

Nine exciting series, developed specifically for computerized laser engraving machines. IPI's Laserables technology eliminates problems with flaming, melting and yellowing common when laser engraving regular engraving plastic. These materials can also be rotary engraved.



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All IPI products are available only through your authorized IPI distributor.

INNOVATIVE PLASTICS INC.
NEW PERSPECTIVES IN
LASER ENGRAVING MATERIALS

LASERABLES II

Economical laser engraving material, .058" thick with a .001" top color surface for clean, bright engraving.

Matte finish;
interior use only.

| <i>Surface Color / Letter Color</i> | <i>Matte</i> |
|-------------------------------------|--------------|
| Black / White | LZ-2901-72 |
| White / Black | LZ-2902-72 |
| White / Red | LZ-2916-72 |
| White / Blue | LZ-2917-72 |
| Red / White | LZ-2903-72 |
| Blue / White | LZ-2904-72 |
| Yellow / Black | LZ-2906-72 |
| Pine Green / White | LZ-2914-72 |
| Brushed Aluminum / Black | LZ-2991 |
| Brushed Gold / Black | LZ-2994 |
| Burgundy / White | LZ-2912-72 |
| European Gold / Black | LZ-2990 |
| Grey / White | LZ-2910 |
| Navy Blue / White | LZ-2909 |
| White / Green | LZ-2919 |
| Smooth Silver / Black | LZ-2993 |
| Walnut / White | LZ-2981 |

MATERIAL SPECIFICATIONS

• LASERABLES II •

Material • Micro-surfaced impact acrylic

Sheet size • 24" x 48"

Usage • Interior signage; Personal identification;
Exterior signage: 1/16" and 1/8" LASERABLES

Cutter • Laser cut; Rotating carbide

Cutting Depth • LASERABLES II, LASERTHIN FRONT
SURFACE: .003"; LASERABLES, GOLD COAST, HEAVY
METAL, LASERTHIN REV.: .004"

Fabrication • Saws; Drills; Heat bendable

Other Features • Bonds; Hot stamps; Silkscreens;
Permits detailed engraving; UV stable: LASERABLES,
HEAVY METAL (only as noted by **), .060" GOLD
COAST, LASERTHINS (REVERSE only); Translucent
version for backlighting available in 1/16" and 1/8"
LASERABLES only

Products listed are readily available in 2-ply 1/16".
Most products can be produced in 2-ply 1/32" or 1/8",
and 3-ply 1/16" or 1/8". Check with your distributor for
specific details on availability and/or minimum order.

LASER ENGRAVING

The key to laser engraving 2-ply or 3-ply laser plastic is to use a material that allows the engraver to pass as quickly and with as little power as possible across the surface color and still produce a clean, bright marking. IPI laser plastics are composed of materials which are “laser friendly”, thereby providing the ability to engrave with virtually no smoke residue, no yellowing of the core, and no melting of graphics in most instances.

Below are trouble-shooting tips to help prepare you as to what to expect from your laser engraving experience with IPI materials.

- ✱ Below is a chart with suggested settings for laser engraving and vector cutting. Each laser machine (even within one brand) has its own “identity”. This identity consists of **actual wattage output** (a 25w laser may actually output 30, 35 or more watts), **optics focus and cleanliness** (a strict cleaning schedule must be kept to), and the **type of exhaust system** for pulling away smoke residue. Because of these variables, the suggested settings are merely starting points and need to be fine-tuned based on your machine’s identity — and some other factors, below.

- ✱ IPI materials are engineered for clear, bright laser marking in one pass, when fine-tuned with the proper settings. However, the **type of graphics and choice of color** will also affect the settings, and adjustments may be necessary.

- ✱ A fine-line logo or graphic will use different settings than a bold, large one. The **larger and bolder** the graphic, the more important are **proper focus, clean optics** and the use of a **standard resolution lens** (to provide a wider beam to properly clean out the color surface). It may be necessary to **increase the DPI** (dots per inch) and/or **PPI** (pulses per inch), and or even do a second pass at a lower power setting (around 20%) — all depending on the size and boldness of your graphics. Sometimes laser engraving might not be the best method; rotary engraving may be more suitable.

- ✱ **Color** can also affect your settings. Some colors (*i.e.* red, blue) are packed more heavily with pigment and may be, depending on the size and boldness of your graphics, harder to clean out. The suggestions above should help.

VECTOR CUTTING

During vector cutting, as compared to laser engraving, the power is increased and speed decreased considerably. The suggested settings will again vary due to the individual “identity” of each laser engraving machine as well as the type of cutting and thickness of material being used. The thicker the material, the slower the cutting and more need for adjustments to keep smoke residue and melting to a minimum. The **LASERTHINS** and **GOLD COAST .030** series by IPI are ideal for vector cutting faster and cleaner than other laser engraving plastics.

- ✱ Always **remove** the pre-applied protective masking **before** vector cutting or engraving. The masking may melt and trap smoke or adhesive residue under the masking.

- ✱ For best results when vector cutting, always **elevate** the plastic $\frac{1}{8}$ ” to $\frac{1}{4}$ ” off the laser table to allow your exhaust system to properly pull smoke from underneath the plastic. **Focus** before starting each new sheet of plastic.

- ✱ IPI laser materials were developed to allow for vector cutting without protective transfer tape (vinyl lettering type tape), especially the .030 gauge. However, again due to the individual “identity” of your machine, the different color pigments, the type and amount of vector cutting per sheet, and the thickness of the plastic (particularly $\frac{1}{8}$ ” or thicker), the use of **transfer tape** may be necessary to keep smoke residue off your sheets. On $\frac{1}{8}$ ” or thicker material you may even want to try two passes at faster speeds, instead of transfer tape.

- ✱ If transfer tape is used when vector cutting, apply it to both sides of the plastic and lightly spray the tape with water before cutting.

- ✱ Rating the flexibility of vector cutting without transfer tape within the IPI line of laser materials, it is **LASERTHINS, GOLD COAST, LASERABLES, HEAVY METAL** and **LASERABLES II**, in order of ideal application.

The **LASER SHOP** is intended to get you started on the right track when lasering plastics. Laser engraving and cutting is on the horizon of a new era of creativity in engraving design, graphics, detail and ideas. It is not an exact science; but, through experimentation, imagination and the continued development of laser engraving materials by Innovative Plastics, your journey should be exciting.

SUGGESTED SETTINGS

IPI Laser Engraving Materials were developed to be laser engraved or laser cut in **one pass** when used with the proper settings of power, speed, dots per inch, and pulses per inch. Please keep in mind that no two laser machines are identical, due to such variables as power surges, cleaning and maintenance, optics focus, settings and exhaust system.

Because of its new technology, ask your distributor for specific instructions for engraving, vector cutting, fabricating and cleaning the LazrMirr series.

**Standard resolution lens;
25 watt CO₂ laser**

| | | Power | Speed | Dots/Inch | Pulses/Inch |
|-----------------|------------|--------|-------------------|-----------|-------------|
| Laser Engraving | | 20-35% | 80-100% | 500-600 | 500 [0] |
| Laser Cutting | .060, .050 | 60-70% | 2.5-3.5% [20-30%] | 500-600 | 250 [2] |
| | .030 | 40-50% | 3.5-4.5% [20-30%] | 500-600 | 250 [2] |

[]: Terminology for settings may differ between laser manufacturers.

On newer, faster laser machines, the speed setting for laser engraving may need to be reduced to 70-85%.

These recommendations do not apply to LazrMirrs, LaserUltraThins and LaserThinMagnetics.