

Engraving on Glass / Leaded Crystal with your ULS Laser

1. CONVENTIONAL GLASS ENGRAVING WITH SOLID BLACK IMAGE, 2.0" LENS IS NOT BEST METHOD.

- * Glass tends to chip and leaves fragments.
- * Engraving does not look sharp.
- * Etching through wet paper (another technique) does not solve problems.



2. SUPERIOR METHOD - HALFTONE WITH ULS PRINT DRIVER

- * Change all items to 60% - 70% gray - ULS print driver will halftone the image.
- * Run 500 PPI & Image Density 5 (500 DPI).
- * Use 1.5" lens (2" works, but not as sharp).
- * Run at 100% Power.
- * Run Speed = Wattage of Laser (example: 40 Watts = 40% Speed).

Results: Smooth texture, much less chipping, brighter and cleaner finish.

Can color fill with Rub-n-Buff® or oil-base paint. Etching holds paint so it is not buffed off.

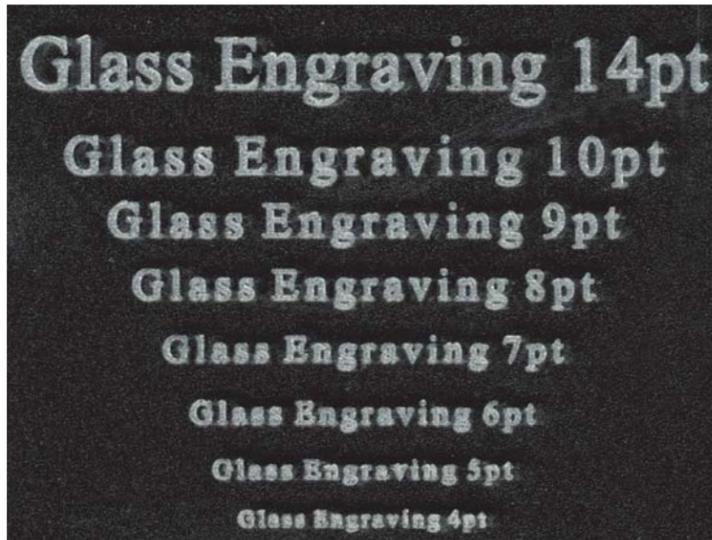
EXAMPLE BOX OF 70% GRAY



3. USE HIGH POWER DENSITY FOCUSING OPTICS (HPDFO) - GET DETAIL, DEPTH, HIGH RESOLUTION

Engraved on M-360 60 watt laser with HPDFO @ 60% power., 50% speed, 1000 PPI, Image Density 6.

- * Use solid black color (no halftone gray).
- * Use "Calculate" for Image Enhancement.
- * Manually set **Contrast** to 100% (gives extra power to the edges of fonts for sharp effect).
- * Increase **Definition** 10% over calculated setting.
- * Set **Density** to 50% (thins characters, keeps features from blending together).
- * For best results, tune machine on scrap glass before you run your file.
- * This technique is also works with the 1.5" Lens but the detail is not quite as sharp.

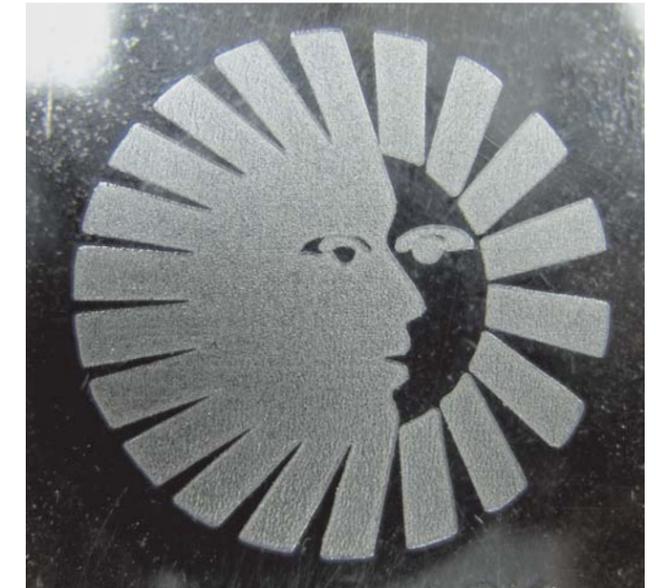


MAGNIFIED VIEW: TIMES NEW ROMAN 4 - 14 POINT

4. ETCHING IMAGES WITH HPDFO

With method from #3, engrave image, logo, clip art, etc.

Sandblasted look.
Bright, smooth finish.
Excellent consistency.
Good depth.



5. GOING DEEP INTO GLASS WITH HPDFO

Use methods from #3, but slow down to 10% - 15% speed, use multiple passes.

You can achieve substantial depth into glass without damaging the surrounding area.

Depth in this example is 0.030" (1/32"), about the depth of a rubber stamp.

You may need to use a brass wire brush to remove debris between passes - tape glass to table before starting job so that it will not move if you brush it.



6. SPECIAL TECHNIQUES

INLAY INTO GLASS WITH HPDFO

- * Engrave with sufficient depth as in #5.
- * Cut thin inlay for precision fit using HPDFO.

Mother of pearl is shown here. HPDFO deep engraving makes this possible.

ETCHING INTO CRYSTAL

Use 1.5" lens per #2 or HPDFO per # 3. Most crystal will work, but test material before running production. (Not recommended for thin lead crystal or high-cost items.)

