



# GOLD WIRE & RIBBON



## Coining's Gold Wire & Ribbon

Coining specializes in supplying up to 99.99% min Gold Ball and/or Wedge Bonding wire. Our in-house casting, drawing, rolling, annealing and A2L-accredited analytic capability ensure we deliver homogeneous, high purity wire & ribbon with ultra clean surfaces and smooth finish.

We offer gold bonding wire in a full range of diameters, suiting the needs for strength and hardness/elongation in your wire application. Coining also offers Au ribbon which is typically utilized in high-frequency microwave/RF and high-power applications.

## Why Gold Wire & Ribbon

Gold (Au) bond wire is used in a range from high pin-count, ultra-fine pitch microelectronics devices to high-power discrete components. Au is the preferred choice of bonding material when the contact material is not compatible with Al and/or Cu; the contact area is limited; or the device will be subject to high temperature or high humidity environments.

Au offers extreme bond reliability, a wide processing window, low-impact ball and wedge bonding, superior looping performance, high tensile test performance, excellent corrosion resistance and higher fusing current than standard Al bond wire.



Coining Au Bond Wire Products

## Material Specification

Au: 99.99% min.

Be: 3-10ppm;

Impurities: Cu, Ag < 30ppm; Fe, Mg < 20ppm;

Total impurities all elements: <100 ppm max

## Physical Properties

**Density:** 19.34 g/cm<sup>3</sup>

**Melting Point:** 1063°C

**Electrical Resistivity:** (@20°C): 2.3 μΩ-cm

**Electrical Conductivity:** (@20°C): 75 % (IACS)

**Thermal Conductivity:** (@20°C): 315W/(m·°K)

**Fusing Current** (10mm x 25 μm): 0.52 Amps

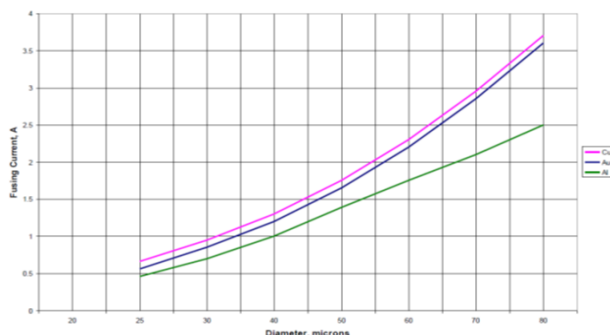
## Mechanical Properties

See Tables 1 and 2 on the following page

## Custom Au Wire & Ribbon

Contact Coining Engineering to discuss a custom Au wire or ribbon designed to meet your requirements.

Direct inquiries may be submitted through our website: [www.ametek-ecp.com](http://www.ametek-ecp.com) under Ask An Engineer.





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**Table 1. 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         |

\* Typical specifications

**Table 2. Gold Ribbon Mechanical Properties \***

| Temper          | Width (mils) | Thickness (mils) | Tensile Strength (gms) | Elongation (%) | Tolerance (%)** |           |
|-----------------|--------------|------------------|------------------------|----------------|-----------------|-----------|
|                 |              |                  |                        |                | Width           | Thickness |
| Hard            | 2 - 10       | 0.25 - 2         | 12 - 600               | 0.5 - 3        | 5 - 3           | 20 - 10   |
|                 | 10 - 25      | 0.5 - 3          | 80 - 1500              | 0.5 - 4        | 5 - 4           | 20 - 10   |
|                 | 25 - 100     | 0.5 - 3          | 100 min                | 1 - 6          | 5               | 20 - 10   |
| Stress Relieved | 2 - 10       | 0.25 - 2         | 10 - 500               | 1 - 4          | 5 - 3           | 20 - 10   |
|                 | 10 - 25      | 0.5 - 3          | 75 - 1000              | 1 - 5          | 5 - 4           | 20 - 10   |
|                 | 25 - 100     | 0.5 - 3          | 80 min                 | 1 - 7          | 5               | 20 - 10   |
| Annealed        | 2 - 10       | 0.25 - 2         | 7 - 300                | 4 - 30         | 5 - 3           | 20 - 10   |
|                 | 10 - 25      | 0.5 - 3          | 50 - 700               | 8 - 50         | 5 - 4           | 20 - 10   |
|                 | 25 - 100     | 0.5 - 3          | 50 min                 | 1 - 7          | 5               | 20 - 10   |

\* Typical specifications

\*\*Lowest width/thickness dimension has the highest tolerance (%)