

### Precision metal foil and conductive coating ablation services for high performance electronic components.

Precision Converting Services offers accurate laser ablation services, ideal for the removal of conductive and metalized layers from flexible substrates. Because of its single step, non-contact process, conductive inks and metal foils are removed without causing damage to the carrier substrate. And unlike chemical etching, fiber laser ablation uses a dry processing method controlled by completely digital technology. As a result, masks and hazardous byproducts are eliminated.

Applications for metal foil and conductive coating ablation:

- Conductive circuit creation
- RFID antennas
- Flexible circuits
- EMI shielding
- Flexible heating elements
- Conductive touch screen components

Our LaserSharp® ablation systems utilize steered beam laser technology and advanced vision systems to ensure patterns are accurately matched to other features, all while continuously moving through the processing area. Our patented process controller constantly monitors and adjusts laser power in response to web speeds, ensuring consistent results. In turn, metalized materials and conductive coatings are precisely removed without damaging the carrier substrate or creating a negative environmental impact.

Due to advanced LaserSharp technology and the superior vision registration capabilities of our patented laser digital converting systems, the Precision Converting Services team is able to produce accurate, high performance components with tolerances down to  $\pm 0.002$ " ( $\pm 50 \mu\text{m}$ ), depending on material and design. Laser ablation can be completed on either side of roll and sheet fed materials, and is suitable for stacked, layered, and laminated structures.

#### Advantages of laser ablation services:

- Dry, non-contact processing method that eliminates the need for masks and harsh chemicals
- Suitable for both roll and sheet-fed materials
- No pattern or geometry limitations
- Rapid turnaround due to digital technology
- Ability to combine ablation with other laser processes for a complete manufacturing solution
- Design revisions are as simple and fast, ideal for prototyping

In addition to laser ablation, Precision Converting Services also offers multiple laser capabilities for electronic applications, including laser cutting, kiss-cutting, via hole drilling, and perforating. These additional processes can be performed in conjunction with laser ablation to efficiently complete the converting cycle, resulting in a rapid turnaround of finished components. Laser digital converting offers many advantages not available with conventional methods. Because laser processing uses digital files, design modifications can be made instantaneously, reducing downtime. Laser ablation, using our digital technology, is also the most efficient method for developing prototypes and shortening a product's time to market as a result of fast and easy changeover from development stage to full-scale production.