APPLICATION TIPS

Laser Marking Options For Use With Bare Metals

Lasers are an ideal method for permanently marking bare metals. Here is a comparison of three metal marking methods. Each method offers unique advantages.

Nd:YAG Laser Systems

Nd:YAG laser systems excel at marking metals. Unlike CO_2 lasers, which only mark the surface of metals, Nd:YAG lasers can actually engrave deep into metals without the use of metal marking compounds, and do so at speeds much faster than CO_2 lasers can achieve. However, YAG laser systems are expensive and are unable to process many common substrates that CO_2 laser systems handle with ease.

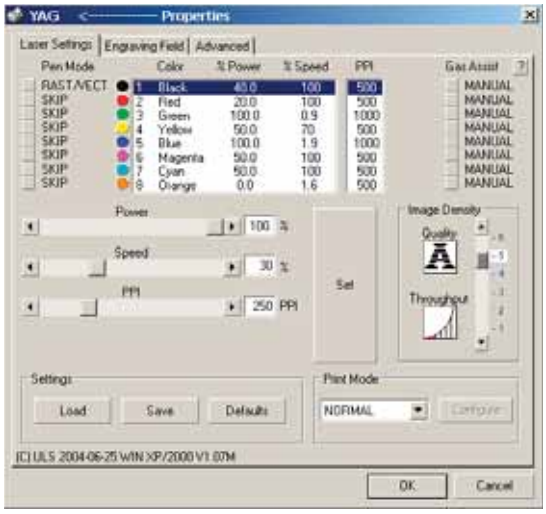
HPDFO™ Lens Technology

Thanks to Universal Laser Systems' patent-pending High Power Density Focusing Optics™ (HPDFO) technology, it is now possible to use a low-power CO_2 laser system to permanently mark the surface of some bare metals without the use of marking compounds. HPDFO technology can produce extremely high-resolution images and vector cut much thinner lines than normally possible with a standard CO_2 laser.

Metal Marking Compounds

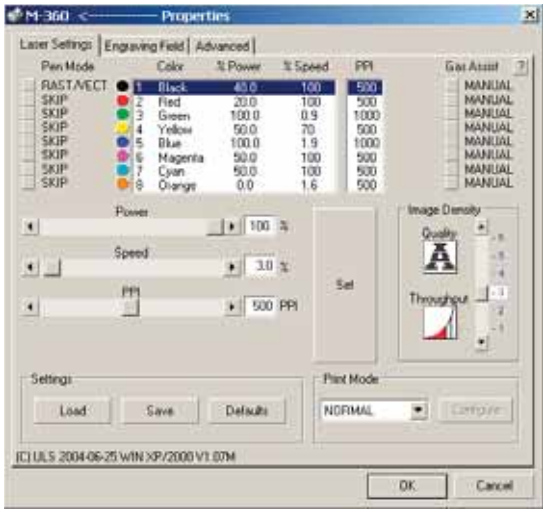
Metal marking compounds can be used to mark a variety of bare metals. When a laser beam strikes the metal marking compound, it turns very dark (almost black) in color and permanently bonds to the metal's surface. Marks produced by this process will not rub off and are not affected by chemicals, cleaners or solvents. Metal marking compounds require a minimum of 25 watts of laser power to mark bare metal.

Marking Bare Metals



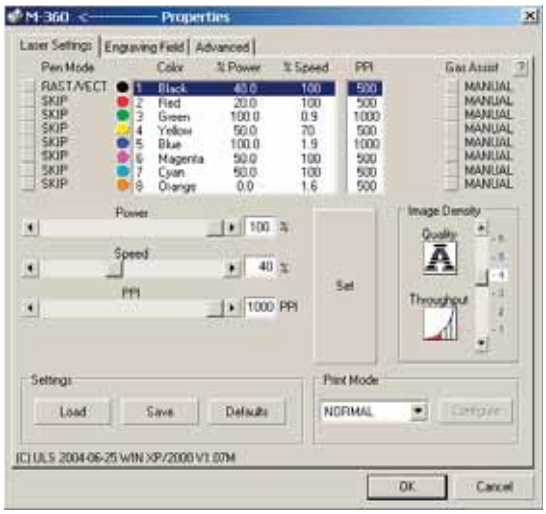
« Nd: YAG Laser (50mm Lens)

100 Power
30 Speed
250 PPI
5 Density
2:38 Run Time



« HPDFO Lens (without Metal Marking Compound)

100 Power
3 Speed
500 PPI
3 Density
10:42 Run Time



« Metal Marking Compound (50-Watt Laser with 1.5 inch lens)

100 Power
40 Speed
1000 PPI
5 Density
2:00 Run Time