User Guide: Epilog Mini Laser Cutter

What is it?

The Helix laser system is a versatile CO2 laser machine that can be used to engrave and cut a variety of woods, glass, and metal.

What can I do?

It can be used to create signs, engraved cutting boards, customize coasters, engrave glassware, and more. Please review the Approved Material list below when preparing your project.

- Check out some project ideas (with sample files) on Epilog's website
- Get project inspiration on Pinterest
- Instructables website has resources for Laser Cutting Basics, Laser Cutting Classes, and Laser Cutting Projects

What does The Studio provide?

- Epilog Mini 24 60W Laser Cutter
- Rotary Attachment for glasses and circular items
- A laptop with access to:
  - CorelDraw
  - Inkscape
  - Paint.Net

Note: Your design should be prepared before your reservation. Inkscape is a free graphic design program that you can download and use at home. If you would like to use CorelDraw for your design, we recommend scheduling an appointment in the Studio just for designing. The Media Lab has an iMac with the full Adobe Creative Suite.

What do I need?

- Material to engrave or cut (see Approved Materials list)
  - Maximum of 20″ x 12″
- A digital design saved on a USB drive or cloud service
  - Maximum of 20″ x 12″
  - Raster engrave projects can use many file types: Word (.docx), JPG (or JPEG), PNG, PDF, SVG, DXF, TIFF, Photoshop, Illustrator, and more
  - Vector cuts require a vector design – the most common is SVG (.svg) created using Illustrator or Inkscape

There is **no cost** to use the machine. The library **does not sell** materials to use with the laser cutter. Always bring extra materials since laser settings are not standard for all materials.

What materials can I use?

Your material will depend on your project and if you plan to raster engrave the top layer or vector cut through the material. **All materials and designs must fit on the laser cutter's build plate of 20″ by 12″.** For raster engraving, your material can be up to 10″ thick. For vector cuts, the laser will only cut through up to 1/4″ thick materials depending on material density. It does not cut through glass or slate.

Approved materials:

Engrave/Cut:

- Natural Wood
    - Recommended woods include maple, cherry, alder, pine, basswood, and birch.
    - Plywood is acceptable, but contains glue and may not laser as well as solid wood
- Cardstock
- Chipboard
- Cork
- Cotton fabrics and denim
    - Cannot contain any plastic coating or polyester
- Magnetic sheets

Engrave only:

- Glass – both curved and flat.
  - Recommended glassware: pint glass, drinking glass, pub glass, most wine glasses, champagne flutes
- Metal
  - Anodized aluminum: laser vaporizes the anodization away
  - Painted/coated metals: laser vaporizes the paint away
- Ceramic tile
- Stone, marble, or granite
  - Gets a white "textured" look when engraved

Always bring extra material. The Studio is not a production facility. Most projects require testing and refining. Things don't always turn out on the first try.

We will **not** cut the following:

- Any and all material containing Chlorine
- Any wood that has been painted, stained, or sealed, otherwise non natural
- Acrylic plastics
- ABS, HDPE, or other types of plastics
- Carbon Fiber
- Epoxy and other resins
- Fiberglass or Printed circuit boards (FR4, G10, anything resin-based)
- Leather, pleather, or artificial leathers
- Mirrors and other reflective surfaces
- Polyvinyl shloride (PVC), Polyvinyl butyrale (PVB), and Vinyl (Sintra)
- Polycarbonate (PC, Lexan)

- PolyStyrene Foam (Styrofoam and foam core board)
- PolyPropylene Foam
- Polyurethane (including polyurethane sealants)

For safety concerns, if any material is questionable or unknown to staff, we will not attempt to cut it for any reason. The Studio staff reserve the right to refuse or stop projects with strong fumes or odors. If you have any questions on material, please contact staff before making your reservation.

Tips and Tricks

Glass Engraving

The laser cutter will only engrave glass and will not cut through glass. The glass engravings have a frosted look. Bolder and larger lettering is best. Thin, small script fonts are harder to see.

- Any bulbed or curved glass such as a stemless wine glasses or snifters are discouraged because they are difficult to load in the machine and results can vary.
- Crystal glassware retains heat making it harder to engrave and more likely to break in the machine.
- Colored glass can be engraved but coated or painted glass cannot. **Staff will need to scratch the glass to determine if the glass is colored or coated.**

Learn

- Watch videos
- Inkscape's Learning website includes written tutorials, video tutorials, and ebooks.
- Epiglog's Knowledge Base includes tips and helpful articles
- Enroll in Instructable's Laser Cutting Class.

Free Resources for Creating Designs

- Epilog's Sample Club has free sample files to download.
- Gravit is a free web-based or desktop vector program for creating graphics and vector designs.
- Inkscape is a free desktop vector program for creating graphics and vector designs.
- Pixlr is a free, web-based photo editing program.
- Thingiverse is a file sharing website for mostly 3D designs but also laser cut projects.
- TinkerCAD is a free, web-based application that creates SVG designs in addition to 3D designs.
- Vectr is a free, web-based vector program for creating graphics and vector designs.

Still have questions? Contact us at thestudio@parkridgelibrary.org