



6320 Highview Drive, Fort Wayne, IN 46818
 Phone: (260) 490-6477 Fax: (260) 490-8437
 Website: <http://www.precisionwiretech.com>

Alloy 90 Precision Resistance

ASTM: B267

UNS: C70700

Ω /cir. mil. ft.: 90

Weight/Density: .323 lbs/in² (8.9 g/cm³)

Chemical Composition %: Ni 10%, Cu-Balance

Conductivity: 60 w/mK

Temp. Coeff. of Resistance: 0.0004

Specific Gravity: 8.90

Coeff. of Lin. Expansion, X 10⁻⁶: 16.5 (200°C), 17.5 (400°C), 18.5 (600°C), 19.5 (800°C)

Specific Heat: .092 cal./gm @ 20°C

Elongation: 15-30%

Melting Point: ~1,100°C (~2,012°F)

Yield Point: 15,000-35,000

Max Operating Temp: ~425°C (~800°F)

Soft Tensile: 39,000-51,000 PSI

Diameter			Resistance @ 68° F/20° C Ω /ft	Sq. in./ Ω 68°F	Weight Lb./1000 ft	Ω /lb.	Ft/Lb.	Cross sectional area (in ²)
B&S	Inches	Mm						
13	0.072	1.83	0.017	156.3	15.8	1.10	63.39	0.00407
14	0.064	1.63	0.022	109.8	12.5	1.76	80.12	0.00322
15	0.057	1.45	0.028	77.57	9.92	2.79	100.8	0.00256
16	0.051	1.29	0.035	55.56	7.87	4.40	127.1	0.00203
17	0.045	1.15	0.044	38.17	6.24	7.12	160.2	0.00161
18	0.04	1.02	0.056	26.81	4.88	11.52	204.8	0.00126
19	0.036	0.912	0.069	19.54	3.95	17.57	252.9	0.00102
20	0.032	0.812	0.088	13.73	3.12	28.10	320.0	0.000804
21	0.0285	0.723	0.111	9.697	2.47	44.70	403.0	0.000638
22	0.0253	0.644	0.141	6.783	1.97	71.10	512.0	0.000507
23	0.0226	0.573	0.176	4.835	1.55	112.0	641.0	0.000401
24	0.0201	0.51	0.223	3.402	1.22	182.0	819.0	0.000314
25	0.0179	0.455	0.281	2.402	0.985	287.0	1,023	0.000254
26	0.0159	0.405	0.356	1.684	0.771	461.0	1,296	0.000199
27	0.0142	0.361	0.446	1.199	0.612	724.0	1,625	0.000158
28	0.0126	0.321	0.567	0.838	0.485	1,174	2,071	0.000125
29	0.0113	0.286	0.705	0.604	0.388	1,809	2,567	0.000100
30	0.01	0.255	0.900	0.419	0.304	2,950	3,278	0.0000785
31	0.0089	0.227	1.136	0.295	0.243	4,717	4,138	0.0000626
32	0.008	0.202	1.406	0.214	0.192	7,226	5,121	0.0000496
33	0.0071	0.18	1.785	0.150	0.153	11,573	6,502	0.0000394
34	0.0063	0.16	2.268	0.105	0.121	18,747	8,259	0.0000312
35	0.0056	0.143	2.870	0.074	0.0957	29,997	10,452	0.0000247
36	0.005	0.127	3.600	0.0524	0.0760	47,203	13,112	0.0000196
37	0.0045	0.113	4.444	0.0382	0.0589	71,870	16,187	0.0000152
38	0.004	0.101	5.625	0.0268	0.0488	115,136	20,487	0.0000126
39	0.0035	0.09	7.347	0.0180	0.0379	153,824	26,759	0.00000979
40	0.0031	0.08	9.365	0.0125	0.0302	319,269	34,110	0.00000779
41	0.00275	0.07	11.90	0.0087	0.0239	498,440	41,883	0.00000616
42	0.0025	0.063	14.40	0.00654	0.0189	762,869	52,977	0.00000487
43	0.00225	0.057	17.78	0.00477	0.0147	1,207,008	67,894	0.00000380
44	0.0020	0.051	22.50	0.00335	0.0122	1,848,711	82,165	0.00000314
45	0.00175	0.044	29.39	0.00224	0.0094	3,120,156	106,172	0.00000243
46	0.0015	0.038	40.00	0.00141	0.0078	5,134,287	128,357	0.00000201
47	0.0014	0.036	45.92	0.00115	0.0060	7,692,756	167,531	0.00000154
48	0.0013	0.033	53.25	0.00092	0.0047	11,354,988	213,221	0.00000121