



Application Bulletin

Jewelry Fabrication and Milling



This bulletin will explore using a Gravograph Engraving System to reduce jewelry fabrication time and expand into the rapidly growing, personalized jewelry market.

In years past, producing a name pendant, such as the one to the left, meant tracing the shape onto a sheet of silver, drilling starter holes to feed the saw blade through and cutting the name out with a hand saw. After cutting it out, you would file the edges to remove the kerf marks created by the saw blade and polish the pendant. This process would take 2 to 3 hours with customer interruptions. Utilizing a IS400 or IS400 Volume you can fabricate the same pendant in just 8 minutes setup time and as little as 5 minutes run time, depending on the material being processed. After the milling process, a few minutes in the polisher is all that is required to complete the pendant fabrication in many cases.

Precision milling applications require that the engraving system to be constructed on a cast metal base for rigidity and have an industrial duty drive system, as is the case with Gravograph Engraving Systems. Engravers that are constructed using extruded channels, that are bolted together using light duty drive assemblies will not be able to absorb the vibration generated in the milling process. This will result in the loss of milling and engraving accuracy within a relatively short period. Additionally, a light duty engraving system will not dampen cutter vibration generated in the milling process, resulting in premature cutter failure and reduced quality.

Exceeding customers expectations, dictates that your design software be very flexible and powerful, yet easy to use. Gravostyle 5 meets these requirements with training movies, tutorials, and a built-in searchable instruction manual. Gravostyle 5 can be configured to meet any application needs from simple engraving to photograph engraving, even 3-D scanning and prototyping. All of the items pictured in this bulletin were fabricated or engraved using the CAM module of Gravostyle 5 Graphic Level Software.

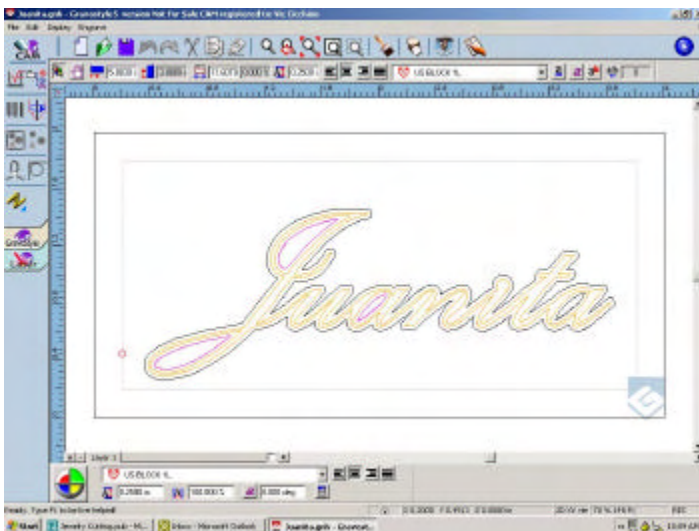


Innovative Solutions For Permanent Marking

The milling and fabrication procedures outlined below can be used for industrial applications, such as fabrication of circuit boards, insulating materials and metal spacers.

The cutter of choice for jewelry fabrication is a 1/8" 4 flute ball nose end mill with a 3/64" tip that has been tin dipped. These may be sourced from local tool suppliers or at www.discount-tools.com/endmills/3200Btin.cfm The cutter tip size will be determined by the dimension of the smallest inside radius in the profile that you are cutting out. The X,Y & Z, cutter feed rates will be dictated by your material's milling characteristics. When processing 1mm thick silver you can cut through in one pass with a Z plunge rate of 0.015 using a dwell of 0.2 allowing the cutter to pierce the material before moving on the X, Y-axis. The X,Y feed rate will also be 0.015, use a cutter lubricant such as Boelube to extend cutter life and achieve the cleanest cut possible. When processing thicker or harder materials the feed rate will need to be reduced or multiple tool passes and depths can be added to achieve a clean cut.

A collet spindle with 1/8" collet insert is required for milling applications. The collet spindle grips the cutter near it's tip, reducing tool chatter and vibration. Without the collet spindle you will break the tip off the cutter prematurely. To reduce vibration and hold the work piece firmly, a T-Slot Clamping Table is recommended for the IS400. Additionally, film tape placed under the engraver and cut the last 2mm's by hand to prevent the work piece from being nicked when it is cut free.



Gravostyle 5 CAM Module



IS400 Engraving System



IS400 Volume Engraving System



Supplies

- Collet Spindle
- Collet insert 1/8"
- 4 Flute Ball Nose End Mills
- Cutter Lubricant (Boelube)
- T-Slot Table
- Double Sided Film Tape

Visit our website at www.gravograph.com or call 1.800.843.7637