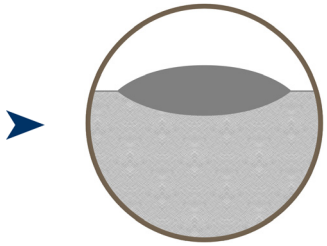
LASER MARKING METHODS

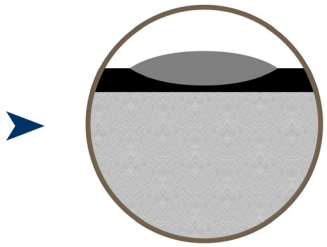
Etching

Etching occurs when the heat of the laser beam causes the surface of the material to melt. The melted material expands, causing a raised mark. Also referred to as melting or foaming.



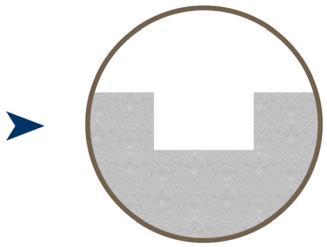
Coat & Mark

This process is used when the surface of the material cannot be subjected to damage or alteration from the laser. Here the surface of the material is coated, and the coating is then etched.



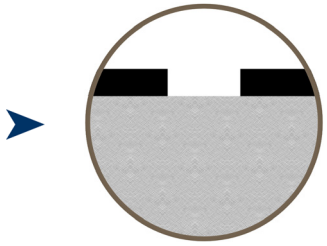
Engraving

Engraving creates high heat when marking, which causes the material to vaporize. Since surface material is removed, there is very little damage to the material itself (compared to laser etching), but this method may not be appropriate for marking safety critical parts. The resulting mark is the same as chemical etch mark, and it is the fastest way to mark with a laser.



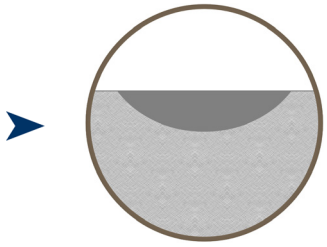
Ablation

Ablation is the process of engraving a surface coating. This method creates excellent contrast without affecting the underlying material.



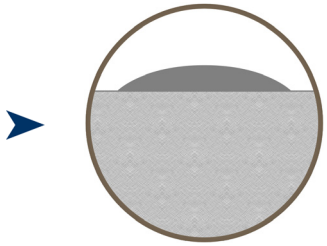
Coloration

Coloration is achieved by moving a low-power laser beam slowly across the material. This method causes discoloration for high-contrast marks without disrupting the material surface. Also referred to as charring (plastics) and annealing (metals).



Bonding

Laser bonding is a process where pigments or other coatings are applied to the material and then bonded to the surface by the heat generated with the laser. Safe for use on safety critical parts, the marks are heat resistant and unaffected by fluids or salt.



PANNIER CORPORATION
207 Sandusky Street • Pittsburgh PA 15212-5823 USA
412-323-4900 tel • 412-323-4962 fax • sales@pannier.com • www.pannier.com