

A look at the Uniform, Full-Length Graver Heel

By D. J. Glaser

Experienced engravers agree that the heel on a graver can often affect its performance more than other features. By talking with different engravers, jewelers, and stone setters, you'll soon discover there are a wide variety of styles and preferences of graver heels. This article addresses one such issue: the uniform full-length heel versus the more "common" heel.

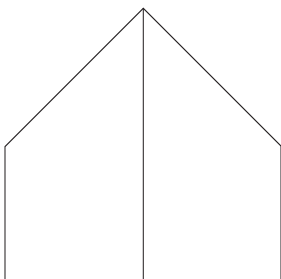
Many steel engravers, such as firearm and knife engravers, cut lines of relatively consistent width compared to other engravers such as western silver engravers or some jewelers. When a graver is used to cut relatively consistent lines, the heel is often sharpened like Figure 1...let's call this the "common heel." Many engravers who use the common heel type prefer a smaller heel for thin, shallow lines like shading and a larger heel for wider, deeper lines. Another factor in the length of the common heel is the design being engraved because tighter curves need a smaller heel to prevent heel drag.

Beginning in the late 1980's, I had the opportunity to work numerous jewelry trade shows around the world in Europe and Asia. Initially, I was surprised and somewhat unprepared for the wide variety of requests I received to demonstrate engraving cuts that differed considerably from most of the line engraving I had done. Many overseas customers were interested in deep and wide cuts in jewelry metals (for example, .125" wide by .062" deep) made with one cut. The tools they preferred were square gravers or modified square gravers widened to 110° - 130° point angles. Look at Figure 2. Notice that wide cuts can exceed the width of the "common" graver heel. When this happens, the graver can have an insufficient heel, making it more difficult to control and less precise. If you address this by widening and lengthening the common heel, the heel can get too long for good performance, especially for thinner lines or at the beginning of the cut.

Now look at Figure 3. This heel is consistent across the full width of the graver surface. I call it the "uniform, full-length heel", but it could have other names. This heel has several advantages. It obviously runs the entire width of the graver making it impossible to run out of heel in deeper cuts. The consistent depth of the heel often adds a more predictable feel to the graver than the common heel because the common heel thins quickly as the graver widens.

Sharpening the uniform, full-length heel is not difficult, but it requires a sharpening fixture with two rotary axes such as the GRS Dual Angle Fixture, or the GRS QC Sharpening Fixture. The precise angle settings will depend on the point angle of the graver, face angle and heel angle you choose. In general, you will rotate the front angle dial approximately 3 to 15 degrees past the common heel angle setting. This will take some experimenting on your part, but it's not difficult. Blackening the heel surface with a permanent marker before you heel the graver will improve visibility while you experiment. Once you find the settings that match the way you sharpen your graver, write it down. Then repeat and enjoy this versatile tool geometry.

Unheeled Square Graver
(bottom view)



Square graver with
"Common" heel (bottom view)

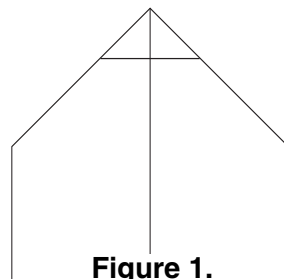


Figure 1.

Wide cuts
can exceed
common
heel width

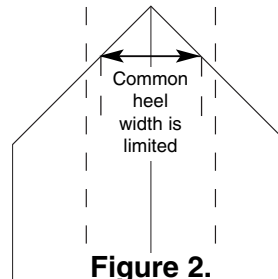


Figure 2.

Square graver with "uniform
full-length" heel (bottom view)

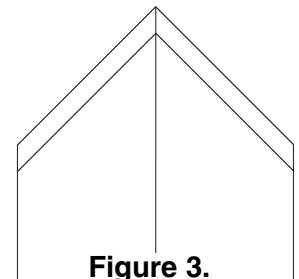


Figure 3.

