Standard Operating Procedure for the FusionSeries Epilog CO_2 Laser Engraver
Version: 5 January 2023

General Information and Precautions:

1. Vector Graphics software must be used to create drawings for use with the CO_2 laser engraver. Vector Graphics drawings are scalable; each object has explicit dimensions. Software options include: Adobe Illustrator (not free); AutoCAD (free with edu email); CorelDraw (not free); and Inkscape (free). Drawings must be imported into CorelDRAW on the CO_2 laser computer, and then exported to the Epilog software. CorelDRAW can open/import the following filetypes: CDR; DWG; DXF; AI; EPS; PNG; BMP; PSD; and SVG … among others.
2. The laser has two basic operating modes: Vector and Raster. In Vector mode, the laser is applied constantly, and the optics head is moved along an X-Y path. This mode is required for cutting through materials. In Raster mode, the laser is pulsed as the optics head is swept across the work from left to right, producing an image from a drawing. This mode is required for engraving materials from drawings with solid or grayscale objects. Vector mode can also be used to engrave non-dimensional lines into the surface of a material.

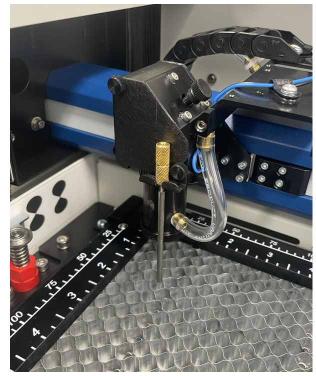
DO NOT cut or engrave PVC or vinyl using this instrument.
Heating these materials produces toxic and corrosive chemicals that will damage the tool and harm you!

General Procedure:

1. **Power ON** the laser using the rocker switch on the right side of the tool.
2. **Log in**. CorelDRAW will start, and may prompt you to log in to an account. If so, select "I already have an account", enter a fake email and password, and select Log In. The prompt will return, but with an option to skip this step. **CorelDRAW** will then automatically open**. NOTE:** The default page and color palette settings are pre-set for the engraver.
3. Draw, open, or import (see supported filetypes above) a design to be engraved.
    a. For vector engraving or cutting, all objects must be drawn with "**Hairline**" line widths. All other line widths will result in Raster engraving. The default should be set to Hairline.
    b. The laser allows for up to eight color-defined power, speed and PPI settings per drawing. <u>*One must use the colors in the color palette on the right side of the screen to apply these different settings.*</u>

4. Once your drawing is ready, press **Control + P** or select File → Print. This will bring up the Print dialogue box. Press print again. The Epilog dashboard will open.
5. Under **PROCESSES**, alter the frequency, power, and speed for your material. If your drawing had objects drawn in different colors (see step 3.b above), you can adjust these settings for each color. Refer to the Material Settings chart near the engraver for optimized settings for engraving and cutting different materials. vectoring, frequency should always be set to 100%.

5. Drag the design to the top left corner of the grid using the measurement lines to properly align.
6. Press **PRINT** or **Control + P** to send your job to the device.
    a. Verify that your print job is queued in the laser cutter.
    b. Place your material in the top left corner. And align it with the design using the epilogue dashboard camera and the measurement lines, which correspond to the measurement lines in the epilogue dashboard.
    c. To correct the z-axis setting, use the drop pin located along the inside of the engraver on the left edge. Place the drop pin into the placeholder and press the icon on the Fusion Edge Pro Engraver. Use the joystick or the arrows to raise or lower the plane. The bottom of the drop pin should be slightly hovering above your material.
    d. Remove the pin, select your design, and close the lid.
    e. Press **PRINT** again to send the new position to the printer and press the **Start** button.
    f. Press the **Pause** button to stop the program in mid-run.



7. Once your job has finished, remove your material, close the lid, and power off the laser engraver.