



Enamelled Copper Wire

Magnet wire or **enamelled wire** is a copper wire coated with a very thin layer of insulation. It is used in the construction of transformers, inductors, motors, speakers, hard disk head actuators, electromagnets, and other applications that require tight coils of insulated wire.

The wire itself is most often fully annealed, electrolytically refined copper.

(**Annealing**, in metallurgy and materials science, is a heat treatment that alters the physical and sometimes chemical properties of a material to increase its ductility and reduce its hardness, making it more workable. It involves heating a material to above its recrystallization temperature, maintaining a suitable temperature, and then cooling.)

Smaller diameter magnet wire usually has a round cross section. This kind of wire is used for things such as electric guitar pickups. Thicker magnet wire is often square, rectangular or hexagonal (with rounded corners) in cross section, packing more efficiently and having greater structural stability and thermal conductivity across adjacent turns.

Although described as "enamelled", enamelled wire is not, in fact, coated with either a layer of enamel paint nor with vitreous enamel made of fused glass powder. Modern magnet wire typically uses one to four layers (in the case of quad-film type wire) of polymer film insulation, often of two different compositions, to provide a tough, continuous insulating layer. Polyimide insulated magnet wire is capable of operation at up to 250 °C. The insulation of thicker square or rectangular magnet wire is often augmented by wrapping it with a high-temperature polyimide or fibreglass tape, and completed windings are often vacuum impregnated with an insulating varnish to improve insulation strength and long-term reliability of the winding.

Self-supporting coils are wound with wire coated with at least two layers, the outermost being a thermoplastic that bonds the turns together when heated.

The coating can produce small quantities of Toluene di-isocyanate (TDI) fumes when Soldered or removed from the wire. Please refer to the health & Safety document with the product.

Conforms to BS4520 Grade 2 (BS6811 Section 1, Part 3)

Maximum continuous operating temperature +120°C

Soldering temperature required between 400°C- 480°C

Dimensions in millimetres of the base copper wire and the finished product with coating.

Length of spools are based on a standard 500g spool of wire.

Brimal Part No	SWG	Spool Length	Copper Wire Size	Tolerance on Wire Size (±)	Enamelled Wire		Resistance Ohms / Km
					Min OD	Max OD	
CB964	36	1850m	0.200	0.003	0.227	0.239	565.50Ω
CB926	34	1430m	0.224	0.003	0.253	0.266	450.90Ω
CB961	33	1120m	0.250	0.004	0.282	0.297	362.00Ω
CB960	32	910m	0.274	0.004	0.270	0.300	292.00Ω
CB959	30	720m	0.315	0.004	0.350	0.367	228.00Ω
CB958	27	450m	0.400	0.005	0.440	0.459	141.40Ω
CB956	24	230m	0.560	0.006	0.607	0.630	72.15Ω
CB954	22	140m	0.710	0.007	0.763	0.789	44.89Ω
CB952	20	100m	0.900	0.009	0.956	0.894	26.90Ω
CB950	18	47m	1.250	0.130	1.317	1.349	14.48Ω