

Electrochemical Etching facts

Electrochemical etching is recognized as the best way to permanently mark conductive metal surfaces. It produces a sharp, attractive and economical design or impression. It does not cause distortion, sharp indentation, stress, burrs or strain. The mark is permanent because metal is etched away from the surface through the design stencil.

Electrochemical etching can produce an etch ranging from less than .0001" to as deep as .0003", through the use of AC or DC current. AC current makes a shallow etch from .0001" to .0002" in depth, depending on the length of time the stencil and the solution are in contact with the metal. The resulting etch is dark or contrasts with the surrounding metal. The degree of darkness depends on many things; however, the base metal is the most important.

For example, some stainless steels give only a brown mark, whereas Monel metal gives a jet-black mark. With AC, metal is etched away during half of the cycle and an oxide is deposited in the etch during the other half of the cycle. This oxide deposit will withstand corrosive action, as has been demonstrated by its capability to stand up under extensive salt spray tests over long periods of time. DC current provides a deep etch from .0001" to .0003" in depth. This leaves a clear or white etch on most metals. With DC, metal is etched away during the complete cycle. The deep etch cannot be removed without removing the base metal to the depth of the etch.

Frequently Asked Questions About Electrochemical Etching

What is electrochemical etching?

Electrochemical etching is a chemical marking or etching with the use of low voltage electrical current. Electrochemical etching works with the electrical conductivity of the metal to remove the metal and redeposit it as an etch. Using a low amperage power unit and a stencil, electrolyte is applied which allows the electrical current to pass through and onto the metal.

What types of metal can I mark?

Any electrically conductive metal can be marked. It can not mark any metal that is coated, painted or anodized. We do not recommend it for gold or silver.

Is this process safe to use and environmentally friendly?

Yes. The solutions used are water-based. SDS for our chemicals can be found above.

I already have another make of etching system. Can I buy supplies for it from You?

Yes. We can usually supply direct equivalents for all competitors systems. Most of the supplies are universal.

My marking unit stopped working? Now what?

Almost all problems we see are related to lack of maintenance. Clean and tighten all connections, check markers and pads, and use the proper electrolyte and unit settings.

It still doesn't work. Help!

Give us a call for troubleshooting or replacement. 360-985-2999 or 1-800-775-0797.

My Anodized Aluminum parts don't mark. Why?

Anodizing insulates the Aluminum surface and renders the part unmarkable by the Electrochemical process. You must deep-etch the item before anodizing is done.

My finished parts are rusting. What am I doing wrong?

All corrosion problems can be traced to insufficient cleaning after the etching process. Parts must be neutralized and thoroughly dried to prevent contamination with electrolyte.

Can I make colored marks using the Etch-O-Matic?

No. Some people will deep-etch first, then fill the mark with paint.

How do I make a stencil?

There are two types of stencil material. The type on stencils can be made using a typewriter without the ribbon, a dot matrix printer without the ink or they can be written on using a mechanical pencil without the lead or a ball point pen without the ink. These stencils cannot be used with a regular printer they need impact not ink. Dura film stencils can be made using your computer and printer in conjunction with one of the UV stencil makers.

How do I order a custom stencil?

You need to email in your artwork to sales@etch-o-matic.com Your artwork needs to be in complete black and white. If it is not sized properly you need to tell us what size it needs to be. Please allow 24-48 hours for us to get back to you.

MARTRONICS CORPORATION

To Save This Page: Right Click on Screen and Save it to your computer

To Print This Document: Hold down the **Ctrl** Key and press the letter **P**

HOW TO ETCH GLASS

How to Etch Glassware in Minutes!



Now you can **etch wine glasses, beer steins, wine carafes, or anything else made of glass**, with your own custom design or logo. Just follow the [Instructions on the home page](#) to create your custom stencil. Then follow the steps below.

Here we show the completed stencil and the completed and **etched beer mug** used in a **wedding**. (Gold Rub n' Buff has been added).

Step 1 - Choose your copy or design



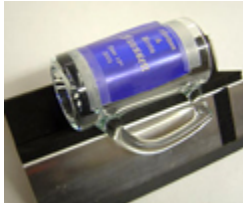
Here is your **completed stencil** ready for use in Etching Glass. Or any other material that you can use paint or ink on, such as wood, paper, plastic, cardboard, marble, ceramic, porcelain, etc.

Step 2 - Secure Glass to be Etched



Place your beer stein, wine glass, mug or whatever you are etching, in a secure position so it won't roll around while you etch. You can use the **Universal Glass Holder** ([available here](#)) or your own system.

Step 3 - Position the Stencil on the Glass



Position the stencil on the glass to be etched. Be very careful with the **alignment of your stencil**. Line up your copy exactly where you want the etch to go.

Use Scotch tape to secure the stencil to the glass surface.

The light parts of the stencil must be securely in contact with the glass in order to keep the etching cream from bleeding through the edges.

Step 4 - Apply Activator, then Etching Cream



Apply **several drops of activator** to the light parts of the stencil. You need enough to wet all the edges of the copy parts.

Use your finger tip to rub the activator over all of the Copy Areas. Blot the activator dry and then use a blow dryer to **be sure that the activator is completely dry before you start.** Once the stencil is firmly in place **use a Q-Tip to apply the etching cream.**

Step 5 - Squeegee & Etching Cream



Use the supplied squeegee to press the cream down through the Copy areas of the stencil or press down with the Q-Tip. **Drag the cream across the stencil from one side to the other.**

The **cream** only needs to be in contact with the glass for about **30 Seconds**. (Complete instructions come in the Kits.)

Step 8 - Wash off the Etching Cream



Then **quickly remove the stencil** and **wash the etching cream off the glass under running water**. Dry the glass and enjoy your permanently etched, custom design!

Make sure to wash and dry the stencil too, so you'll be able to use it hundreds more times.

Note: You can add **Rub 'N Buff in Silver or Gold** for an Extra Fancy touch as shown here.

HOW TO MAKE CRAFT STENCILS

Step 1 - Make your Copy, Design or Artwork



No Special Software Needed!

Create your Copy, Designs, or Artwork on Your computer using almost any software that you already have.

Step 2 - Print Out Your Transparency



Print the design in **Black Ink** onto a transparency which comes in each kit. Be Sure that it prints out as Black as possible so you will have an excellent stencil created.

Step 3 - Here is the New Mark 440 Stencil Maker

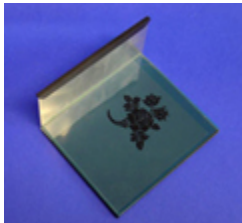


Here is one of the Three **New Stencil Makers**.

Note: We have **different sizes** so you can make stencils **from 4"x 4" up to large stencils 10"x 12"**.

To get your Stencil Maker ready to go simply plug it into any electrical outlet and remove the tray with the glass and black rubber pad so that you can "Load" it with your Undeveloped Stencil and your printed Transparency.

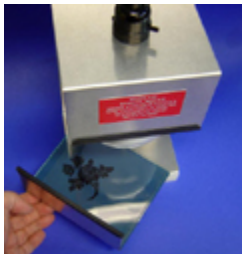
Step 4 - Stencil On Top Of The Transparency



Simply lay the transparency on the stencil and place the glass on **TOP OF THE TRANSPARENCY**. This is to hold the copy in place during exposure.

Note: You can place the transparency copy either right side up or upside down. The stencils DO NOT have a top or bottom at this point.

Step 5 - Expose the Stencil for 2-3 Minutes



Now slide this tray with your Transparency, and your Unexposed stencil covered with a glass plate (to keep the stencil and copy from moving during exposure) into the exposure unit as shown at left.

Turn on the unit, **set the timer** (comes in kit) and expose the stencil for 2 to 3 minutes.

Step 6 - Peel Back Mylar Backing (Both Sides)



After the short exposure simply remove the tray, and take out the exposed stencil.

The stencil has a **thin clear Mylar covering on BOTH SIDES**. You'll need to **remove both pieces** in order for the developer to work. Simply separate the clear backing from the blue stencil at a corner and peel it apart.

Step 7 - Develop Stencil for 2-3 Minutes



Place the stencil in a pan of developer provided in the kit. **Use a sponge to gently wipe away the unexposed parts** of the stencil. This will be the part that will etch.

As the stencil develops, you will see the light parts getting even lighter, and you will be able to feel the light parts get slightly rough.

When all of your design feels rough and looks evenly light, take the stencil out of the developer. Once the stencil is completely developed, wash all of the developer fluid off of the stencil under running water. Use a paper towel to blot dry the stencil.

Step 8 - Dry Your Stencil Completely

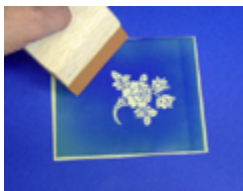


To make sure that the stencil is completely dry, use a blow-dryer to dry the stencil on both sides. This makes the stencil easier to handle.

The **Stencil** is now **ready** for Ink, Paint, Metal Etching Electrolyte or even Glass Etching Cream.

Note: when you are finished with the stencil you should **clean it up with water and DRY IT AGAIN FOR STORAGE**. You can use it many times if you take care of it and keep it DRY.

Step 9 - Finished Stencil - Ready to Use!



Now that your **stencil** is **dry** it is **ready** for printing, painting or etching. If you are **painting** simply select your Substrate (Technical name for anything you want to paint on) and place the stencil in position.

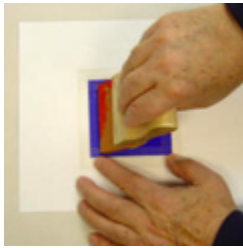
Finished Stencil - Apply Ink to Squeegee



If you are going to paint you will need to use a Squeegee. **Select your paint and then put a small amount of your desired paint on the squeegee** as shown.

A little bit of paint or ink goes a long way, but you need to be sure that you use enough to "fill" the stencil. One or two strokes on your stencil and you will be able to easily determine the right amount of paint to use.

Position Your Squeegee As Shown



Position your paint covered squeegee on the stencil.
Now **PULL the Squeegee firmly across the stencil in ONE SMOOTH STROKE** using light to medium hand pressure.

Quickly Lift Up The Stencil From One End



Now **hold the stencil on one edge so it will not move and quickly Lift Up the stencil from one end** so as not to "Smear" the ink or paint on your substrate.

Here's what your artwork will look like when it's done. This is indeed "**One Stroke**" painting.

Also you can make your **print in different colors** by "Blocking Off" parts of your stencil with "Non Stick Tape" to keep the different colored paints from printing as you complete your multi-colored print as shown here (inset picture).

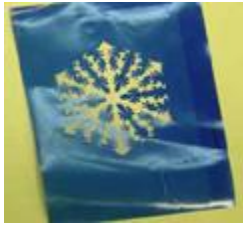
HOW TO STENCIL ON FABRIC - QUILTS

How To Stencil on Fabric in Seconds



We Used One Color Here To Make It Simple. You Can Use As Many Colors As You Wish By Blocking Off Different Parts Of Your Stencil With Scotch Tape To Allow Different Colors To Come Through At A Time.

Step 1 - Make Your Stencil



Here is the way your stencil will look after you have exposed, developed and dried it like shown on the [Home Page](#). Now it is ready for use. You can use it as it is or put a Oak Stencil Frame around it.

Step 2 - Position the Stencil



Place the stencil on the fabric to be stenciled. Be very careful with the **alignment of your stencil** and line up your copy exactly where you want the design to go. The stencil must lay flat on the fabric in order to keep the paint from bleeding under the edges.

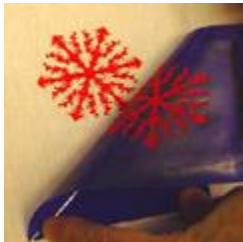
Step 3 - Apply the Paint with a Squeegee



If you do not use a frame simply hold the stencil in place with two fingers on left hand side as shown. **Apply some paint to the edge of the squeegee and pull it across the copy in one smooth stroke** using light to medium hand pressure.

Check to be sure that the copy parts of the stencil are completely filled with the paint color before you remove the stencil.

Step 4 - Carefully Remove the Stencil



It's important that you lift the stencil straight up off the fabric to keep it from smearing. In this picture, the stencil is being lifted from just one edge, while the other side of the stencil is held in place with your fingers until it is free from the material.

Enjoy Your Stencil



It's that simple! You have done it in a few Seconds! **Enjoy your custom stencil work!** Make sure to wash and dry the stencil, so you'll be able to use it hundreds of times.

If you want your fabric to be washable, just wait for the paint to dry, lay a piece of scrap cloth or paper over the paint, and iron for about 5 minutes. This will heat set the paint so that it won't bleed or fade in the washer.