Anti-counterfeiting and anti-piracy technology guide

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Laser Engraving

This technology uses a special type of laser to cut very closely spaced grooves of varying depths into any type of support or surface. Images, logos, text or identification codes can be superimposed on top of the engraving, where they will take on new colours when viewed from different angles. Often confused with holograms, these images are very difficult to replicate. A major advantage of this technology is that the marking is inseparable from the product and is therefore very difficult to tamper with.



Used for

- Authentication
- Tracking/Tracing

Suitable for

- Very small products
- Small products
- Medium-sized products
- Large products

Goes on

- Product
- Packaging

Can be used for

- Physical products

Visibility

- Visible

Reading device needed

- No

Connection to server

- No

Description

There are three main laser engraving techniques:

- annealing – also known as laser surface stamping, which marks ferrous metals and titanium by heating the surface and causing oxidation underneath, discolouring the metal in the shape of the marking;
- real laser engraving – a technique that removes material from the surface of the product in the shape of the marking (this is especially used for metals, plastics and ceramics);
- deep laser marking – a highly specialised procedure whereby markings are performed at a specified depth in the surface of the product (which is usually made of metal).

Uses

Laser incisions can be made on a wide range of different materials: paper and paperboard, labels, leather, film, rubber, foam, wood, fabrics, PET, PVC, glass, stone, iron, nickel, steel, stainless steel, aluminium, electrical components, etc.

Implementation

Given the diversity of factors involved in laser engraving – type of product to mark, material and engraving technique – it is difficult to give specific implementation requirements here. However, it can be said that considerable changes would need to be made to the production process.

Cost

There are also quite significant costs associated with laser engraving, although they will depend on the particular context, material and technique used.

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