

# APPENDIX B: MATERIAL SETTINGS

Fusion Edge Suggested Material Settings (CO2)						
Material	DPI/Freq.	30 watt	40 watt	50 watt	60 watt	80 watt
<b>Acrylic</b>						
<b>Photo Engraving</b>	300 DPI	100s 75p	100s 70p	100s 65p	100s 60p	100s 50p
<b>Text/Clipart Engraving</b>	300 DPI	100s 75p	100s 70p	100s 65p	100s 60p	100s 50p
<b>Text/Clipart Engraving</b>	500 DPI	100s 70p	100s 65p	100s 55p	100s 50p	100s 40p
<b>Cutting 1/8" (3 mm)</b>	100 f	6s 100p	8s 100p	12s 100p	20s 100p	30s 100p
<b>Cutting 1/4" (6 mm)</b>	100 f	3s 100p	4s 100p	6s 100p	8s 100p	10s 100p
<b>Cutting 3/8" (9.5 mm)</b>	100 f		2s* 100p	3s 100p	4s 100p	5s 100p
<b>Cutting 1/2" (13 mm)</b>	100 f				1s 100p	2s 100p
<p>Cutting Note: Adjusting the standard focus distance so it is closer to the lens by about .080" (2 mm) will produce better edge quality when cutting 1/4" (6mm) acrylic and thicker. Two passes can be used for cutting thicker materials. There are two types of acrylic: cast is better for engraving (it creates a frosted look when engraved) and extruded acrylic produces a much better flame polished edge.</p>						
<b>Alumamark</b>						
<b>Engraving</b>	500 DPI	100s 35p	100s 30p	100s 25p	100s 15p	100s 10p
<b>Anodized Aluminum</b>						
<b>Photos/Clipart</b>	400 DPI	100s 65p	100s 55p	100s 45p	100s 35p	100s 30p
<b>Photos/Clipart</b>	500 DPI	100s 60p	100s 50p	100s 40p	100s 30p	100s 30p
<b>Text</b>	500 DPI	100s 70p	100s 60p	100s 50p	100s 40p	100s 30p
<p>We find when engraving anodized aluminum, text appears best at 500 DPI, but photos and clipart can be engraved with great detail down to 400 DPI.</p>						
<b>Cork</b>						
<b>Engraving</b>	500 DPI	100s 70p	100s 60p	100s 50p	100s 40p	100s 20p
<b>Fleece</b>						
<b>Engraving</b>	200 DPI	100s 50p	100s 40p	100s 30p	100s 20p	100s 15p
<p>When engraving fabric, try changing the graphic to 80% gray and use the Jarvis dithering pattern for the best results. Every fabric you are cutting will need to have adjusted setting - find a small swatch of the fabric you can test first.</p>						
<b>Glass</b>						
<b>Engraving</b>	500 DPI	30s 100p	40s 100p	50s 100p	60s 100p	70s 100p
<p>When etching glass, try changing the graphic to 80% gray before engraving and using the Jarvis dithering pattern. You can also diffuse heat by covering the glass with a thin layer of dish soap.</p>						
<b>Leather</b>						
<b>Photo Engraving</b>	300 DPI	100s 80p	100s 70p	100s 60p	100s 50p	100s 40p
<b>Text/Clipart Engraving</b>	500 DPI	100s 70p	100s 60p	100s 50p	100s 40p	100s 30p
<b>Cutting 1/8" (3 mm)</b>	50 f		10s 100p	15s 100p	20s 100p	25s 100p
<b>Mat Board</b>						
<b>Cutting</b>	50 f	25s 40p	25s 30p	30s 40p	30s 30p	30s 25p

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<b>Marble</b>						
<b>Photo Engraving</b>	300 DPI	100s 90p	100s 80p	100s 70p	100s 60p	100s 50p
<b>Text Engraving</b>	500 DPI	100s 80p	100s 70p	100s 60p	100s 50p	100s 40p
Every marble is very different for settings. Start low and increase the power with a second run if you haven't used that marble before.						
<b>Painted Brass</b>						
<b>Engraving</b>	300 DPI	100s 35p	100s 30p	100s 25p	100s 15p	100s 10p
<b>Engraving</b>	500 DPI	100s 30p	100s 25p	100s 20p	100s 15p	100s 10p
<b>Plastics</b>						
<b>Engraving</b>	300 DPI	100s 45p	100s 40p	100s 35p	100s 30p	100s 25p
These settings work well with many plastics, including plastic phones and covers. Even one color plastics can achieve a great look when engraved.						
<b>Plastic (2 Layer Laser Engraveable)</b>						
<b>Engraving</b>	300 DPI	100s 70p	100s 65p	100s 40p	100s 35p	100s 25p
<b>Engraving</b>	500 DPI	100s 60p	100s 50p	100s 40p	100s 30p	100s 20p
<b>Cutting 1/16" (1.5 mm)</b>	100 f	10s 65p	10s 55p	10s 40p	20s 40p	20s 25p
<b>Stainless Steel w/ Metal marking solution</b>						
<b>Engraving</b>	500 DPI	15s 100p	20s 100p	25s 100p	30s 100p	40s 100p
<b>Twill</b>						
<b>Cutting</b>	25 f	70s 100p	90s 100p	90s 80p	90s 60p	90s 50p
<b>Wood</b>						
<b>Photo Engraving</b>	500 DPI	50s 100p	60s 100p	70s 100p	80s 100p	90s 100p
<b>Clipart/Text Engraving</b>	300 DPI	40s 100p	50s 100p	60s 100p	90s 100p	100s 100p
<b>Clipart/Text Engraving</b>	500 DPI	30s 100p	40s 100p	50s 100p	60s 100p	80s 100p
<b>Deep Engraving</b>	500 DPI	20s 100p	30s 100p	40s 100p	50s 100p	60s 100p
<b>Thin Veneer (Cutting)</b>	10 f	40s 100p	40s 90p	50s 80p	50s 60p	50s 40p
<b>Cutting 1/8" (3 mm)</b>	10 f	10s 100p	15s 100p	20s 100p	25s 100p	30s 100p
<b>Cutting 1/4" (6 mm)</b>	10 f		2s 100p	3s 100p	4s 100p	12s 100p
<b>Cutting 3/8" (9.5 mm)</b>	10 f			5s 100p	6s 100p	8s 100p
<b>Cutting 1/2" (12 mm)</b>	10 f					4s 100p
When cutting wood, multiple passes may allow cutting of thicker materials. Using Color Mapping you can adjust the focus point between passes down to the center point of the cut for the best results.						

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- **These are only suggestions:** Every type of material will react differently with the laser, even from one plastic to the next. Use these settings as your starting point then adjust one variable at a time until you achieve the result you desire. Settings for any material are a matter of personal preference. Not every material that can be run at high speed should be run at high speed. A better mark can often be achieved by slowing your laser and giving the laser longer to react to your material.
- **Test your material:** If you have a small area of the material you won't be using, or an extra item, take advantage of this area to test out your settings by engraving a small square or cutting a small circle. You can fine tune your settings in these areas.
- **Similar materials use similar settings:** When you are working with a material you aren't familiar with, think about a similar material and what settings you would use with that product. Most anodized aluminums will react well with similar settings, as will most plastics.
- **When in doubt, start low:** Remember, you can always re-run your job as long as you don't move it in the machine. Let's say you're running a photograph in a one-of-a-kind wood plaque. Start with a lower power setting, look at the engraving, then run the project a second time at high speed and lower power a second time to add a little more depth if needed.
- **Run only one part of the file:** If running a job on a new material, you can always just select one piece of the engraving, like a piece of text, and run that part first to make sure your settings are perfect before running the whole file.



To print a copy of these settings to keep next to your laser, go to [www.epiloglaser.com/material-settings.htm](http://www.epiloglaser.com/material-settings.htm).