PRECISION WIRE TECHNOLOGIES

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Alloy 180 Precision Resistance Alloys

ASTM: *B267*
UNS: *C71100*
Ω/cir. mil. ft.: *180*
Weight/Density: *.322 lbs/in^2 (8.9 g/cm^3)*
Chemical Composition %: *Ni 23%, Cu-Balance*
Conductivity: *35 w/mK*
Temp. Coeff. of Resistance: *0.00013*
Specific Gravity: *8.90*
Coeff. of Lin. Expansion, X 10^{-6}: *15.9 (20-500˚C)*
Specific Heat: *.092 cal./gm @ 20˚C*
Melting Point: *~1,100˚C (~2,012˚F)*
Elongation: *20-40%*
Max Operating Temp: *~540˚C (~1,004˚F)*
Yield Point: *20,000-40,000 PSI*
Soft Tensile: *60,000-70,000 PSI*

Diameter			Resistance @ 68º F/20º C	Sq. in./Ω	Weight	Ω/lb.	Ft/Lb.	Cross sectional
B&S	Inches	Mm	Ω/ft	68°F	Lb./1000 ft			area (in^2)
13	0.072	1.83	0.035	78.17	15.7	2.21	63.59	0.00407
14	0.064	1.63	0.044	54.90	12.4	3.53	80.37	0.00322
15	0.057	1.45	0.055	38.79	9.89	5.60	101.1	0.00256
16	0.051	1.29	0.069	27.78	7.84	8.82	127.5	0.00203
17	0.045	1.15	0.089	19.09	6.22	14.29	160.7	0.00161
18	0.04	1.02	0.113	13.40	4.87	23.11	205.4	0.00126
19	0.036	0.912	0.139	9.772	3.94	35.24	253.7	0.00102
20	0.032	0.812	0.176	6.863	3.11	56.20	320.0	0.000804
21	0.0285	0.723	0.222	4.848	2.47	89.30	403.0	0.000638
22	0.0253	0.644	0.281	3.392	1.96	143.9	512.0	0.000507
23	0.0226	0.573	0.352	2.418	1.55	225.0	641.0	0.000401
24	0.0201	0.51	0.446	1.701	1.21	368.0	819.0	0.000314
25	0.0179	0.455	0.562	1.201	0.981	574.0	1,023	0.000254
26	0.0159	0.405	0.712	0.842	0.769	922.0	1,296	0.000199
27	0.0142	0.361	0.893	0.600	0.611	1,450	1,625	0.000158
28	0.0126	0.321	1.134	0.419	0.483	2,347	2,071	0.000125
29	0.0113	0.286	1.410	0.302	0.386	3,610	2,567	0.000100
30	0.01	0.255	1.800	0.209	0.303	5,900	3,278	0.0000785
31	0.0089	0.227	2.272	0.148	0.242	9,400	4,138	0.0000626
32	0.008	0.202	2.813	0.107	0.192	14,400	5,121	0.0000496
33	0.0071	0.18	3.57	0.075	0.152	23,216	6,502	0.0000394
34	0.0063	0.16	4.54	0.052	0.121	37,450	8,259	0.0000312
35	0.0056	0.143	5.74	0.037	0.0954	59,990	10,452	0.0000247
36	0.005	0.127	7.20	0.0262	0.0757	94,400	13,112	0.0000196
37	0.0045	0.113	8.89	0.0191	0.0587	143,880	16,187	0.0000152
38	0.004	0.101	11.25	0.0134	0.0487	230,470	20,487	0.0000126
39	0.0035	0.09	14.69	0.0090	0.0378	393,160	26,759	0.00000979
40	0.0031	0.08	18.73	0.0062	0.0301	638,880	34,110	0.00000779
41	0.00275	0.07	23.80	0.0044	0.0238	999,975	42,013	0.00000616
42	0.0025	0.063	28.80	0.00327	0.0188	1,530,476	53,142	0.00000487
43	0.00225	0.057	35.56	0.00239	0.0147	2,421,513	68,105	0.00000380
44	0.0020	0.051	45.00	0.00168	0.0121	3,708,905	82,420	0.00000314
45	0.00175	0.044	58.78	0.00112	0.0094	6,259,693	106,502	0.00000243
46	0.0015	0.038	80.00	0.00071	0.0078	10,300,465	128,756	0.00000201
47	0.0014	0.036	91.84	0.00057	0.0060	15,433,293	168,051	0.00000154
48	0.0013	0.033	106.51	0.00046	0.0047	22,780,503	213,884	0.00000121