

Electrical contact material properties

Material	Density (OzT/in ³)	Electrical Conductivity (%IACS)	Approximate Hardness		Desirable Properties	Typical Applications
			Annealed 15T	Hard 15T		
Fine Silver 99.9Ag	5.54	105	30	75	Highest electrical and thermal conductivity, low contact resistance, operates at low contact force	Appliance and heating thermostats, light duty switches and controls (AC and DC)
Silver Cadmium-Oxide 90Ag,10CdO 86.5Ag,13.5CdO 85Ag,15CdO	5.44 5.37 5.30	82 76 72	53 54 55	75 76 77	High conductivity, arc quenching properties, resists sticking, low arc erosion, high current carrying capability	Medium to heavy duty switches and controls, wall switches, motor starters, DC switches and relays, AC and DC circuit breakers, motor protectors
Silver Tin-Oxide 92Ag,8SnO2 90Ag,10SnO2 88Ag,12SnO2	5.31 5.24 5.16	86 82 77	56 60 66	73 77 82	High conductivity, resists sticking, very low arc erosion, high current carrying capability	Automotive switches and relays, medium to heavy duty switching devices
Silver Nickel 90Ag,10Ni 85Ag,15Ni	5.44 5.41	89 82	51 53	72 73	High conductivity, resists sticking, operates at fairly low contact force	Medium duty AC switches and relays, general purpose switching devices
Coin Silver 90Ag,10Cu	5.43	85	70	84	Increased hardness, lower cost	Automotive switches and relays, sliding contacts, light duty switches and controls
75Ag,24.5Cu,0.5Ni	5.27	75	78	88	Low cost, increased hardness even at high operating temperatures, low material transfer	Automotive and other low voltage DC devices
85Ag, 15Cd	5.36	35	45	84	Increased hardness, low material transfer, resists sticking	Automotive relays, DC motor controls and other DC devices with high surge currents
90Ag, 10Pd	5.57	27	63	80	Low contact resistance, operates with low contact force, resists sulfide formation	Light duty relays, alarms, AC and DC devices
72Ag, 28Cu	5.24	84	79	85	Low cost, relatively low contact resistance, good machining and spring properties	Medium duty relays and switches
90Ag, 10Fe	5.37	90	54	74	High conductivity, resists sticking, low contact resistance	Thermostats, light force medium duty switches
75Au, 25Ag	9.12	16	45	77	Low contact resistance, operates with low contact force, resists oxidation and other film formation	Connectors, dry circuit to light duty relays and switches, high reliability devices
69Au, 25Ag, 6Pt	8.39	10	70	84	Excellent corrosion resistance, excellent wear resistance	Dry circuit to light duty switches and relays, sliding contacts, high reliability devices
35Pd, 30Ag, 10Au, 10Pt, 14Cu, 1Zn	6.13	5	90	94	Age hardened brush alloy, excellent wear resistance, very good corrosion resistance	Sliding contacts, potentiometers
44Pd, 38Ag, 16Cu, 1Pt, 1Ni	5.69	6	90	94	Age hardened brush alloy, excellent wear resistance, good corrosion resistance	Sliding contacts, potentiometers