

Making Sense of Industrial Engraving Applications

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Using your CO₂ laser to enter the industrial market.



Exterior Signage.

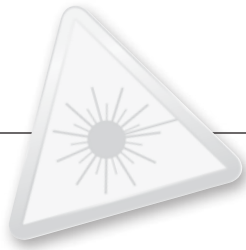
Engraving shops are taking note of industrial applications and for good reason. Industrial applications are highly profitable. However, working with industrial customers requires a different approach from traditional plaque and award markets. For example, industrial customers often rely on the engraving shop to *certify* that a material meets the requirements of an application. Certifications can relate to durability, appearance or even third-party specifications of performance.

When it comes to picking the right material for an industrial application, proper selection is critical. Faded or otherwise illegible graphics can lead to safety hazards, equipment failure and even regulatory fines. Industrial customers are usually willing to pay for the assurance that a part will not fail because the cost of failure far outweighs the cost of the part. As such, picking the right material for your customer's application is critical.

DEFINING INDUSTRIAL ENGRAVING APPLICATIONS

Industrial applications are typically product or process identification applications. Through a label, tag, nameplate, sign or other item, your part identifies a product (or component of a product) that will be sold by the original equipment manufacturer (OEM). Your customer could be the OEM, a supplier to the OEM or in some cases the equipment user who simply wants to re-label their own OEM equipment.

Functionality is the most important attribute of industrial engraved parts. Functionality typically relates to readability—either human readability or machine readability (i.e. barcode scanners). Industrial engraved items must remain readable throughout the normal life of the part to which they are attached. This means that when selecting an engraving material, you need to completely understand the operating environment where the item will be installed



by asking your customer if the part will be subject to conditions such as sunlight exposure, abrasion, chemical, corrosion and heat. Most industrial engraving material manufacturers will certify their material to perform in certain conditions.

Here are some common industrial applications:

- Barcode Labels
- Asset/Property Tags
- Equipment Nameplates
- Service Schematics/Operation Instructions
- Exterior Signage

PICKING THE RIGHT MATERIAL

Because industrial customers often repeat orders of the same part again and again, they will notice if your engraved part fades or falls off. Here are some considerations to keep in mind when selecting a laser markable material for industrial applications:

CUSTOMER CONSIDERATIONS

These things are important to your customer. Be ready to answer them.

Durability Requirements: The most important consideration is the operating environment where the item will be used. Requirements are typically expressed as the ability to withstand one or more of five conditions: sunlight, abrasion, heat, chemicals and salt-spray corrosion.

Specification Requirements: Many industrial products are purchased based upon specifications. Specifications are either global (i.e. apply to many different companies) or company-specific. Global specs are often established by the government, military or some other industry-wide organization. Company-specific specs are just that, specific to a single company. You can look up almost all global specifications on www.everyspec.com. Common specifications for graphic identification items are MIL-STD-15024F, Type L and A-A-50271.

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Equipment nameplates.



Barcode labels.



Asset/Property Tags.

Sometimes your customer will want some assurance of durability. You can reference a military spec that your material meets to provide that assurance.

Appearance/Readability Requirements: Choose the material that creates the appearance best suited to each customer's needs. That could be barcode readability (not all materials read well on barcode scanners) or contrast of black and metal surfaces.

ENGRAVING SHOP CONSIDERATIONS

These things are important to you/your bottom line. Ask yourself these questions before starting a project.

Marking Process: After you have identified a material to use based upon the requirements, you need to consider the marking process. Of course, your customer doesn't care how the material is imaged (with a laser, a printer, etc.), only that the end result is durable. Luckily, many materials that can be imaged with a CO₂ laser are durable. However, some require longer dwell times or multiple finishing steps before and after lasering. If

you have a lot of parts to mark, you may think twice before picking a material that requires multiple steps.

Costs: Part of the reason industrial clients are not as concerned with price as with quality is that industrial products cannot fail. The cost of failure in terms of safety hazards, equipment failure and regulatory fines far outweighs the cost of the part; so industrial customers are usually willing to pay for the assurance

understand the customer's application before selecting a material. That said, this grid will help you make sense of five of the leading materials.

Now you should have an understanding of industrial engraving applications and their required materials. Equipped with this knowledge and a CO₂ laser, you have what it takes to grow beyond the awards space to the highly industrial market. As you go forth, remember, industrial

accounts care about functionality and durability, but they also expect a high level of service. Marketing value-added services such as fast turnaround times, better payment terms or even graphic design support will differentiate your shop from the rest. Good luck and happy engraving!

For more information about laser markable metals in general, please reference Five Myths about Laser Markable Metals, A&E July 2012. **LER**

Material	Manufacturer	Composition/Technology	Marking Method
DuraBlack®	Horizons Imaging Systems Group	Multi-Layer Coated Anodized Aluminum (1100 alloy)	Engraving
Black Anodized Aluminum	Various	Dyed Anodized Aluminum (various alloys)	Bleaching
Laser Markable Acrylic Tapes	Tesa/3M	Acrylic Tape	Engraving
Ceramic Coatings (CerMark™/TherMark)	Ferro Corporation/Thermark	Spray or Tape Laser Bonded Ceramic (various metals)	Thermal Bond
Metalgraph Plus™/LaserMax®	Rowmark	Multi-Layer Extruded Acrylic (plastic)	Engraving

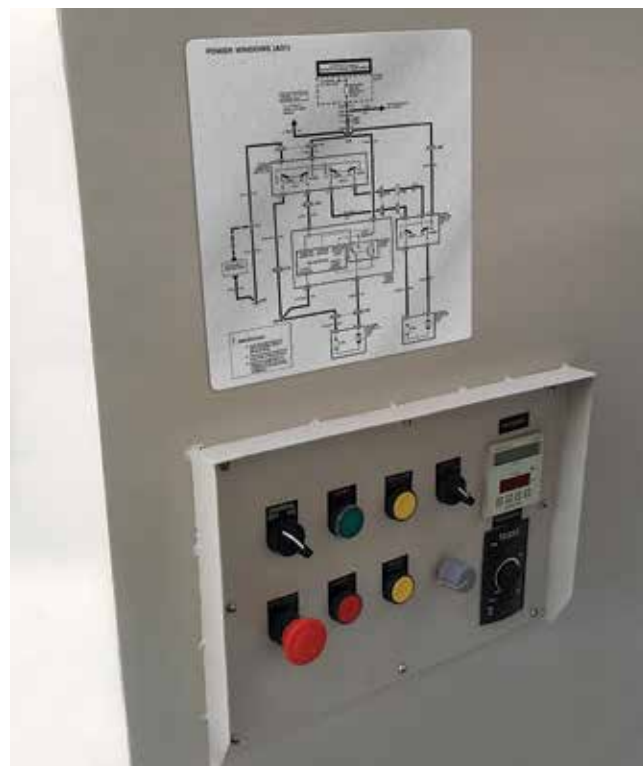
that a part will not fail. Although the cost of the product is less important than in traditional award applications, when you consider the cost of raw materials and labor processing, you may start to see your returns diminish with high-cost laser-markable products.

Consistency of Product: Products made by known manufacturers often have more consistent quality standards than generic products. Black anodized aluminum, for example, has highly variable durability based upon inconsistent anodizing methods. Branded products often have more reliable production track records than generic ones.

The Path to the Right Material Centers Around the Application Requirements:

SOME MATERIAL OPTIONS

Materials differ in the composition, durability, cost and method of marking. Each will have strengths and weaknesses for a given application, so it is critical to



Service schematics/operation instructions.