

## NICKEL ELECTROPLATED COPPER CONDUCTORS

Nickel plated copper combines the desired features of both metals, the 100% IACS conductivity of copper necessary for efficient electrical and thermal energy transfer, and the high temperature stability and corrosion resistance provided by nickel.

Unplated copper conductors are generally rated for Military applications operating at up to 105 degrees Centigrade. Above this temperature, bare copper will oxidize excessively, become brittle and less ductile, and lose conductivity. Various plating thicknesses of nickel, increase the useful continuous operating temperature of the plated copper conductor to as high as 450 degrees Centigrade. Nickel plated copper has wide application in aircraft wiring for special wind and moisture problem areas, aircraft engine and firezone safety wiring, automotive engine and exhaust monitoring, high temperature industrial and home appliances, electronic components, electric furnaces, heat tracing wiring, and downhole oil logging. All Class 27 conductors contain oxygen free copper, which avoids hydrogen embrittlement degradation throughout it's useful temperature range. Oxygen free copper is also available for the other ASTM classes as well.

Size	Diameter	Area	Area	Yield	Resistance	Weight	Nickel Thickness Micro-Inches				
AWG	Inches	Cir. Mils.	Sq. In..	Ft./lb.	Ohms Per 1,000 FT.*	Lbs./1000 Ft. Nom.	Class 2	Class 4	Class 7	Class 10	Class 27
10	.1019	10384	.008155	31.8	1.040	31.43	510	1040	1820	2620	
11	.0907	8226	.006460	40.2	1.313	24.90	460	920	1620	2330	
12	.0808	6529	.005130	50.6	1.655	19.76	410	820	1440	2070	
13	.0720	5184	.004070	63.7	2.084	15.69	360	730	1280	1850	
14	.0641	4110	.003230	80.4	2.629	12.44	320	650	1140	1650	
15	.0571	3260	.002560	101.0	3.313	9.869	290	580	1020	1470	4160
16	.0508	2580	.002030	128	4.186	7.811	260	510	910	1300	3700
17	.0453	2050	.001610	161	5.265	6.212	230	460	810	1160	3300
18	.0403	1620	.001280	203	6.652	4.916	200	410	720	1030	2930
19	.0359	1290	.001010	256	8.382	3.901	180	360	640	920	2610
20	.0320	1020	.000804	323	10.55	3.100	160	320	570	820	2330
21	.0285	812	.000638	407	13.30	2.459	140	290	510	730	2070
22	.0253	640	.000503	516	16.88	1.938	130	260	450	650	1850
23	.0226	511	.000401	647	21.15	1.546	110	230	400	580	1640
24	.0201	404	.000317	818	26.74	1.223	100	200	360	520	1460
25	.0179	320	.000252	1030	33.72	.9699	90	180	320	460	1300
26	.0159	253	.000199	1310	42.73	.7652	80	160	280	410	1160
27	.0142	202	.000158	1640	53.58	.6104	71	140	250	360	1030
28	.0126	159	.000125	2080	68.05	.4806	63	130	220	320	920
29	.0113	128	.000100	2590	84.61	.3865	57	110	200	290	820
30	.0100	100	.000078	3300	108.0	.3027	50	100	180	260	730
31	.0089	79	.000062	4170	137.8	.2398	45	90	160	230	650
32	.0080	64	.000050	5160	170.6	.1937	40	81	140	200	580
33	.0071	50	.000039	6550	216.6	.1526	36	72	130	180	520
34	.0063	39	.000031	8320	278.0	.1201	32	64	110	160	460

\*At 20°C for 50 Micro-inches Nickel

**Specifications:**

ASTM B 3	MIL-W-16878
ASTM B 5	MIL-W-22759
ASTM B 170	MIL-W-27038
ASTM B 286	FED-STD-228
ASTM B 355	

**Standard Tolerances:**

Diameter ranges 0.102" to 0.051"	+ .0015" - .0005"
Diameter ranges 0.0500" to 0.0100"	+ 3% - 1%
Diameter ranges < 0.0100"	+ .0003" - .0001"