

Advanced material processes and  
die design  
DSL 732

Topic 9

Computer controlled cutting

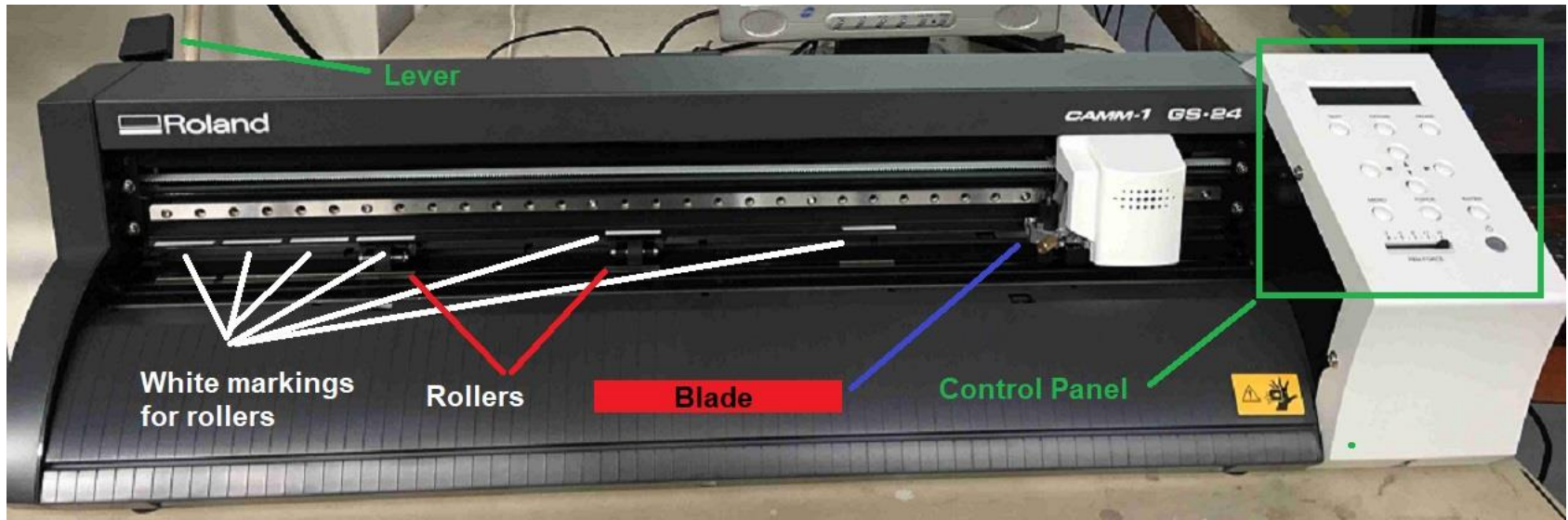
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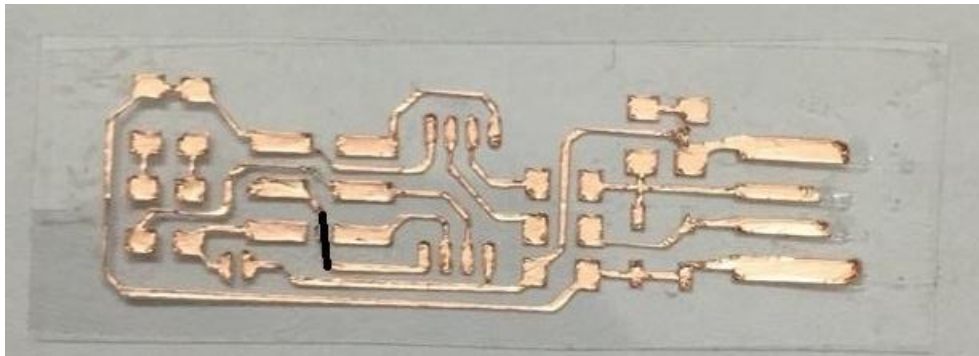
# Computer controlled cutting methods

- Cutting plotter
- Laser cutting
- Waterjet cutting, cut anything, supersonic jet of water with garnet. [Demo](#)
- Plasma cutting, can cut metal, messier.
- Hot wire cutting for foam
- Wire EDM (electric discharge machining)
- [Fab academy](#) [Video](#)

# Cutting plotter



Roland CAMM-1 GS-24 desktop cutter



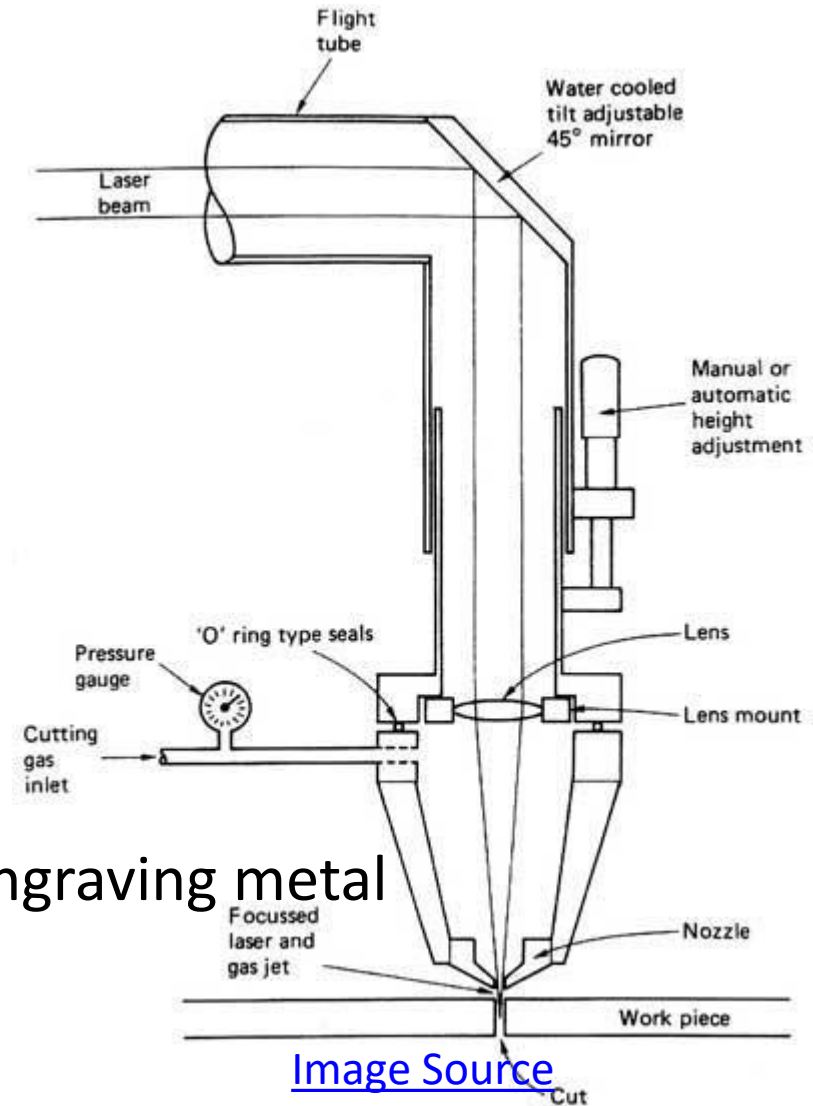
Flexible PCB





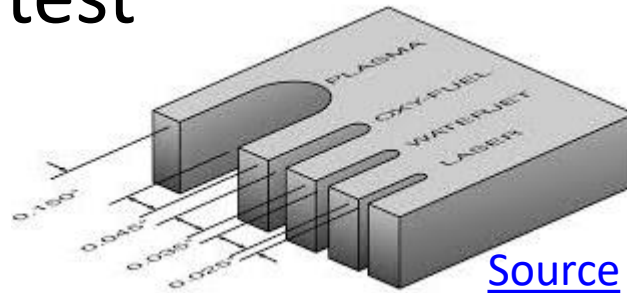
# Laser cutting

- Work horse in Labs
- Using laser to cut material through optics
- Motion control + CNC + g-code
- Engraving/Cutting, Raster/Vector
- Speed, Power settings for different materials
- CO<sub>2</sub> 60 W laser – wood, acrylic, Cardboard.
- [Fiber 3000 W laser](#) for cutting/engraving metal



# Characterization of laser cutter

- Details
- Speed power test
- Raster test
- Kerf
- Kerf =  $f(\text{speed, power, thickness})$
- Kerf test
- Press-fit comb test



For material thickness of 2 mm

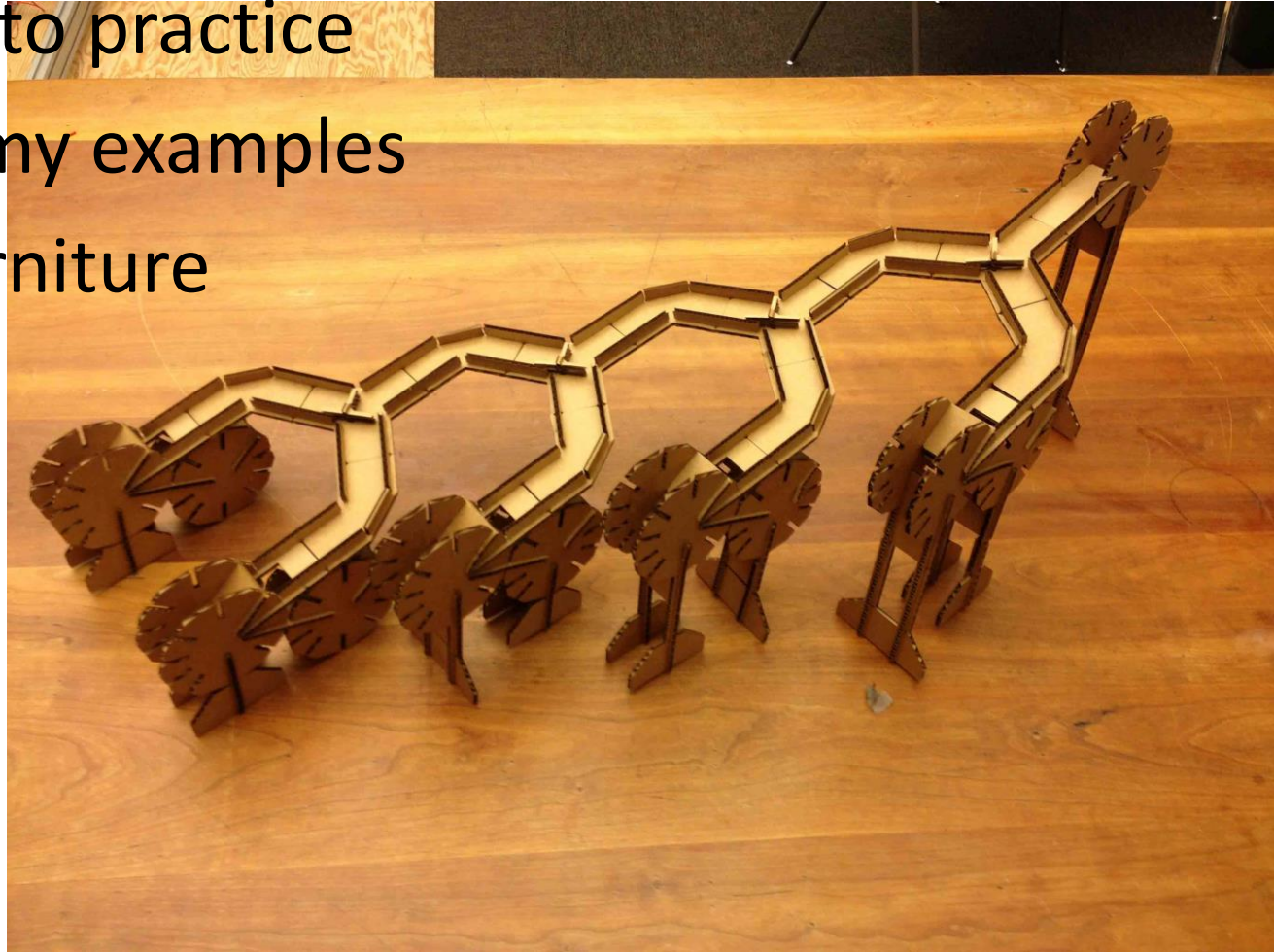
# Pressfit kit possibilities

- Cardboard to practice
- Fab Academy examples
- Press fit furniture

[Example 1](#)

[Example 2](#)

- Parametric modeling



[source](#)