

# Laser Cutter Instructions

## For the Epilog Legend 36EXT Laser Cutters

### Important Information:

- To gain access to use the laser cutters, you must have completed an ITLL Building orientation tour and an ITLL laser cutter workshop. **Contact Kai Amey in ITLL 2B14 or at ameyexc@colorado.edu if you need to complete a laser cutter workshop.**
- If any material or settings produce a prolonged **flame** during cutting, **stop the machine immediately by pressing the “STOP” button** on the laser cutter panel, and keep the lid closed until all smoke has cleared. Either the material is unsafe for cutting or the power settings are too high. If you are unsure if your material is acceptable, ask for assistance.



Figure 1: Laser Cutter and Fan Exhaust Power Switch

### Machine Preparation:

1. Clean the lens with a cotton Q-tip and the lens cleaner in the small container on desk next to the computer monitors.
2. Turn on laser cutter and exhaust fan using the light switch marked: “Laser Cutter #1” or “Laser Cutter #2” as shown in Figure 1.
3. Prepare drawing in CorelDraw or Solidworks
  - a. SolidWorks:
    - Save drawing as a “.dxf” file format, ensuring that the scale has been set to 1:1
    - Import drawing into CorelDraw using File ->Import, and clicking on the worksheet where you want to place the upper left corner of your drawing.  
NOTE: Any markings that appear in CorelDraw will be cut or engraved!
  - b. CorelDraw:
    - Use CorelDraw to create a drawing or import a graphics file (such as .DXF, .JPG, .TIF, .BMP, etc.)
    - Use the line width of drawing to define a cut (vector) versus engraving (raster). To do this, right click on a line and select Object Properties. This is shown in Figure 2.
    - A width of “Hairline” will be interpreted as a cut (vector), and any other width will be interpreted as an engraving (raster).
4. Place material in laser cutter.
  - a. Top left of CorelDraw sketch correlates to top left of the laser cutter work area
  - b. Tape material down to prevent movement.

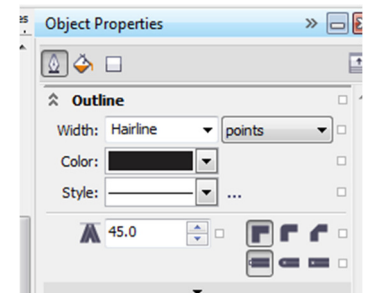


Figure 2: Object Properties

- c. For information on acceptable materials, see the “Material Guidelines”, located on the desktop of the laser cutter computer or at H:\ITLL Documentation\ProtoShack\LaserCutter.
5. Autofocus the laser, while material is under focusing arm.
    - a. On the laser cutter control panel (as seen in Figure 3), press focus. This should move the laserhead away from the corner, and the message “Auto Focus Laser? GO” should appear.
    - b. **Ensure material is under focusing arm!**
    - c. Press go.



Figure 3: Laser Cutter Control Panel

6. Send job to printer
  - a. Select File>Print, the printer name should be “Epilog Engraver Win32”.
  - b. Click “Properties” to define the parameters, as shown in Figure 4.
    - First define the job type as a **Vector**-only job (cut), a **Raster**-only job (engrave), or a **Combined** job. In order to reduce errors in your project, it is highly suggested that you complete the raster-only portion of your job first and then run the vector-only portion.
    - Define the power and speed. See the “Material Guidelines”, located on the desktop or at H:\ITLL Documentation\ProtoShack\LaserCutter. For thinner or more delicate materials, use a higher speed and lower power. For thicker or harder materials, use a lower speed and higher power.
  - c. Click “print”.

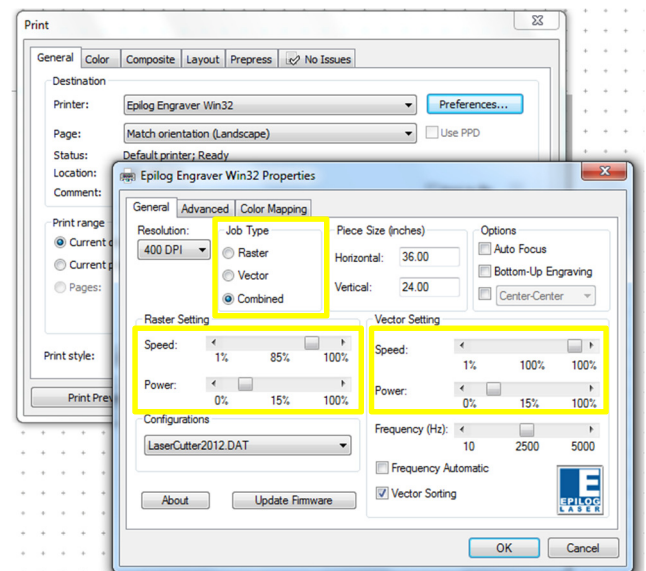


Figure 4: Print Preferences Screen

7. Print Job
  - a. The file name should be showing in the control panel window. Press “Go” on the laser cutter control panel.
  - b. If there is any prolonged (2+ seconds) fire in the laser cutter, press “Stop” quickly.
  - c. After the job completes, leave the lid closed for 30+ seconds to allow all vapors to be drawn away.
  - d. Repeat the job if needed, do not move part until you are sure that part has been cut all the way through or the raster looks satisfactory.
8. Remove all material (including tape) from laser cutter and clean the liquid residue, burn marks, etc. from the platform using paper towels and Windex.
9. Log off of the computer when finished.
10. Turn off laser cutter and vent using light switch on wall, shown in Figure 1. Note that the vent will remain on for 5 minutes after turning light switch off.

## FAQ/Troubleshooting

- I want my line to cut (vector) but it continues to engrave (raster), or vice versa. What is the problem?
  - The line is not the correct width. A width of “Hairline” will be interpreted as a cut (vector), and any other width will be interpreted as an engraving (raster). See step 2b for more information.
- The box which shows the size of the laser cutter table does not show up when I open my CorelDraw drawing. What can I do?
  - Open a new file in CorelDraw on one of the two computers in the laser cutter room. Copy drawing from old file to new file. See Kai Amey if this does not work.
- How do I get access to the Laser Cutters?
  - You must complete a general ITLL orientation as well as a laser cutter workshop. Contact Kai Amey in ITLL 2B14 or at ameyexc@colorado.edu if you need to complete a laser cutter workshop. See Victoria at the ITLL front desk for more information on a general ITLL orientation.
- When can I use the laser cutters?
  - Any time ITLL is open, ask the tech staff to open room at night.
- Is priority given to certain people?
  - Yes, priority is given to GEEN 1400 Students
- Is material provided?
  - No, but scrap is available in scrap bin, located below the laser cutters.
- What is the maximum size material I can cut?
  - 24 inches wide, 36 inches long, ½ inch thick.
- What material can I use in the laser cutters?
  - See *H:\ITLL Documentation\ProtoShack\LaserCutter\Material Guidelines.xlsx*.
  - Prohibited: Polycarbonates, PVC, metals, composites, glass, and reflective material
  - Ask Kai Amey if unsure.