

ALUMINUM WIRE

TECHNICAL DATASHEET



COINING's Aluminum Wire

COINING specializes in manufacturing Aluminum Wire used in microelectronic devices as an electrical interconnect, either between a chip and a substrate or between two chips.

Our in-house drawing, annealing and analytic capabilities ensure we deliver homogeneous high-purity wire, featuring an ultra-clean surface and smooth finish.

Benefits of Aluminum Wire:

- Low cost
- Suitability for ultrasonic wedge bonding
- Eliminates the problem of "purple plague" associated with Gold wire bonded to an aluminum contact
- Corrosion-resistant

Alloyed Aluminum Wires are generally preferred to pure Aluminum because of greater drawing ease to fine sizes and higher pull test strengths in finished devices. The addition of Nickel makes the Aluminum Wire corrosion-resistant.

Physical Properties	
Density:	2.7 g/cm ³
Melting Point:	660°C
Electrical Resistivity: (@20°C)	2.7x10 ⁻⁸ Ω-m
Electrical Conductivity: (@20°C)	75% (IACS)
Thermal Conductivity: (@20°C)	230 W/(mK)

Material Specification	
99.999% Aluminum:	Al - 99.998% min.; Ni < 2 ppm; Cu, Mg, Si, Fe < 5 ppm
99.99% Aluminum + Ni:	Al - 99.99%; Ni - 47-53 ppm; Cu, Mg < 20 ppm; Si, Fe < 10 ppm
Other Alloy Compositions:	COINING also offers Al-Si, Al-Cu and Al-Mg wire

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Aluminum Wire Mechanical Properties*

Composition	Diameter		Tensile Strength (gm)	Elongation (%)
99.999% Aluminum	5 mil	125 μ m	60 min.	2 - 6
	8 mil	200 μ m	100 min.	5 - 15
	10 mil	250 μ m	180 min.	10 - 18
	12 mil	300 μ m	325 min.	10 - 20
	15 mil	375 μ m	400 min.	10 - 25
	20 mil	500 μ m	700 min.	15 - 35
99.99% Aluminum + 50 ppm Ni	5 mil	125 μ m	70 - 120	10 - 30
	6 mil	150 μ m	90 - 120	10 - 25
	8 mil	200 μ m	140 - 200	9 - 25
	10 mil	250 μ m	210 - 200	10 - 30
	12 mil	300 μ m	300 - 420	10 - 30
	15 mil	375 μ m	500 - 700	10 - 30
	16 mil	400 μ m	550 - 800	10 - 30
	20 mil	500 μ m	800 - 1100	10 - 30

* Typical specifications

Contact Us

Ask An Engineer a technical question, by simply scanning the QR code and drop us a line.



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