

Stainless Steel 316L vs Zinc Alloy vs Copper/Brass

A side-by-side comparison for luxury hardware procurement

±0.01mm

MIM PRECISION

2–3x

TENSILE STRENGTH VS ZINC

595 BHN

HARDNESS (VS 55–73 BRASS)

100%

RECYCLABLE

316L

MEDICAL-GRADE STEEL

Property	Stainless Steel 316L	Zinc Alloy (Zamak)	Copper / Brass
Corrosion Resistance	Excellent — Resists salt, sweat, humidity. No tarnishing.	Moderate — Requires protective coating. May oxidize.	Low — Tarnishes naturally. Requires maintenance.
Tensile Strength	High — 500–800 MPa. Resists deformation under stress.	Moderate — 150–380 MPa. Adequate for most uses.	Moderate — Good for decorative, less for structural.
Wear Resistance	Superior — Up to 595 BHN. Stays pristine longer.	Good — Performs well with finish. Scratches more easily.	Fair — Soft metal, prone to surface wear and patina.
Weight & Feel	Premium heft — Communicates quality and durability.	Lighter — Can feel less substantial. Good for weight-sensitive.	Satisfying weight — Natural warmth and classic feel.
Finish Durability	Exceptional — PVD and electroplated finishes last longer.	Good — Standard electroplating, may chip with heavy use.	Moderate — Lacquer can wear off, exposing base metal.
Sustainability	100% recyclable. No toxic coatings. Lower lifecycle footprint.	Recyclable. May require chemical surface treatments.	Recyclable. Mining has higher environmental impact.
Cost	Higher upfront — Lower lifetime cost due to durability.	Most economical — Best cost-performance for standard use.	Mid-range — Premium material with traditional associations.
Best For	Premium brands prioritizing durability, sustainability, and modern luxury.	Volume production, cost-sensitive, weight-sensitive designs.	Heritage brands, warm-tone designs, natural patina.

KEY TAKEAWAY

Stainless steel costs more upfront but delivers lower total cost of ownership: fewer returns, longer product life, stronger brand perception, and ESG alignment.

For premium brands, it's not an expense — it's an investment.

Ready to switch to stainless steel?

nikka.com.hk/contact

Samples in 2–3 weeks