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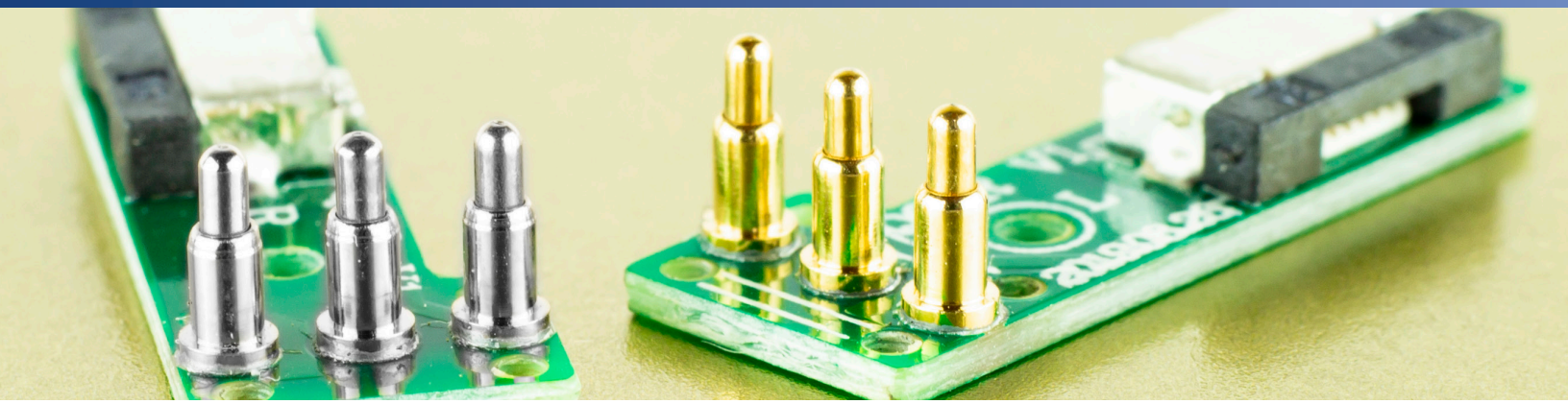


LUNA®

Nanostructured Silver Alloy for Gold Replacement

LUNA® is a nanostructured silver-tungsten alloy designed to replace gold in connectors and overcome the limitations of traditional materials. Engineered to deliver gold-level performance, LUNA combines durability, thermal stability, and corrosion resistance to deliver the same performance as hard gold without the volatile market costs associated with precious metals. In addition to exceptional wear durability, LUNA delivers superior high-temperature stability compared to conventional silver solutions.

LUNA's nanocrystalline structure enhances hardness and stability, helping connectors maintain low contact resistance and long-term reliability across repeated mating cycles. When integrated into a complete plating stack, LUNA enables manufacturers to reduce precious metal content without sacrificing performance. The result is a scalable, cost-effective solution for consumer electronics, data communications, and other demanding electrical interconnect applications.

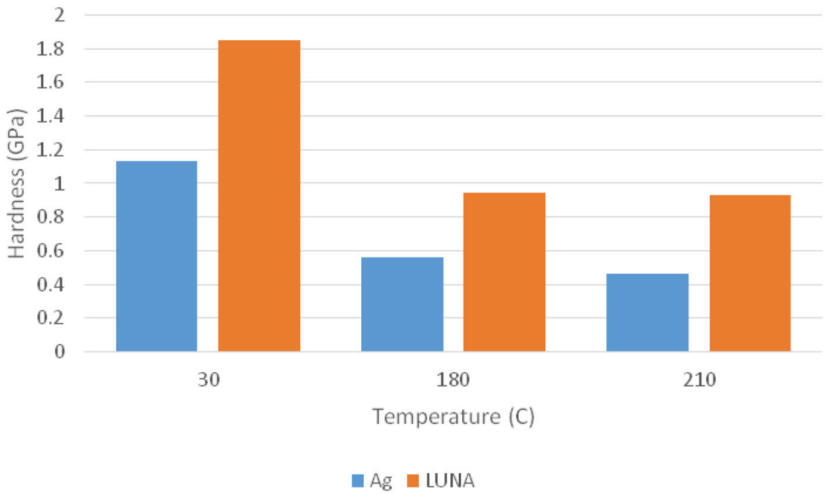
Benefits

Reduced Costs: Minimizes reliance on precious metals like gold, offering a sustainable alternative

Sustainability: Low carbon footprint, cyanide-free and nickel-free

Improved Performance: Effective diffusion barrier, low and stable electrical contact resistance

Enhanced Reliability: Delivers consistent performance under extreme conditions, lowering maintenance and warranty costs



LUNA is 2 times harder than pure silver after aging 2,000 hours at high temperatures.

Key Features

Thermal Stability: Operates safely up to 220°C

Enhanced Hardness: 2-3X hardness of pure silver, reducing friction force and extended durability

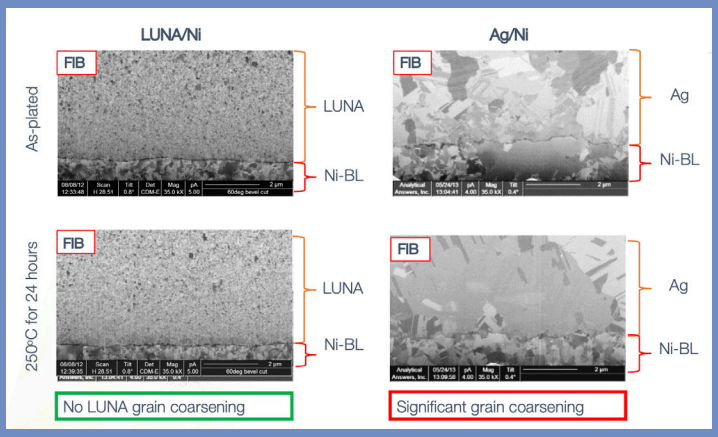
Conductivity: As conductive as hard gold and boost ampacity in connector applications

Corrosion Resistance: Built to withstand harsh environmental conditions, maintaining stable properties over time

Arc Erosion Resistance: Suitable for low power hot make/break

Ensuring Stable Nanostructure with LUNA for Proven Thermal Performance

The stable nanostructure engineered into LUNA silver alloy ensures its consistent thermal performance – delivering additional reliability, safety and performance to high-reliability applications. The figure shows the characteristic nanometer-scale grain size of LUNA after plating, compared to the much larger micrometer scale grain size of silver. Upon heating for 24 hours, LUNA demonstrates thermal stability with no apparent grain growth. By comparison, traditional silver shows significant grain coarsening and softening, an irreversible change to the structure, leading to a loss in performance.



Manufacturing Capabilities

- **Pulse Reverse Electrodeposition:** A precise, cyanide-free, drop in replacement manufacturing method for consistent quality
- **Scalable Production:** Rack and barrel compatible
- **Application Engineering:** Expert teams available for design guidance and on-site production support
- **Sampling:** Early-stage sampling for high-volume production using pilot lines within our labs.

Applications

- **Safe Wearables:** Hypoallergenic, antimicrobial coatings for consumer and medical devices
- **Electronic Components:** Gold replacement for connectors and pogo pins, reducing cost and carbon footprint
- **High-Voltage:** Interconnects, solar, electric vehicle, data centers, and power electronics

Environmental Benefits

- **Sustainability:** Reduces the reliance on environmentally intensive materials such as precious metals
- **Energy Efficiency:** Minimizes energy loss and heat generation in high-power applications
- **Eco-Friendly Manufacturing:** Cyanide-free processes to align with industry sustainability goals
- **Nickel-Free:** Configuration available for wearable and nickel-sensitive applications