# Micron Laser Technology

Subcontract Laser Services and Product Manufacturing

AS9100C / ISO9001:2008 Certified

Experience and Capabilities

▸ 18,000 sq. ft. facility with 20 laser drilling systems solely dedicated to microvia drilling, laser material processing, micro-machining, prototyping, and manufacturing solutions.

▸ 18+ years of laser process engineering for the **PCB**, **Aerospace**, **Defense**, and **Medical** industries in following applications:

❑ **Close Tolerance Routing**	❑ **Laser Welding**
❑ **Laser Marking and Engraving**	❑ **IPC HDI Microvia Drilling**
❑ **Stencils and Shadow Masks**	❑ **Control Depth Cavity Formation**
❑ **Prototypes**	❑ **Selective Coatings/Film Removal**

▸ 10 engineers/technologists skilled in laser processing of just about every known dielectric and reinforcement, metal, and plastic.

▸ Hybrid laser systems that incorporate up to 4 laser heads per system in both UV and IR wavelengths delivered in both fixed-beam (CNC), fiber, and galvos.

▸ Customized laser software that provides more energy control than standard OEM laser systems on the market capable of tolerances below 10um and feature sizes below 20um.

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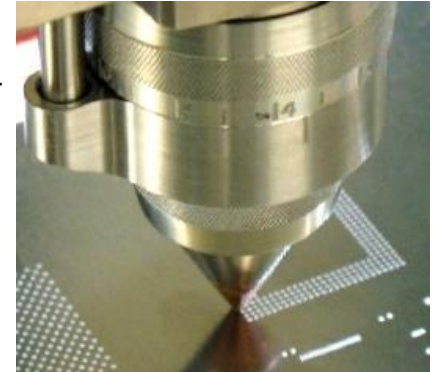
Parts Manufacturing

Turn a machining challenge into a manufacturing advantage. Laser advantages over traditional machining include:

- Non-contact stress
- Smaller Feature Sizes
- Minimal Heat Affect

- No tooling costs
- Leverage Small Lot Sizes
- Reduced Material Waste

- Closer Tolerances
- No Dies/Tooling Wear
- Reduced Finishing Steps

Stainless Steel (.001" features)

Titanium

Inconel

Plastics: Laser machining thermoset plastics and thermoplastics are matched in edge quality, speed, flexibility, and low surface stress. Wavelength selection and power control produce large aspect ratios of 10 to 1 (feature size to material thickness) and reduced heat affected zones (melt and discoloration.


Metals: UV, CO_2, and Fiber lasers are ideal for cutting perfect parts from many types of sheet metal. Laser cutting greatly simplifies the design and manufacturing process to produces intricate detail and very sharp corners.

Cobalt	Nickel	Gold
Hastelloy	Brass	Titanium
	Nitinol	Platinum
		Carbon Steel
		Stainless Steel
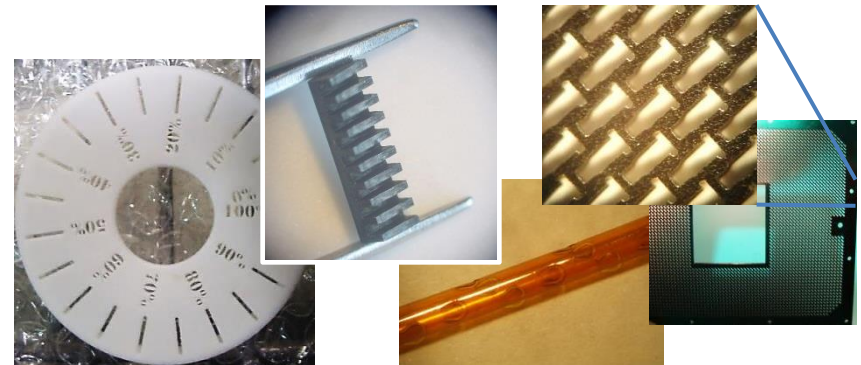
Thermoset and Thermoplastic

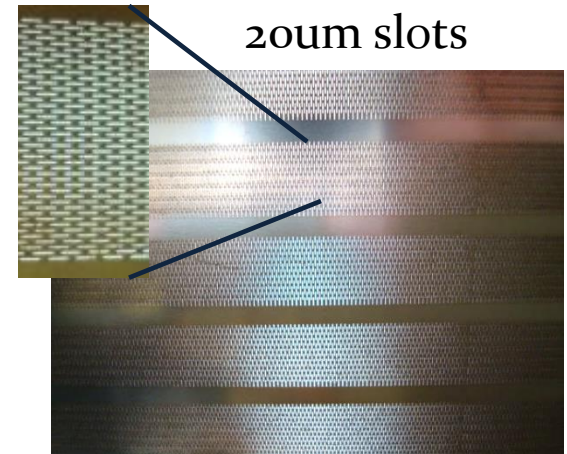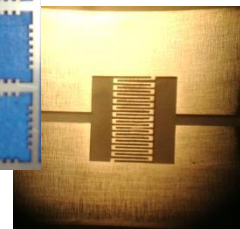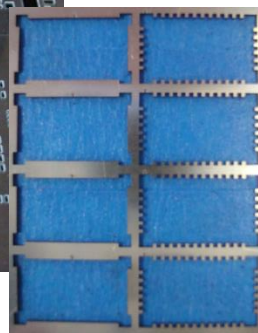|		
Polyimide	Cirlex	Polycarbonate
FR4/G10	Rubber Based	ABS*
PEEK	Acrylic	Polypropylene

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Stencils and Prototypes
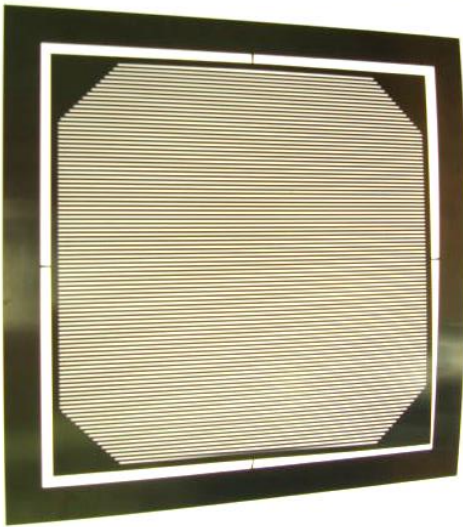
Stainless and Polyimide Stencil Applications:

- ❑ Flux
- ❑ Solder Paste
- ❑ Rework
- ❑ Photomasks / Shadow Masks

20um slots

Mylar

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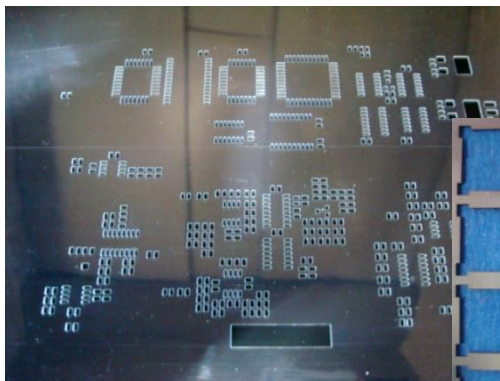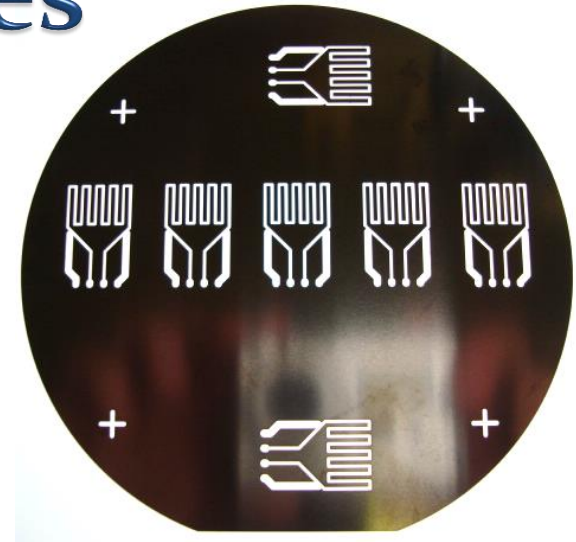
Part Marking and Engraving

- Annealed Surface Marks
- Serialization
- Semi and Mil Standards
- Engraving or Scribing

Anodized Removal Mark

Metal Markings

Precious Metals

Aluminum

Stainless

PFA

Plastic Markings

Silicon or Quartz Wafers

00001
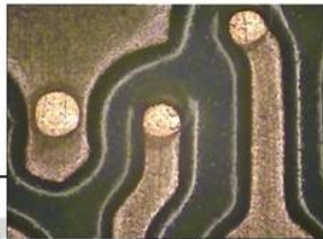
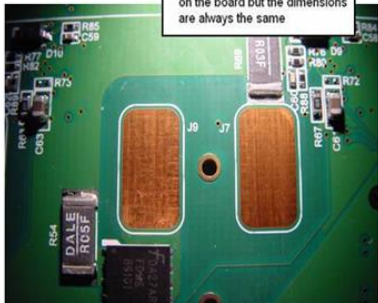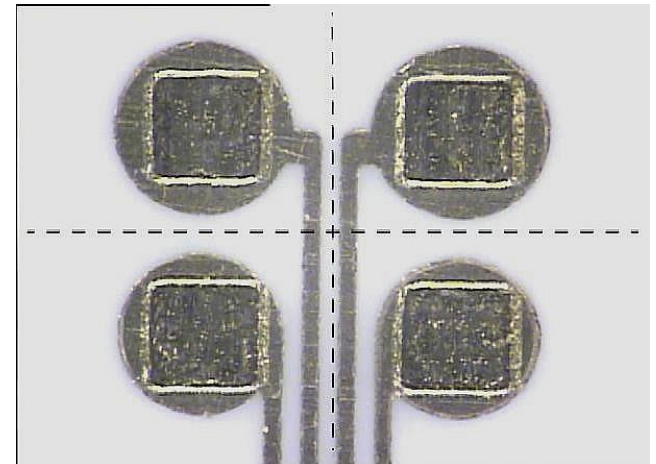
Delrin

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Selective Material Removal
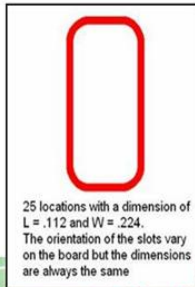
Soldermask Removal

Parylene Ablation

25 locations with a dimension of L = .112 and W = .224.
The orientation of the slots vary on the board but the dimensions are always the same

.009 Dia Copper Pad

.0071 Edge to Edge

.007 Dia Soldermask Opening

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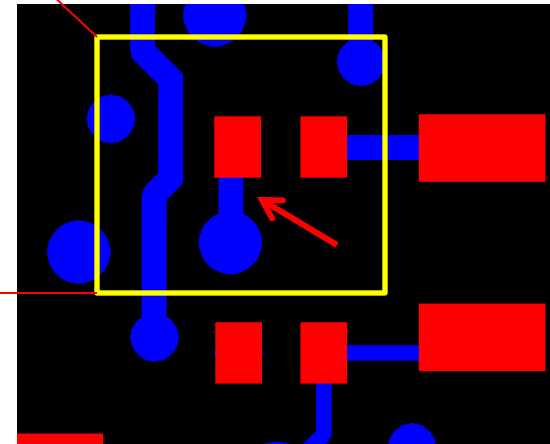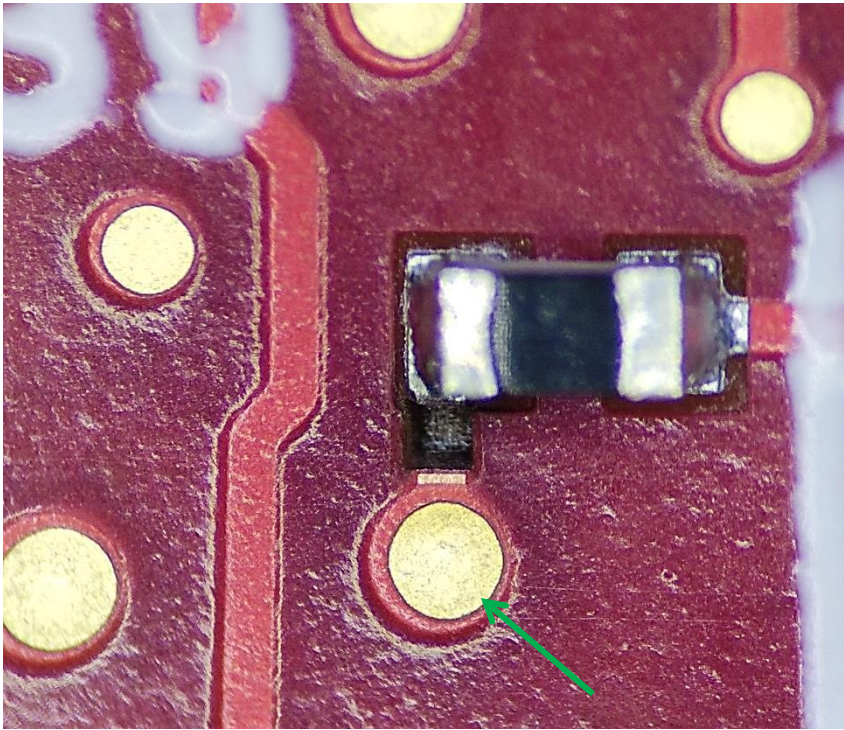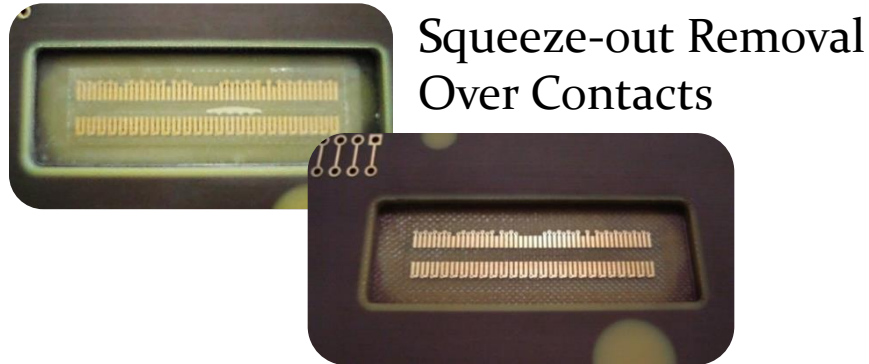
PCB Circuit Rework

Laser circuit repair can:

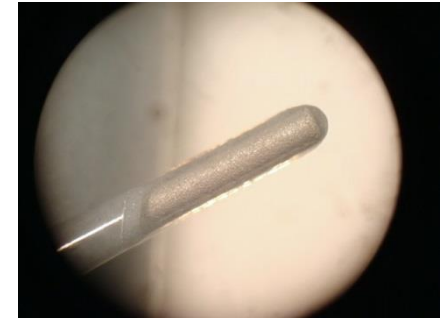- Severing a trace on the top layer to isolate a pad.

- Inner layer exposure to allow connectivity or repair.

- Design changes eliminating connections and isolating nets.

- Ability to rework bare boards and loaded boards

MISCELLANEOUS PCB REWORK

Squeeze-out Removal Over Contacts

Halar Removal

FEP Removal in Cavity
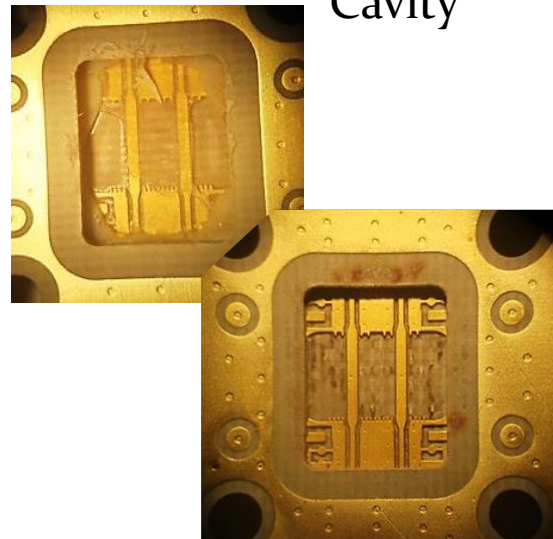
Kapton Removal

Soldermask Removal Leaving Silk Screen

-25-N8046-P1

35um Pad Exposure

Control Depth Skiving

Controlled Material Removal

1/2 oz		
0.0056	Rogers	RT6202
0.0016	DuPont	FEP

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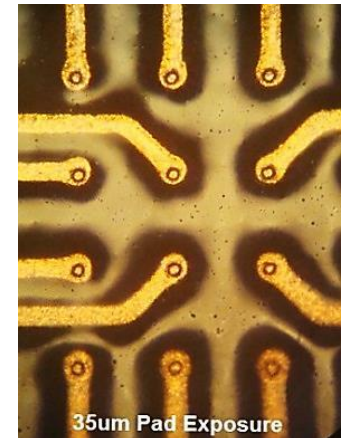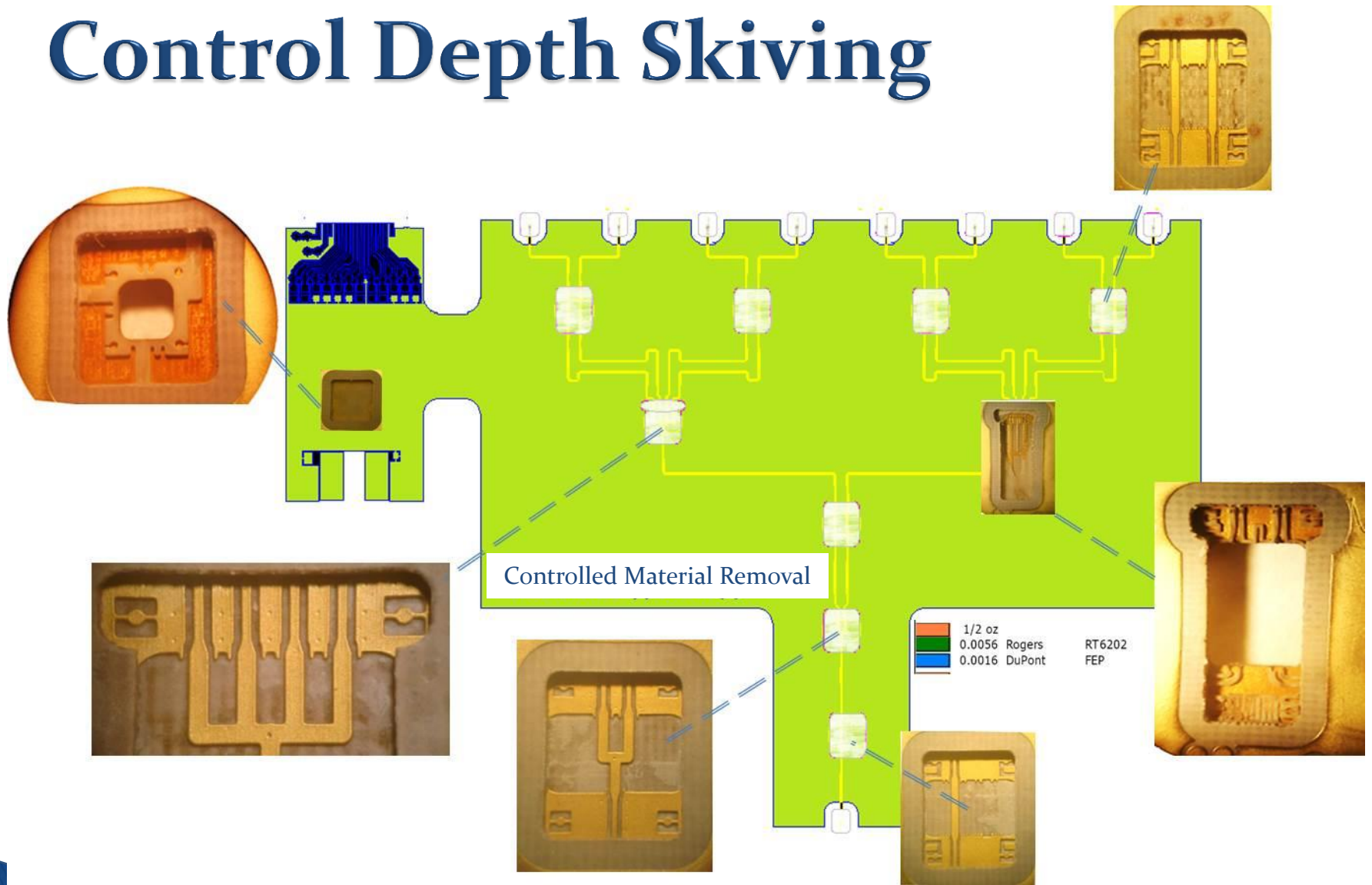
Quality

- ITAR Registered and Compliant.

- **AS9100C / ISO9001:2008 Certified** through QMI-SAI Global.

- AQL Level Inspection Plan for many applications utilizing Micro-Vu's Excel Multi-sensor Measuring Centers with micron accuracy.

- Multi-level quality sign-off per lot including programming, setup, first article, lot run, and final inspection.

- Calibration and maintenance programs.

- Managed, off-site backup of all data.

**High Speed and Accuracy
Advanced Zoom and Lighting
Integrated Vision, Touch, and Laser
Measure Multiple Parts and Extra Large Parts**

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