

An Introduction to Keum-Boo

"Keum-boo (also Geumbu, Kum-Boo or Kum-bu—Korean "attached gold") is an ancient Korean gilding technique used to apply thin sheets of gold to silver, to make silver-gilt. Traditionally, this technique is accomplished by first depleting a surface of sterling silver to bring up a thin layer of fine silver. Then 24 carat gold foil is applied with heat and pressure—mechanical gilding—to produce a permanent diffusion bond.

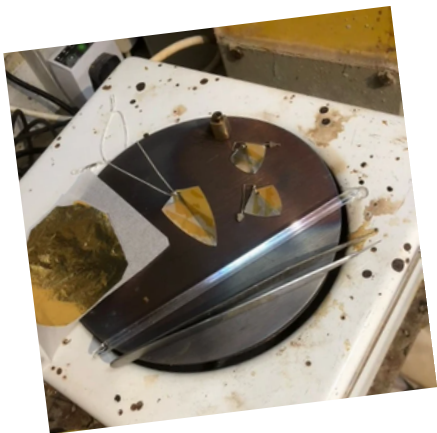
Pure precious metals such as gold and silver have a very similar atomic structure and therefore have a good potential for bonding. Heating these metals to a temperature between 260–370°C increases the movement of the atoms. When pressure is added, this causes an electron exchange at the surface between the two metals, creating a permanent diffusion bond. This diffusion bond occurs far below the soldering temperature for either metal (Dhein, 2004)."

Wikipedia

YOU WILL NEED:

keum "gold"
boo "attached"

- a standard hotplate, picked up easily online for around £15
- a piece of copper to lay your work on around 1mm thick to diffuse the heat evenly
- agate burnishers and/or Tungsten Carbide of various sizes and shapes
- a steel block to gently cool your metal down
- a chopstick rest to lay your burnishers on to cool
- wooden cocktail or kebab sticks to check the temperature of the hotplate
- 24ct gold foil or leaf (*the ideal thickness for process: 0.03–0.05mm*)
- insulated tweezers because its hot work!



STEP 1

Complete your piece apart from stone setting. Make sure all soldering joins, patinas and finishing steps are complete as you will be unable to heat after bonding the gold. The piece should then be completely clean, pickled, pumiced with a toothbrush and rinsed in cool water. If desired you can heat and quench in pickle, scrubbed with brass brush several times to bring a layer of fine silver to the surface increasing the quality of the surface metal to use for bonding. This is called frosting.

STEP 2

Preheat the hotplate with a piece of copper sheet to help the heat diffuse evenly. Place your work on the copper and allow to heat through to 500–700F (260–370C). You can check this by placing a new piece of wooden stick onto the metal to see if it begins to burn and discolour.

STEP 3

Whilst your work is heating up prepare your foil. You can cut the desired shapes with scissors, paper cutters or tear pieces. For more control sandwich the foil between a fold of tracing paper.



STEP 4

Use one hand to hold the piece steady with a pair of insulated tweezers and the other to apply the gold. Burnish the gold onto the piece to form a bond. Pressure is required to remove any microscopic gaps that prevent adhesion. If the burnisher gets too hot, use an alternative. Rub across the gold in small circular movements or what feels correct to apply pressure to every point. Try burnishing from the centre out.

STEP 5

Repeat the process until you gain the desired effect. Do not quench your work, Allow it to cool down gently by placing it on a steel block. Lightly polish as desired.

FURTHER READING:

Complete Metalsmith by Tim McCreight, page 95

<https://www.thejewellersbench.com/blog/ten-tips-to-make-keum-boo-easy>

