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## **PRECISION MACHINING, SHEET METAL FABRICATION, AND ASSEMBLIES**

Solara Engineering is a certified Small Disadvantaged Business company with over twenty years of experience in precision machined parts using 3, 4 and 5 Axis Machines, fabricating close tolerance sheet metal components, and assemblies. At Solara, we have been manufacturing products for the Department of Defense and military contractors, commercial aircraft and satellite manufacturers, as well as hi-tech industries. Some of the programs we have supported are:

- Northrop - Joint Strike fighter
- Boeing Delta Program
- Raytheon -V22 and Global Hawk programs
- Lockheed – F35 & F15 Program
- Boeing's satellite and international space station projects

Solara Engineering is a Just in Time subcontractor and we function as an extension of our customers' manufacturing and engineering capacity. We serve high technology firms in the aerospace, aircraft, computer and medical industries.

### **Precision CNC Machining & Lathe – Over 50 CNC Machines!!!**

- Complex 5 Axis Programming & Machining
- Close Tolerance 4 Axis Milling
- Machining of Parts up to 120" by 40" in Size
- Milling Capabilities down to .0005 Inch Tolerance
- Short Run Prototype and Large Volume Production, Flexible Production Scheduling

### **Precision Sheet Metal**

- 3D Fabrication from Flat Pattern
- CNC Turret Punching
- Precision CNC Brake Forming up to 10'
- Precision Welding: All Types of Materials Including Aluminum Alloys and Titanium

### **Precision Assembly**

- Riveting to Military and Customer Specifications
- Hardware Installation
- Bonding
- Finished Assemblies & Sub-Assemblies

### **Quality Control – 9 CMM's to accommodate prototype work**

- AS9100 Certified Quality System
- Mil-I-45208A Supplier to all Major Aerospace Firms
- Total Quality Management (TQM) System
- Statistical Process Control (SPC) for "Close Tolerance" Manufacturing
- Coordinate Measuring Machine (CMM) Inspection
- 3D Contour Measurement Capabilities
- Ability to check straight from CAD (PC-DMIS and Apogee) – DPD Approved

### **Engineering**

- Complex 3D Flat Pattern Development
- Precision CNC Programming
- Complex 3-D Programming
- 4 and 5 Axis Programming
- Production and Manufacturing from all Types of Customer Provided Electronic Files &
- Traditional Media, Computer Generated CAD Files, Customer Furnished IGES Files,
- DXF Files, CATIA Files, Cad Key Files
- Assistance in Part Design (From Existing Customer Blueprint)
- Reverse Engineering (From Existing Customer Parts or Tooling)

### **The Following is a Sample of Customer Requirements and Projects Completed**

#### **Machined Parts**

- Complex Surface Wing Spars
- Close Tolerance Electrical Housings
- Lightweight Exotic Metal Assembly Covers
- Electrical and Structural Chassis

#### **Sheet Metal Components**

- Structural and Conductive Precision Brackets
- Ventilation and Stiffening Cover Plates
- Antenna Support Connectors
- Bus-bars, Groundstraps and Other Electrical Components

## **Assemblies**

- Thermal Protection Barriers
- Brazed Electronic Housings
- Optical System Coverings and Housings
- Soldered and Bonded Conductive Sub-assemblies
- Precision Spot Welded and Fusion Welded Assemblies
- Bonded and Riveted Structures

## **Materials Used in Manufacturing**

- Alloys: Aluminum, Brass, Beryllium Copper, Delrin, Fiberglass, Fin Stock, Inconel,
- Kovar, Laminated Shim, Manganin, Magnesium, Nylon, Plastic Laminates, Rubber,
- Sintered Tungsten, Steel, Tantalum, Teflon, Titanium, and other Materials
- Forms: Bar, Castings, Extrusions, Foils, Forgings, Honeycombs, Plate, Sheet, Tubing, Thin Gauge & Wire

## **Outside Support Services**

- Spun Metal Parts, Short Run Stampings & Certified: Brazing, Friction Coating, Heat-Treating, Aerospace Prime & Paint, Passivation, Penetrant Inspection, Military Specification Plating, Structural & Chemical Testing and many other processes.

# **Equipment List**

## ***Machining - up to 120 inches long***

- Cincinnati Milacron Lancer V5-2000/80x30x30/ 40 degrees A & B axes
- OKK MCV-860 Vertical Milling Center/80x33x28
- Samsung MH-80 Horizontal Machining Center 4 Axis CNC 2 Pallets 50 Taper
- XYZ - 45" X 32" X 36"
- Okuma MC-40Horizontal Machine w OSP 5000M control 20"x20" 2 pallets 40TP
- LE BLONDE Makino MC-65 Horizontal Machine, 50TP glass scales, full 4th, 20" x 20" 2 pallets
- Haas CNC Mill/64x40/4th Axis/VF8 15HP
- Haas CNC Mill/64x40/4th Axis/VF8 15HP
- Haas CNC Mill/64x40/4th Axis/VF6 15HP
- Haas CNC Mill / 50x30 /4th Axis /VF5 15HP 4th Axis Table
- Haas CNC Mill / 40x20 /4th Axis /VF3 15HP 4th Axis Table
- Haas CNC Mill / 40x20 /4th Axis /VF3 15HP 4th Axis Table
- Haas CNC Mill / 40x20 /4th Axis /VF3 15HP 4th Axis Table
- Haas CNC Mill/30x16/VF-2 15HP 4th Axis/ 7500RPM
- Haas CNC Mill/30x16/VF-2 15HP 4th Axis/ 7500RPM
- Akira Seiki Performa V4XP Mills 40" X 30" X 30"/10,000RPM
- Akira Seiki Performa V4XP Mills 40" X 30" X 30"/10,000RPM )
- Fadal CNC Mill/50x20/ CNC 88 4th Axis Table
- Fadal CNC Mill/40x20/VMC4020HT 4th Axis Table
- Fadal CNC Mill/40x20/VMC4020HT 4th Axis Table
- Fadal CNC Mill/40x20/VMC4020HT 4th Axis Table
- Fadal CNC Mill/40x20/VMC4020HT 4th Axis Table

- Fadal CNC Mill/40x20/VMC4020HT 4th Axis Table
- Fadal CNC Mill/40x20/VMC4020HT 4th Axis Table
- Fadal CNC Mill/30x16/VMC3016 4th Axis/ 10,000 RPM
- Fadal CNC Mill/30x16/VMC3016 4th Axis/ 10,000 RPM
- Fadal CNC Mill/30x16/VMC3016 4th Axis/ 10,000 RPM
- Fadal VMC 40 CNC 88 Machine Center
- Bridgeport Vertical Mills (7)
- Drill Presses (5)
- Sun Max 8" Surface Grinder
- Tool Grinder

### ***Turning - up to 100 inches long***

Cincinnati Milacron Cinturn 15U Lathe 25" Chuck, 100" between Centers  
Amera-Seike t4L CNC lathe w 10"chuck, 12 station turret, tailstock  
Hitachi-Seiki CNC Turning Center 7.9" Swing 15.7" Z  
8 HP Victor 1660 Lathe

### ***Sheet Metal Punching***

CNC Wiedeman Centrum 1000 Turret Punching Fabricator  
Super 30/30 Strippit Fabricator  
110 Ton Johnson Punch Press  
Kick Press

### ***Forming***

10' 90 Ton Cincinnati Hydraulic Press Brake with Hurco 3 Axis CNC Backgauge  
4' 30 Ton Accurpress Hydro-Mechanical Press Brake with 2 Axis CNC Backgauge  
Hand rollers (4)  
Hand brake

### ***Cutting***

Amada 3/16" X 10" Shear with Digital Control  
GROB 4V-36" Band Saw with Welder  
Amada Corner Notcher CSW220  
Diacro 2' 1/16 Gauge Hand Shear  
Abrasive Cut Off Saw

### ***Welding***

Miller Synchronwave 250 amp Heli Arc Welder  
Miller VIS-ARC 300 amp Heli Arc Welder  
Hallowell Model 460 Synchronous Control Spot Welder (Titanium)  
Nelson Stud Welding 2000 Spot Welder (Titanium)

### ***Inspection***

5 Starrett Computer-Assited CMMs (PC Dimms and Apogee)  
1 Starrett Optical Comparator  
Hardness and Conductivity Testing Capabilities  
Full complement of inspection tools and  
gauges, periodically calibrated, and traceable  
to NIST.

### ***Assembly***

GPT Model 8000 CSA C-Style Pneumatic Squeezer 5 Ton  
ATS 114A Squeezer 1 Ton  
ATS 114C Squeezer 1.5 Ton  
18" Deep C Style Compression Riveter  
Hand C Style Compression Riveter  
35 Ton Hydraulic Press  
Helium Pressure Tester w/leak Detector  
Industrial Grieve Air Oven w/charts

### ***Deburr***

Complete deburring equipment including Disc Sander, Pedestal Grinders,  
Sand Blast Cabinet, Tumbler, and Timesaver