MARCH 1, 2023

EPILOG FUSION EDGE – 50 WATT – 24 IN. BY 24 IN.

EpilogLaser

OPERATING EPILOG LASER
STEP BY STEP: HOW TO ENGRAVE AND VECTOR CUT

FRISCO PUBLIC LIBRARY

PROCESS OVERVIEW

1	2	3	4	5	6	7	8
Open Artwork in Inkscape.	Print from Inkscape to Epilog Dashboard application on the computer.	Place material in laser cutter and focus laser.	Align artwork to material in Epilog Dashboard application on the computer	Select settings for vector cutting and engraving in Epilog Job Manager on the computer	Print from Epilog Job Manager application on the computer to laser cutter memory.	From touch screen control panel on laser cutter initiate engrave/vector cut.	Clean up.

Using These Instructions

Read one step entirely once before following the instructions to get a clear idea of the goal and process for that step. Then re-read and follow the instructions. If you have a question about a step, the answer is probably in the details column.

Date: 12/15/2022

#	Step	Key Points	Details	Picture
1	Turn Laser Cutter on	-There are two keys needed: • Main Power • Tool Box Once the key is turned, you will see the equipment start to power on.	The key will allow power to all the equipment. The laser will take a minute or two to boot up. The touch screen control panel on top of the laser will light up and begin to home the laser.	
2	Turn on Air Filtration system	Power button is red when the system is off. Touch button to turn on. Power button should turn green and you will hear fan power up.	If all lights are green, skip to step 4. If the arrow lights are red, go to step 3.	

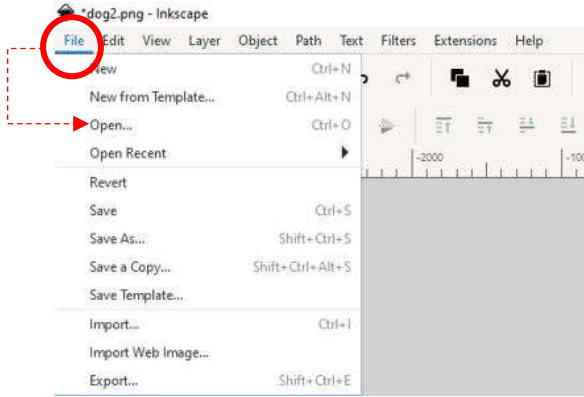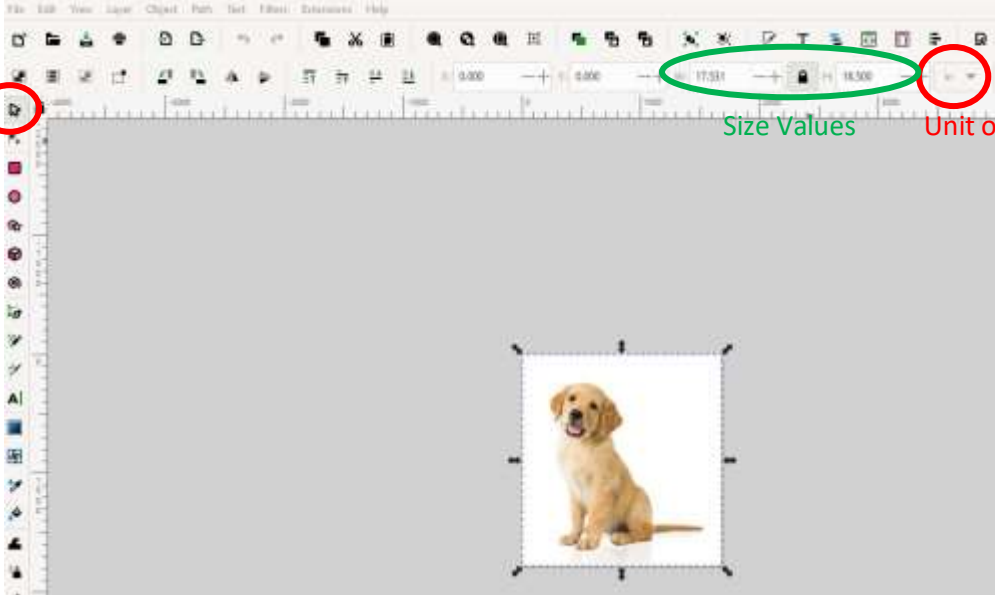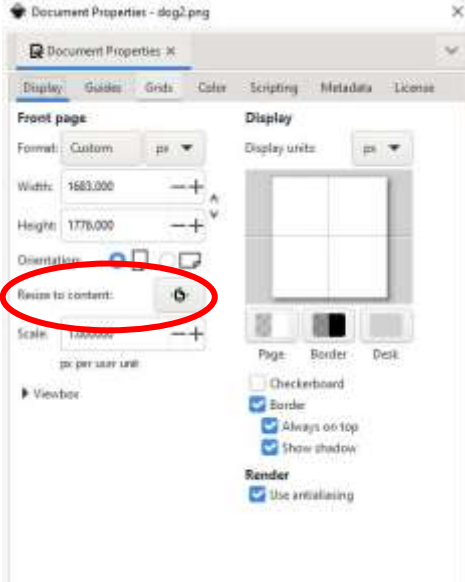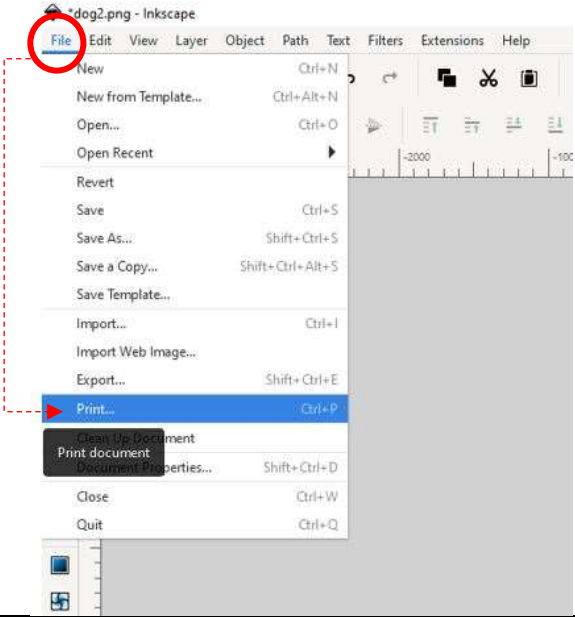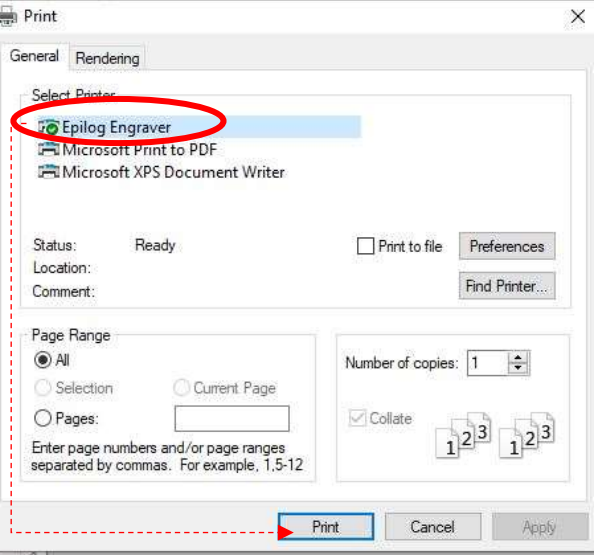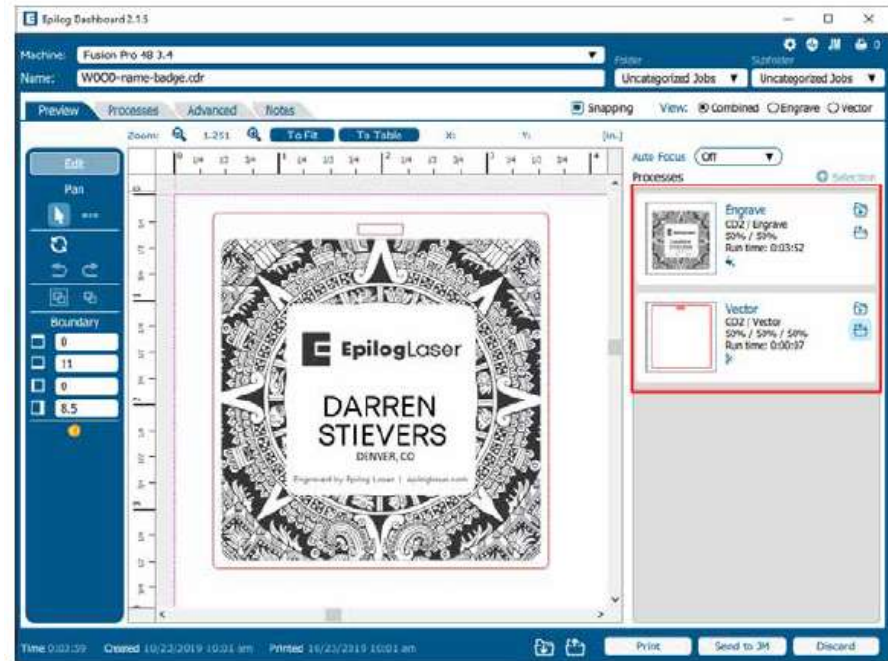| 3	Adjust Airflow if the arrow buttons are red.	This step is only needed if the arrow buttons are red. If all 3 arrow buttons are green, skip to step 4.	Red lights on the arrows indicate a filter change may be necessary. See staff for assistance. Staff: Press the enter button first to adjust fan speed. 	
4	Open design file with Inkscape. **Inkscape Required** 	On the computer open InkScape Use the **File→Open** menu option to open your file.	Inkscape can open many file types including: **.svg** **.pdf** **.jpg** **.png** Other design applications will **not** successfully send artwork to the Epilog laser.	

| 4 | Check sizing of artwork | Artwork should be sized to fit on your material.

Use selection tool:

Click on the artwork.

Change unit of measure to inches.

Change size of artwork to fit material. | **TIP**: Click on the **lock icon** between the Width and Height size values to **lock the aspect ratio** before changing. | |
|---|---|---|---|---|
| 5 | Document Size:

Resize to Content

Required Step | Press: **Shift + Ctrl + D**

Click **Resize to content** button.

You can also find the document properties screen in the **File** menu → **Document Properties.** | This will trim away the unnecessary white space.

This is an essential step to prevent error messages during the print step. | |

| 6 | Use PRINT to send the design to the Epilog Laser. | Click on the **File** menu.
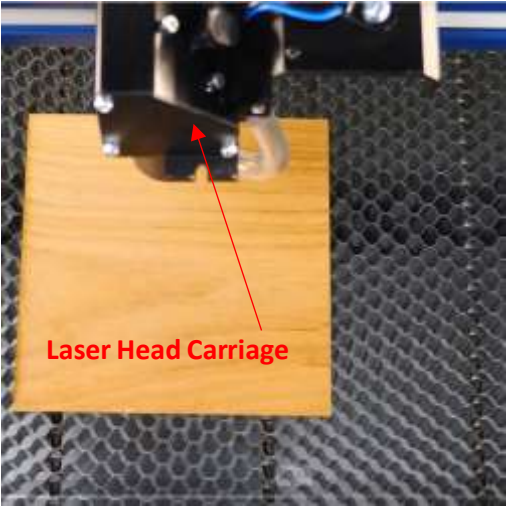
Select **Print**. | | |
| 7 | Print artwork to Epilog Job Manager. | In the print window:

Select Printer: **Epilog Engraver**

Click **Print**

Epilog Engraver printer will allow to both engrave and vector cut materials. | This will send it to the **Epilog Dashboard** software on the computer.

The Epilog Job Manager is where you will make your detailed setting selections such as power, speed, frequency, dither type, etc. | |

8	Vector and/or Engrave	**Epilog Job Manager:** On the right you will see the vector and engrave process. Some designs will come across with only a vector or an engrave. You can always change the process to be the one you want later.	**Vector**: This is the process for cutting through the material. Lines that are .003 inches wide or thinner are assumed to be vector cut lines. **Engrave**: This process applies the artwork to the surface of the material.		
9	Place Material into Laser	For best results. place under one of the overhead cameras. Close the lid of the laser.	Cameras are mounted in the center on the underside of the hood door. Closing the lid is required for the cameras to see the material.		

10	Move laser head carriage over the top of the material.	On the **laser** touch screen **control panel**: Select Jog icon. Use **joystick** on laser to position the laser head carriage over the material. 	Control Panel and Joystick Material too tall to move the laser head carriage over the top? See Next Step	

| 11 | Material Too Tall? | If the material is too thick to move the laser head carriage over the top of the material:

Tap Focus menu icon.

Use joystick to lower laser table by pulling toward you.

Return to Jog menu:

 | When you are in the focus menu you can lower the table to allow the laser head carriage to move over the top of the material by using the joystick.

Be sure to return to the jog menu after lowering the table.

Return to step 10 to move the laser head carriage over the surface of the material. | Joystick

Focus Menu

LOWER TABLE |

| 12 | Double check position of plunger. | The **AUTO FOCUS PLUNGER** should be over the top of the material.

In the next step the bed will raise the material up until it touches the plunger.

If the material is too high for the laser head**, use the focus menu to first lower the table** as needed. See previous step. | ⚠️

If the plunger is not over the top of the material, you can damage the laser in the next step. | |

AUTO FOCUS PLUNGER

MAUAL FOCUS GUAGE
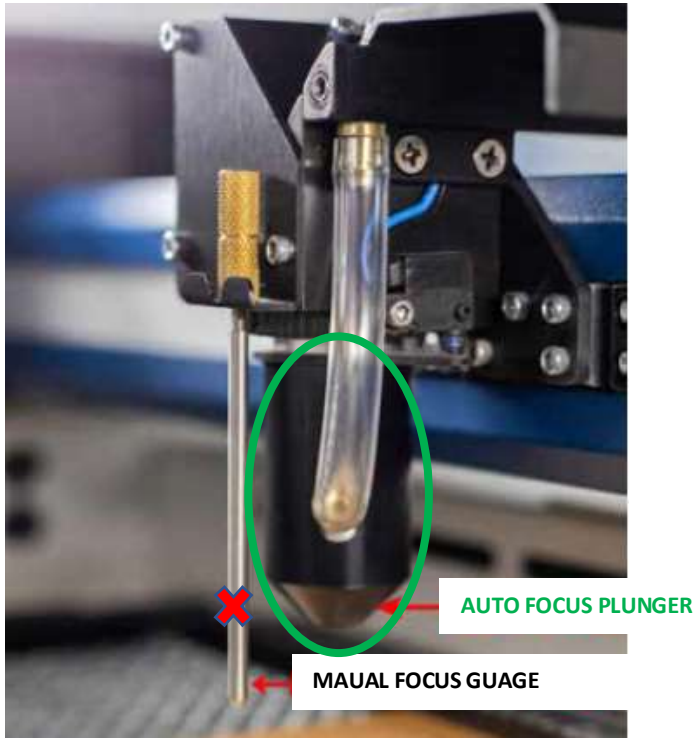
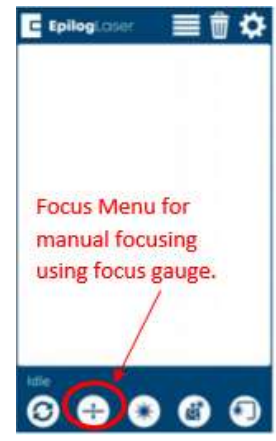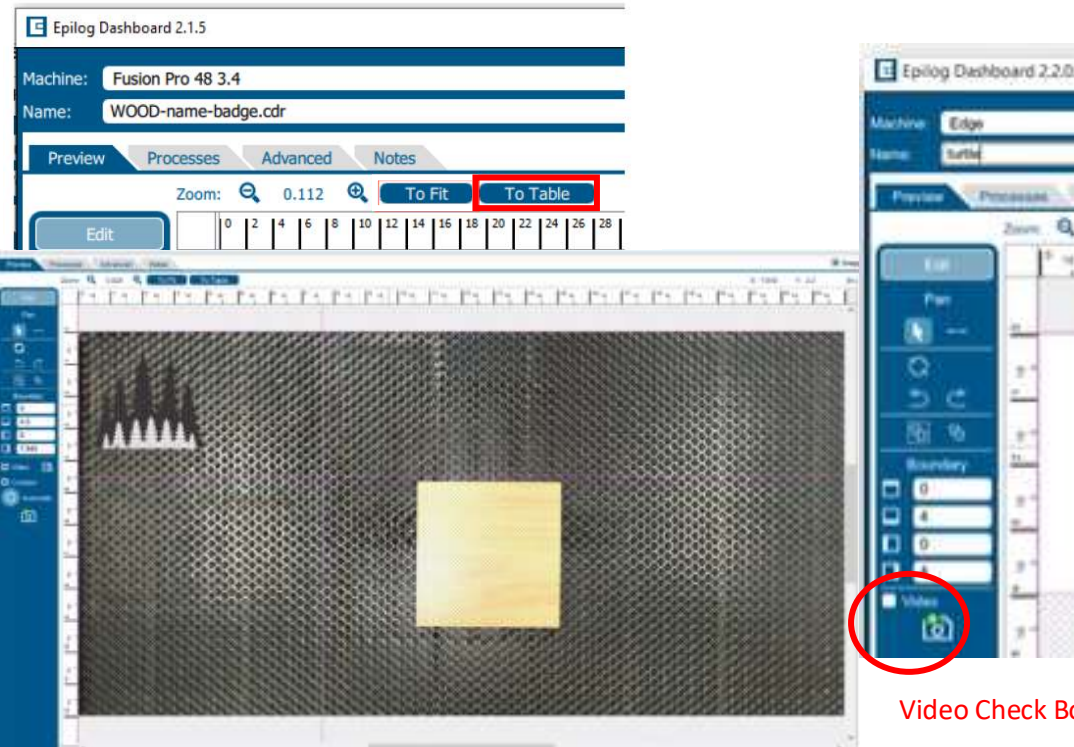| 13	Focus Laser (auto focus)	While in **Jog** menu on the laser: Tap **Auto Focus**. The table will raise up and the plunger will touch the top of the material.	Select the focus icon and use the screen controls to move the table so the top of the material touches the manual focus gauge. The joystick will also control the table.	
	Focus Laser (manual focus) Optional Step	Select the focus icon and use the screen controls to move the table so the top of the material touches the manual focus gauge. The joystick will also control the table.	This step is needed only if the auto focus isn't working. If the auto focus is working you can skip to the next step.	

14	Park the laser head carriage.	On the laser touch screen tap:	This will park the laser head carriage in the upper left corner of the table. You will need it out of the way to align your artwork to the material.	
15	Design View in the Epilog Dashboard **OPTIONAL**	Sometimes you need to adjust the zoom to see **both your material and artwork**. Click **To Table** button for quick adjust. Or use the **zoom controls** to the left of the **To Fit** button.	Adjust the view on the computer screen to allow you to see both the design and the material. If you are not seeing a live view, check the video box to turn on the camera. Your artwork or material may be difficult to see with the dotted overlay and may not appear exactly as shown in our example image.	 Video Check Box

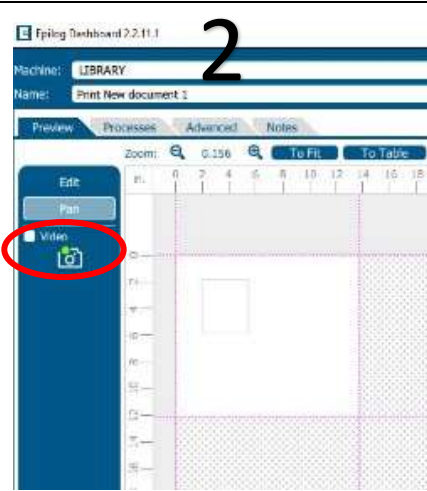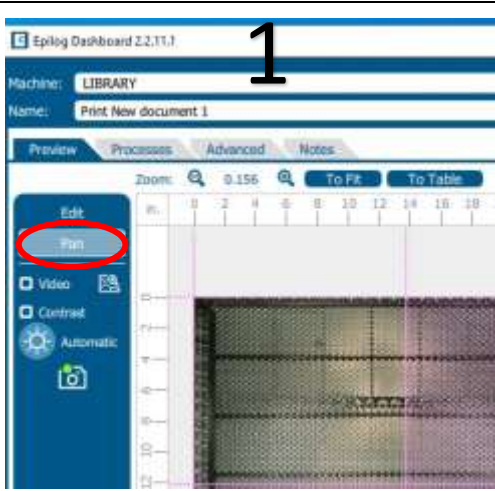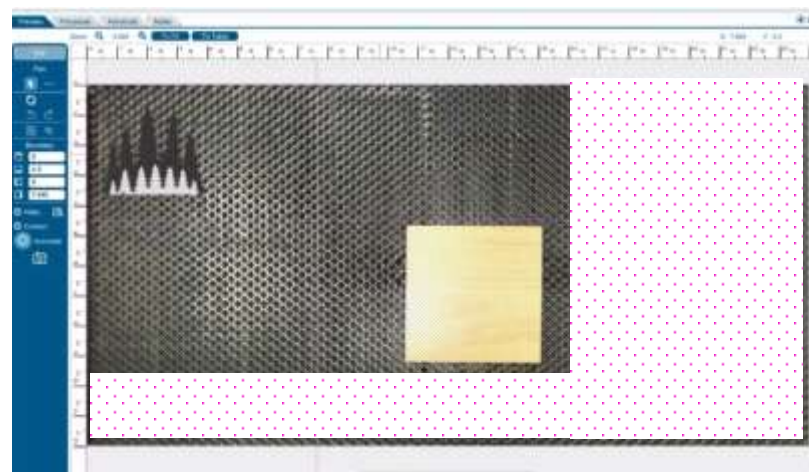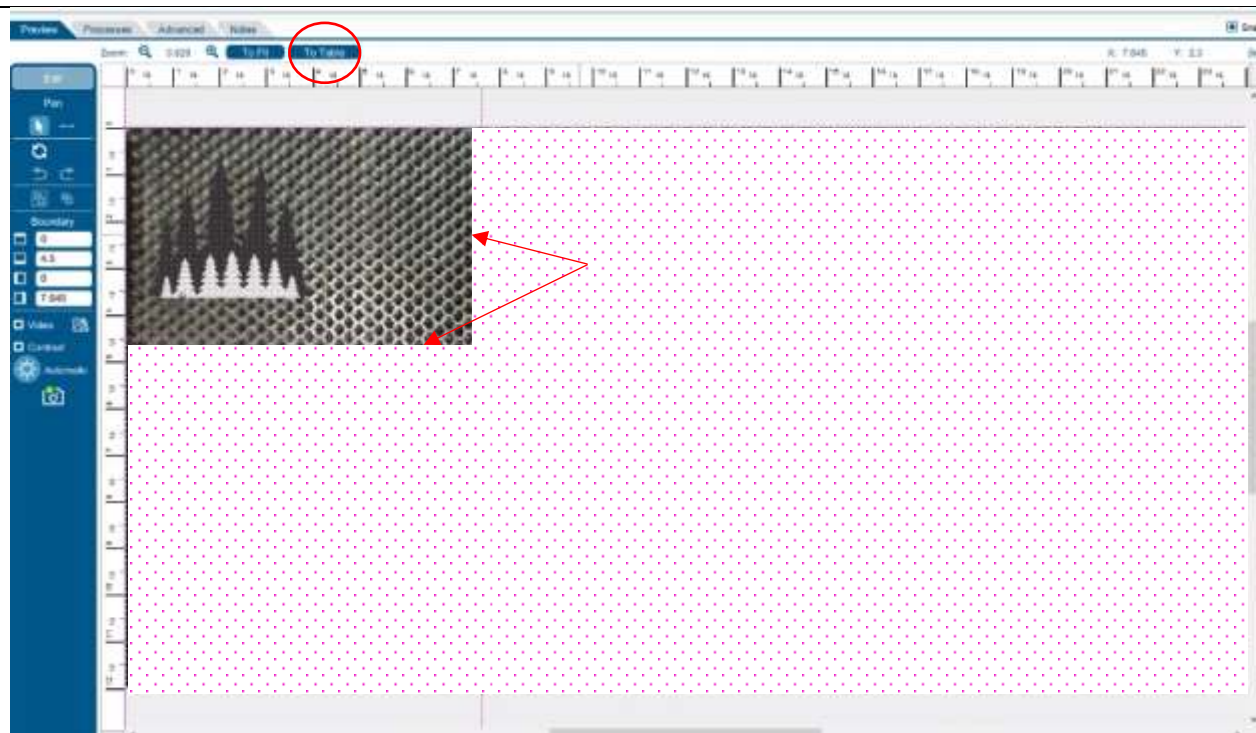| 16 | Cannot See Your Artwork? | If you cannot see the artwork:

1. On the computer select **PAN**.

2. UNCHECK the **video box**.

Make mental note of position of artwork.

When mousing over the edge of the artwork, the cursor changes to:

✛

Remember general position of artwork.

Turn back on camera to move artwork:

3. Select **EDIT**.

4. CHECK video box. | Sometimes your artwork may be difficult to see in the camera view.

Switching to the Pan mode and turning off the camera will allow you to see if your artwork is there and the location of the artwork.

If you have very small artwork, try zooming in on artwork using:

 To Fit |

  |

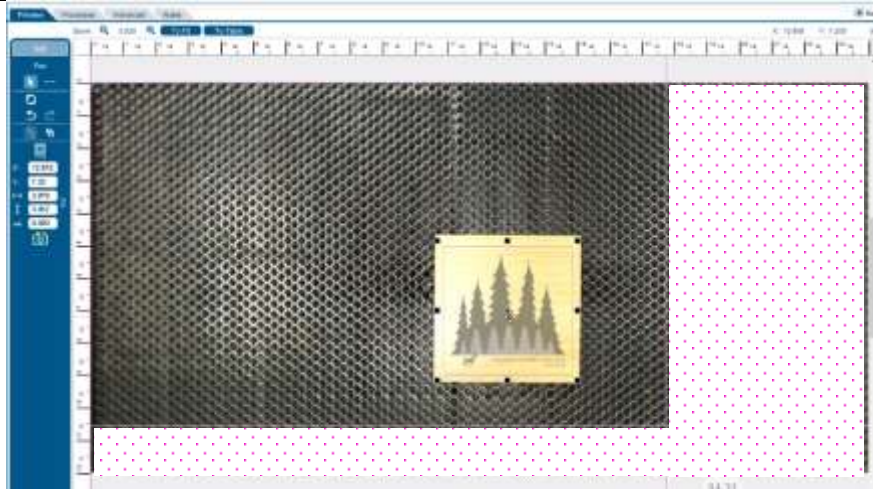| 17 | Create workspace view | Click **To Table**

This will update the camera view on screen to include both the artwork and material:

Next:

Click and drag colored lines to include your material and artwork **if needed.** | In the example the pink lines indicated by arrows need to be moved so that you can see both the artwork and material in the camera feed without any dotted overlay.

The vertical pink line needs to be moved to the right of the material.

The horizontal pink line needs to be moved to below the material.

In our example we have exaggerated the dotted overlay for clarity. |

 |

| 18 | Align artwork with material | Click and drag your design graphic over the material.

See the tip in step 16 about how to find your artwork if it is hard to see. | You will want to align the graphic with the material so that it appears where you want it applied to the material. | |
|---|---|---|---|---|
| 19 | Zoom in to check alignment.

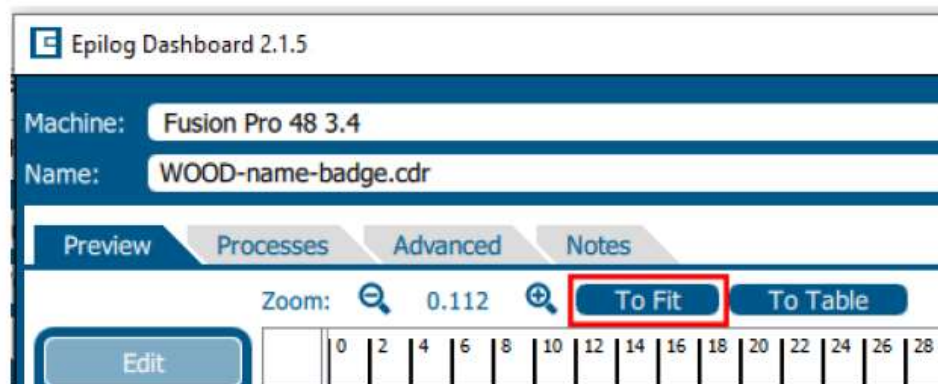OPTIONAL | Click the button:
To Fit

This will zoom the camera in to focus in on the artwork and material.

You may need to physically straighten your material by hand in the laser to improve the alignment. | Zooming in after your initial alignment allows you to fine tune the placement.

TIP:

Placing material in the upper left against the guide rulers can help ensure getting material square. | |

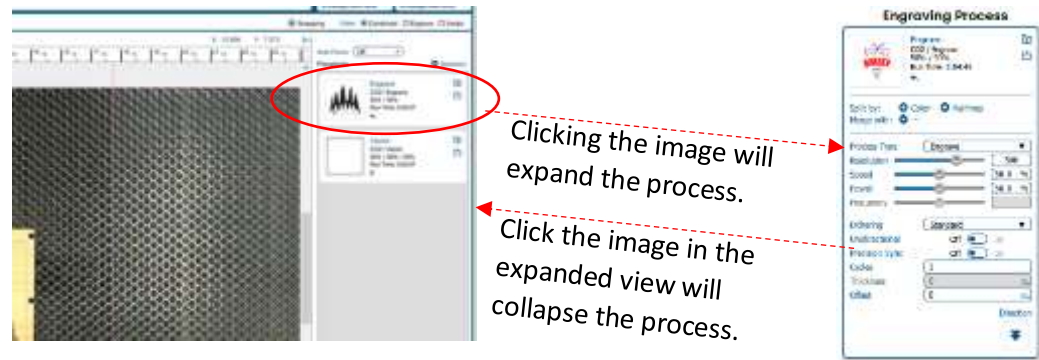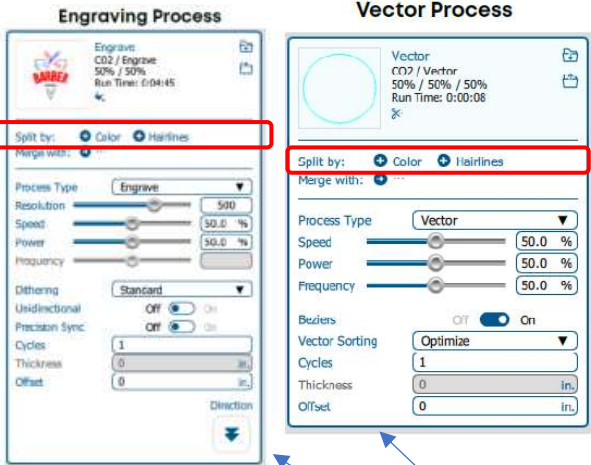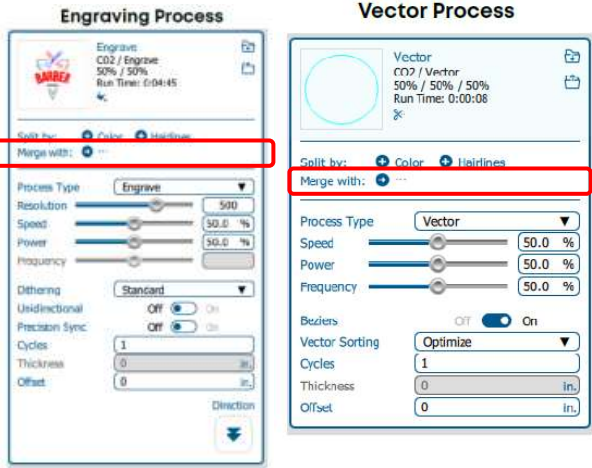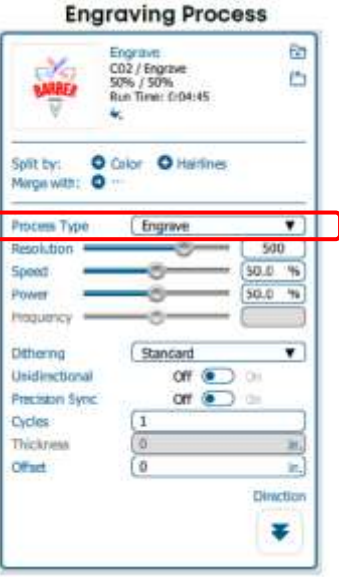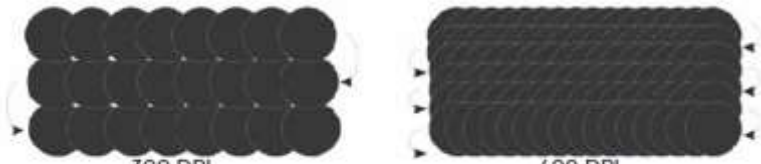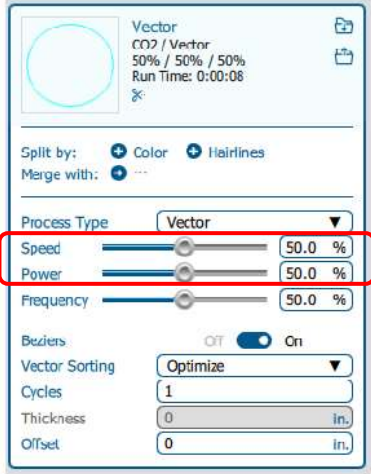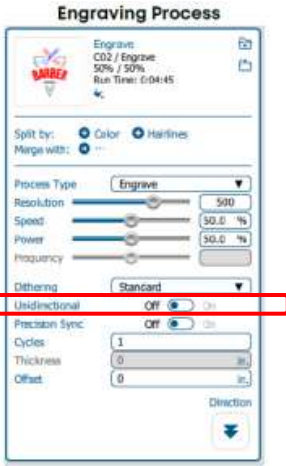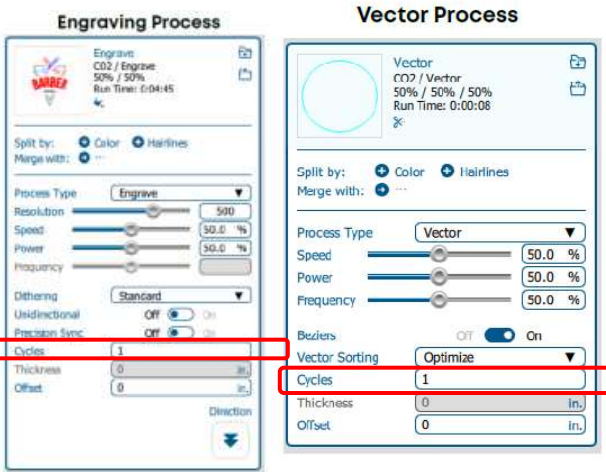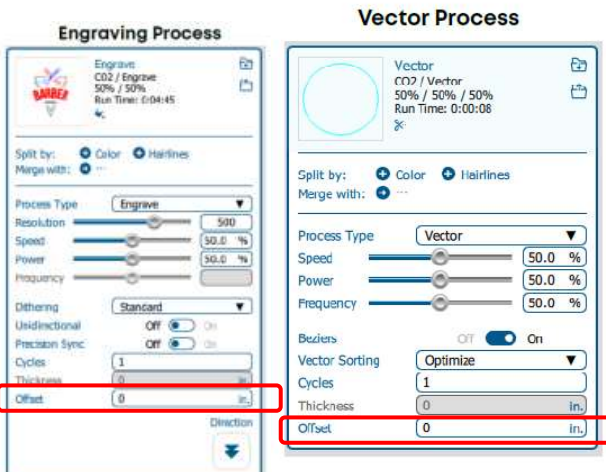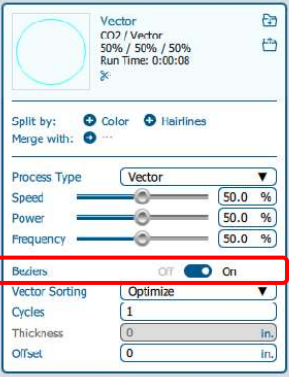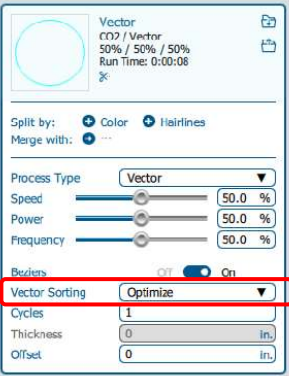| 20	Select Process: **Click on process image to select.**	Select process: • **Engrave** • **Vector** You may only have one option that appears. You can change the process to be either **Engrave** or **Vector** later.	**Engrave** applies the artwork lines and shading to the surface of the material. **Vector** cuts through the material along the lines.	 *Clicking the image will expand the process.* *Click the image in the expanded view will collapse the process.*
	STEPS 21 TO 34: Guides you through selecting settings for one process. Return to this point and repeat if you have more than one process.			
21	Adjust Settings: **Split By** **OPTIONAL** No selection required.	**Color**: moves every color in the graphic to a separate process. **Hairlines**: move .003 inch (.077mm) wide lines to a separate process **Color & Hairlines:** sends each color and hairline to a separate process so you can select the settings for each type of line.	If you have color coded your artwork so that you can apply different power and speed setting to different lines (cut some line, engrave some lightly, engrave some deeply, etc.) you may want to try using the **Split By Color** setting.	 Original artwork was separated into two processes using the Hairline option.

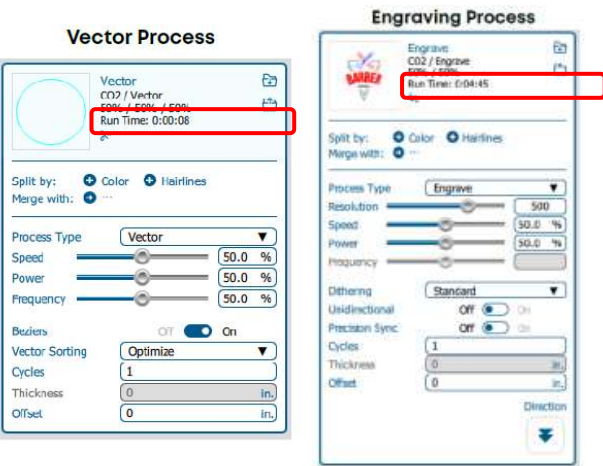| 22	Settings: **Merge** <mark>OPTIONAL</mark> No selection required.	Merge the current process with another process layer. This would allow you to engrave or vector cut all lines in a single process at one time with all lines using the same settings.	If the laser has separated elements of your artwork into separate processes, you can **merge** them back together into a single process to be run with the same settings all at once.	
23	Setting: **Process Type** **REQUIRED**	You can change the setting for a particular process/artwork element: • **Off** • **Engrave** • **Vector**	**Off** laser will ignore this element of the graphic and neither vector cut nor engrave. **Engrave** applies the artwork lines and shading to the surface of the material. **Vector** cuts through the material along the lines.	

24	Resolution Setting **REQUIRED** Engraving Only	Use the slider to select engraving resolution DPI value. **300** DPI: glass, marble, acrylic **400** DPI: default **600** DPI: artwork with fine detail **1200** DPI: very small fonts	DPI: dots per inch (sometimes known as PPI). See the **Suggested Material Settings** document to help select a DPI value.	 Magnified View of DPI Results
25	Settings: **Speed** **Power** **REQUIRED** See the **Suggested Material Settings** document to help select values.	**Speed**: controls how fast the laser moves over the material. **Power**: controls the intensity of heat applied by the laser. UNSURE? Test using a scrap of the same material. Start with a low power and a high speed. Adjust until you achieve the desired results.	Slower speeds and/or higher power result in deeper engravings or vector cuttings. Slowing the laser speed has the same impact as increasing the power.	

26	Settings: **Frequency** **Vector Only**	Frequency is only active on **vector cutting** processes. Frequency controls the number of laser pulses the laser fires per inch of travel. See the **Suggested Material Settings** document to help select values.	Lower frequencies are good for materials such as wood that shows charring on the edges when cut. Higher frequencies are good for materials such as acrylic.	
27	Settings: **Dithering** OPTIONAL No selection required. Engraving Only	Dithering: Grayscale Photo: **Stucki** or **Jarvis** Text and ClipArt: **Standard** Line Art: **Bayer**	Dithering is only for engraving process and is used to enhance outcome of grayscale photos.	

28	Settings: **Unidirectional** ==OPTIONAL== No selection required. Engraving Only	Recommended Setting: **OFF**	Turning this on sets the engraving process to run left to right only. This requires more sweeps of the laser and results in a longer process.	
29	Settings: **Precision Sync** ==OPTIONAL== No selection required. Engraving Only	Recommended Setting: **OFF**	Enhances engraving quality but increases the total run time. This setting is only available for engraving processes.	

30	Settings: **Cycle** OPTIONAL No selection required.	Enter the number of times you want the laser to automatically repeat this process on the same material. **Recommend**: **1** If you do not move your materials, you can repeat the process again manually instead of increasing the cycle.	Sometimes when vector cutting the process may not cut through the material on the first pass. A second or third pass may help. When engraving you may decide going over the material again is needed to achieve a deeper or darker engraving.	
31	Settings: **Offset** OPTIONAL No selection required.	Recommended Setting: **0** Positive Value: Lowers table away from laser. Negative Value: Raises table closer to laser.	Allows you to adjust the focus of the laser at any point above or below the material. This is intentionally putting the laser out of focus to achieve non-standard results.	

32	Settings: **Beziers** **VECTOR ONLY**	Recommended Setting: **ON** This setting fine-tunes how the path of the laser follows each point in a curve when vector cutting.	Only for Vector Cutting process.	
33	Settings: **Vector Sorting** **VECTOR ONLY**	Select: **None**: Lines cut in order the lines were created. **Inside/Out**: Internal lines will be cut before the external lines. **Optimize**: Process in order of next closest node to reduce run time.	Only for Vector Cutting Process Recommended Setting: **Inside/Out**	

34	**Check Run Time**	The total time to complete the job is displayed for all the process you plan on running.	Give yourself an additional 15 minutes after your job completes to clean up and checkout.	
	REQUIRED	Be sure to get a total time for all your engrave and vector processes.	Need more time? You will need to stop now and make a new reservation.	
		==Do you have enough time before the end of your reservation==?	You will not be able to start a process and then resume it at a later date.	
	Repeat for each process. Steps 20 to 34	Repeat setting selections for each engrave and vector process in your project. You will select all your settings and send all the processes to the laser to execute.	If your artwork has both vector cutting lines and engraving lines, you will want to select the settings for all your engraving processes and vector process first.	 In the next step, you print the artwork to the laser. This will send the instructions to execute the engrave processes first and then automatically execute the vector processes.

Print to Laser	Click **Print**	This will send the job and settings selected from the computer to the laser. This will load the job in the laser memory, but the job will not run.		
Confirm air assist compressor is running.	Be sure air assist compressor is running and air is coming through the **nose cone** of the laser head carriage. When you place your hand or a slip of paper under the nose cone you should feel air coming out or see the paper being blown downwards.	⚠️ The air assist is essential for preventing fires. The air assist clears the soot and fine particles that are the first to catch fire.	NOSE CONE	

Confirm Ventilation is Running	Make sure the BOFA ventilation is on and running. The green light on the power button should be glowing green. Red lights on the arrow keys indicates a problem.	This system will filter the air from the inside the laser. ⚠️ It is UNSAFE to run the laser without the ventilation system on.	
Confirm all doors and panels are closed.	Close the hood of the laser.	⚠️ It is UNSAFE to run laser with any doors or panels open.	

Select Job	On laser control panel: Tap **Job** icon Tap name of job.		
Press Start	To begin the job, press the **Start/Pause** button below the control panel on the laser. The button will glow green when the laser begins the job.	Once you press the start button the laser head carriage will move over the material and begin to execute the selected process.	

	Watch and Observe	Observe the laser as it works. Watch for: -Material shifts -Embers/Heat -Flames -Smoke/Vapors Use the Play/Pause button to pause the laser for minor issues. Use the power key to stop the laser and kill all power to the laser for safety issues.	⚠️ Never leave laser unattended	**Fire Blanket** **Power Key**

Park laser head carriage.	After the job completes: Press the **reset** icon: The laser head carriage will return to upper left of the laser bed area.	⚠️ Before removing the material, it is important to park the laser head carriage out of the way to give you room to easily remove your material from the laser.	
Remove Material	Open the hood/lid door of the laser. Remove your material.	Once the laser head carriage is parked and out of the way, you can then remove your project from the laser. ⚠️ Take care not to bump laser head carriage, mirrors, or cameras.	

Clean Up	Vacuum up soot and debris from laser bed. Wipe down interior of laser with a barely damp rag as needed. Wipe down table and work surfaces as needed. Return tools to toolbox.	 Soot and debris in the laser are fire hazards.	 Located Under Whiteboard Worktable has tabletop outlets.	
Check Out	See staff. Return access keys.	Staff will verify the area is clean and check all tools are present and in correct location in toolbox.		
Post Processing	Use a damp towel to wipe off any soot or debris.	At home you can do a final clean-up of your project.		

TOOL INVENTORY

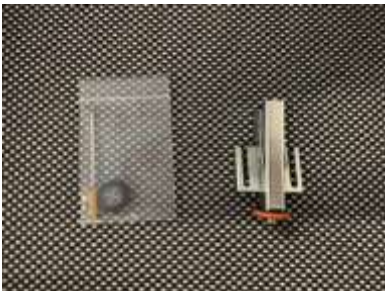**Drawer 1** – 3 items

- Measuring tape
- Calipers
- Scissors

Drawer 2 – 2 items

- Instructions
- Suggested Settings Sheet

Drawer 3 – 2 items

- Focus Gauge (bag)
- Rotary Rim Part

Drawer 4 – 2 items

- BOFA manual
- Epilog manual

Drawer 5 – 3 items (STAFF ONLY)

- Cleaning solution
- Cleaning Instructions
- Allen Wrench

Under Laser – 1 item

- Rotary Tool