New Source of Copper Shapes

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Traditionally, enamelists have had a limited number of sources for the copper shapes on which to apply the enamels.

Perhaps the easiest source is to purchase them from the various suppliers. These are generally of good quality although as the dies that are used to cut these wear out, a large bur can form which must be filed off before the enamels are applied. These are generally only available in a single gauge, generally 18, which may be heavier than what the artist has in mind and only a limited range of shapes and sizes are available.

If you want a shape that is not available from a commercial supplier, or want it in a size or gauge different from what the supplier provides, your options are limited. You could get out your jewelers saw and a piece of copper of the appropriate gauge and cut the part out yourself. If you only want a few parts this may work out well but it is somewhat tedious especially if dozens of parts are wanted. Also, time spent cutting pieces out with a saw is time that could have been spent enameling which is what you probably wanted to do to begin with.

If you want a large number of parts, or have money to burn, you could have custom die built and have a stamping company use that die to cut as many pieces as you want until the die wears out. Quality dies can be used to create hundreds of parts and, if made right, can be resharpened as they wear. Unfortunately, they are also relatively expensive (perhaps hundreds of dollars each), can only cut the one size and are designed to only cut a single gauge of metal. If you want to have parts in a different size or gauge, you have to have a new die made.

We are now offering a new method for creating copper shapes. Using a computer controlled plasma torch we can now do custom shapes at a moderate setup price and per piece pricing. Currently, the set up fee is $20 for each design in copper. This is a one time fee to convert the design from the form given to us into the form that the computer needs and to make some test cuts of the parts to verify that the conversion is working well. After that, the per piece cost of a part is based upon the complexity and size of the part. As an example, a simple design 1 inch on a side in 18 gauge copper would be $0.70. This means that the enamelist can spend her time doing what she really wants, enameling, rather than sawing out copper, in order to get something unique.

The plasma torch requires what is known as a DXF computer file. This is a widely used file for

computer controlled machines but not one that you are likely to be able to create unless you have the appropriate computer aided design (CAD) software. Instead, you can mail us a drawing of the part to be created and we will scan it in to our computer and convert the scanned image into a DXF file. Alternatively, if the design has been done with one of the various drawing programs you could save it as a JPEG, GIF, PDF, PNG, BMP or other digital image and send it to us by e-mail. We can convert almost all of the common digital image formats into the needed DXF file format.

The quality of the drawing is quite important. The cutter will do his best with the drawings that you send him but the best results are obtained with drawings that are done in black, fine line pens on white, non-textured paper or drawings where the outline of the part is completely filled in in black. This is not to say that other drawings can't be used it is just that these tend to give the best results. Once they are scanned into the computer, the cutter has various programs to edit the pictures or the resultant DXF file in order to get what he thinks you intended in your design. The only problem with that is that the cutter has to use his, possibly limited, artistic ability to try to get the result that he thinks you actually wanted. He has been successful at converting pencil drawings on lined paper, scans of existing parts, and in a few cases drawing the parts using his computer aided design program to get the DXF file based on the drawings that were sent in.

Copper parts in gauges from 26 through 16 have been successfully cut. We have also cut parts in both fine and sterling silver. For silver, the set up fee is $40 and the per piece price is significantly higher as silver is much more expensive than copper. In addition, the torch has been used to cut brass and steel and we expect that it would work on aluminum as well if you had an application for a custom shape that you wanted to use for something other than enameling. The limitation is that the material has to be conductive of electricity which basically means it must be a metal of some sort. We did get one request to cut titanium but concerns about whether the torch might actually catch the titanium on fire caused us to decline that job.

If you would like to have the same part cut in two or more sizes, there is a one time $5.00 fee for each size change providing that no significant changes to the design have to be done to make that work. Such changes are rare and, should they occur, the cutter will advise you of that before starting work.

There are some limitations on this process. The plasma torch essentially uses a very hot flame to cut the metal. This flame is about 1/32 of an inch wide and is round. This means that very fine detail and sharp inside corners cannot be successfully cut. On the other hand, outside corners, like the points on a star, can be cut quite sharply. In fact, we have had requests to dull

these sharp points on some of the custom parts so that they don't snag clothing or injure the wearer.

While the position of the torch itself is very accurately controlled, the flame is a little more difficult to control and may “flutter” slightly as it cuts. For highly geometric shapes like circles, squares, triangles and such, this may cause the part to be slightly asymmetric which can be noticeable to the human eye. For more organic shapes such as plants, animals, birds, fish, etc. this flutter is not noticeable and good results are generally to be had.

Also, very small parts, say smaller than ½ an inch across, are difficult to impossible to cut. The cutter will either look at the design or attempt to cut it and if it proves to be a problem will decline the order at no charge. At the other extreme, the bed that the torch operates on is four feet by four feet which means that parts larger than that cannot be cut as a single part.

Cutouts inside the part can be done and are not a problem except for the limitations due to the size of the flame and the inability to cut sharp inside corners.

For further information or orders, please contact Joan Schlaifer at sales@enameling.com or 1-800-525-5959