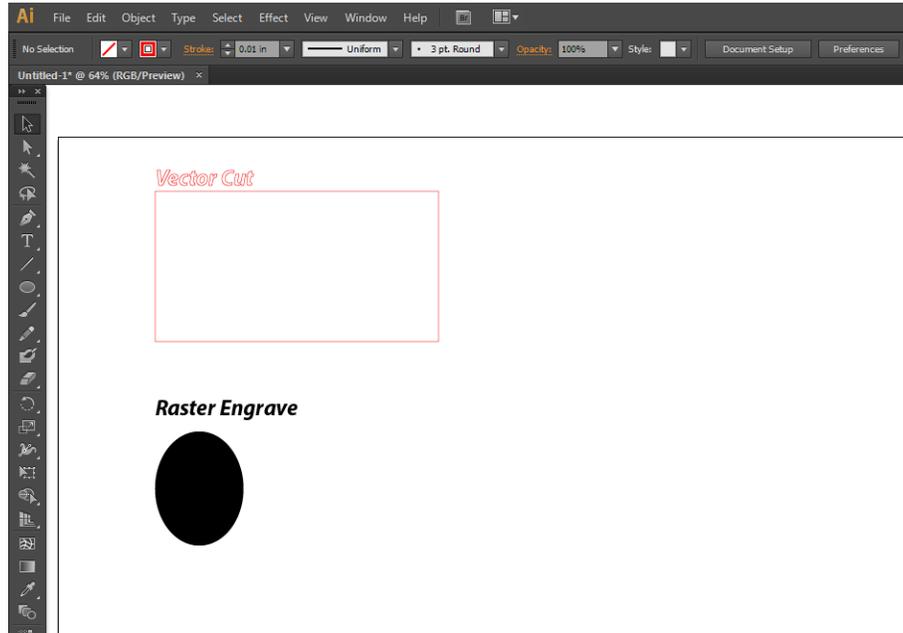


# Laser Cutter Instructions

HMS Research Instrumentation Core, 2022

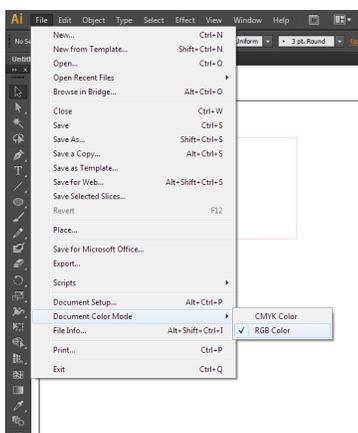
## 1. Design your piece in Illustrator



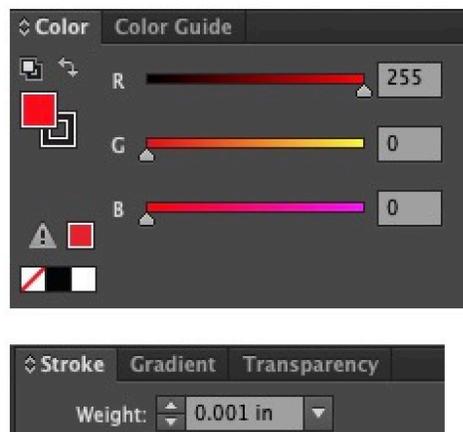
The color of your shapes will determine the laser settings:

- **Solid black** areas will be raster engraved
- **Thin red** lines will be vector cut — lines must be pure red and have a thickness of 0.001 inch.

NOTE: The laser cutter only recognizes *true red*. Your document must be in RGB mode, and the color must be set to (R=255, G=0, B=0).



Converting a document to RGB mode.



Appropriate line color and thickness for vector cuts.

## 2. Send your document to the laser cutter software

In Illustrator, print your document and make sure the laser cutter (PLS6-150.D) is selected as the printer.

Next switch to the laser cutter software by clicking on the red square in the bottom right corner of the screen:



*Click the red square to get to the cutter software*

## 3. Turn on the laser cutter and compressed air

Turn on the power switch on the right side of the machine, near the power cord.

Make sure that the standard lens is installed on the cutting head (it should be labeled “2.0” rather than “HDPO 2.0”).

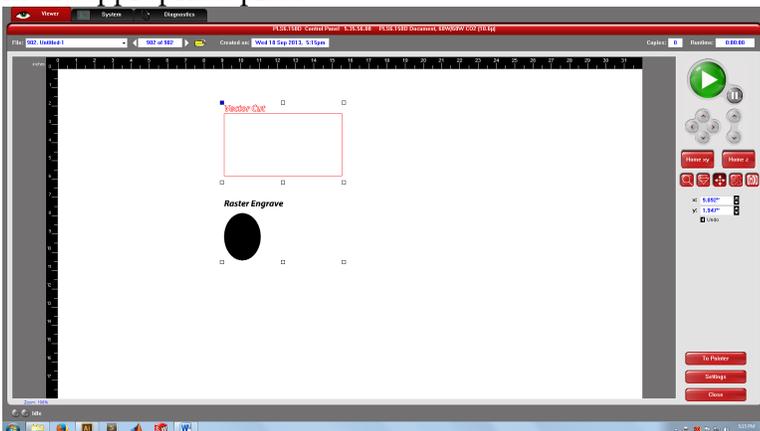
Turn on the compressed air behind the laser cutter.



*Turn on the air*

## 4. Adjust the piece position and laser settings

Position your plastic stock in the laser cutter bed and then use the software to make sure you are cutting in the appropriate place:

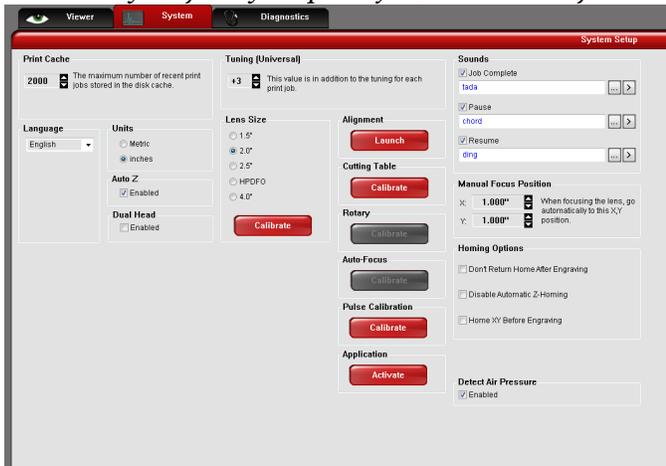


Press the “Settings” button on the right side of the screen to set the laser power and speed:



You can use the Materials Database to find default settings for different material types. And you can load and save settings to the hard drive. We have pre-saved settings for many materials including most thicknesses of acrylic and delrin.

*NOTE: Before your first print job, select the “System” tab and make sure that “Auto Z” mode is enabled:*



## 5. Print!

To print, press the big green *play* button on the screen or on the front panel of the laser cutter.

To do a dry run, open the lid of the laser cutter before you press *play*. Now a red laser spot will indicate where the cuts will be made.

At any point you can stop the cutting by lifting the lid or by pressing *pause*.

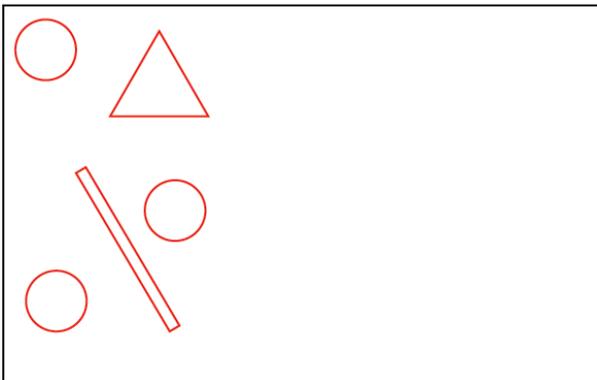
*Note: You must remain in the room and near the laser cutter when it is cutting.*

## 6. Scrap Material

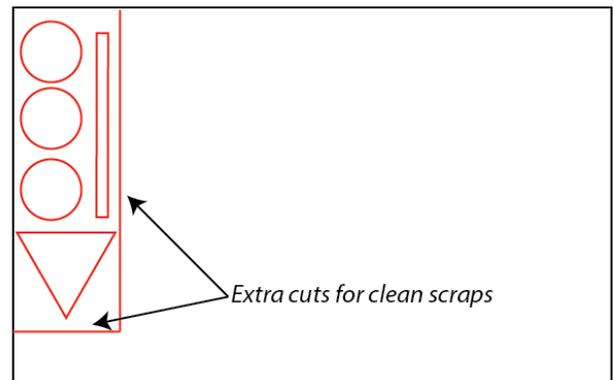
Please use scrap acrylic for your projects whenever possible.

Please design your cutting patterns so that the scrap you generate is useable and has clean edges:

### Bad



### Good



## **7. Cleanup Checklist**

### **When you are finished cutting:**

- Turn off the laser cutter
- Remove all scraps from the bed
- Turn off the compressed air
- Clean up the workspace around the cutter and computer
- Remember to take your USB key

### **Scrap material:**

- Any scrap acrylic/plastic larger than 6" x 6" is potentially usable, please place on the appropriate shelf to the right of the cutter.
- Any smaller scraps must be placed in the trash.  
(Unfortunately acrylic is not easily recycled.)

### **Raster-mode cleanup:**

- If your project produced substantial amounts of acrylic dust, please wipe down the inside surfaces of the laser cutter (especially the X and Y axis rails) with a damp paper towel.

### **For advanced users:**

- Re-enable "Auto Z" if you were using manual focusing
- Remove the HDPO lens and replace it with the standard lens