Laser Marking AlumaMark

How to (quickly) find optimal settings

Since its introduction in 2002, AlumaMark has become known as one of the most valuable and unique laser markable materials available. The reason for AlumaMark's appeal is clear: real metal simply has a higher perceived value than plastic or painted metal-looking products. A higher perceived value means that, although AlumaMark *may* cost more, it will command higher margins and more repeat business in the long run.

Today, AlumaMark remains the only laser markable material that produces photo-quality images on real metal without etching, engraving, or adding chemicals. This article, along with the free resources available at www.alumamark.com, will help you get amazing results on AlumaMark with your laser. So, whether you are an experienced AlumaMark user or a newbie, dive in and see how easy it is to find the optimal laser settings for any color of AlumaMark.

WHAT IS ALUMAMARK?

AlumaMark uses a thermal process by which the heat of the CO_2 laser marks the metal's surface, generating high detail images and photographic-quality halftones. AlumaMark is used for high-value recognition applications such as photographic reproductions, serialized donor plaques, corporate awards, interior signage, and many others. As previously stated, AlumaMark is the only laser markable material that produces photo-quality images on real metal without etching, engraving, or adding chemicals.

ALL IMAGES COURTESY THE AUTHOR

By Karly Baldi

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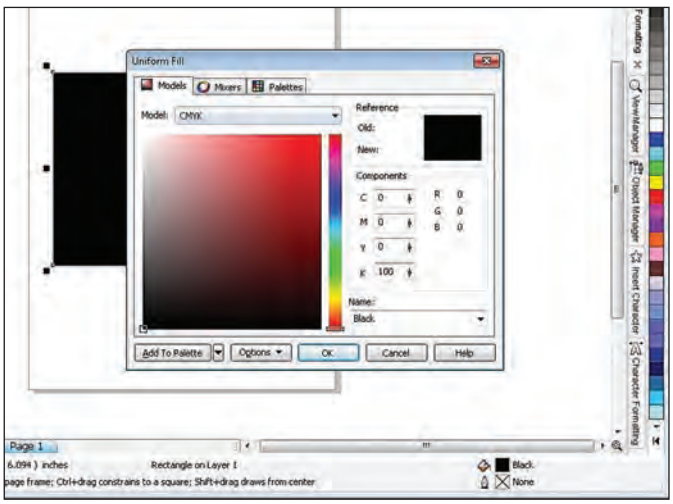
Because of AlumaMark's unique composition, it can take more trial and error to determine the proper settings. The following steps will help to quickly hone in on the optimal settings. To start off, even though AlumaMark comes in 12 different finishes, the settings used can be divided into two distinct groups:

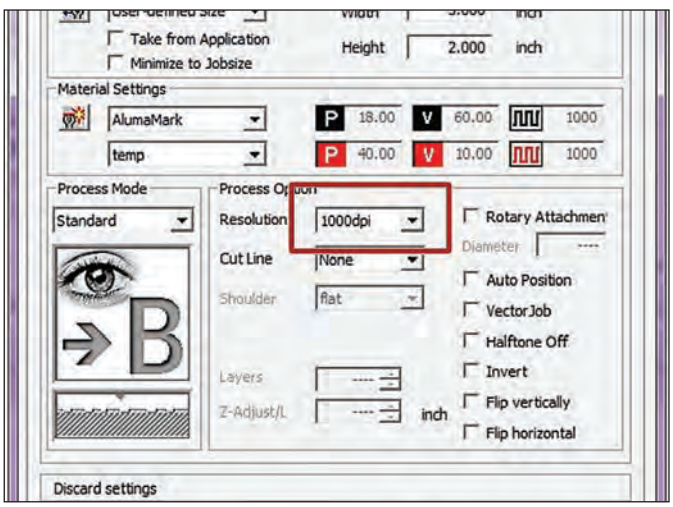
- **Higher power/more forgiving group**—Satin Gold, Brass, Bronze, and Mirrored Gold
- **Less power/more narrow sweet spot—**Satin Silver, Red, Yellow, Orange, Green, Blue, Matte Silver, and Mirrored Silver

FINDING THE OPTIMAL SETTINGS



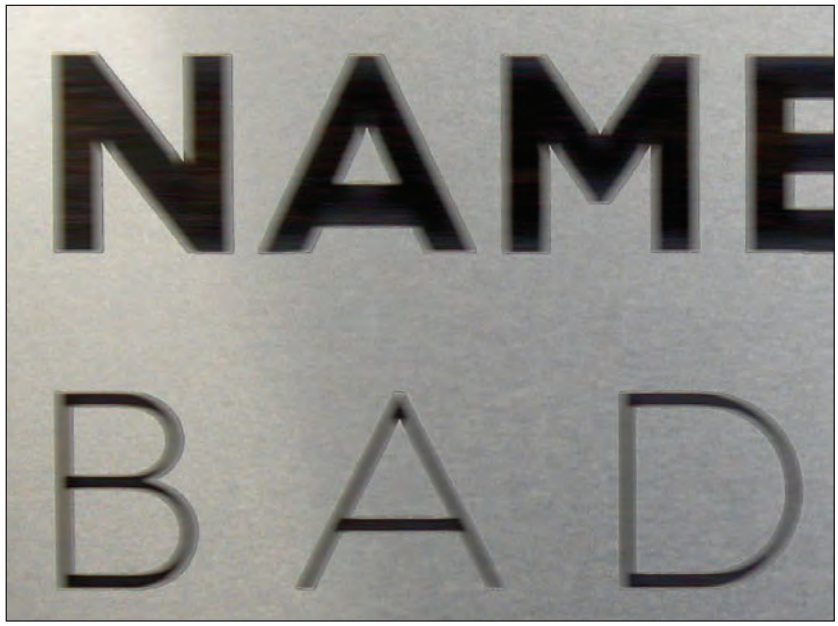
Step 1: PPI (Pulses Per Inch)

Assuming the area to be lased is a true black and not less than 100 percent black, the first setting to adjust is pulses per inch, or PPI. On some lasers, PPI can be adjusted—1000 is the ideal setting if it can be changed.



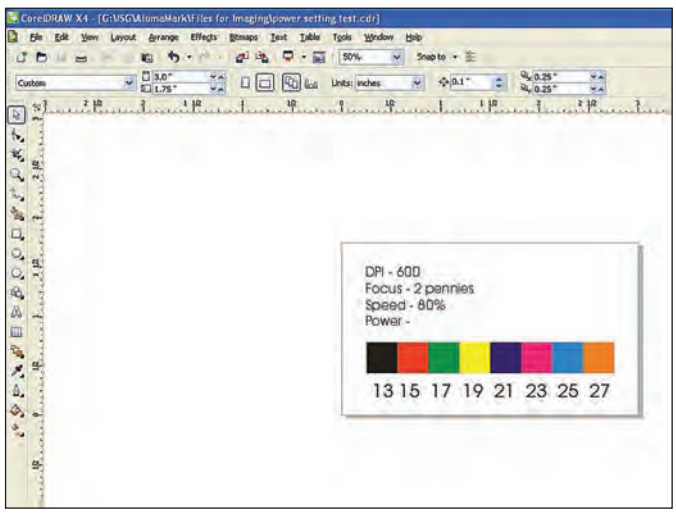
Step 2: DPI (Dots Per Inch)

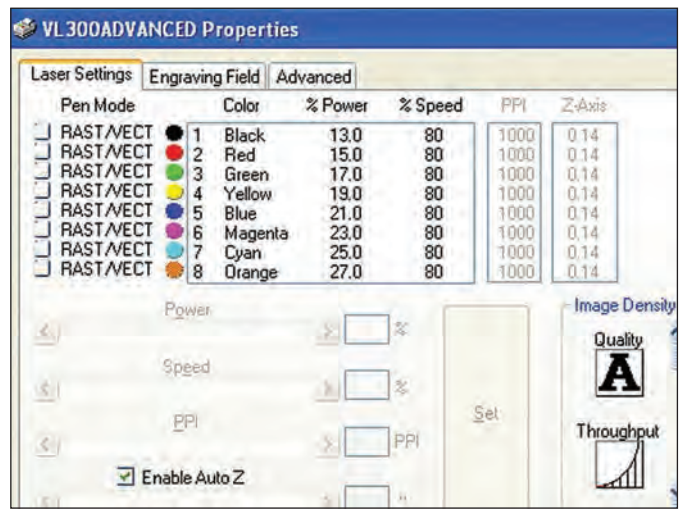
The next variable is DPI (dots per inch)—this needs to be at least 600; 1000 will give a slightly wider range of ideal settings but will take more time to lase pieces.

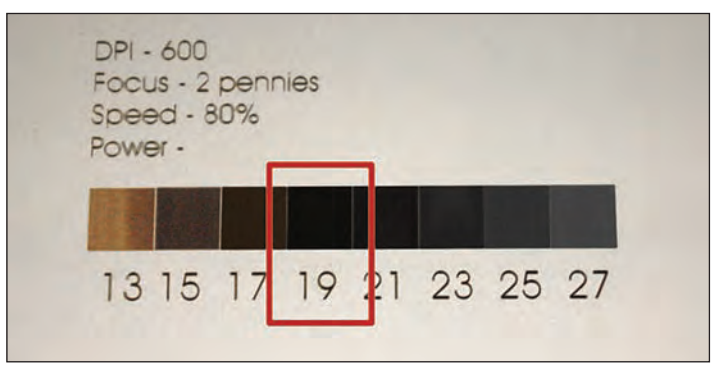


Step 3: Speed

Now we are down to three remaining variables to adjust. The first one to determine is the speed of the laser. Faster is better in terms of production, and newer lasers can run faster than lasers of five or more years ago. The point at which the laser is running too fast is when the verticals of a letter mark lighter than the horizontals of a letter. The laser needs to be running slow enough to yield a consistent mark (typically 60 to 80 percent speed).

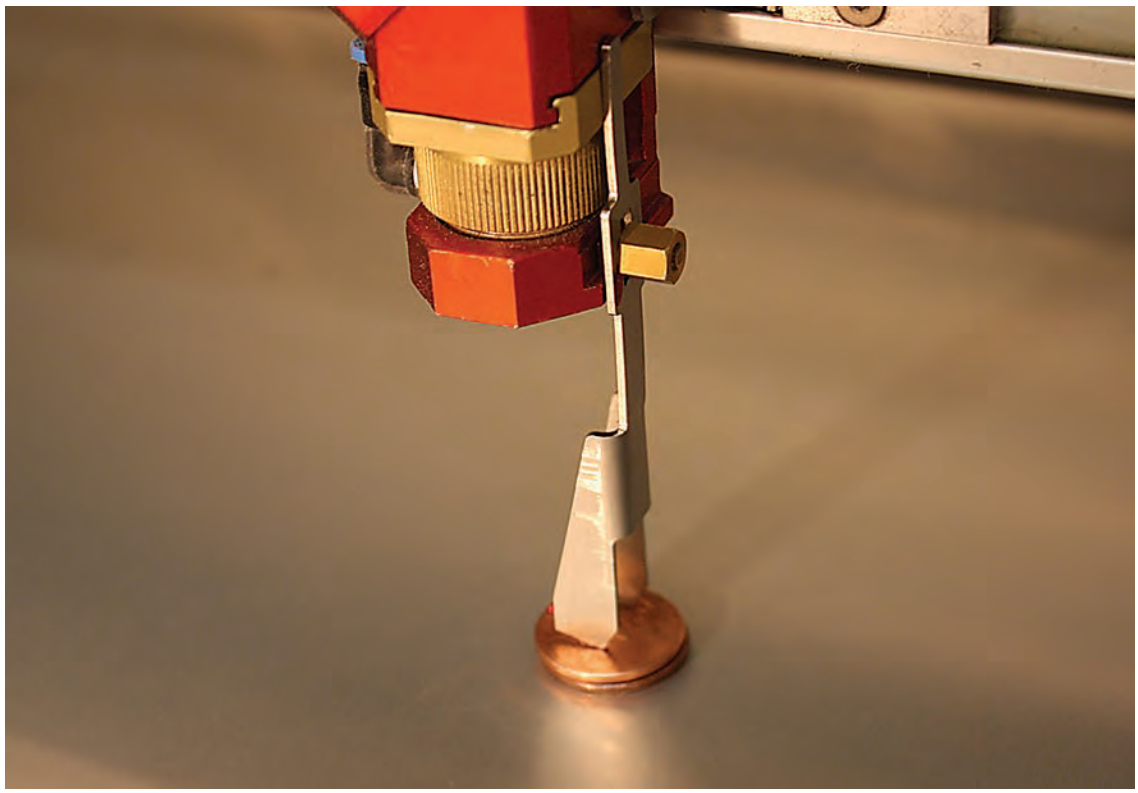






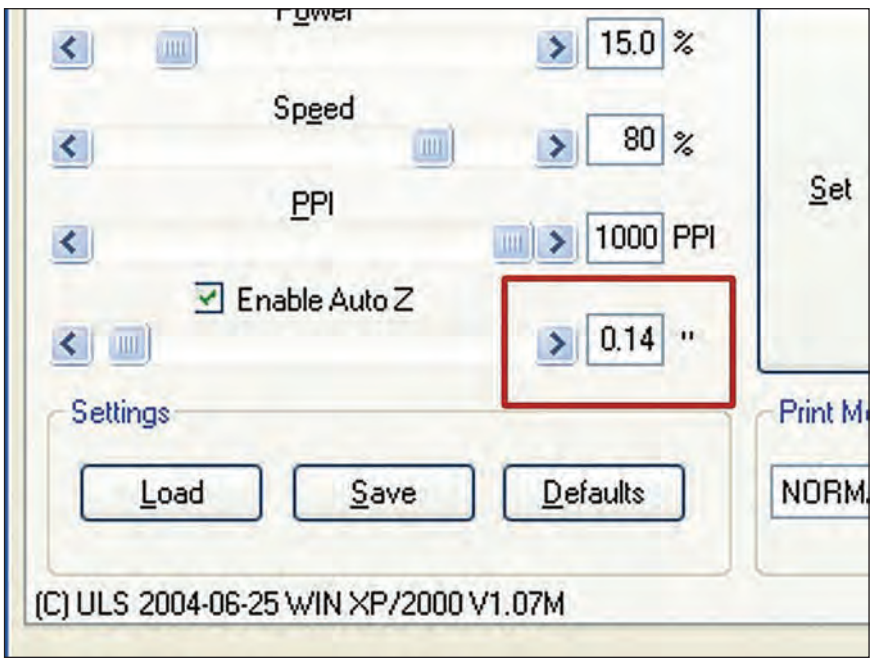
Step 4: Power

The next variable to adjust is power. A simple grid with varying powers is the most efficient way of determining power. You can download a grid at www.alumamark.com—the grid allows you to use colored pens to test a variety of power settings at the same time. Thirteen to 27 percent is a good range for a starting point. Evaluate the results. Tan, brown, or red marks mean not enough power, and gray means too much. Ideally there should be a block or two of a nice shiny black. To see the true mark on AlumaMark, always wipe off the sheet with a damp cloth to remove the ash and reveal the true mark.



Step 5: Focus (Z-Axis)

The last variable to adjust is the focus. If the marked area jumps from brown to gray without the nice black mark, sometimes taking the laser out of focus slightly can help to disburse the power and open up the power range. For lasers with a manual focus, lay the sheet of AlumaMark in the laser, stack two pennies on top, and then focus to that height. For lasers with an automatic focus, enter the thickness of the material to be 0.14 inches (.020 inches of AlumaMark plus .125 inches).



Now all that is left is for you to try this at home. If you've already bought AlumaMark, you are ready to experiment on your laser. If not, you can order a free sample on www.alumamark.com. Other resources available include material performance properties, how to create half-tone images, sample images/applications, and a list of distributors. ***LER***