

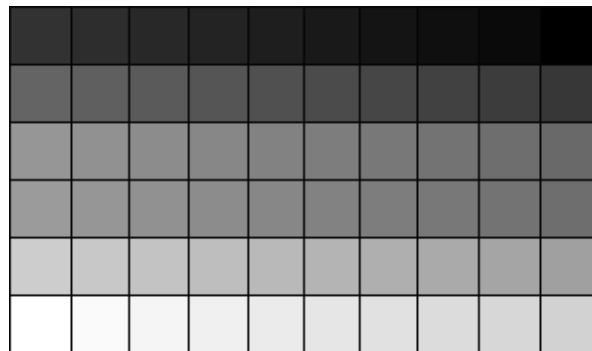
# Laser Diode Material Test for Image Engraving

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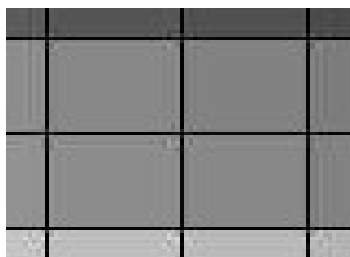
Laser diode image engraving can be done on many different types of materials, but each particular material requires different settings in our PicLaser Lite and PicEngrave Pro 5 software to get the best results.

Many factors, such as the image itself being engraved, natural variations in engraving surface, laser power, beam focus, etc., all have an effect on the final engraving results, and only by careful experimentation can we sort out the various factors.

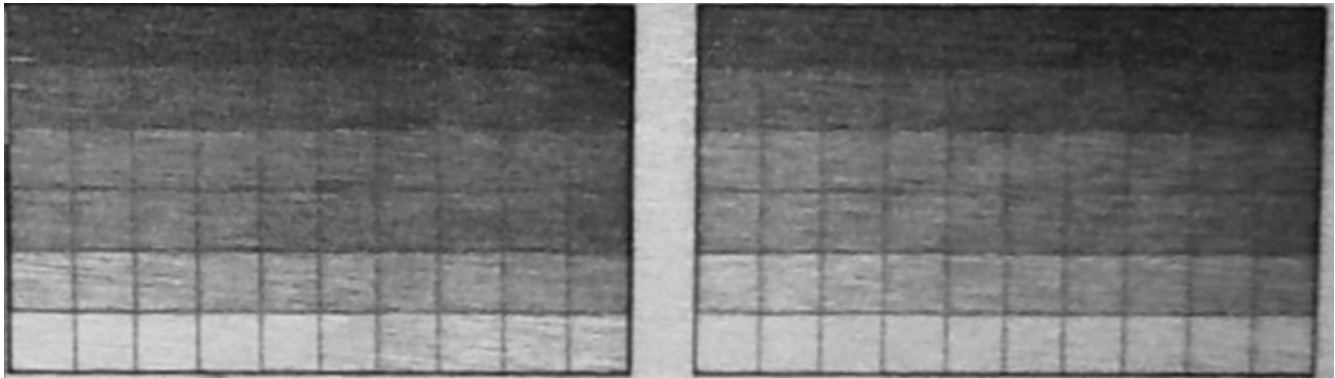
The following image is one I often use to establish my beginning settings, and to minimize my material waste and time.



The image has 60 shades of gray divided into color values ranging from 255 (solid white) to 0 (solid black). The image is 308 pixels wide by 181 pixels high, and can be re-sized with an image editor to any size you prefer. If you do re-size it, when saving make sure to only save it in a non-compressed image format (exp: bmp or tif) to prevent the introduction of compression artifacts that the use of some image file formats (such as .jpg) create. These artifacts will affect the color values of some of the pixels in each square of the image, and may give poor testing results. Ordinarily, when engraving images from jpg photos, the artifacts will not create a quality problem because of the widely varying shades of adjacent pixels. Following is a cropped example of the image saved as a .jpg with a 50% compression ratio.



The next image is a quick example I did for this article using a sample of some Birch plywood I recently purchased. I apologize for the poor picture quality. The actual test images look much better in hand and with natural lighting.



(Photographed with an iPad and converted to grayscale.)

Both were engraved at 0.15mm / 0.006 inch pixel resolution (size) and at a 45° angle to the wood grain. The image on the left was engraved with a feed rate of 1500mm/m / 59 ipm, and the right was at done at 1800 mm/m / 71 ipm, and took between about 12 and 9 minutes respectively. Engraving at a different angle can also have an effect on the final results.

The grain of the wood was set horizontally, which I prefer. Depending upon the wood type, engraving with the wood grain at a vertical angle may be better. Only experimentation can best determine this for you.

Please note that the feed rate I used for this example may be either too high or too low for your system and maximum diode power.

To get a copy of the test image, simply copy it from this PDF and paste it into your favorite image editor, and save with a bmp file extension.