



MANVPROPRIA

Beryllium Copper
THE NEW GOLD?

Advantages of Beryllium Copper over Steel and Gold for Nibs

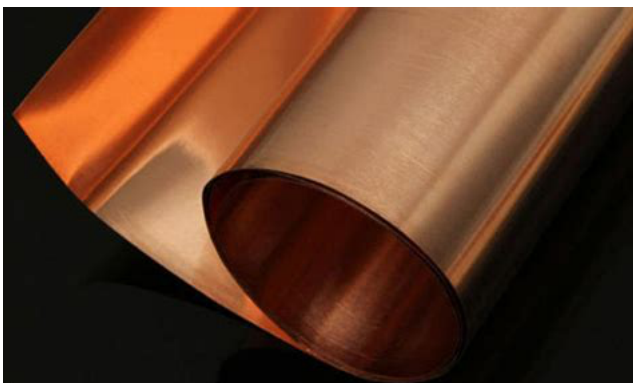
Beryllium copper (BeCu) has some impressive advantages that make it a popular material for fountain pen nibs compared to gold and steel. Here are some of the key benefits:

BERYLLIUM COPPER UNS C17200 FOIL



Excellent elasticity

Beryllium copper is known for its exceptional elasticity and flexibility. Compared to steel and gold, it offers high resilience, which is particularly important for a nib to ensure a comfortable writing experience. It offers excellent writing dynamics that are smoother and more responsive without compromising the stability of the nib.



Corrosion resistance

Beryllium copper is highly resistant to corrosion, particularly to chemical reactions that may occur when ink is used. This ensures that the nib retains its shape and function over a long period of time. While gold is also corrosion-resistant, it is softer

Stability and durability

Beryllium copper combines the advantages of copper (high stability) and beryllium (strong yet flexible). This makes it more robust than pure copper and yet more flexible than pure steel. Compared to gold, beryllium copper is stronger, which means it is less susceptible to deformation or abrasion. Gold is very durable, but due to its softness, it could wear out more quickly with intensive use.



Better mechanical properties than steel

Beryllium copper has higher tensile strength and is also elastic, making it more robust than steel. It retains its flexibility and responsiveness without losing its shape. Steel is hard and durable, but also stiffer and less flexible than beryllium copper. The flexibility of beryllium copper makes it a better choice for a comfortable and dynamic writing experience.

Weight

Beryllium copper has a favorable strength-to-weight ratio. It is slightly lighter than steel but

offers the same strength, making it a practical choice for springs that are intended to be used over long periods of time. Gold is relatively heavy, which in some cases can make it less comfortable to write with, especially during longer writing sessions.



Excellent workability

Beryllium copper is easy to work with and polish, resulting in a smooth, finely ground nib. This makes it possible to customize the nib to the specific needs of the user. Steel is more difficult to work with and can wear down over time, which can result in a less comfortable writing surface. Gold is easy to work with, but due to its softness, it can wear out or deform more quickly.

Beryllium Nib Making

After the shape of the nib has been milled out, the nib is soft annealed at medium temperature. The nib is then pressed into its round shape. The springs are then annealed at temperatures around 900°C and quenched. This gives them the highest possible hardness. In the hard state, the Osmium ball is welded on (tipping) and the slot is cut (slitting).

Post-treatment (tempering)

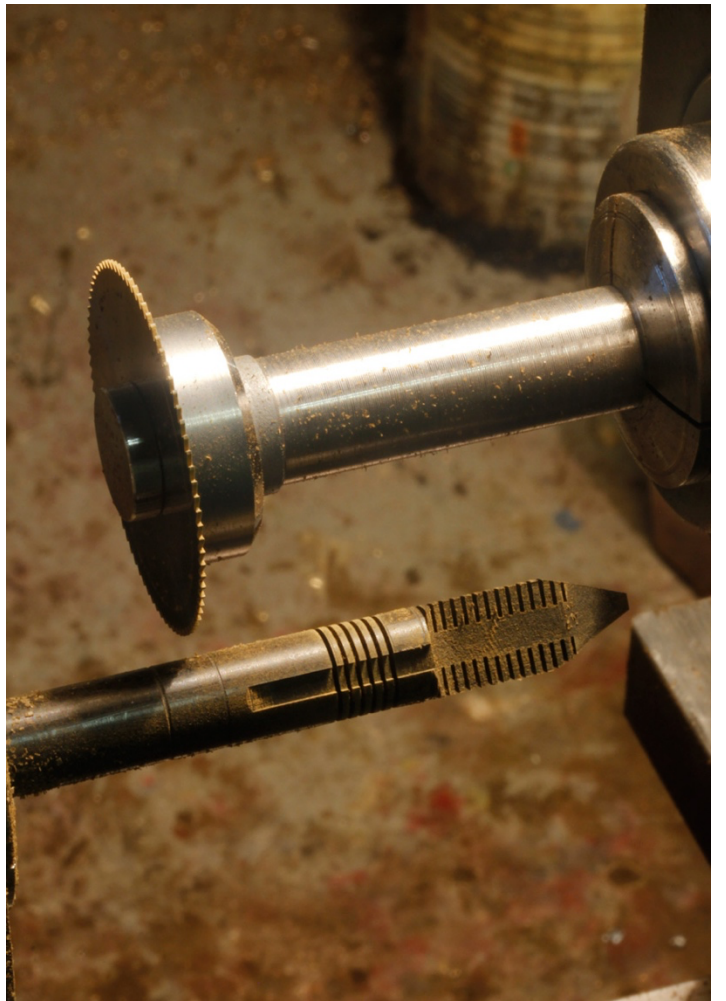
Finally, tempering is carried out to relieve stresses and achieve a balanced combination of hardness and toughness. The temperatures for tempering are between 200°C and 400°C for 2 to 3 hours, depending on the specific mechanical properties required.



In summary:

Beryllium copper offers an outstanding combination of elasticity, durability, corrosion resistance, and good mechanical properties at a relatively low price. It is often an excellent choice for high-quality fountain pen nibs that require both functionality and durability.







MANU PROPRIA PENS

Is the first pen manufacturer using Beryllium Copper Nibs

Since several years, I have been working on finding new alternative materials for the manufacture of nibs. I finally found an extraordinary material that combines all the properties of a good nib: hardness, flexibility, shape retention, and corrosion resistance. The material is beryllium copper. This excellent alloy is also increasingly being used in the watch industry to replace brass parts in the movement.

Fountain Pens with #8 and #9 Beryllium Nibs will be available early next year.

The nib is supplied with ink by an ebonite feed, all made in the Manu Propria Ateliers