APPENDIX B: MATERIAL SETTINGS

Fusion Maker Suggested Material Settings (CO2)

Material	DPI/Freq.	30 watt	40 watt	50 watt
Acrylic				
Photo Engraving	300 DPI	100s 55p	100s 40p	100s 30p
Text/Clipart Engraving	300 DPI	100s 75p	100s 60p	100s 45p
Text/Clipart Engraving	500 DPI	100s 55p	100s 40p	100s 25p
Cutting 1/8" (3 mm)	100 f	8s 100p	10s 100p	12s 100p
Cutting 1/4" (6 mm)	100 f	2s 100p	4s 100p	6s 100p
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.				
Alumamark				
Engraving	300 DPI	100s 55p	100s 40p	100s 25p
Engraving	500 DPI	100s 40p	100s 30p	100s 20p
Anodized Aluminum				
Photos/Clipart	400 DPI	100s 75p	100s 65p	100s 55p
Photos/Clipart	500 DPI	100s 65p	100s 55p	100s 45p
Text	500 DPI	100s 65p	100s 55p	100s 45p
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.				
Cork				
Engraving	300 DPI	100s 40p	100s 25p	100s 20p
Fleece				
Engraving	200 DPI	100s 25p	100s 15p	100s 10p
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.				
Glass				
Engraving	300 DPI	30s 100p	40s 100p	50s 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 layer of dish soap.				
Leather				
Photo Engraving	300 DPI	100s 35p	100s 25p	100s 15p
Text/Clipart Engraving	500 DPI	100s 40p	100s 30p	100s 20p
Cutting 1/8" (3 mm)	10 f	20s 100p	30s 100p	40s 100p
Mat Board				
Cutting	100 f	15s 100p	20s 100p	25s 100p

Fusion Maker Suggested Material Settings (CO2)

Material	DPI/Freq.	30 watt	40 watt	50 watt
Marble				
Photo Engraving	300 DPI	100s 50p	100s 40p	100s 30p
Text Engraving	500 DPI	100s 50p	100s 40p	100s 30p
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.				
Painted Brass				
Engraving	300 DPI	100s 50p	100s 40p	100s 30p
Engraving	500 DPI	100s 40p	100s 30p	100s 20p
Plastics				
Engraving	300 DPI	100s 35p	100s 25p	100s 20p
These settings work well with many plastics, including plastic phones and covers. Even one color plastics can achieve a great look when engraved.				
Plastic (2 Layer Laser Engraveable)				
Engraving	300 DPI	100s 80p	100s 60p	100s 40p
Engraving	500 DPI	100s 70p	100s 50p	100s 30p
Cutting 1/16" (1.5 mm)	100 f	15s 100p	20s 80p	25s 60p
Stainless Steel w/ Metal marking solution				
Engraving	500 DPI	15s 100p	20s 100p	25s 100p
Twill				
Cutting	100 f	35s 40p	50s 40p	65s 40p
Wood				
Photo Engraving	500 DPI	35s 100p	50s 100p	60s 100p
Clipart/Text Engraving	300 DPI	25s 100p	35s 100p	45s 100p
Clipart/Text Engraving	500 DPI	35s 100p	50s 100p	60s 100p
Deep Engraving	500 DPI	20s 100p	30s 100p	40s 100p
Thin Veneer (Cutting)	20 f	35s 100p	50s 100p	60s 100p
Cutting 1/8" (3 mm)	20 f	15s 100p	20s 100p	25s 100p
Cutting 1/4" (6 mm)	20 f	2s 100p	4s 100p	6s 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.				

APPENDIX B: MATERIAL SETTINGS

- **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.

.