

# STANDARD GOLD WIRE & RIBBON PRODUCTS



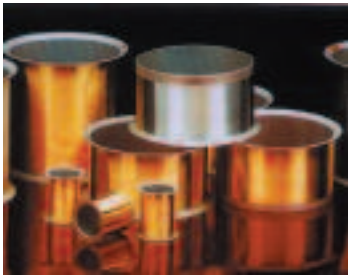
*SPM wire is widely used in the manufacturing of microelectronic devices as an electrical interconnect, either between a chip and substrate or between two chips. The materials described below are of the highest quality, refined and alloyed by SPM to produce the demanding properties of finished wire and ribbon products.*

SPM gold wire standards are unsurpassed in the industry. Wires are manufactured in diameters from 0.0005” and up to be used where uniformity of elongation, tensile strength and diameter are of paramount importance. High purity wire, like all SPM products for the electronics industry, is vacuum-processed from highly refined metals. Wire for automatic bonders is an SPM specialty.

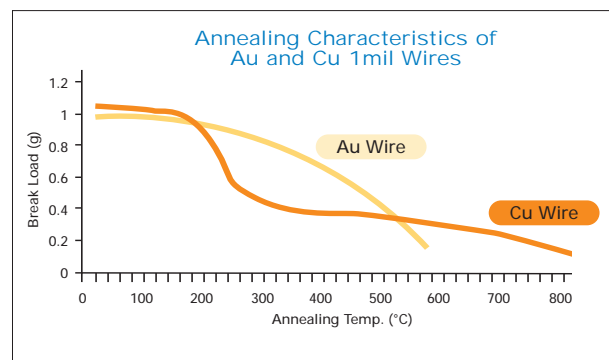
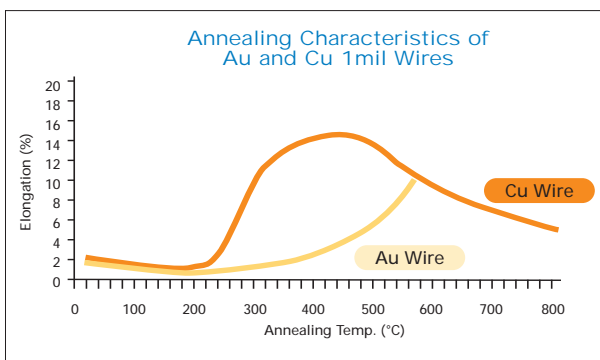
## OUR STANDARD WIRE SPECIFICATIONS

Diameter		Elongation (%)	Minimum Break Load (g)		Temper Condition
Inches	Microns		Type B1	Type B2	
0.0005	12.5	0.5 - 1.5	5	N/A	HARD
		2.0 - 5.0	2	N/A	ANNEALED
0.0007	18	0.5 - 2.0	9.5	8	HARD
		1.0 - 3.0	5	4	STRESS RELIEVED
		3.0 - 5.0	3	2.5	ANNEALED
0.0008	20	0.5 - 2.0	12.5	10	HARD
		1.0 - 3.0	6	5	STRESS RELIEVED
		4.0 - 6.0	4	3	ANNEALED
0.001	25	0.5 - 2.5	21	20	HARD
		1.0 - 3.0	11	10	STRESS RELIEVED
		4.0 - 6.0	8	7	ANNEALED
0.0013	33	0.5 - 2.5	33	30	HARD
		1.0 - 3.0	17	15	STRESS RELIEVED
		5.0 - 7.0	12	10	ANNEALED
0.0015	38	0.8 - 3.0	45	40	HARD
		1.0 - 3.0	24	20	STRESS RELIEVED
		6.0 - 8.0	18	16	ANNEALED
0.002	50	1.0 - 3.0	75	70	HARD
		1.0 - 3.5	45	40	STRESS RELIEVED
		2.0 - 8.0	30	25	ANNEALED

*Note: Other specification requirements can be achieved upon request.*



Pure gold wire doped with controlled amounts of beryllium and other elements is normally used for ball bonding. This process brings the two materials that are to be bonded together by using heat, pressure and ultrasonic energy. The most common approach in thermosonic bonding is to ball-bond to the chip, then stitch-bond to the substrate. Very tight controls during our processing enhance the looping characteristics and eliminate sagging. Gold wire is supplied in diameters from 0.0005” and larger. Junction size, bond strength and conductivity requirements determine the most suitable wire size. Production tolerance on gold wire diameter is  $\pm 3\%$ .



Ribbons of pure gold and base metals for microwave and other applications are also available from SPM and are custom-manufactured to close specifications. As with wire, many of the base metals can be supplied plated or clad with other metals for PC board repair and other applications.

Ribbon Type	Width (Inch)	Thickness (Inch)
ROLLED NARROW	.002 - .010	.00025 - .002
SLIT	.025 - .100	.0005 - .002
ROLLED WIDE	.010 - .025	.0005 - .003
TOLERANCE	+/- 3%	+/- 10%

*Note: Many other wires and ribbons in various alloys are available for your applications. All material produced at SPM is analyzed for chemical properties; impurity levels are measured in PPM. Please request additional details to see how best SPM can serve you.*

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