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## Alloy 42-6 Nickel Iron (Glass Sealing)

<b>ASTM:</b>	<b>UNS:</b> K94760
<b>Ω/cir. mil. ft.:</b> 570	<b>Weight/Density:</b> .293 lbs/in <sup>2</sup> (8.1 g/cm <sup>3</sup> )
<b>Chemical Composition %:</b> Ni 42.5%, Cr 5.75% max, Mn .50% max, Si .25% max, Al .2% max, <b>C .07% max</b> , P .009% max, S .005% max, Fe - Balance	
<b>Coeff. of Lin. Expansion, X 10<sup>-6</sup>:</b> 9.7 (20-100°C) <b>Specific Heat:</b> .120 cal./gm @ 20°C	
<b>Conductivity:</b> 12.5 w/mK	<b>Specific Gravity:</b> 8.12
<b>Temp. Coeff. of Resistance:</b>	<b>Elongation:</b> 20-40%
<b>Melting Point:</b> ~1,427°C (~2,600°F)	<b>Yield Point:</b> 36,000-51,000
<b>Max Operating Temp:</b>	<b>Soft Tensile:</b> 70,000-90,000 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	0.110	24.69	14.3	7.68	69.88	0.00407
14	0.064	1.63	0.139	17.34	11.3	12.29	88.33	0.00322
15	0.057	1.45	0.175	12.25	9.00	19.49	111.1	0.00256
16	0.051	1.29	0.219	8.773	7.14	30.70	140.1	0.00203
17	0.045	1.15	0.281	6.027	5.66	49.73	176.7	0.00161
18	0.04	1.02	0.356	4.233	4.43	80.41	225.7	0.00126
19	0.036	0.912	0.440	3.086	3.59	122.6	278.8	0.00102
20	0.032	0.812	0.557	2.167	2.83	196.9	353.7	0.000804
21	0.0285	0.723	0.702	1.531	2.24	312.8	445.8	0.000638
22	0.0253	0.644	0.890	1.071	1.78	499.5	561.0	0.000507
23	0.0226	0.573	1.116	0.763	1.41	791.5	709.3	0.000401
24	0.0201	0.51	1.411	0.537	1.10	1,278	905.8	0.000314
25	0.0179	0.455	1.779	0.379	0.893	1,992	1,120	0.000254
26	0.0159	0.405	2.255	0.266	0.700	3,222	1,429	0.000199
27	0.0142	0.361	2.827	0.189	0.556	5,089	1,800	0.000158
28	0.0126	0.321	3.590	0.132	0.440	8,169	2,275	0.000125
29	0.0113	0.286	4.464	0.095	0.352	12,696	2,844	0.000100
30	0.01	0.255	5.700	0.066	0.276	20,652	3,623	0.0000785
31	0.0089	0.227	7.196	0.047	0.220	32,694	4,543	0.0000626
32	0.008	0.202	8.906	0.034	0.174	51,070	5,734	0.0000496
33	0.0071	0.18	11.31	0.024	0.139	81,623	7,219	0.0000394
34	0.0063	0.16	14.36	0.017	0.110	130,915	9,116	0.0000312
35	0.0056	0.143	18.18	0.012	0.0868	209,292	11,515	0.0000247
36	0.005	0.127	22.80	0.0083	0.0689	330,849	14,511	0.0000196
37	0.0045	0.113	28.15	0.0060	0.0534	526,693	18,711	0.0000152
38	0.004	0.101	35.63	0.0042	0.0443	804,147	22,573	0.0000126
39	0.0035	0.09	46.53	0.0028	0.0344	1,351,784	29,051	0.00000979
40	0.0031	0.08	59.31	0.0020	0.0274	2,165,535	36,510	0.00000779
41	0.00275	0.07	75.37	0.0014	0.0217	3,480,005	46,171	0.00000616
42	0.0025	0.063	91.20	0.00103	0.0171	5,326,194	58,401	0.00000487
43	0.00225	0.057	112.59	0.00075	0.0134	8,427,085	74,846	0.00000380
44	0.0020	0.051	142.50	0.00053	0.0110	12,907,328	90,578	0.00000314
45	0.00175	0.044	186.12	0.00035	0.0085	21,784,300	117,043	0.00000243
46	0.0015	0.038	253.33	0.00022	0.0071	35,846,554	141,500	0.00000201
47	0.0014	0.036	290.82	0.00018	0.0054	53,709,264	184,684	0.00000154
48	0.0013	0.033	337.28	0.00015	0.0043	79,278,224	235,053	0.00000121