

beginner/intermediate

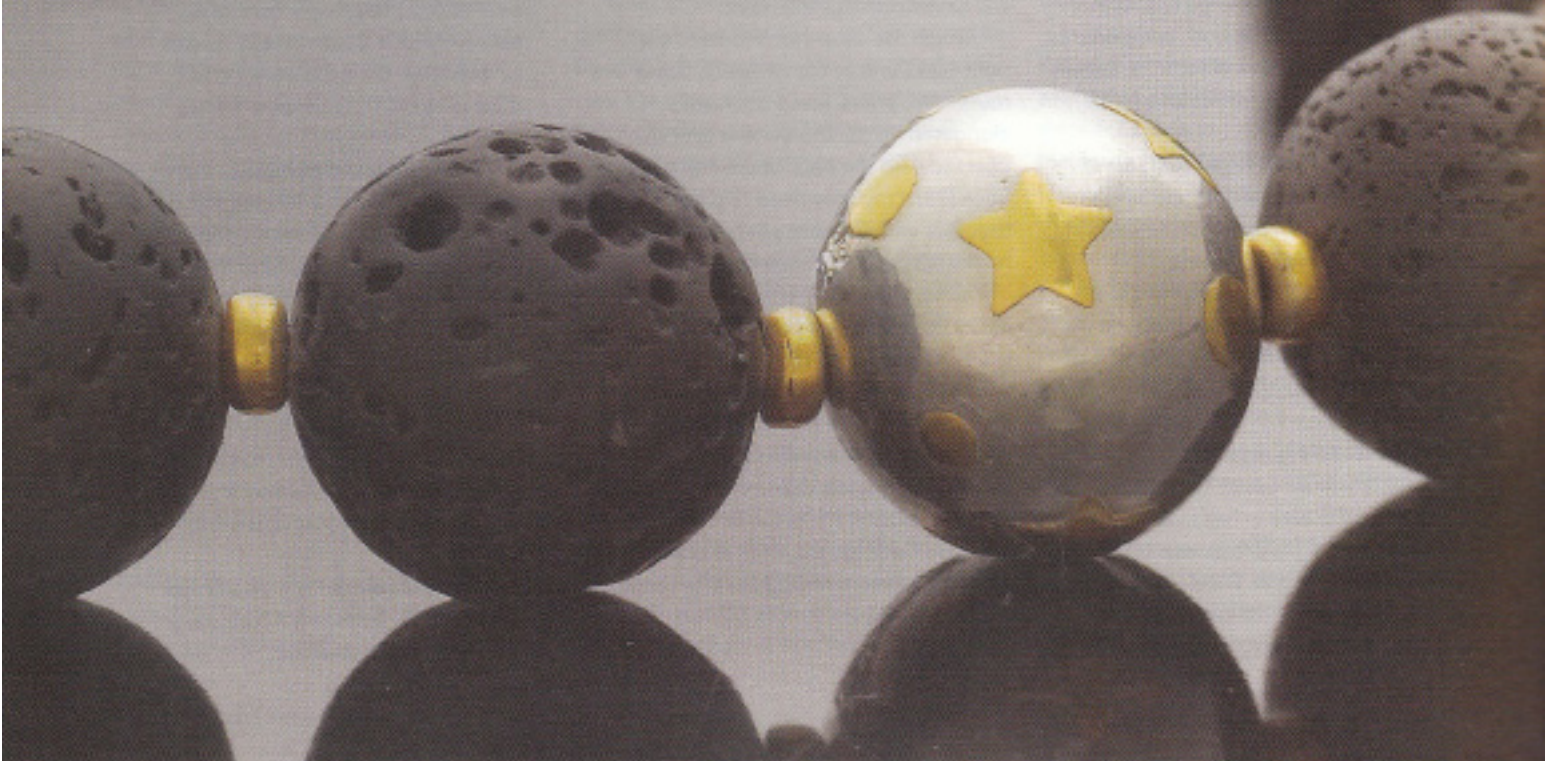
metal

SOLDER-FREE HOLLOW BEAD

Fahrenheit

*Fuse silver to silver
and fuse gold to silver
to make a seamless sphere.*

by Patricia Tschetter



650° the temperature at which keum-boo fuses

If you heat gold to about 650°F (343°C), its molecules not only become excited, they actually show changes in their electron rings. In an article published on the Orchid Forum (www.ganoksin.com), Charles Lewton-Brain suggests that this change might explain the fascinating ease with which gold bonds to other metals at that temperature. This phenomenon is exploited beautifully in keum-boo (also spelled kum-boo and kum-bu), a technique for fusing pure gold to silver using only low heat and pressure (no solder) in order to make a surface decoration. This process originated long ago in Korea, where the symbol "keum" means "gold" and "boo" means "attached."

With keum-boo's rising popularity, it's easy to find ultra-thin 24k or 22k gold foil. However, I prefer to make my own. The thin, commercially available foil stuck to my silver almost instantly. My slightly thicker handmade version, however, doesn't stick immediately. So, I have enough time to adjust the placement of the gold and position it exactly where I want it in the design.

what about sterling silver?

Due to its molecular properties, fine silver works best for keum-boo. So, if you want to use sterling silver, you have to build up a thin layer of fine silver on its surface for the gold to adhere to. This process is called "depletion gilding."

Use a torch with a soft, bushy flame to heat the sterling silver, then pickle it and gently brush it with a brass brush. Repeat until your sterling no longer turns black when it's heated. This indicates that there is enough fine silver built up on the surface for the gold to stick to. To protect the fine silver, don't use the brass brush on the final heating.

► Tschetter's keum-boo and granulation earrings were featured in the book *500 Earrings*. $1\frac{1}{8}$ x 1 in. (33 x 25.5 mm).

the gold shape to the desired position on the bead. If necessary, use your burnisher to dislodge the gold shape from the craft knife or tweezers, securing the gold shape onto the bead.

Light your torch, and gently wisps a soft, bushy flame over the bead, being careful not to melt the delicate gold [8]. Keep the bead warm with the flame, and gently rub the burnisher in a rolling motion along the gold shape [9].

Only light pressure is needed; either start on one edge of the gold shape and work your way across the surface, or begin in the middle of the gold shape and work toward the edges. Both methods assure few or no bubbles. See "Want the Goods on Gold?," opposite, if you develop a bubble — it's fixable!

This bonding may take a few tries, depending on the temperature of your bead. If the bead is initially too hot, let it cool by backing off your torch. Eventually the temperature will cool to the 500°–700°F (260°–371°C) range that will cause the gold to stick. Repeat this process to fuse all your gold shapes to your bead.

TIP: When I keum-boo flat pieces, I use a hotplate and place a steel sheet on its surface. Then I make a scratch in the steel surface. When the hotplate heats, I watch the scratch and note when it turns blue, which indicates the proper temperature for adhering the gold.

Allow the bead to cool slightly and then quench it in water. Check the edges of the fused gold with your fingernail or a pin to make sure they're fully bonded. (Sometimes I reheat the bead and go over all the gold and the edges just to ensure that all the gold is attached, because it's difficult to adhere gold once you've applied liver of sulfur to the piece.)

Fill the bead with epoxy. To strengthen the walls and add weight to my hollow beads, I fill them with plumber's epoxy (or steel epoxy) putty. It's a two-part compound that is moldable before it hardens permanently. The working time



▲ Keum-boo works at any size. The beads on these earrings are only $\frac{3}{8}$ in. (9.5 mm) in diameter.