

DIFFERENT PROCESSES... DIFFERENT RESULTS

# HOW TO CHOOSE THE **RIGHT** ENGRAVING PROCESS

*...an e-book on making YOUR mark*



ENGRAVE IT HOUSTON .COM

# CHOOSING THE RIGHT ENGRAVING PROCESS

DIFFERENT ENGRAVING PROCESSES OFFER DIFFERENT RESULTS...  
*WHICH ONE IS RIGHT FOR YOU?*

This E-Book will focus on  
several popular processes

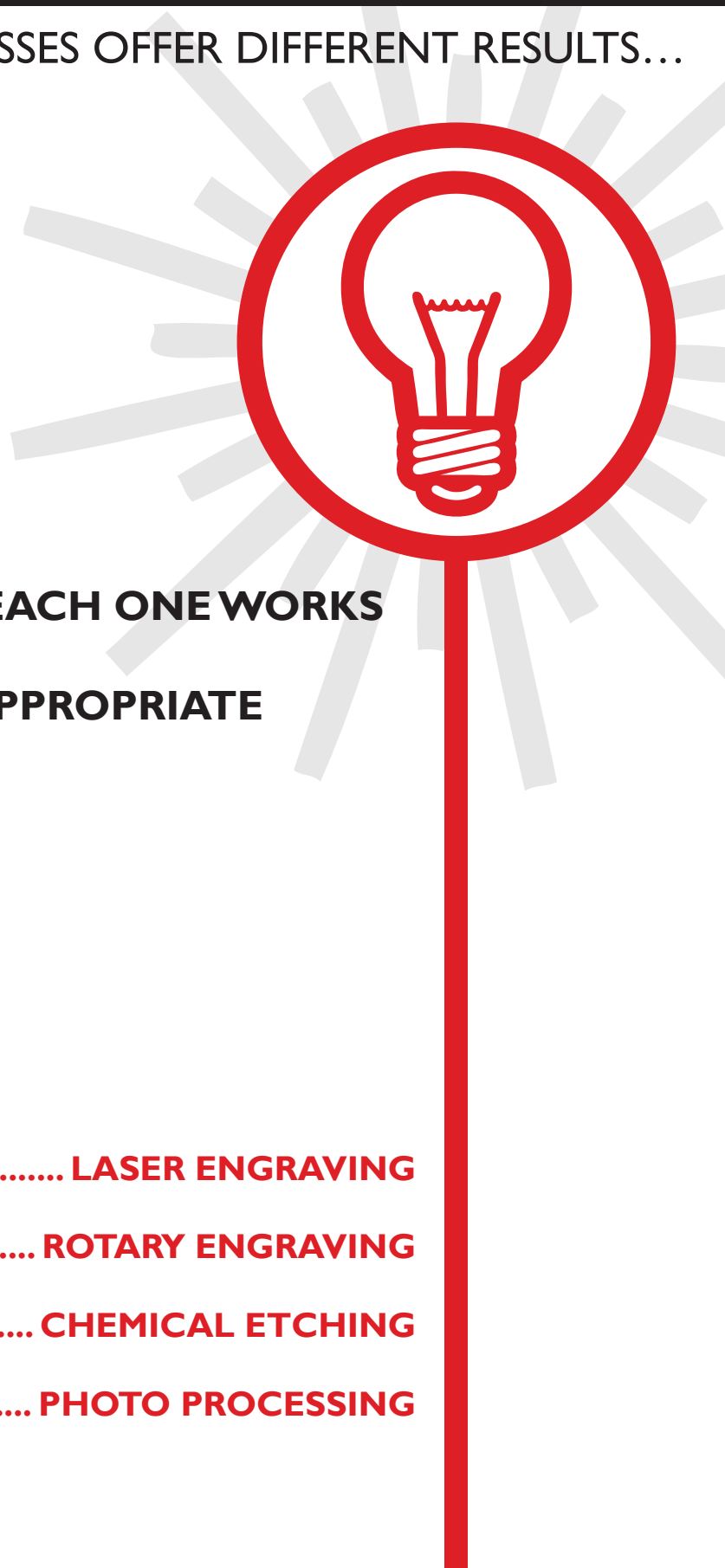
- ✱ **BRIEFLY EXPLAIN HOW EACH ONE WORKS**
- ✱ **WHAT MATERIALS ARE APPROPRIATE**
- ✱ **RESULTS ACHIEVED**
- ✱ **APPLICATIONS FOR USE**

3 ..... **LASER ENGRAVING**

5 ..... **ROTARY ENGRAVING**

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9 ..... **PHOTO PROCESSING**



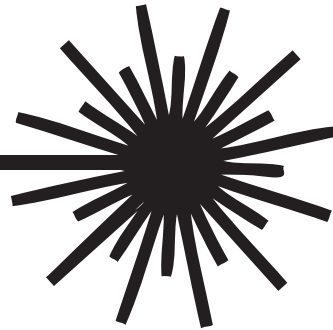
# LASER ENGRAVING

## HOW DOES A LASER WORK? .....



LASER is the acronym for Light Amplification by Stimulated Emission of Radiation. A CO2 laser works by electrically stimulating the molecules of a carbon dioxide gas mixture. When focused through a lens, this invisible intensive beam can melt or vaporize many materials. There are several types of lasers available, most notably the CO2, Yag lasers and Fiber Lasers.

(We will delve into the differences of those at a later date.  
For now we will focus on CO2 laser systems.)



## WHAT MATERIALS CAN BE LASER ENGRAVED? .....

Depending on the speed and intensity of the beam, a laser may be used to engrave or cut through a wide variety of materials. This non-contact beam of light produces precision results on plastics, anodized aluminum, wood, glass, marble, textiles, and more. Lasers are also extensively used in the industrial market on various metals such as stainless steel. Note that CO2 lasers do not cut into metal, but use a special ceramic spray that produces a permanent black mark.



# LASER ENGRAVING

## RESULTS ACHIEVED .....

Results are precise, but vary with materials, of course. Laser engraved stainless steel has a permanent high contrast black mark. Anodized aluminum and 2 ply engravers plastics remove the top surface, revealing the core color. Reverse engraved plastics offer even more versatility.

This material has a transparent top layer. The back layer is engraved with the information, and then paint filled with your color choices. This provides an easily cleanable and more weather durable front face, and affords the opportunity to have multiple colors within the same piece, opening the door to great design!

Black granite engraves to white - a very classic look. Some substances, however, do not change color much at all. For example, contrast varies with the type of wood used. Depending on your material and your desired result, you may consider masking and paint filling the engraved area for greater contrast.



# LASER ENGRAVING

## WHAT ARE THE APPLICATIONS? .....

Laser engraving is such a versatile marking method that the applications for which you can use it are really only limited by your imagination. It is used extensively in industrial applications - quickly and efficiently producing tags, labels, barcodes, serial numbers, ID plates, marking tools, and the list goes on... The speed makes it ideal for large quantities, but the ease of use make it a viable option for single piece engravings as well.

Another area where lasers really shine is for unique materials and applications, such as firearms, custom gifts, and personalization. The non-contact aspect is a plus, as well as the ability to engrave odd shaped or round pieces using a special attachment.

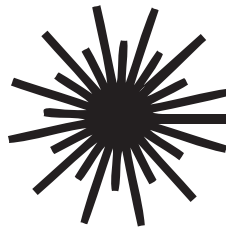
Laser systems are capable of maintaining extremely tight tolerances and clearly etching fonts as small as 2pt, as well as producing photographic quality and intricate patterns just as easily as text. Precision and versatility... a great combination!



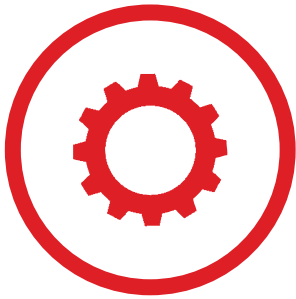
# ROTARY ENGRAVING

## HOW DOES ROTARY ENGRAVING WORK? .....

Rotary engraving is the process of rotating a carbide bit cutting tool in a motorized spindle, which is moved through the material to produce a groove at a specific depth, usually an average of .003 to .007" deep.



## WHAT MATERIALS CAN BE ROTARY ENGRAVED? .....



The Rotary is commonly used on flexible plastic engraving stock, as well as all types of metals. Although slower than a laser, it is a good choice for jobs that need the look and feel of traditional engraving.

Have more questions? Please Contact us!  
[www.EngraveItHouston.com](http://www.EngraveItHouston.com)

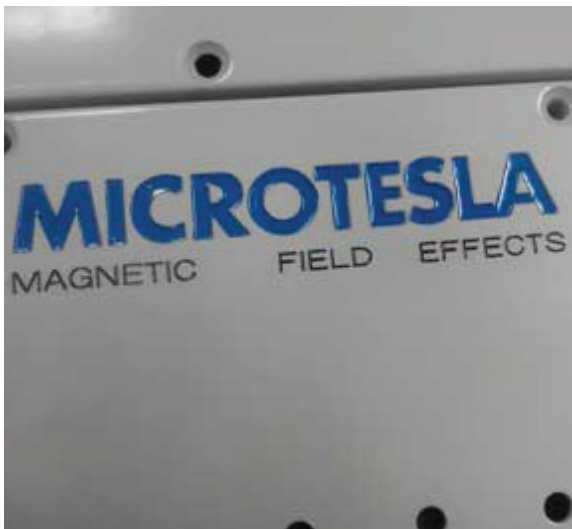




# ROTARY ENGRAVING

## RESULTS ACHIEVED .....

Because rotary engraving actually removes material, it provides a permanent engraving into the surface you can feel when touched. Depending on the material, you can adjust the depth and size to meet the appropriate specs. There is a wide variety of color combinations available in laserable plastics. Metals can be left clean, or can be paint filled for greater contrast and easier readability.



## WHAT ARE THE APPLICATIONS? .....

Industrial and commercial applications are widespread using both plastic and metals for Tags, ID plates, Machinery Identification, Serial #s, Asset Tags, Signage, etc... But it is also an excellent choice for Jewelry, Gifts, Awards, and Firearms. Rotary engraving produces the look and feel of traditional engraving. However, there are a few limitations: It is used mostly on flat surfaces, and is not as flexible as the laser regarding the intricacies of logos or graphics. Simple text is best.



# CHEMICAL ETCHING

## HOW DOES CHEMICAL ETCHING WORK? .....

Chemical etching is the process of using chemicals to etch into the surface of a metal creating the graphics or text. The process starts out with placing a chemical resist on the front of the metal. Everything covered by the resist will be protected from the chemicals during the etching process. Once etched, you can choose to paint fill the etched area for greater contrast, or leave as is.



### WHAT IS THE DEFINITION OF CHEMICAL ETCHING?

To wear away the surface of a metal by chemical action.

## WHAT MATERIALS CAN BE CHEMICALLY ETCHED? .....

The etching process is available on stainless steel, aluminum, and brass.





# CHEMICAL ETCHING



## RESULTS ACHIEVED .....

Chemical etching produces precise engraving of detailed text or graphics into metal that can be felt by touch. Depending on the design, you can engrave the text into the surface, or you can etch the background and leave the text/graphics raised. Paint filling the etched area will provide good contrast and increase readability.

## WHAT ARE THE APPLICATIONS? .....

This process is extremely versatile, and considered to be a timeless product. Etched graphics are great for small detail information and stand up to the test of time, including chemical and weather exposure, leaving the etched copy legible. Chemical etching is a durable option for harsh environments, whether it be ID tags, serial tags, nameplates or machinery identification.



# PHOTO-PROCESSING

## HOW DOES PHOTO-PROCESSING WORK? .....

Although technically not engraving, it is certainly a popular choice for signs, and many industrial applications due to its durability. Metalphoto® is photosensitive anodized aluminum. A black image is the result of a number of interrelated processing steps, beginning with exposure and concluding with sealing, in which a silver halide image is permanently sealed within the sapphire hard anodic layer.

### **Anodic Layer**

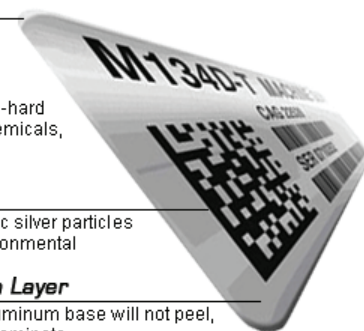
The glass-clear, Sapphire-hard anodized layer resists chemicals, abrasions, and dirt.

### **Sealed Image**

Black graphics are metallic silver particles that hold up to harsh environmental conditions.

### **Aluminum Layer**

The rigid Aluminum base will not peel, crack, or delaminate.



## WHAT MATERIALS CAN BE PHOTO-PROCESSED? .....

Photosensitive anodized aluminum is used in this process.



### **MATTE**

non-reflective  
with dull finish



### **SATIN**

semi-gloss medium  
reflective material



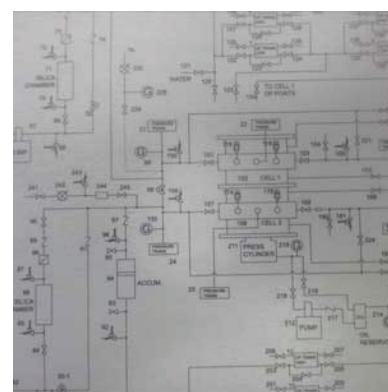
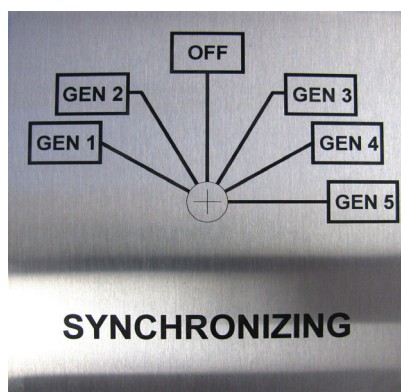
### **#4**

brushed to resemble  
a stainless steel finish



### **GLOSS**

highly reflective  
mirror-like



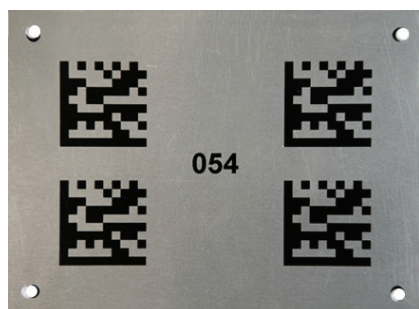
# PHOTO-PROCESSING

## RESULTS ACHIEVED .....

Metalphoto is exceptionally durable. This material doesn't just hold up well – it is practically indestructible! Virtually impervious to chemicals, heat, abrasion, salt spray and sunlight, it has a 30+ year outdoor exposure certification. The photo-processing affords intricate detail and contrast at any size, and it is offered in a variety of finishes, thicknesses, and sizes. This is an absolute best choice for harsh environments! It can also be color printed and sealed, although this does affect the lifetime rating.



## WHAT ARE THE APPLICATIONS? .....



Metalphoto has been the “go-to” option for a variety of industries that need long lasting, durable signage, ID labels, nameplates, equipment panels, service schematics, etc., for more than fifty years. It meets an array of commercial, government and military specifications, and is also a great choice for architectural signage, plaques, and awards.



Now that you have a summary of engraving processes, what else do you need to help you make the right choice?

Consider your materials, your application, the environment your piece will withstand, and the results you are looking for.

If you want a little more direction, give us a call, or sign up for our free assessment.

We are here to help. No pressure, No commitment. Just a friendly contact with one of our experts who can assess your engraving / marking needs, and offer the best solutions.

Engrave It Houston  
Our Solutions. Your Success.



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