Length: 96.000000 inches]

**506:** Part Down Pem Too Close to Bend Line

Minimum Bend Line Down Pem: 2.000000 inches – [26 – Minimum Down Pem Gap: 1.800000 inches]

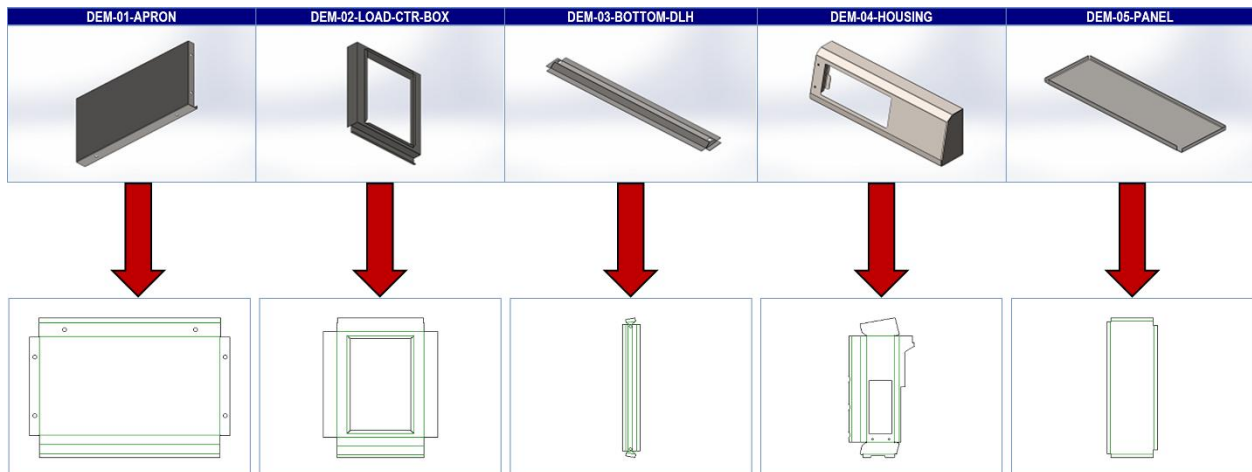
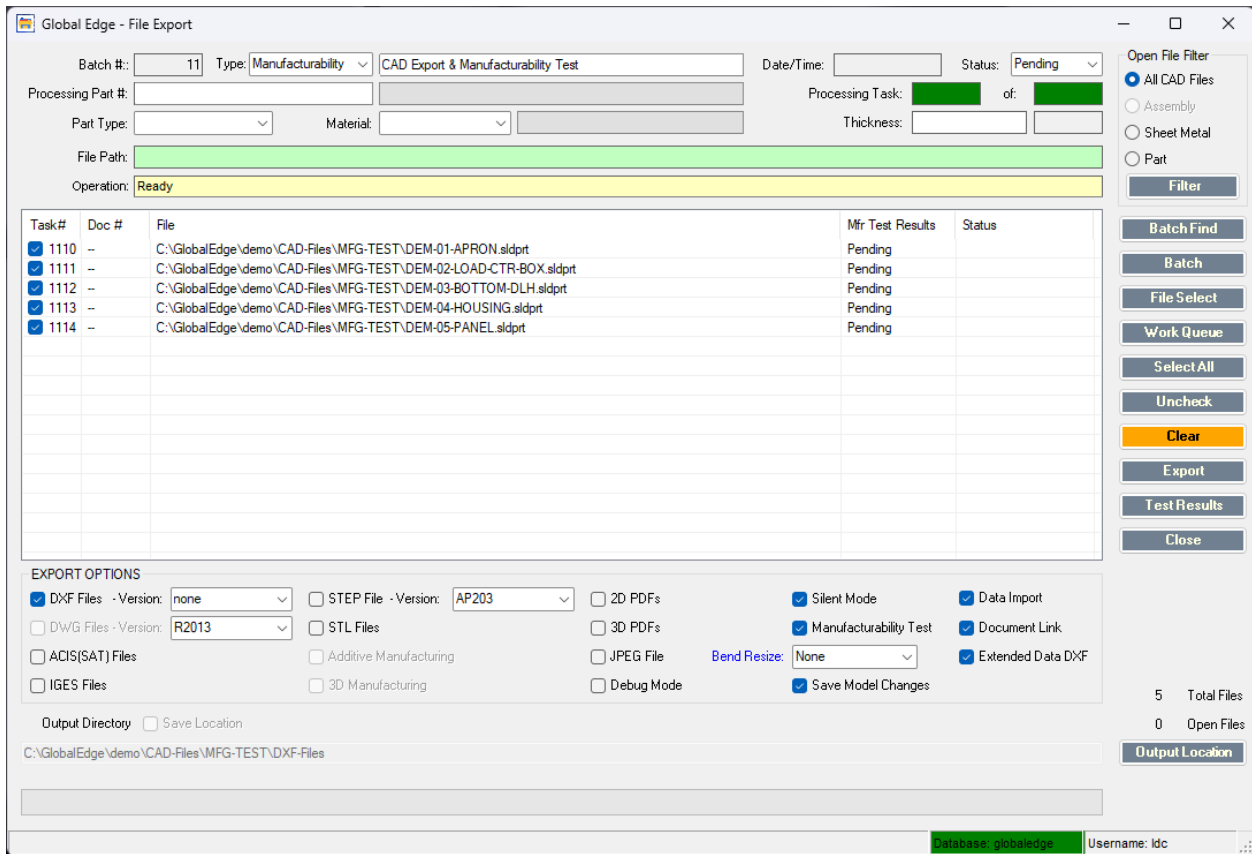
**Manufacturability Test Error Codes**

As the **Global Edge® Engineering Assistant** performs the Manufacturability Test on a sheet metal part, the software will automatically identify problems / issues with the part with the following error codes:

Code	Manufacturability Error Codes
101	Material Not Defined in Part
102	Material Unit of Measure Missing from Part
103	Part Less Than Minimum Material Thickness
104	Part Exceeds Maximum Material Thickness
201	Part Exceeds Maximum Part Weight
202	Part Exceeds Maximum Allowable Bend Tonnage
301	Part Less Than Minimum Flat Length
302	Part Exceeds Maximum Flat Length
303	Part Less Than Minimum Flat Width
304	Part Exceeds Maximum Flat Width
305	Part Exceeds Maximum Bend Length
306	Part Shortest Bend Length Less Than Minimum Bend Length
307	Part Flange Less Than Minimum Flange Width
308	Part Flange Exceeds Maximum Flange Width
309	Part Maximum Up Bend Exceeds Maximum Allowable Up Bend
310	Part Maximum Down Bend Exceeds Max. Allowable Down Bend
401	Part Bend Angle Less Than Allowable Minimum Angle
402	Part Bend Angle Exceeds Allowable Maximum Angle
501	Part Up Embossment Too Close to Bend Line
502	Part Down Embossment Too Close to Bend Line
503	Part Up Louver Too Close to Bend Line
504	Part Down Louver Too Close to Bend Line
505	Part Up Pem Too Close to Bend Line
506	Part Down Pem Too Close to Bend Line
507	Part Taper Edge Too Close to Bend Line
508	Part Die Cutout Too Close to Bend Line

### Step 3: Automated Sheet Metal Batch Unfolding

**Global Edge® Engineering Assistant** provides the capability to automatically incorporate extended data generated in the previous workflow step into your DXF flat files. This includes Standard Bend Processes that match the bending capabilities of your Press Brakes, Robotic Folders, and Panel Benders with the proper tooling incorporated into the DXF Flat File:



Last Update: Saturday, April 04, 2026

**Extended Data DXF Flat Files**

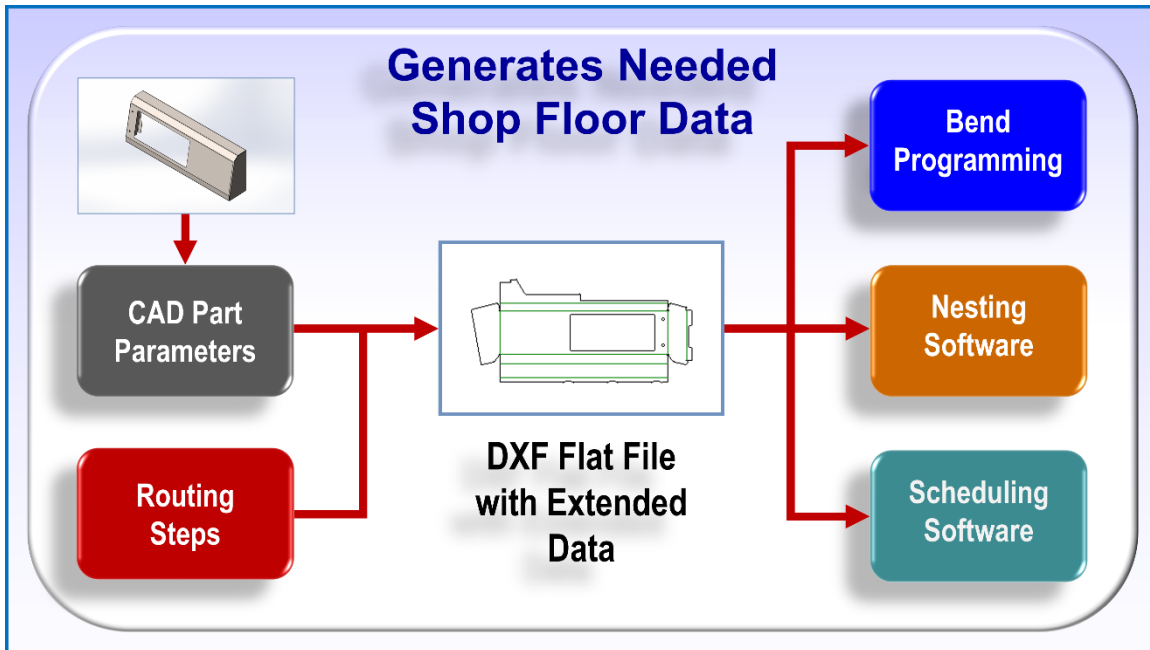
**Global Edge® Engineering Assistant** provides the ability to define Bend Processes as illustrated on Page 6. Also provided is the ability to define your tool sets including dimensions of each tool element. As sheet metal parts are processed, **Global Edge** will automatically embed Extended Data into each DXF flat file. This extended data can be defined and formatted for specific CAM Bending software. The following is an example of the type of Extended DXF Data that is automatically embedded specifically for each DXF flat file:

Extended DXF Data			
Bend Process #:	6	Bottom Bend, SS, 304-4, 0.07812, Radius - 0.125	
Material Code:	304-4	Upper Tool Set:	2
Material Thickness:	0.078120 inches	Upper Part #:	BIU-817
		Lower Tool Set:	7
		Lower Part #:	OZU-318

TOOL SET #	DESCRIPTION	TYPE	TOOL TYPE	MFR.	MFR. PART #
1	Tool Set Number 1 - Upper Tools	Punch	BEND-SET	Wila	BIU-815
2	Tool Set Number 2 - Upper Tools	Punch	BEND-SET	Wila	BIU-817
3	Tool Set Number 3 - Upper Tools	Punch	BEND-SET	Wila	BIU-825
4	Tool Set Number 4 - Upper Tools	Punch	BEND-SET	Wila	BIU-830
5	Tool Set Number 5 - Upper Tools	Punch	BEND-SET	Wila	BIU-832
6	Tool Set Number 6 - Lower Tools	Die	BEND-SET	Wila	OZU-317
7	Tool Set Number 7 - Lower Tools	Die	BEND-SET	Wila	OZU-318
8	Tool Set Number 8 - Lower Tools	Die	BEND-SET	Wila	OZU-324
9	Tool Set Number 9 - Lower Tools	Die	BEND-SET	Wila	OZU-325
10	Tool Set Number 10 - Lower Tools	Die	BEND-SET	Wila	OZU-326
11	Tool Set Number 11 - Lower Tools	Die	BEND-SET	Wila	OZU-351
12	Tool Set Number 12 - Lower Tools	Die	BEND-SET	Wila	OZU-352
13	Tool Set Number 13 - Lower Tools	Die	BEND-SET	Wila	OZU-353
14	Tool Set Number 14 - Lower Tools	Die	BEND-SET	Wila	OZU-354
15	Tool Set Number 15 - Lower Tools	Die	BEND-SET	Wila	OZU-361
16	Tool Set Number 16 - Lower Tools	Die	BEND-SET	Wila	OZU-362
17	Tool Set Number 17 - Lower Tools	Die	BEND-SET	Wila	OZU-363

## Step 4: Automated Shop Floor Data Preparation

**Global Edge® Engineering Assistant** automatically generates the necessary information for the shop floor by providing the necessary data for your Bend Programming, Nesting and Scheduling software. This includes the necessary extended data embedded in your DXF Flat Files and optionally optimal routing steps based on your CAD Part Parameters:



### Optional Routing Generation

**Global Edge® Engineering Assistant** optionally includes the automated generation of optimal routings based on the CAD part parameters analyzed and stored in the previous workflow steps:

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
					<b>3.210000</b>	<b>\$144.00</b>	<b>0.706928</b>	<b>\$39.7713</b>

## Success Story (Cooper Power Systems)

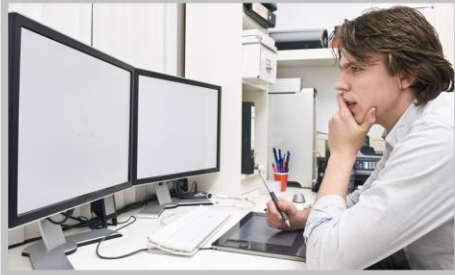
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**Global Edge® Engineering Assistant** has been successfully implemented at companies that range from small to Fortune 500. The innovative and powerful capabilities of the **Global Edge** have resulted in significant productivity gains and money savings. Cooper Power Systems is a real-world example of what your company can achieve:



*“The marketplace for 100% automatic program generation (folding machines & press brakes) does not exist. **Global Edge** was the “missing link” that allowed us to expand our manufacturing technologies and capabilities. This has resulted in a savings of 1,000’s of man hours per year in our Engineering & Programming departments.”*

**Adam Popchock, Senior Manufacturing Engineer**  
**Cooper Power Systems – Waukesha, Wisconsin**



**Software**



**Technology**



**Integration**

Founded in 1983, Logic Design Corporation (LDC) is a technology integration and software development company that specializes in innovative software solutions to improve productivity and increase engineering capacity and achieve Industry 4.0.

LDC provides an innovative suite of software tools and programming services to solve some of the toughest engineering and manufacturing productivity challenges faced by manufacturers.

LDC delivers smart, practical to implement solutions that have resulted in savings of thousands of engineering hours annually for our customers.

Logic Design Corporation provides a full range of innovative software tools and services designed to reduce and eliminate expensive labor-intensive workflow tasks associated with the quoting, engineering and manufacturing workflow process:

- **Global Edge® Engineering Assistant**
- **2D / 3D CAD Programming**
- **Shop Floor Integration / Automation Planning**
- **Technology Integration Programming**
- **LDC Industry 4.0 Consulting**

LDC has the knowledge and expertise to help your company achieve Industry 4.0.

## **COOPER** Power Systems

*“The marketplace for 100% automatic program generation (folding machines & press brakes) does not exist. **Global Edge** was the “missing link” that allowed us to expand our manufacturing technologies and capabilities. This has resulted in a savings of 1,000’s of man hours per year in our Engineering & Programming departments.”*

**Adam Popchock, Senior Manufacturing Engineer**  
**Cooper Power systems – Waukesha, Wisconsin**