

Preparing Files for Laser Cutting / Engraving

The laser cutter can either cut material or engrave a surface.

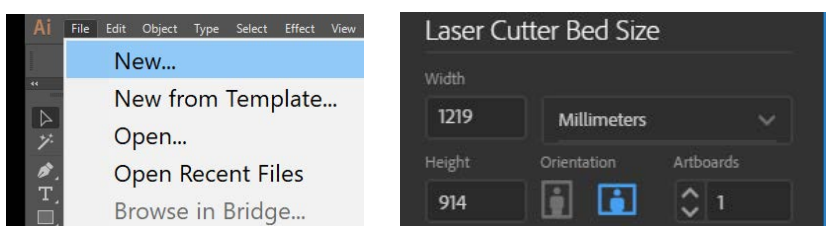
In cutting mode, the laser is on while following paths and off while performing non-cutting travel moves between separate paths. For cutting, you will need a vector file, AI or DXF format, which can be generated from Illustrator, etc.

When engraving, the laser moves back and forth across the image area, switching on and off between image and non-image areas. For engraving, you can use a vector file with closed paths, or a JPG, PNG or BMP file from Photoshop.

This guide will show you the most common methods we use.

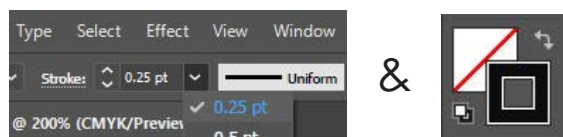
Illustrator for Laser Cutting / Engraving

Create your documents in millimeters. Our laser cutter bed size is 1219 x 916 mm.



Paths, Color and Layers

Set the stroke width of all paths to .25 pt width with no fill.

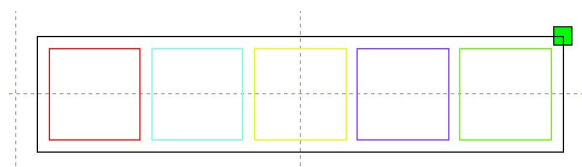


Colored paths created in Illustrator will import into the laser cutter software RDWorks as separate layers. This is extremely handy because each layer in RDWorks can have different cut / engrave settings.



Illustrator paths

becomes ->



Paths as seen in RDWorks

The image shows the 'Work' tab in RDWorks, displaying a table of layers. The table has columns for Layer, Mode, Output, and Hide. The layers are color-coded to match the paths in the previous image.

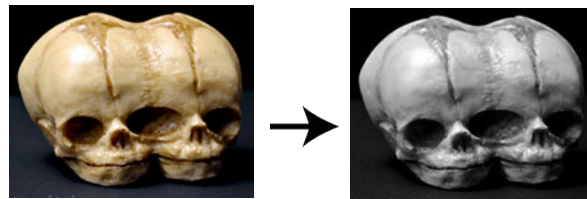
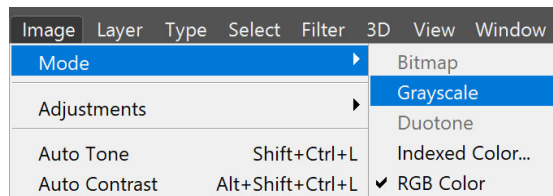
Layer	Mode	Output	Hide
Black	Cut	Yes	No
Red	Cut	Yes	No
Cyan	Cut	Yes	No
Yellow	Cut	Yes	No
Purple	Cut	Yes	No
Green	Cut	Yes	No

RDWorks layers from colors

Once you've got all your paths prepared, save your document in Illustrator's native format: AI.

Photoshop: Saving an Image for Engraving

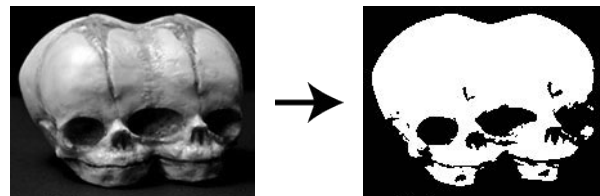
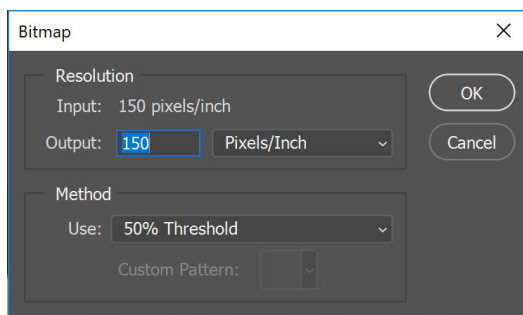
Pixel images from Photoshop can be used for engraving, provided they are black and white. In engraving mode, the machine will fire the laser anywhere there is black on the image. To ensure the image contains only black and white, it should be converted to Bitmap mode. Before converting, ensure the image is at the correct scale and any adjustments have been completed, then convert to Grayscale Mode: Image > Mode > Grayscale



Grayscale

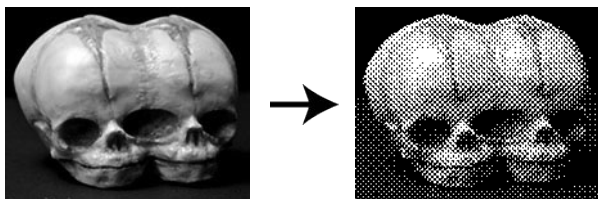
Then from the same menu: Image > Mode > Bitmap

In the first dialog that appears, set the resolution for your bitmap image and the method it will use to generate it. 50% Threshold will produce an image where everything below 50% gray turns to white, and everything above 50% turns to black.

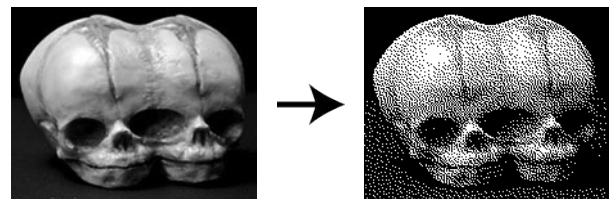


50% Theshold

For tonal images, Halftone Screen or Diffusion Dither are likely the most useful, as in the examples here. With Halftone Screen, the size of the dots making up the image is expressed as frequency in lines / inch. A higher number will result in a smaller dot. Diffusion Dither produces a more random looking halftone effect, where one pixel = one dot, so the resolution determines the size of the dot, i.e. a lower number produces a larger dot. With all these methods, some experimentation will be needed to get the desired result.



Halftone Screen



Diffusion Dither

Finally, the image should be saved in BMP format with the options set as in the example below:

