MSF Lasers

Epilog & Boss

What can you make with a Laser Cutter?

3D & Architectural Models

Acrylic & Plastic

Anodized/Coated Metal

Awards & Trophies

CO2 Metal with CerMark

Device & Electronics

Fabric

Fiber Industrial

Food

Fusion M2 eView

Glass

Musical Instruments

Outdoor & Firearm

Paper

Photo Engraving

Promotional

Rubber & Silicon

Signage

Stamp & 3D Relief

Stone & Marble

CO$_2$ Laser Compatable Materials

	Engrave	Cut
Wood	•	•
Acrylic	•	•
Glass	•	
Coated metals	•	
Ceramics	•	
Delrin	•	•
Cloth	•	•
Leather	•	•
Marble	•	
Matboard	•	•
Melamine	•	•
Paper	•	•
Mylar	•	•
Pressboard	•	•

	Engrave	Cut
Rubber	•	•
Wood veneer	•	•
Fiberglass	•	•
Painted metals	•	
Tile	•	
Plastic	•	•
Cork	•	•
Corian	•	•
Anodized aluminum	•	
Twill	•	•
Stainless steel	‡	
Brass	‡	
Titanium	‡	
Bare metal	‡	

Never Cut These Materials!

| Material	DANGER!	Cause/Consequence
PVC (Poly Vinyl Chloride)/vinyl/pleather/artificial leather	Emits chlorine gas when cut!	Don't ever cut this material as it will ruin the optics, cause the metal of the machine to corrode, and ruin the motion control system.
Thick (>1mm) Polycarbonate/Lexan	Cuts very poorly, discolors, catches fire	Polycarbonate is often found as flat, sheet material. The window of the laser cutter is made of Polycarbonate because *polycarbonate strongly absorbs infrared radiation!* This is the frequency of light the laser cutter uses to cut materials, so it is very ineffective at cutting polycarbonate. Polycarbonate is a poor choice for laser cutting.
ABS	Melts / Cyanide	ABS does not cut well in a laser cutter. It tends to melt rather than vaporize, and has a higher chance of catching on fire and leaving behind melted gooey deposits on the vector cutting grid. It also does not engrave well (again, tends to melt). Also, cutting ABS plastic emits hydrogen cyanide, which is unsafe at any concentration.
HDPE/milk bottle plastic	Catches fire and melts	It melts. It gets gooey. Don't use it.
PolyStyrene Foam	Catches fire	It catches fire, it melts, and only thin pieces cut. This is the #1 material that causes laser fires!!!
PolyPropylene Foam	Catches fire	Like PolyStyrene, it melts, catches fire, and the melted drops continue to burn and turn into rock-hard drips and pebbles.
Epoxy	burn / smoke	Epoxy is an aliphatic resin, strongly cross-linked carbon chains. A CO2 laser can't cut it, and the resulting burned mess creates toxic fumes (like cyanide!). Items coated in Epoxy, or cast Epoxy resins must not be used in the laser cutter. (see Fiberglass)
Fiberglass	Emits fumes	It's a mix of two materials that cant' be cut. Glass (etch, no cut) and epoxy resin (fumes)
Coated Carbon Fiber	Emits noxious fumes	A mix of two materials. Thin carbon fiber mat can be cut, with some fraying - but not when coated.
Any foodstuff (such as meat, seaweed 'nori' sheets, bread, tortillas...)	The laser is not designed to cut food, and people cut things that create poisonous/noxious substances such as wood smoke and acrylic smoke.	If you want to cut foodstuffs, consider sponsoring a food-only laser cutter for the space that is kept as clean as a commercial kitchen would require.

Epilog Zing

Zing Laser Project
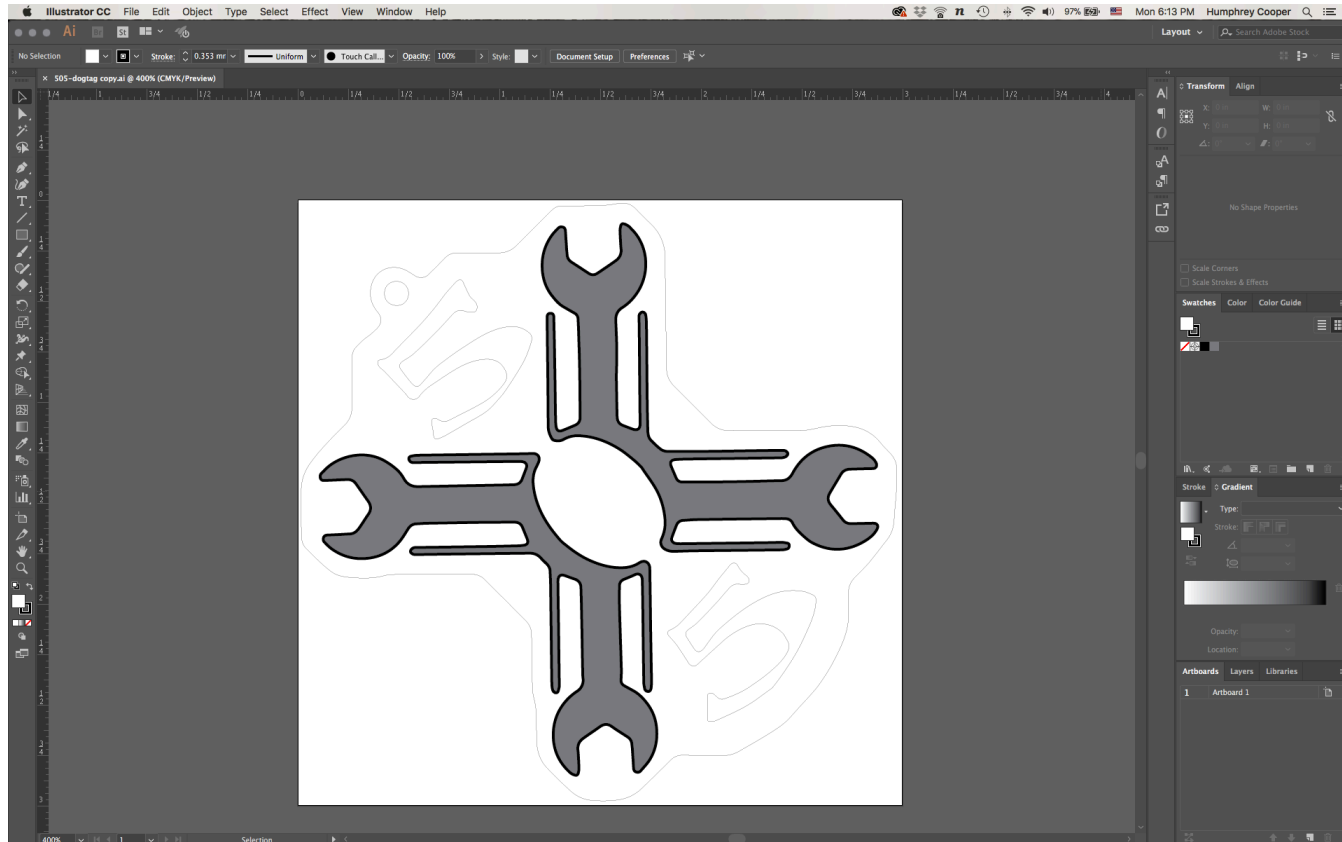
Load Your File…

1. You can engrave scanned photos, logos, bitmaps, other images, text, and CAD files. Basically, if it can be printed it can be engraved. The higher the quality of the graphic used, the better the engraving results

2. Use **Adobe Illustrator** to open your file or to start a new file. Your file could have an extension of .ai, .dwg, .dxf or .eps.

3. In the **artboard dimension fields**, type in the correct dimensions of your material. ***Do not exceed the limits of the machine***.

4. Check your lines to make sure they have the correct wieghts. Use **solid black** and **0.001'' width** for **cut lines**. Use **shades** of **grey**, **colors** or anything thicker than **0.004''** for **engraving**. Make sure there are no duplicate lines, they extend cut time and waste energy.
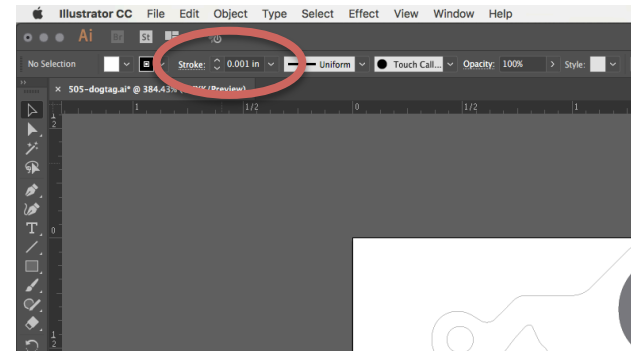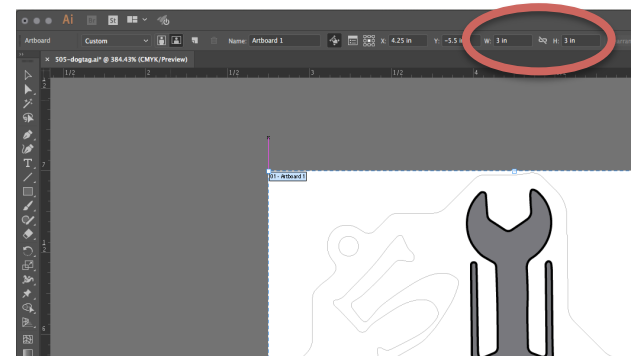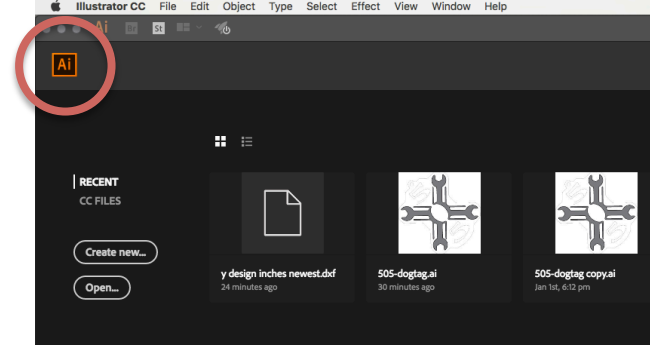
Load Your File

1. When ready, send your file to print by typing *Ctrl+P* or going to *File* and selecting *Print*. Select the laser printer *Epilog Engraver*. Click **Preferences** to enter the Properties menu.

2. Double check **Job Type**, **Raster**, **Vector** or **Combined**. Select *OK*.

3. Double check that **Piece Size** (of your material) matches the artboard dimensions entered earlier. The thumbnail should match the proportions of the artwork. Select *Print*.
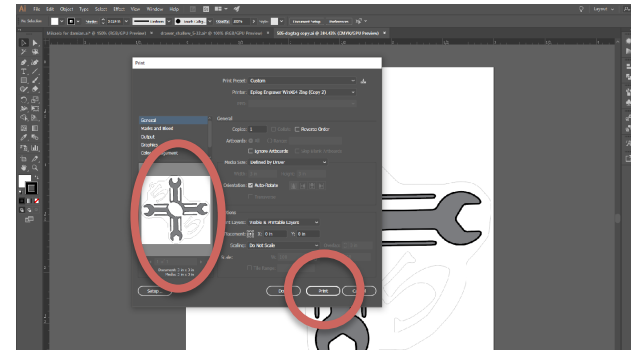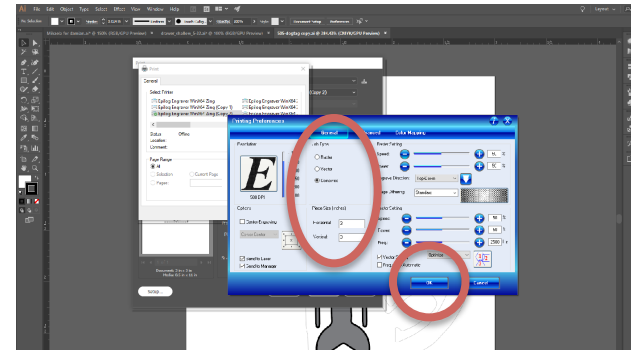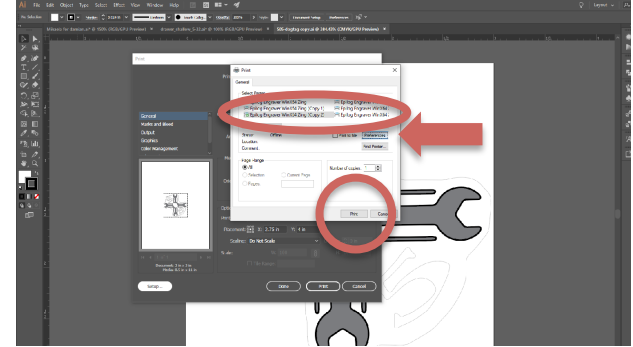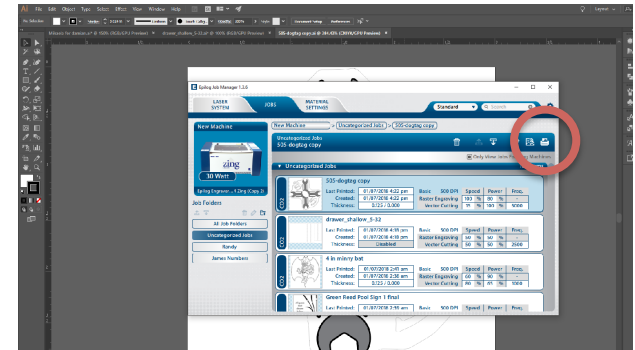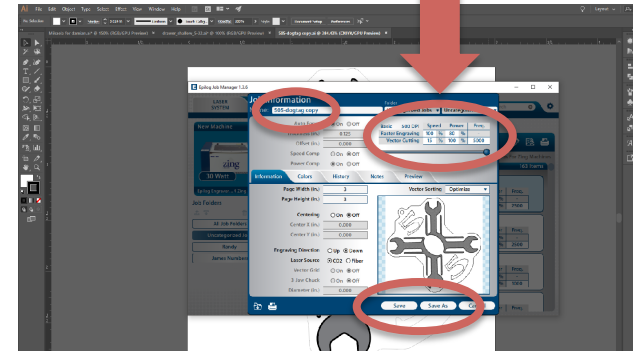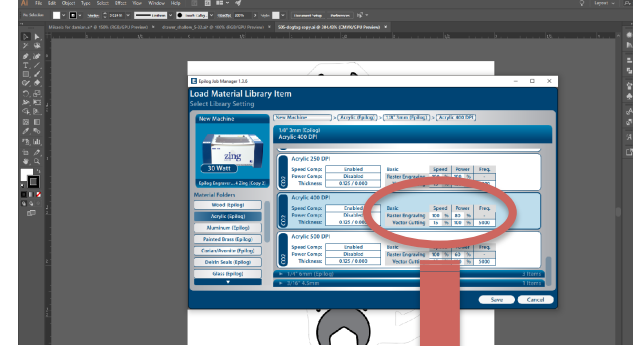
Material Settings…

1. Open up the program **Epilog Laser Job Manager**, double click on the job.

2. Choose the **Material Settings** icon (folder on bottom left).

3. From the **Material Folders** on the left, choose the material and appropriate thickness. Click on *Save*.

4. If the correct material is not on the list, ask for assistance. Not all materials are listed and may require testing to get the correct settings. *Some materials may not be on the approved list!*
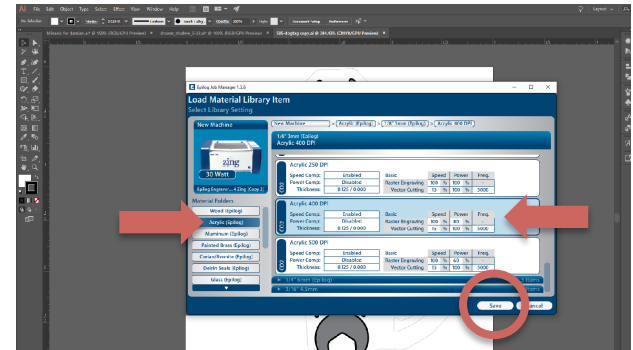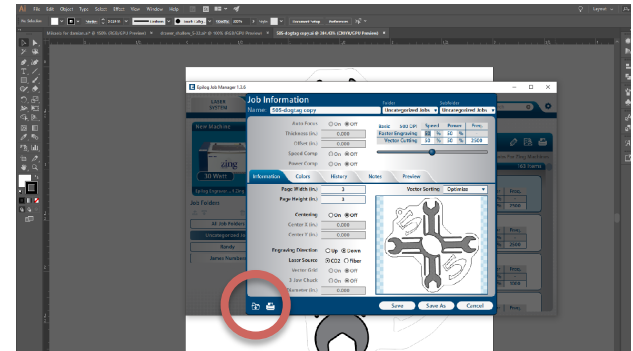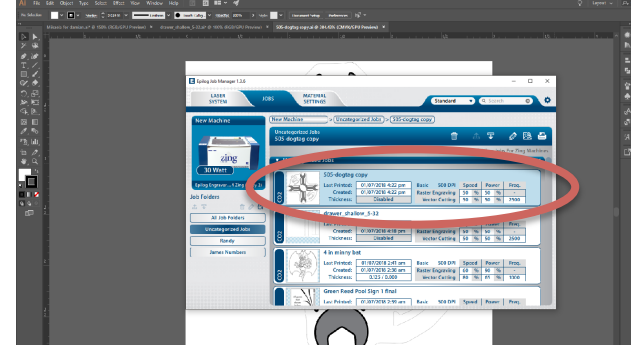
Material Settings

1. Check that the **Speed/Power/Frequency** settings have been updated in the following window.

2. If changes are made to existing materials, choose *Save As* and replace the word *COPY* with *your initials*.

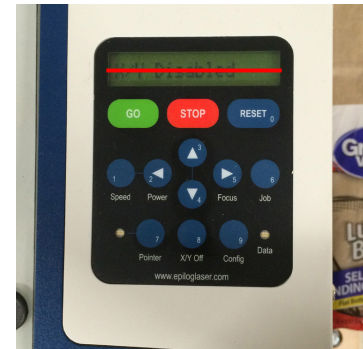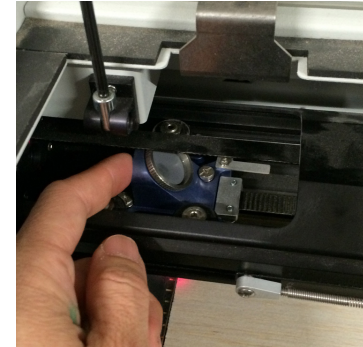3. From the **Jobs** folder click on the the *Print* icon (make sure the job is still selected).

Focusing (Setting Z-Height)

1. Turn the **Laser Pointer**[7] light on.
2. Press **X/Y Off**[8] button to disable the motor.
3. Check that LCD display reads *X/Y Disabled*.
4. Open the glass door.

5. Place the material in bed.
6. Make sure the material is in the upper lefthand corner.

7. Release the silver **Depth Cue**, letting it swing down.
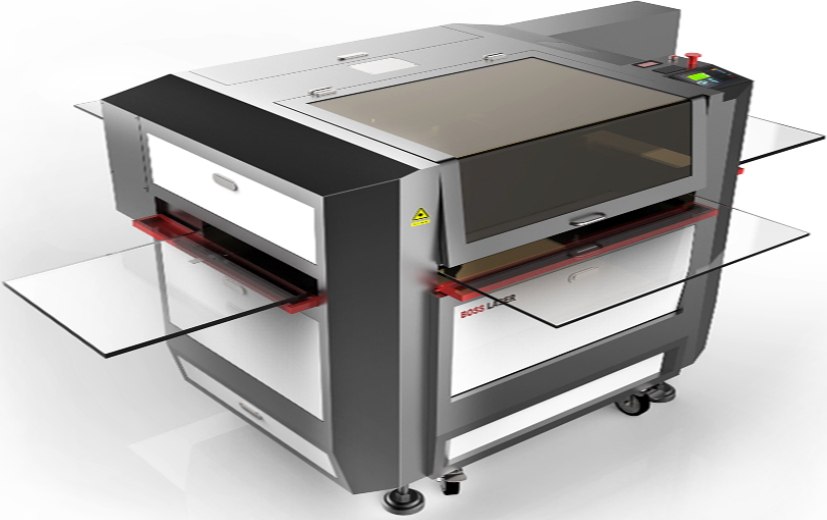8. Use the **Up**[3] and **Down**[4] arrows on the console to move the bed until the tip of **Depth Cue** is lightly touching the top of the material.

Set X and Y Axes

1. With the **X/Y** still **Disabled**, manually slide the **Gantry** forward or backward to set the **Y-location** of the **Laser Pointer** (make sure the red light is on your material and not on the rails).

2. Manually slide the laser guide left or right to set the **X-location** of the **Pointer**. (make sure the red light is on your material and not on the rails).

3. When the position of **Red Laser Pointer** has been set to the desired position, press the green **GO** button and then the **Down**[4] arrow to **Exit** out of the menu options.

4. The LCD display should no longer read *X/Y Disabled*.

5. Go to your computer and load your file.

Boss LS3655

4-WAY MATERIAL PASS THROUGHS

Makercase.com
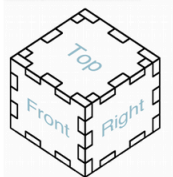
Makercase/Boss Laser Project
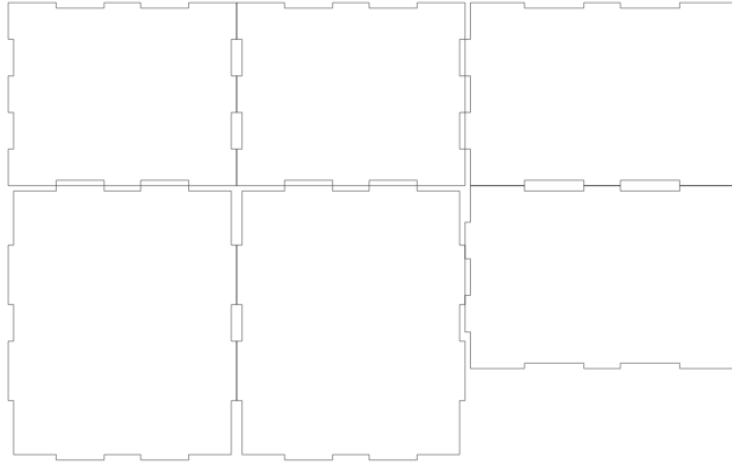
Before and After your Boss Laser Job!

- TURN ON THE COMPRESSOR IN THE METAL SHOP.

- TURN ON CHILLER & EXHAUST FAN

- WHEN FINISHED SHUT OFF CHILLER & EXHAUST FAN

- SHUT OFF COMPRESSOR UNLESS SOMEONE IS USING THE CNC ROUTER OR PLASMA CUTTER.