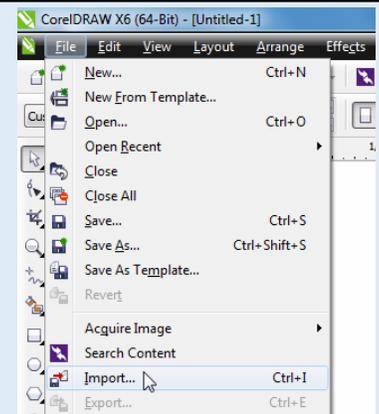


# Tinker Tuesday Project - Stainless Steel Tumblers

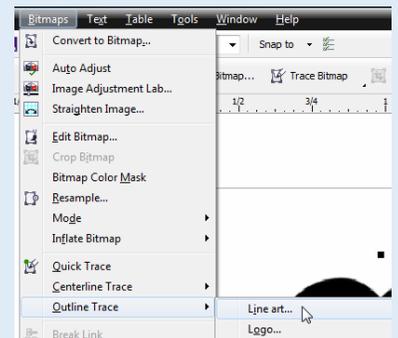
1. Open CorelDRAW and create a new document. Near the top left corner of the screen, click “File,” and then click “Import” on the resulting menu. Select an image from the desktop of the computer. Alternatively, you may copy and paste an image from online if you’d like. For engraving on stainless steel, simple images, like logos or line drawings, work best.



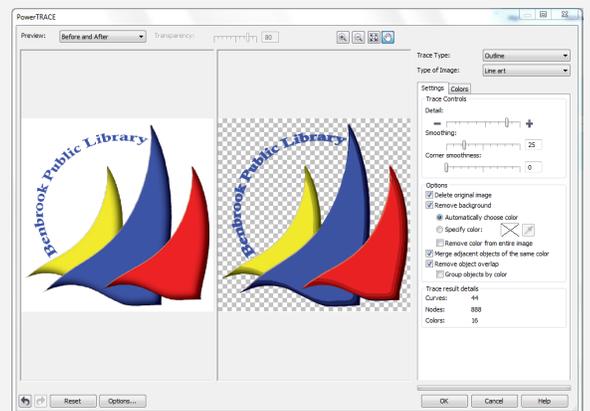
2. On your blank document, click and drag to import your image. Once your image is placed, you can click and drag any of the black squares surrounding it to resize it.



3. Though it may not look like it, your image likely has a white background behind it. This background needs to be removed. On the top menu bar, click “Bitmaps,” then “Outline Trace,” and then “Line art.”



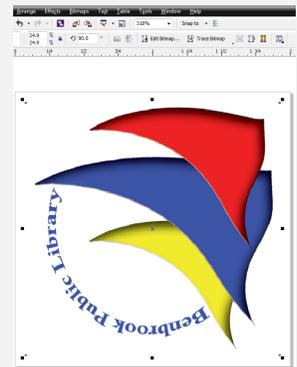
4. CorelDRAW will now perform a “trace” of your image, leaving only the image without a background. Be sure the “Delete original image” option is checked, then click OK.



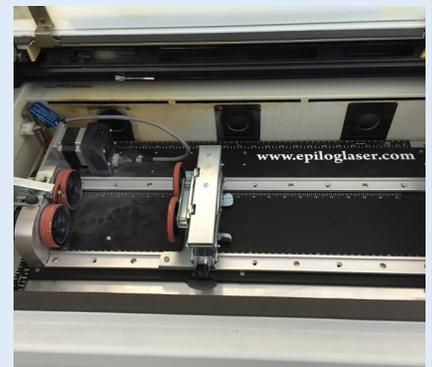
5. If you would like to add text, select the text tool (it is a capital A) on the tool bar on the left side of the page. Click anywhere in the white space of your document and type in your desired text. You may change your font and font size by using the font options near the top center of the page.



6. Press Ctrl + A on the keyboard to select every object in your document. Then enter "90" in the "angle of rotation" box, which is located slightly below the "Bitmaps" option on the top menu bar. Press enter on the keyboard, and your entire design will be rotated 90 degrees counterclockwise.



7. Transition to the engraver. If the rotary attachment is not already in the machine, ask a staff member for the attachment. Open the lid of the engraver, remove the grid, place the rotary attachment flush against the top left corner of the bed, and plug it in. **Make sure the engraver is OFF when completing this step.**



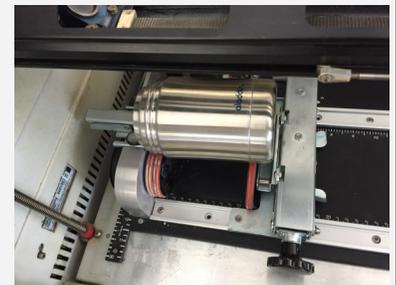
8. Power on the engraver by pressing the button on right side of the machine. You'll hear the engraver start up and see the arm of the laser slowly move to its home position.



9. The interface pictured on the right is found on the top side of the engraver, toward the lower right. It is used to control the laser arm, as well as to start and stop jobs. Press the Focus button, then press the down arrow until the bed is lowered far enough to allow space for your glass to rest on the rotary attachment.



10. Place your glass on the rotary attachment with the opening facing left. The right end of the attachment may be moved right or left to accommodate the length of the glass, and may be raised or lowered with the knob to make the glass level.



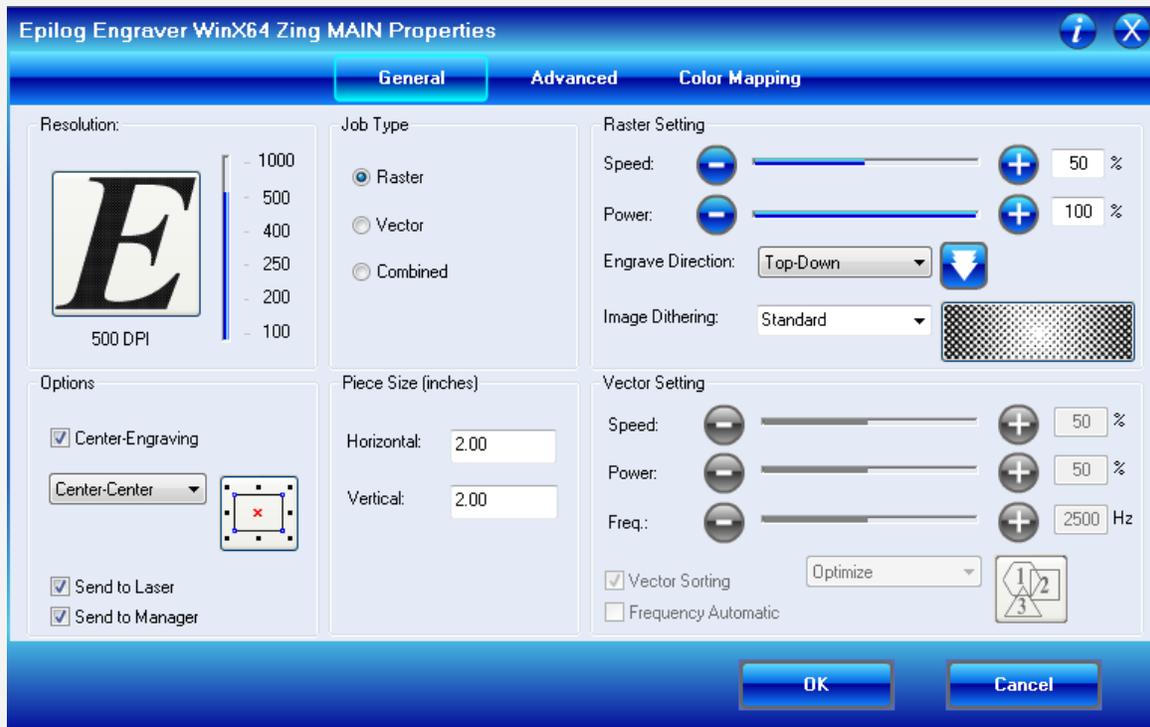
11. Release the spring attached to the arm of the laser so that it is oriented vertically. You can raise and lower the bed of the engraver as needed by using the up and down arrows on the interface pictured in the panel above. Your goal is to raise the bed to a level at which you feel a slight resistance on the spring. Once you achieve the proper level, press the "Reset" button.



12. Press the "X/Y Off" button to allow the laser arm to be moved freely, followed by the "Pointer" button to make a red dot pointer appear. Pull the belt on the laser arm left or right to position the red dot at the center of the portion of the glass you wish to engrave. You may want to use a ruler to guide you. Once the red dot is properly positioned, press "Go" followed by "Reset."



13. In order to make the engraving bond to the metal, CerMark metal marking spray must be applied to the tumbler. Take the tumbler outside (do not apply it inside) and apply a thin, even coat of spray to the area you plan to engrave. Allow the spray a couple of minutes to dry before engraving.



14. The Preferences menu is crucial to the engraving process, as it is where you specify all of the settings for your job. While with other engraving jobs, you may use more or fewer of the settings, for stainless steel engraving, you'll be using four:

-Job Type: Click the "Raster" button. "Raster" is for engraving objects, "Vector" is for cutting them, and "Combined" is for both engraving and cutting.

-Piece Size: In most cases, the dimensions you set here will need to match the size of your CorelDRAW document. If your document is 2x2, set your horizontal measurement to 2 and your vertical measurement to 2. Your piece size does not have to match the dimensions of your entire tumbler, but rather only the portion of your tumbler you wish to engrave.

-Raster Setting: The speed setting determines how quickly the laser arm moves back and forth as it engraves, and the power setting determines the amount of laser power that is applied to the material. The settings you should use depend entirely upon the type of material you are using. For your tumbler, set the speed slider to 50 and the power slider to 100.

-Center Engraving: By selecting "Center Engraving," the engraver will center around the new home point you set up when positioning the red dot in step 12. Make sure the "Center Engraving" box is checked.

Once you have adjusted all the necessary settings, click the "OK" button. On the resulting menu that appears, click "Print."

15. Turn on the vent switch on the bottom half of the engraver. When the vent is on, you should see a small green light on both the switch and next to the green check mark to the right of the switch. If you see the yellow or red light on, DO NOT engrave; notify a library staff member.



16. On the interface on top of the engraver, you should see the name of your file appear in display window next to the word “job.” Press the green Go button to begin engraving.



17. Depending on the size and complexity of your design, the engraving process can take anywhere from a few seconds to an hour or more. Engraving designs on tumblers can be done in around 5 minutes. Please wait by the engraver and keep an eye on the progress of your job so that you may stop the machine or notify a library staff member if you notice problems.



18. When the engraver is finished with your job, you will hear a beeping sound. It is then safe to turn off the vent, open the lid of the machine, and remove your engraved object. The spray may be washed off with water and a paper towel or hand, leaving your engraving behind. It is highly recommended to wash the inside of your tumbler before using it to ensure you don't ingest residue from the spray.

