

## ALLOY 120 PRECISION RESISTANCE

## NICKEL IRON

<b>ASTM:</b> B 267	<b>UNS:</b>
<b>Ω/cir. mil. ft.:</b> 120	<b>Weight/Density:</b> .305 lbs/in <sup>2</sup> (8.4 g/cm <sup>3</sup> )
<b>Chemical Composition %:</b> Ni 70%, Fe 30%	<b>Conductivity:</b> 29 w/mK
<b>Temp. Coeff. of Resistance:</b> 0.0045	<b>Specific Gravity:</b> 8.46
<b>Coeff. of Lin. Expansion, X 10<sup>-6</sup>:</b> 15 (20-100°C)	<b>Specific Heat:</b> .125 cal./gm @ 20°C
<b>Melting Point:</b> ~1,425°C (~2,600°F)	<b>Elongation:</b> 15-30%
<b>Max Operating Temp:</b> ~590°C (~1,095°F)	<b>Yield Point:</b> 40,000-60,000 PSI
<b>Soft Tensile:</b> 70,000-100,000 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 <sup>2</sup> )
B&S	Inches	Mm						
13	0.072	1.83	0.024	111.0	14.9	1.63	67.13	0.00407
14	0.064	1.63	0.031	78.80	11.8	2.60	84.85	0.00322
15	0.057	1.45	0.039	55.70	9.37	4.12	106.7	0.00256
16	0.051	1.29	0.049	39.20	7.43	6.57	134.6	0.00203
17	0.045	1.15	0.061	27.80	5.89	10.42	169.7	0.00161
18	0.04	1.02	0.078	19.60	4.61	16.83	216.8	0.00126
19	0.036	0.912	0.098	13.80	3.73	26.20	267.9	0.00102
20	0.032	0.812	0.1171	9.800	2.94	39.78	339.7	0.000804
21	0.0285	0.723	0.1477	6.930	2.317	63.75	431.6	0.000638
22	0.0253	0.644	.1860	4.850	1.825	101.9	547.9	0.000507
23	0.0226	0.573	.2350	3.450	1.468	160.1	681.2	0.000401
24	0.0201	0.51	.2970	2.430	1.15	258.3	869.6	0.000314
25	0.0179	0.455	.3746	1.720	.9201	396.3	1,087	0.000254
26	0.0159	0.405	.4746	1.200	.7262	653.5	1,377	0.000199
27	0.0142	0.361	.5952	0.857	.5797	1,027	1,725	0.000158
28	0.0126	0.321	.7556	0.599	.4585	1,648	2,181	0.000125
29	0.0113	0.286	.9389	0.432	.3606	2,606	2,773	0.000100
30	0.01	0.255	1.200	0.299	.2873	4,177	3,481	0.0000785
31	0.0089	0.227	1.515	0.211	.2276	6,657	4,394	0.0000626
32	0.008	0.202	1.875	0.153	.1839	10,200	5,438	0.0000496
33	0.0071	0.18	2.38	0.107	.1448	16,440	6,906	0.0000394
34	0.0063	0.16	3.022	0.075	.114	26,510	8,772	0.0000312
35	0.0056	0.143	3.826	0.053	.09011	42,090	11,000	0.0000247
36	0.005	0.127	4.80	0.0374	.07184	66,820	13,920	0.0000196
37	0.0045	0.113	5.926	0.0273	.02816	101,900	17,190	0.0000152
38	0.004	0.101	7.5	0.0206	.04598	163,100	21,750	0.0000126
39	0.0035	0.09	9.796	0.0138	.03517	278,500	28,430	0.00000979
40	0.0031	0.08	12.49	0.0096	.027580	452,900	36,260	0.00000779
41	0.00275	0.07	15.86	0.0067	.021720	730,342	46,029	0.00000616
42	0.0025	0.063	19.2	0.00503	.01795	1,069,363	55,696	0.00000487
43	0.00225	0.057	23.70	0.00367	.01454	1,629,612	68,760	0.00000380
44	0.0020	0.051	30.00	0.00258	.01149	2,610,750	87,025	0.00000314
45	0.00175	0.044	38.69	0.00176	.0089	4,347,191	112,360	0.00000243
46	0.0015	0.038	53.33	0.00109	.0074	7,206,757	135,135	0.00000201
47	0.0014	0.036	61.22	0.00088	.0056	10,932,143	178,571	0.00000154
48	0.0013	0.033	71.01	0.00071	.0044	16,138,636	227,273	0.00000121