

# APPENDIX B: MATERIAL SETTINGS

Epilog Mini / Helix Suggested Material Settings

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Material	DPI/Freq.	30 watt	40 watt	50 watt	60 watt	75 watt
<b>Acrylic</b>						
<b>Photo Engraving</b>	300 DPI	90s 60p	90s 55p	90s 50p	90s 45p	90s 40p
<b>Text/Clipart Engraving</b>	300 DPI	90s 80p	90s 75p	90s 70p	90s 65p	90s 60p
<b>Text/Clipart Engraving</b>	600 DPI	90s 75p	90s 70p	90s 65p	90s 60p	90s 55p
<b>Cutting 1/8" (3 mm)</b>	5000 f	9s 100p	12s 100p	15s 100p	20s 100p	25s 100p
<b>Cutting 1/4" (6 mm)</b>	5000 f	5s 100p	6s 100p	8s 100p	12s 100p	15s 100p
<b>Cutting 3/8" (9.5 mm)</b>	5000 f	-	-	3s 100p	4s 100p	5s 100p
Cutting Note: Adjusting the standard focus distance so it is closer to the lens by about .030" (.762 mm) will produce better edge quality on 1/4" acrylic and thicker. Two passes may produce better results and allow for cutting through thicker materials. There are two types of acrylic: cast is better for engraving (creates a frosted look when engraved) and extruded acrylics are better for smooth-edged cutting.						
<b>Alumamark</b>						
<b>Engraving</b>	300 DPI	90s 55p	90s 45p	90s 35p	90s 25p	90s 20p
<b>Engraving</b>	600 DPI	90s 45p	90s 35p	90s 25p	90s 15p	90s 10p
<b>Anodized Aluminum</b>						
<b>Photos/Clipart</b>	300 DPI	90s 55p	90s 50p	90s 45p	90s 40p	90s 35p
<b>Photos/Clipart</b>	600 DPI	90s 50p	90s 45p	90s 40p	90s 35p	90s 30p
<b>Text</b>	600 DPI	90s 60p	90s 55p	90s 50p	90s 45p	90s 40p
We find when engraving anodized aluminum, text appears best at 600 DPI, but photos and clipart can be engraved with great detail down to 300 DPI.						
<b>Cork</b>						
<b>Engraving</b>	300 DPI	90s 50p	90s 45p	90s 40p	90s 35p	90s 30p
<b>Cutting</b>	500 f	25s 50p	25s 45p	25s 40p	25s 35p	25s 30p
<b>Cotton</b>						
<b>Engraving</b>	300 DPI	90s 30p	90s 25p	90s 20p	90s 15p	90s 10p
<b>Denim</b>						
<b>Engraving</b>	300 DPI	90s 35p	90s 30p	90s 25p	90s 20p	90s 15p
<b>Fleece</b>						
<b>Engraving</b>	150 DPI	90s 35p	90s 30p	90s 25p	90s 20p	90s 15p
<b>Cutting</b>	2500 f	25s 25p	25s 20p	25s 15p	25s 10p	25s 5p
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 settings - find a small swatch of the fabric you can test first.						
<b>Glass</b>						
<b>Engraving</b>	300 DPI	15s 100p	20s 100p	25s 100p	30s 100p	35s 100p
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 sheet of dish soap.						
<b>Leather</b>						
<b>Photo Engraving</b>	300 DPI	90s 40p	90s 35p	90s 30p	90s 25p	90s 20p
<b>Text/Clipart Engraving</b>	600 DPI	90s 50p	90s 45p	90s 40p	90s 35p	90s 30p
<b>Cutting 1/8" (3 mm)</b>	500 f	30s 80p	30s 75p	30s 70p	30s 65p	30s 60p

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<b>Mat Board</b>						
<b>Engraving</b>	400 DPI	70s 100p	70s 90p	70s 80p	70s 70p	70s 60p
<b>Cutting</b>	500 f	20s 50p	20s 45p	20s 40p	20s 35p	20s 30p
Bottom-up engraving is suggested for mat board etching.						
<b>Marble</b>						
<b>Photo Engraving</b>	300 DPI	90s 55p	90s 50p	90s 45p	90s 40p	90s 35p
<b>Text Engraving</b>	600 DPI	90s 65p	90s 60p	90s 55p	90s 50p	90s 45p
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	90s 45p	90s 40p	90s 35p	90s 30p	90s 25p
<b>Engraving</b>	600 DPI	90s 40p	90s 35p	90s 30p	90s 25p	90s 20p
<b>Plastics</b>						
<b>Engraving</b>	300 DPI	90s 40p	90s 35p	90s 30p	90s 25p	90s 20p
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 Engraveable)</b>						
<b>Engraving</b>	300 DPI	90s 80p	90s 75p	90s 70p	90s 65p	90s 60p
<b>Engraving</b>	600 DPI	90s 70p	90s 65p	90s 60p	90s 55p	90s 50p
<b>Cutting 1/8" (3 mm)</b>	5000 f	15s 100p	20s 100p	30s 100p	30s 85p	30s 70p
<b>Rubber Stamps</b>						
<b>Engraving</b>	400 DPI	6s 100p	10s 100p	20s 100p	30s 100p	50s 100p
<b>Engraving</b>	600 DPI	16s 100p	20s 100p	30s 100p	40s 100p	60s 100p
<b>Cutting</b>	100 f	10s 100p	15s 100p	20s 100p	25s 100p	40s 100p
<b>Stainless Steel w/Cermark</b>						
<b>Engraving</b>	600 DPI	20s 100p	25s 100p	30s 100p	35s 100p	45s 100p
<b>Twill</b>						
<b>Cutting</b>	2500 f	50s 50p	50s 45p	50s 40p	50s 35p	50s 25p
<b>Wood</b>						
<b>Photo Engraving</b>	600 DPI	40s 100p	45s 100p	50s 100p	55s 100p	60s 100p
<b>Clipart/Text Engraving</b>	600 DPI	30s 100p	35s 100p	40s 100p	45s 100p	50s 100p
<b>Clipart/Text Engraving</b>	300 DPI	25s 100p	30s 100p	35s 100p	40s 100p	45s 100p
<b>Deep Engraving</b>	600 DPI	10s 100p	15s 100p	20s 100p	25s 100p	30s 100p
<b>Thin Veneer</b>	500 f	30s 22p	30s 18p	30s 14p	30s 12p	30s 9p
<b>Cutting 1/8" (3 mm)</b>	500 f	25s 100p	30s 100p	35s 100p	40s 100p	45s 100p
<b>Cutting 1/4" (6 mm)</b>	500 f	8s 100p	10s 100p	15s 100p	20s 100p	25s 100p
<b>Cutting 3/8" (9.5 mm)</b>	500 f	-	-	6s 100p	10s 100p	12s 100p
When cutting wood, multiple passes may allow cutting of thicker materials. You can readjust the focus 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. But don't feel that you need to be exact on any of the settings. While engraving acrylic at 35% speed and 75% speed will give you a very different result, the difference between 35% and 39% will be much more subtle and relies more on personal preferences.
- **Test your material:** If you have a small area of the material you won't be using, or an extra of the 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](http://www.epiloglaser.com/material-settings).

