

Artwork Resolution and How it Translates to Engraving

As with any printing the higher the resolution of the artwork the finer the detail. This is the same for laser engraving. At PDX Lasers we can engrave at resolutions up to 1200 DPI.

Having said that, resolution is only one factor in determining image quality. First and foremost the quality of the original artwork has a greatest influence over the quality of your engraving. If you print and image from a website, many times this may only be a 72dpi resolution, because most web designers don't choose to create websites that force viewers to sit and wait for huge 1200dpi images to load.

When it comes to printing and engraving, printing your 72dpi artwork at 1200dpi will not improve the low-quality 72dpi artwork. Also, keep in mind that image quality is subjective - 300 DPI may be perfectly adequate for some images, others require a higher resolution.

Here is an example of different laser resolutions and how they affect engravings.

Different Settings for Different Uses:

75 - 200 DPI: These settings are used for rough drafts on materials for non-production purposes for reviewing image location, etc.

300 DPI:- This resolution is the key DPI setting where image quality does not need to be extremely detailed. Simple shapes, objects with little or no shading and text (especially large, block text) engrave well at 300 DPI.

400 DPI - This resolution value is ideal for many applications. It combines very good image quality with fast engraving times. 400 DPI is a standard resolution that some use for all of their work.

600 DPI - When exceptionally fine detail or shading is required or when overall excellent results are required, users will choose 600 DPI.

1200 DPI - This resolution is reserved for projects that require the highest engraving quality possible, although it's rarely used because it takes twice as long to perform an engraving at this resolution (as opposed to 600 DPI, which is ideal for most projects.)

Resolution and engraving time:

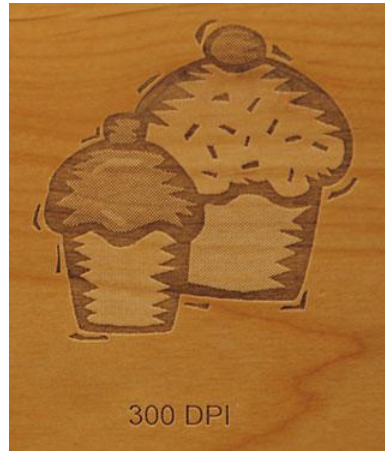
Resolution choice has a significant impact on engraving time as well. Images engraved at a higher resolution will take longer than those at a lower resolution. Below are some samples from the Epilog Laser website that show what these tradeoffs are. There are other factors that impact the output quality and engraving time such as material being engraved, laser speed, laser power, dithering, grayscale vs. black and white, etc., but for this example we are only looking at DPI as the sole "knob" in this quality/time example.

The images below were done on a 45-watt laser engraver at 45% speed and 100% power. Only resolution was changed. See the significant differences in the quality and engraving times below.

150 DPI
1:01 engraving time



300 DPI
1:53 engraving time



400 DPI
2:28 engraving time



600 DPI
3:33 engraving time



1200 DPI
6:57 engraving time



It's a matter of personal preference as to which resolution looks the best, but these photos show the dramatic difference resolution can make on image output and engraving time, especially when engraving with grayscale images.