



# Machining Capabilities

*Metal Samples • Alabama Laser  
Alabama Laser Technologies • Alabama R&D*

## *Laser Services*

**More than 40 laser systems including:**

**CO2 lasers -- Nd:YAG lasers -- Fiber lasers -- Direct diode lasers -- Fiber-delivered, direct diode lasers**

- Laser Sheet Cutting -- 10 systems - sheets up to 6' x 11' - cut up to 3/4" on CS, 3/8" on SS & aluminum
- 5-Axis Laser -- 3-D capabilities
- Laser Tube Cutting -- 3 systems -- 8.625" diameter on round tubing, 8" side diameter on square tubing
- Laser Welding
- Laser Cladding / Metal Deposition
- Laser Etching / Marking
- Laser Heat Treating / Hardening

***Services — Systems — Research — Process Development***

## *Electronic Discharge Machining (EDM)*

- Wire EDM - 8 machines
- RAM/Sinker EDM - 2 machines
- Hole Popper EDM - 2 machines

***Tolerances: ± .0002 (wire EDM) -- Up to 20" thickness -- Intricate shapes and sizes***

## *Press Brakes / Metal Folders*

- Press Brakes - 6 machines (capacity up to 220 tons and lengths up to 14 feet)
- Robotic Press Brake - parts formed completely automated
- Metal Folders - 3 systems

## *Tube Machining Capabilities*

- Tube Cutting
- Tube Swaging
- Tube Bending
- Tube Polishing

## *Welding - Robotic & Conventional*

- Robotic Welding - 4 systems
- Multiple Conventional Welding Stations (MIG & TIG)

## *Water Jet / Precision Plasma Cutting System*

- Water Jet Cutting - thicknesses up to 4" in steel and 5" in aluminum
- Precision Plasma Cutting - thicknesses up to 2" in steel and 1.5" in aluminum  
(Handles material up to 6' wide by 12' long)

## *Punch Presses*

- CNC Punch Presses - punch up to 5/16" on mild steels (4 systems)
- Automated Punch Press
- Laserpress - Laser & Punch Press Combination
- Automatic Sheet Loading Tower - automated material handling for punch presses

## *CNC Milling*

Horizontal & Vertical Mills

- 4-Axis CNC Mills - 7 machines -- including 30" horizontal milling center
- 3-Axis CNC Mills - 5 machines

## *CNC Lathes*

- 12 CNC Lathes
- Additional manual lathes

## *CNC Screw Machines*

- Swiss Screw Machines - 4 machines with automatic bar feeders

## *Grinding*

- Disc Grinders
- Surface Grinders
- Thread Grinders
- Cylindrical Grinders
- Centerless Grinders

## *Hones - Drills - Saws*

- Honing Machines
- Gundrilling Machine
- Spindle Drills
- Vertical & Horizontal Band Saws
- High-Speed Abrasive Band Saw
- Automatic Downfeed Cold Saws

## *Powder Coating / Painting*

- Powder Coating Line - automated transfer line thru washing booth, spray booth, and drying chamber
- Painting Booths - multiple booths, including large automotive-style booth

## *Finishing Machines*

- Vibro Deburr Systems
- Flat Deburring Machines -- wide-belt -- can also be used to put polish or grain finishes on material
- Blast Finishing Tumbler

## *Other Miscellaneous*

- Parts Straightener
- Stenciling
- Shearing

## *Engineering / Design / Research*

- Engineering Staff (Metallurgical, Electrical, Mechanical, Aeronautical)
- CAD / Design Department
- Metallurgical Laboratory -- failure analysis, micro structural analysis and hardness measurement  
Metallurgical Microscope, Micro Hardness Testing Machine
- Research Labs

## *Quality Assurance Inspection Equipment*

- Zeiss Precision Inspection Systems
- Nikon Vision System (54 to 250X mag power)
- Portable Coordinate Measuring Arm
- Virtek Laser QC System:
  - flat dimensional inspection
  - reverse engineering capabilities
- CNC 3-axis Coordinate Measurement Machine
- "Pocket-Surf" Profilometers
- Optical Comparator - CNC 30"
- Bore Gages
- Micrometers, surface plates, etc.



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