COINING™

AMETEK
SPECIALTY METAL PRODUCTS

GOLD BONDING WIRE

99.99% minimum purity
custom gold bonding wire
for extreme bond reliability.



COINING™ / AMETEK® SPECIALTY METAL PRODUCTS

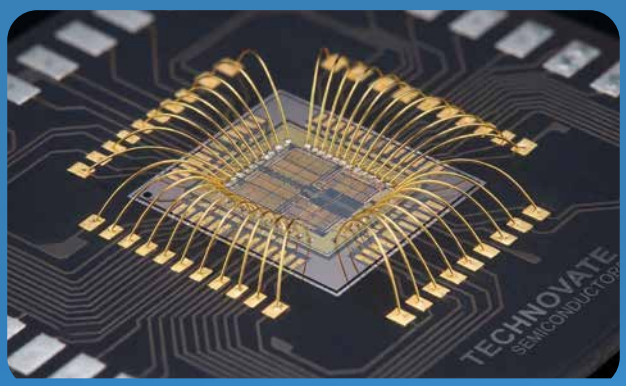
AMETEK COINING Gold Bonding Wire

COINING specializes in manufacturing precision gold wire up to **99.99% minimum purity** for gold ball and wedge bonding applications.

Gold Wire Expertise and Capabilities

Our in-house casting, drawing, annealing and A2LA-accredited analytical method capabilities ensure we deliver **homogeneous, high-purity wire** with **ultra-clean surfaces** and **smooth finish**.





Precision Wire Customized to Exact Requirements

We offer wire in a **full range of diameters**, to meet the needs for strength and elongation in your wire application. We work with our customers to supply a custom solution where the technical parameters like tensile and elongation are specific to their requirements.



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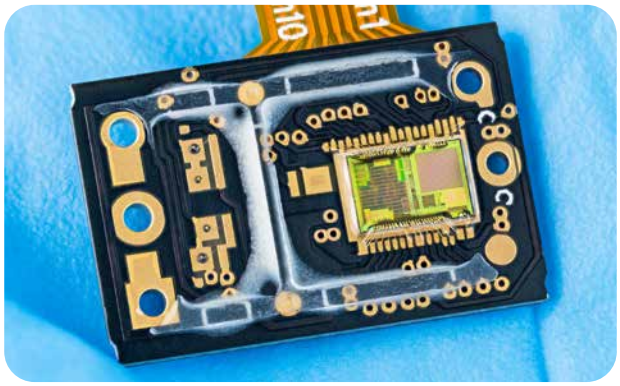


Why Gold Bonding Wire?

Gold (Au) bonding wire is used across a wide range of applications, from high pin-count, ultra-fine-pitch microelectronic devices to high-power discrete components.

Au is the preferred bonding material when:

- The contact material is not compatible with aluminum (Al) and/or copper (Cu)
- The available contact area is limited
- The device will be exposed to high-temperature or high-humidity environments

The Advantages of Gold Bonding Wire:

Gold (Au) bonding wire offers a unique combination of **bond reliability, process flexibility**, and **performance advantages** for critical microelectronic and power device applications.

- Extreme bond reliability
- A wide processing window
- Low-impact ball and wedge bonding
- Superior looping performance
- High tensile test performance
- Excellent corrosion resistance
- Higher fusing current than standard Al bond wire



Gold Wire Applications

COINING gold wire is ideally suited for a wide range of applications, including:

- **AI Data Centers**: Photonics, transceiver lasers, and Co-packaged Optics (CPO) enabling high-speed data transfer
- **Semiconductor Devices**: Microprocessors, memory chips, sensors
- **High Performance Electronics**: Diagnostic imaging, surgical tools, UV lasers
- **Automotive**: Power supply converters, inverters, MOSFET and IGBT controllers
- **Medical Devices**: Pacemakers, neuromodulation systems, cochlear implants

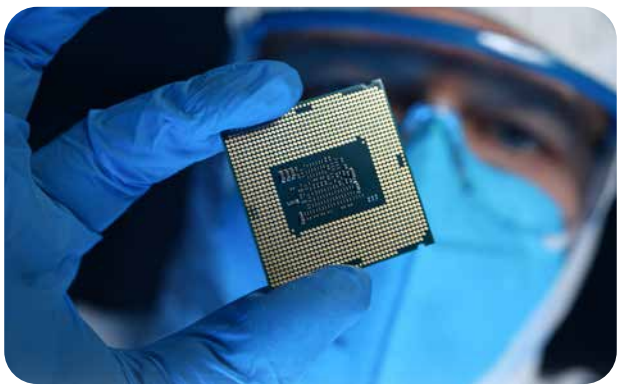
Fusing Current Advantages

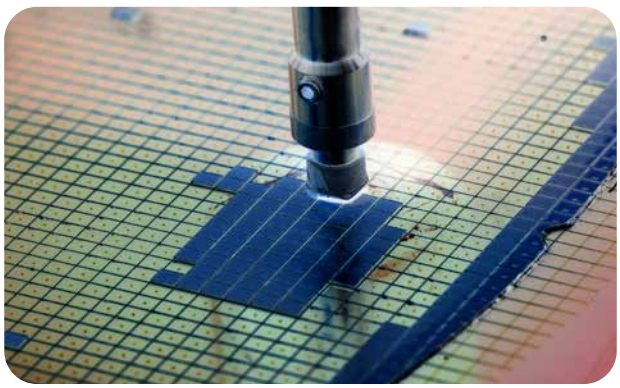
Fusing current is a critical performance factor in wire bonding, particularly for highpower and highreliability applications.

Greater Current Carrying Capability

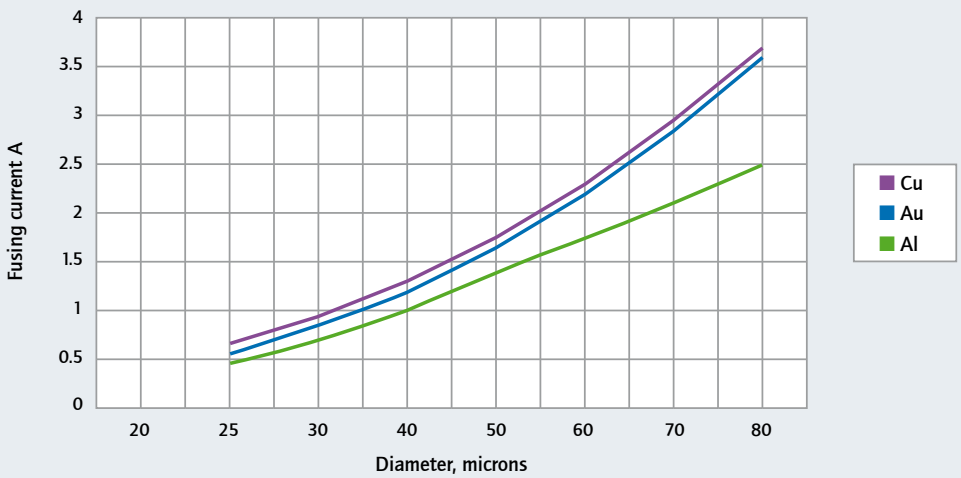
As shown in the chart, gold (Au) bonding wire offers a **significantly higher fusing current** than standard aluminum (Al) wire across a wide range of diameters, providing **greater current carrying capability** and improved safety margins.

This performance advantage makes gold wire an ideal choice for applications where **thermal stability, electrical robustness**, and longterm reliability are essential.





Fusing Current



Material Specification	
Au	99.99% min.
Be	3 - 10 ppm
Impurities	Cu, Ag < 30 ppm; Fe, Mg < 20 ppm
Total impurities all elements	<100 ppm max

Physical Properties	
Density:	19.34 g/cm^3
Melting Point:	1063°C
Electrical Resistivity: (@20°C)	2.3 μΩ-cm
Electrical Conductivity: (@20°C)	75% (IACS)
Thermal Conductivity: (@20°C)	315 W/(m-K)
Fusing Current (10 mm x 25 μm)	0.52 A

Gold Wire Mechanical Properties*

Composition	Diameter		Tensile Strength (gms)	Elongation (%)
99.99% Au	0.7 mil	17.5 μm	3 - 10	2 - 6
	0.8 mil	20 μm	4 - 13	2 - 7
	0.9 mil	22.5 μm	5 - 16	2 - 8
	1.0 mil	25 μm	6 - 20	2 - 8
	1.3 mil	32.5 μm	10 - 45	2 - 10
	1.5 mil	37.5 μm	13 - 50	2 - 12
	1.7 mil	42.5 μm	15 - 60	2 - 12
	1.8 mil	45 μm	20 - 70	2 - 12
	2.0 mil	50 μm	25 - 85	2 - 15
	3.0 mil	75 μm	50 - 180	2 - 20







ABOUT AMETEK SPECIALTY METAL PRODUCTS

AMETEK Specialty Metal Products consists of six leading manufacturers of advanced metal products based in the USA and UK: Fine Tubes, Superior Tube, AMETEK Eighty Four, COINING, Hamilton Precision Metals, and AMETEK Wallingford.

Our extensive product range includes thermal management materials, metal tubes, strip, shaped wire, clad plate, powder, bonding wire and ribbon, solder preforms, and bond pads.

From powering aircrafts and space rockets, to advancing medical care, and accelerating the transition to renewable energy – our precision materials enable technological innovations.

AMETEK Specialty Metal Products is a business of AMETEK Inc., a leading global provider of industrial technology solutions serving a diverse set of attractive niche markets.

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