Silver-Copper Alloys

Silver has the highest electrical conductivity and the highest thermal conductivity of any metal. In this respect, it is the best contact material available. It is, however, rarely recommended for use in light-duty applications because of its tendency to tarnish. The voltage at heavier duties is normally sufficient to break down these sulphide films so that their presence does not affect contact performance.

Additions of copper to fine silver has the beneficial affect of increasing hardness and arc-resistance. At the same time, however, contact resistance increases as does tarnishing.

Silver-Graphite Alloys

Silver graphite compositions of up to 2% graphite are popular in sliding or slip-ring applications where the lubricating properties of graphite can be beneficially exploited.
Above 1% graphite these alloys are not normally used for headed rivets as the ductility of the wire decreases dramatically. Also, as graphite has a much lower density than silver, a 5% graphite by weight alloys contains approximately 20% graphite by volume.

Increasing graphite content improves lubrication and weld resistance, but also results in a greater contact resistance and decreases in ductility.

SILVER COPPER ALLOYS

MATERIAL	DENSITY	HARDNESS ANNEALED HV	MELTING POINT SOLIDUS (°C)	ELECTRICAL CONDUCTIVITY % IACS	ELECTRICAL RESISTIVITY μΩ-cm
Fine Silver (99.99%)	10.49	26	962	107	1.59
Fine Silver (99.97%)	10.5	26	962	107	1.6
Fine Silver (99.9%)	10.5	26	962	107	1.6
Contact Grade Silver	10.5	30	960	95	1.8
Silver 3% Copper	10.4	65	900	91	1.9
Silver 7½% Copper	10.4	75	800	86	2.0
Silver 10% Copper	10.3	80	779	86	2.0
Silver 20% Copper	10.2	85	779	82	2.1
Silver 28% Copper	10.0	100	779	82	2.1
Silver 50% Copper	9.7	110	779	82	2.1

Forms Available: Wire 0,8 mm - 5mm Dia
Sheet 6mm thick - 0,08mm thick

SILVER GRAPHITE ALLOYS

MATERIAL	DENSITY	HARDNESS ANNEALED HV	MELTING POINT SOLIDUS (°C)	ELECTRICAL CONDUCTIVITY % IACS	ELECTRICAL RESISTIVITY μΩ-cm
Silver 1.0% Graphite	10.4	25	962*	95	1.8
Silver 1.5% Graphite	10.3	25	962*	91	1.9
Silver 2.0% Graphite	9.7	30	962*	86	2.0
Silver 3.0% Graphite	9.3	30	962*	82	2.1
Silver 4.0% Graphite	9.0	35	962*	78	2.2
Silver 5.0% Graphite	8.6	40	962*	75	2.3

Incipient fusion of conduction phase begins at 962°
Form Available: Wire only: 3mm - 6mm Dia

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