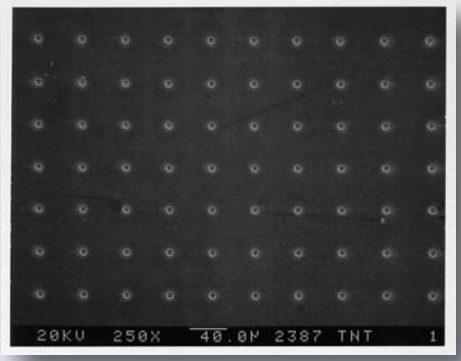
TAMARACK
scientific co., inc.

1 micron nozzel array in polyimide



LASER ABLATION
micro-machining

Applications:

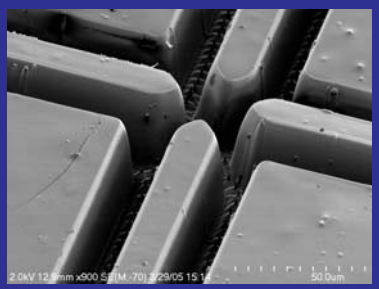
- Plastic Electronics
  - RFID
  - DISPLAYS
- Flexible Circuits
- Medical Devices
  - BioSensors
  - Microfluidics
  - Aerosol delivery nozzles

Micro-machining

- Polymers
- Sputtered metals < 150 nm
- Dielectrics
- Epoxy
- Semiconductor insulating layer

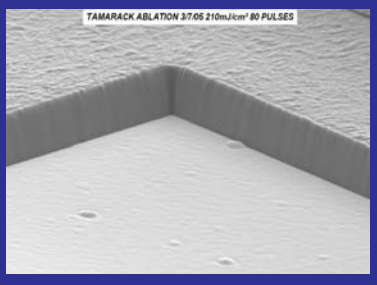
- Single step alternative
- Highly accurate pattern placement
- Best for very high feature density in reduced areas
- Selective material removal
- Complex shapes are accurately reproduced

laser ablated mylar film



4 micron lines - gold on flex

25 micron polyimide on stainless steel

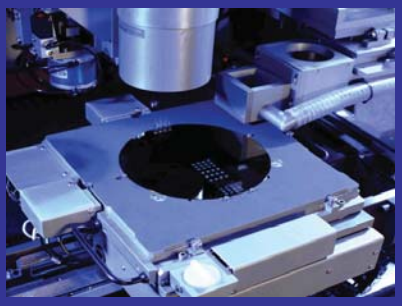


LASER ABLATION
micro-machining

Technology

Reel to Reel

Roll to Roll

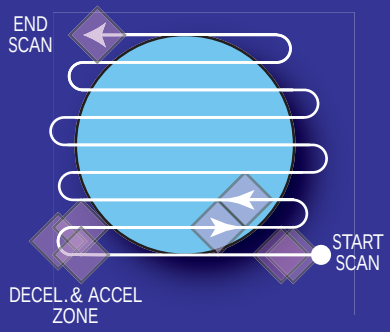


Step & Repeat

Excimer Lasers

308nm
or
248nm

Scanning
Projection
(1 : 1)



Non-Thermal Material Removal: minimal heat affected zone;
removal is due to direct bond breaking, NOT melting and evaporation!

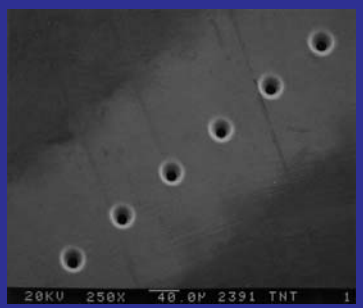
Mask Based Ablation: Allows patterning of complex geometries and features down to a few microns.

Precise Ablation Depth Control: Depth of ablation can be controlled..

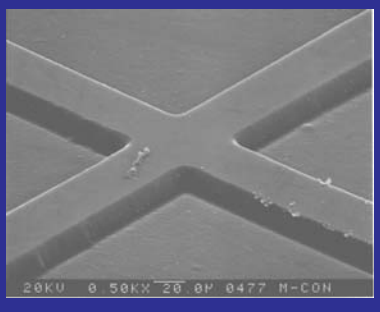
Selective Material Removal: Ability to stop on single layers of material.

- Pattern thin metals on various types of substrates (plastic,glass, Si, etc…)
- Ablate polyimide down to copper pads without damage to copper.

10 micron nozzel in polyimide



crossing ribs in polyimide



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