ESR Laser Cutting/Folding Guide and First Time use

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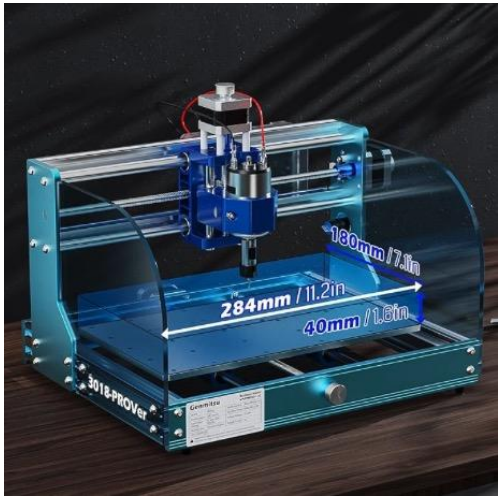
Materials

Genmitstu CFL55P Compressed Spot Fixed Focus Laser Module

-5.5W diode laser.

-Wavelength 445nm



Genmitsu 3018-PROVer V2 CNC Router Machine

LaserGRBL Software

Fusion360 CAD Software

Additional Downloads Required

Download the following files at https://github.com/mrodr324/Laser-Downloads

Genimitsu Tool Library

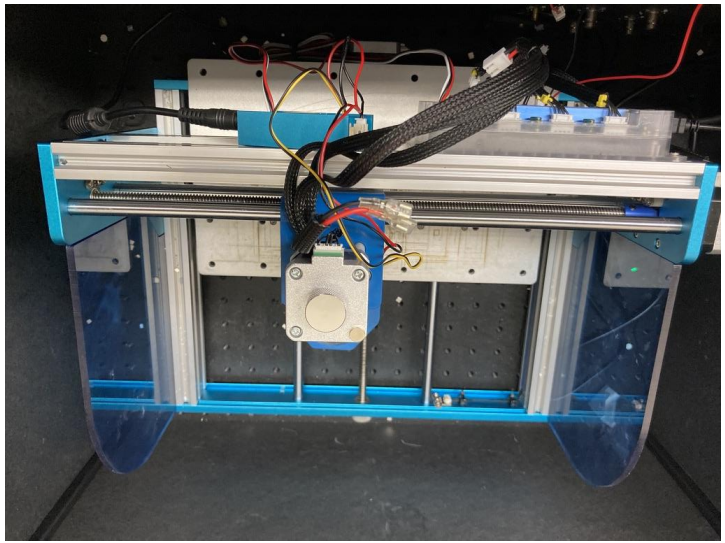
- Genmitsu.tools

LaserGRBL/Fusion360 Post Process Configuration

- grbl Laser.cps

Set Up

Laser component attached to CNC Machine, and placed in a dark box for safety.

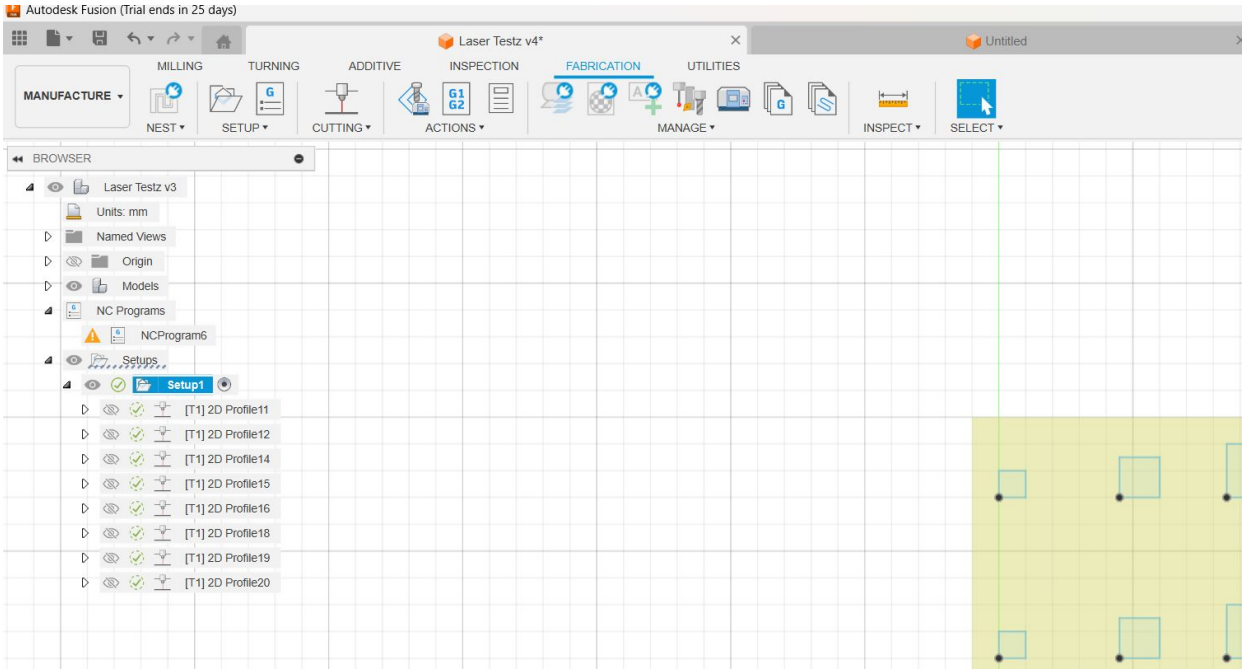


Settings on Fusion360

Make a Design in Fusion360.

After design is finished, go to the MANUFACTURE tab.

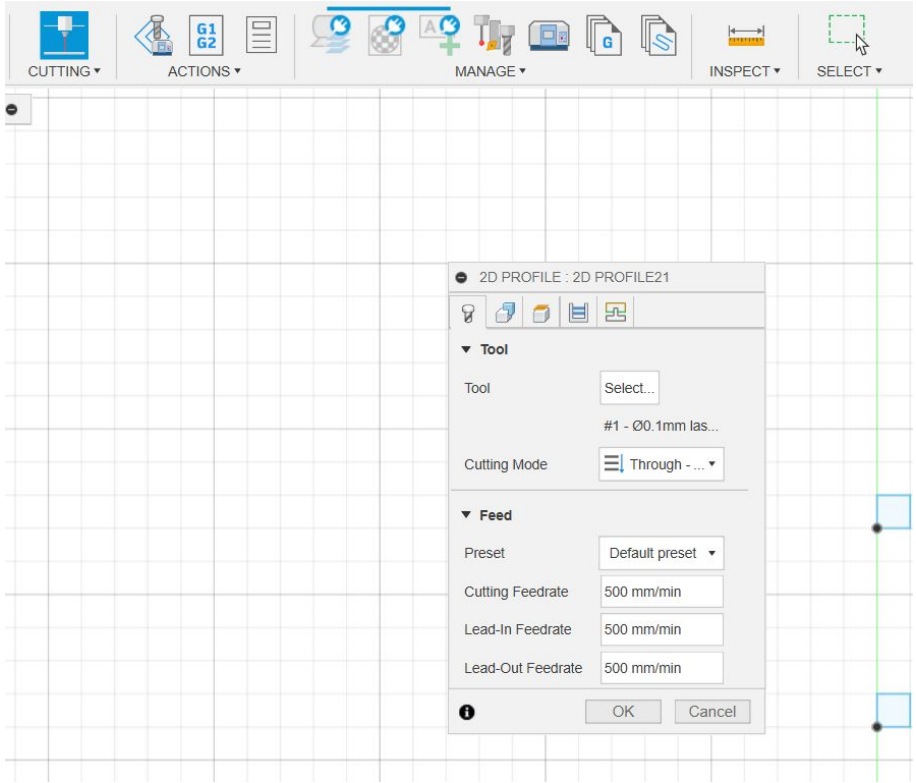
Select CUTTING.



Creating Cuts on Fusion360

Select the correct Tool.
(See next slide for first time use)

In Cutting Mode, select Through (High Quality).

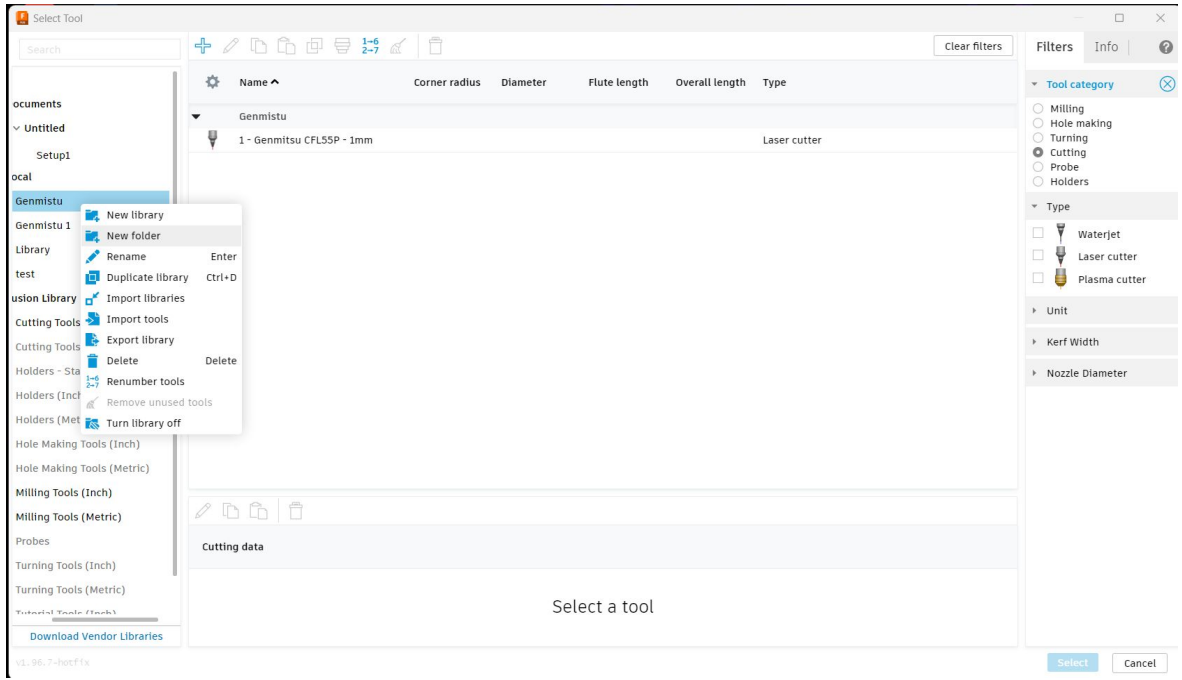


Settings on Fusion360

If setting up for the first time.

Right click in local and import libraries.

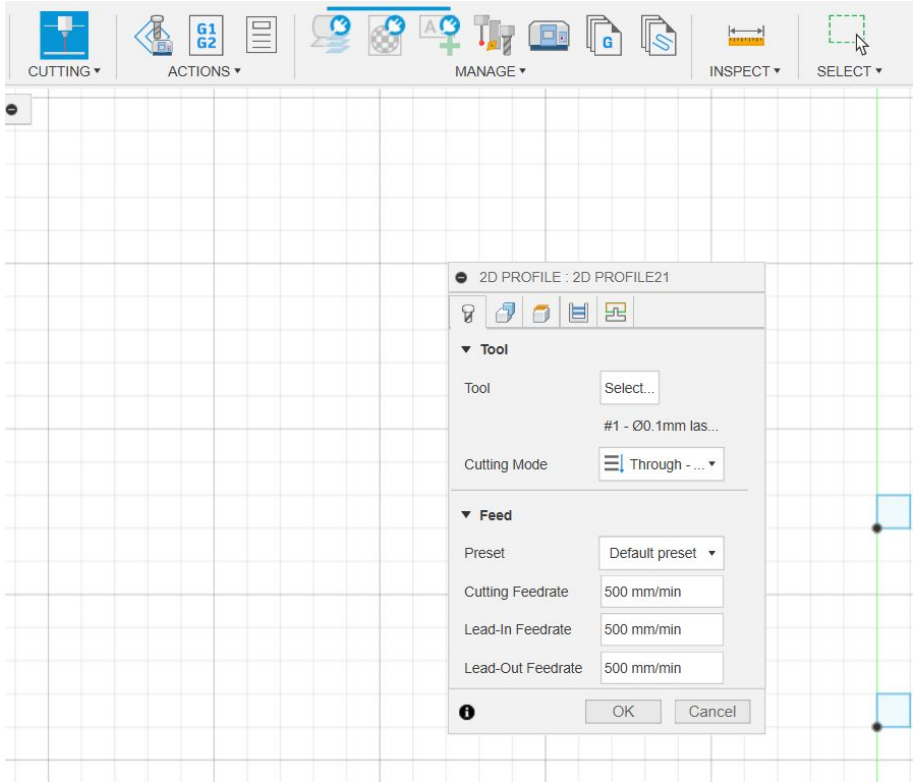
Select Genimitsu.tools that was downloaded.



Creating folds on Fusion360

If there is an area you would like to create a fold.

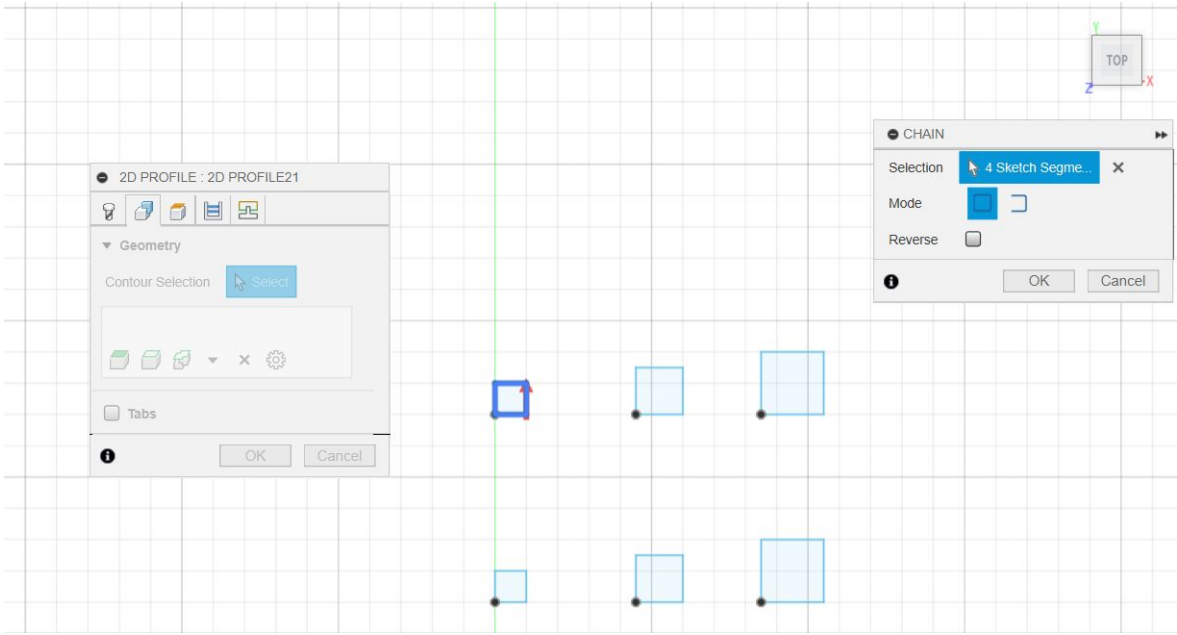
In Cutting Mode, select Etch, then select the parts you plan to fold.



Updated Settings on Fusion360

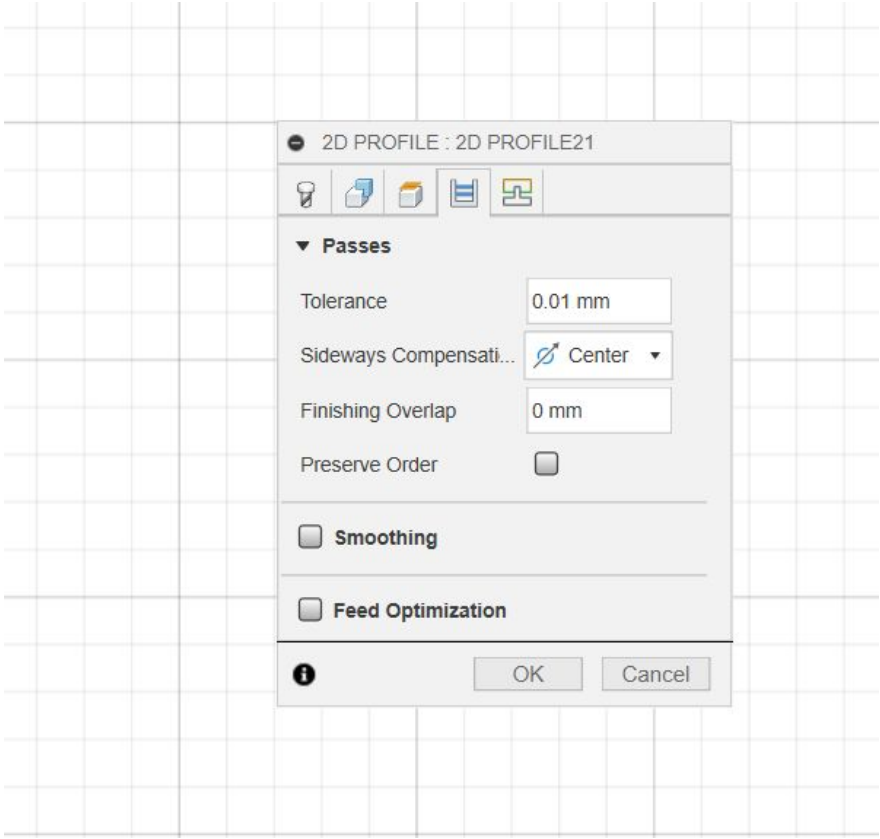
In the Geometry Tab select Chain and mark the selection on your design.

You may need to change the mode to open chain, depending on the line design.



Settings on Fusion360

Change the Sideways Compensation to Center.

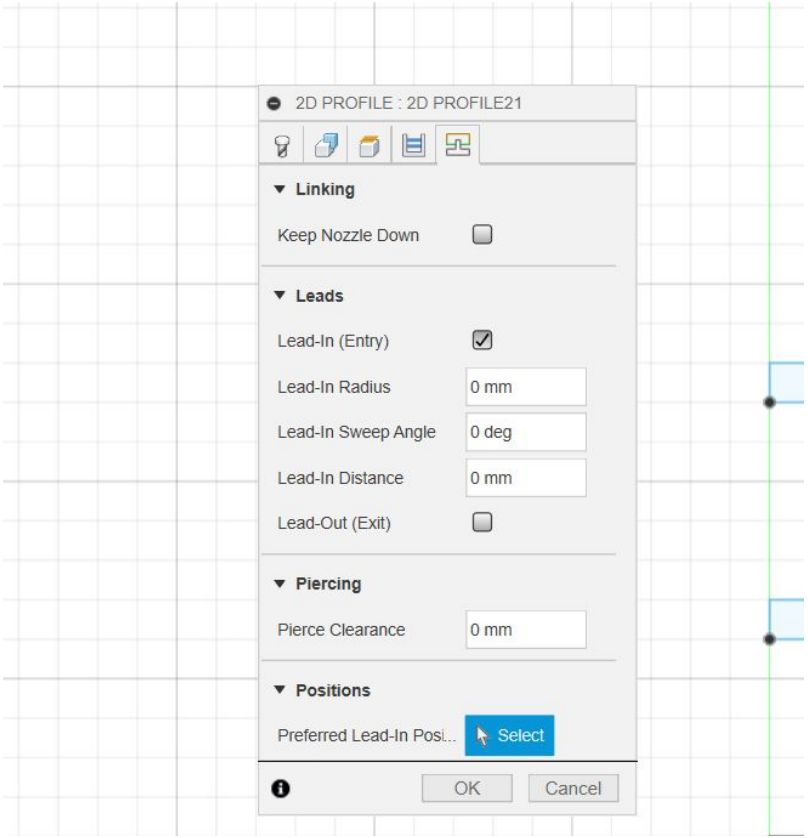


Settings on Fusion360

Check mark the Lean-In only and change

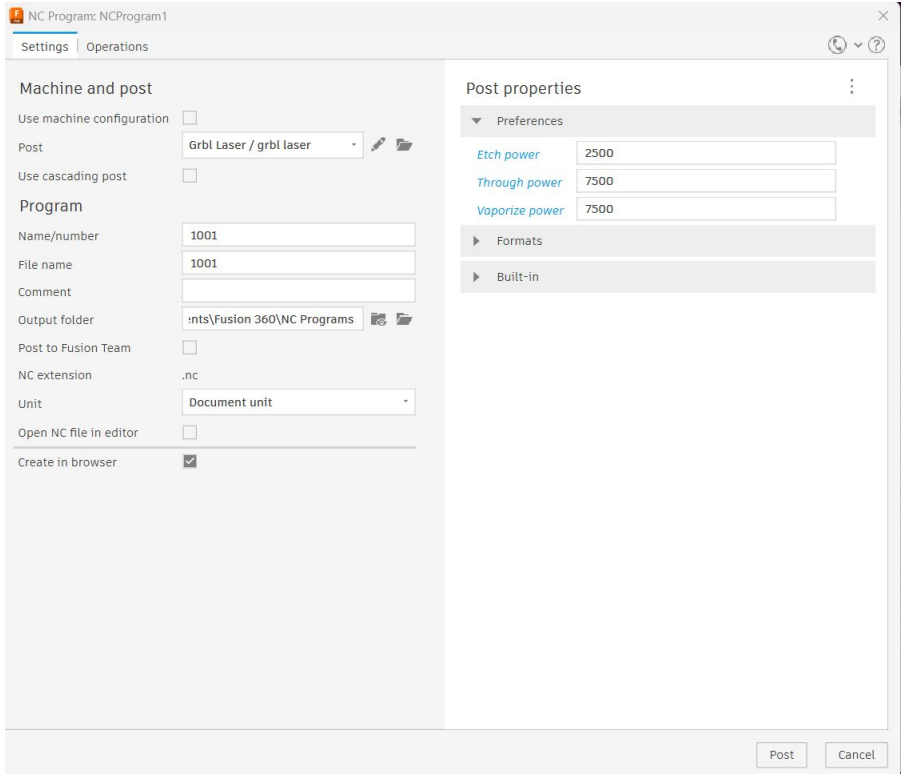
All the settings below it to zero.

(All settings should be saved as user default to reduce time for future use)



Settings on Fusion360

In Post Process(See next slide if first time use) change the Through power to 7500 and Etch power to 2500.

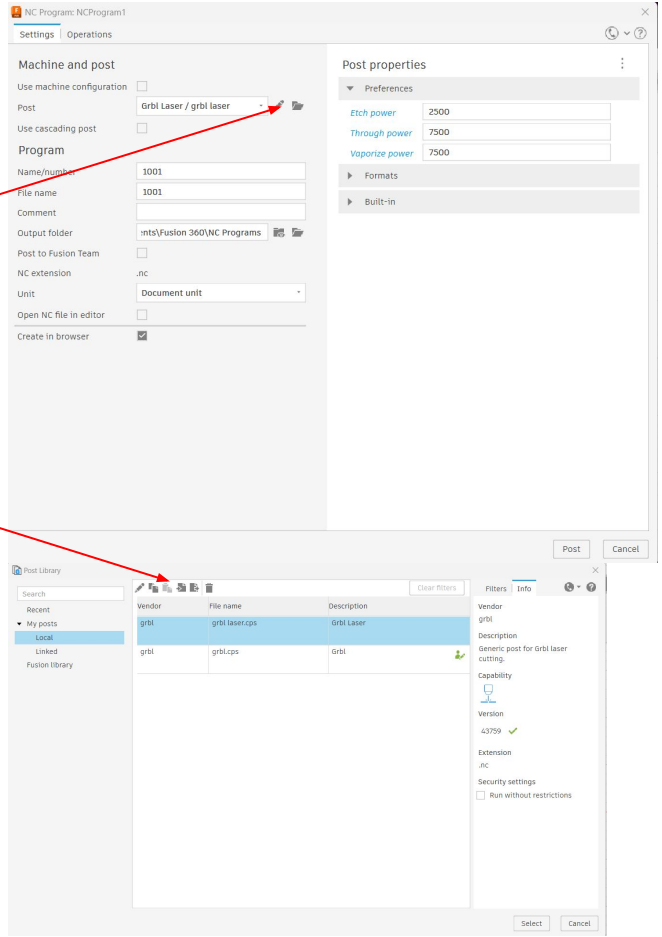


Settings on Fusion360

If first time use.

Select Post from the Library

Select Import and find the grbl Laser.cps that was downloaded



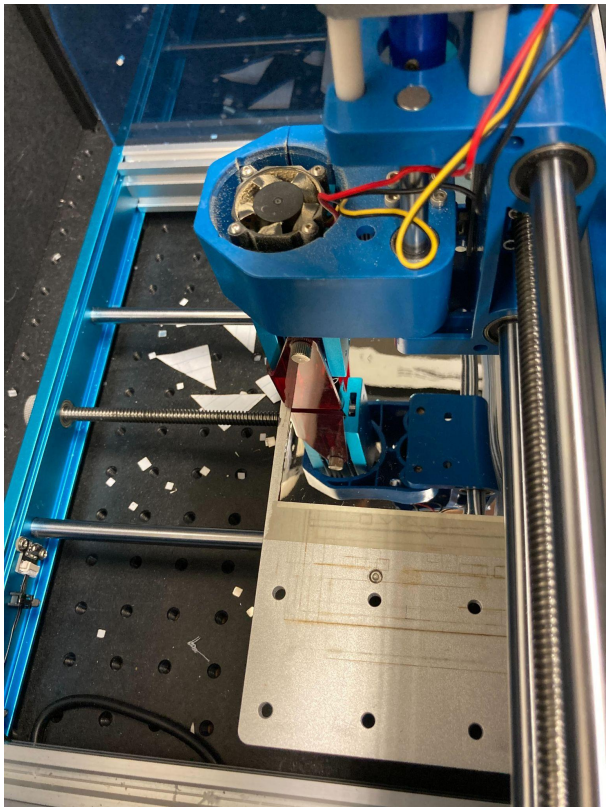
Preparing the ESR Foil.

Peel the back, dull side of the ESR.

Color in that area with black sharpie

Preparing the ESR Foil on the Laser

Place foil on CNC Plate, with surface that was colored in with the sharpie facing up.

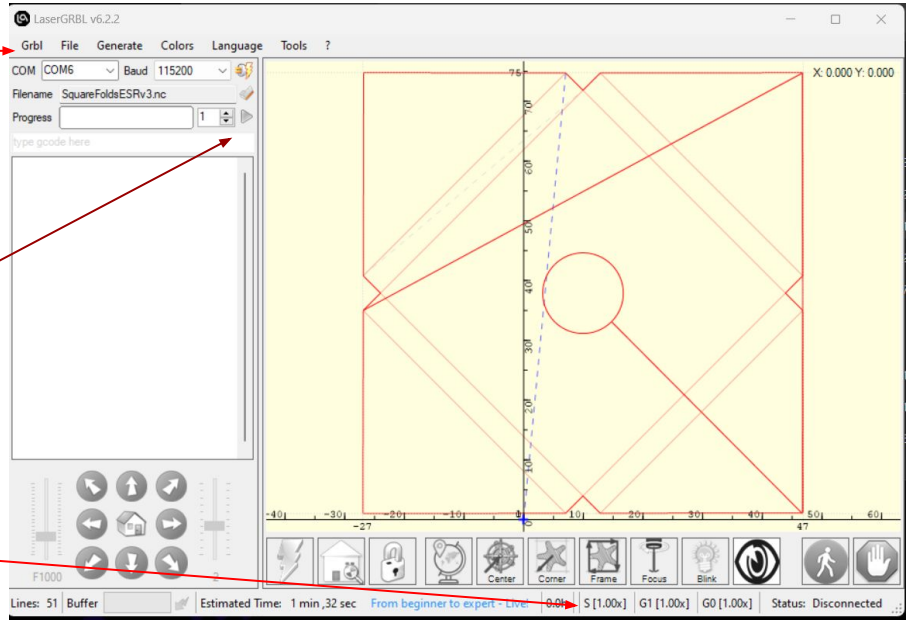


LaserGRBL

Open LaserGRBL. In Grbl menu select connect to connect to the laser.(Laser/cnc should be on and connected to usb)

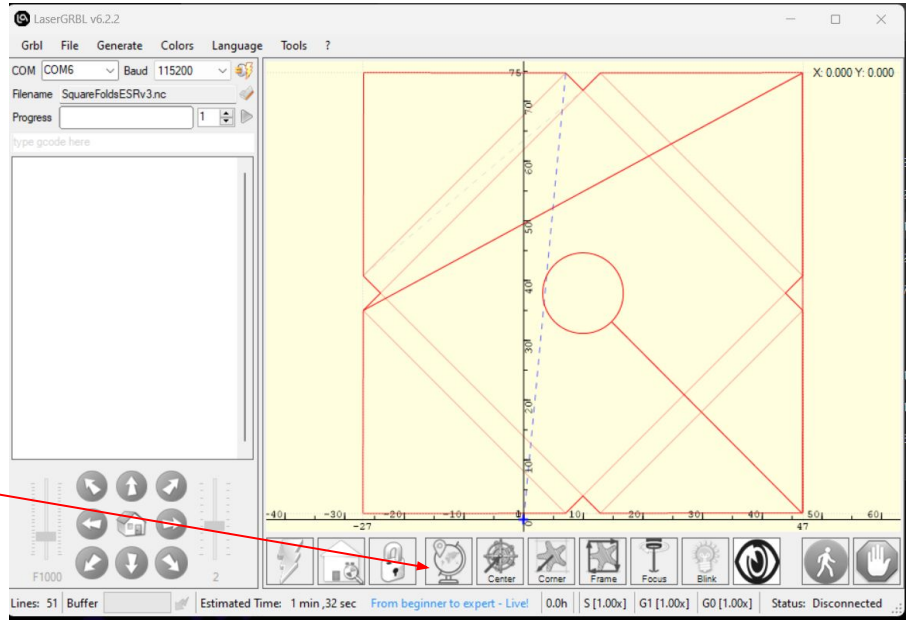
Select file and open the nc file that was created.

Set the power to 0.5x

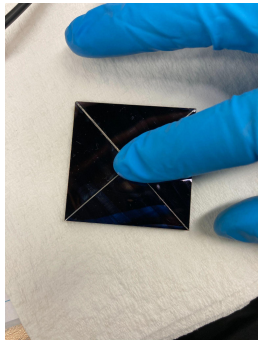


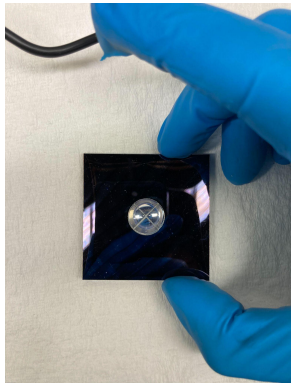
LaserGRBL

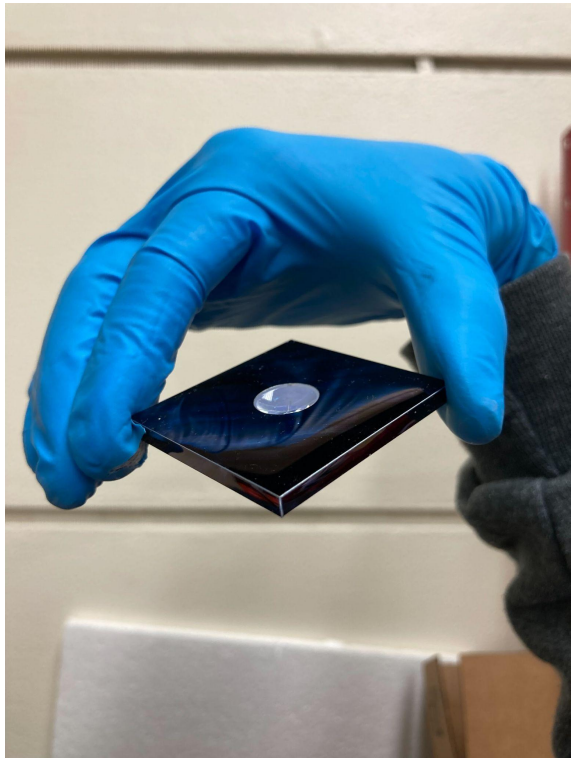
Before hitting start, you should ensure that that the area of the design will fit the physical area. This can be done by moving the laser with the controls and setting a new home.



Results







Future Improvements

Future improvement include finding a way to produce these same results without having to the color in one side with black sharpie.