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Alloy 52 Nickel Iron (Glass Sealing)

| | | |
|--|--|--------------------|
| ASTM: F30 | Din: 17745 | UNS: N14052 |
| Ω/cir. mil. ft.: 258 | Weight/Density: .296 lbs/in ² (8.2 g/cm ³) | |
| Chemical Composition %: Ni 50.5%, Mn .60% max, Si .30% max, C .005% max, Cr .25% max, Co .10% max, P .025% max, S .025% max, Fe Balance | | |
| Coeff. of Lin. Expansion, X 10⁻⁶: 10.0 (30-400°C) Specific Heat: .114 cal./gm @ 20°C | | |
| Conductivity: 13 w/mK | Specific Gravity: 8.25 | |
| Temp. Coeff. of Resistance: .0035 | Elongation: 20-40% | |
| Melting Point: ~1,430°C (~2,606°F) | Yield Point: 36,000-43,000 | |
| Max Operating Temp: ~600°C (~1,112°F) | Soft Tensile: 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 ²) |
|----------|---------|-------|-------------------------------------|-------------------|-----------------------|------------|---------|---|
| B&S | Inches | Mm | | | | | | |
| 13 | 0.072 | 1.83 | 0.050 | 54.54 | 14.5 | 3.44 | 69.17 | 0.00407 |
| 14 | 0.064 | 1.63 | 0.063 | 38.30 | 11.4 | 5.51 | 87.43 | 0.00322 |
| 15 | 0.057 | 1.45 | 0.079 | 27.06 | 9.09 | 8.73 | 110.0 | 0.00256 |
| 16 | 0.051 | 1.29 | 0.099 | 19.38 | 7.21 | 13.76 | 138.7 | 0.00203 |
| 17 | 0.045 | 1.15 | 0.127 | 13.32 | 5.72 | 22.28 | 174.9 | 0.00161 |
| 18 | 0.04 | 1.02 | 0.161 | 9.352 | 4.48 | 36.03 | 223.4 | 0.00126 |
| 19 | 0.036 | 0.912 | 0.199 | 6.817 | 3.62 | 54.95 | 276.0 | 0.00102 |
| 20 | 0.032 | 0.812 | 0.252 | 4.788 | 2.86 | 88.22 | 350.2 | 0.000804 |
| 21 | 0.0285 | 0.723 | 0.318 | 3.383 | 2.27 | 140.2 | 441.3 | 0.000638 |
| 22 | 0.0253 | 0.644 | 0.403 | 2.366 | 1.80 | 223.8 | 555.3 | 0.000507 |
| 23 | 0.0226 | 0.573 | 0.505 | 1.687 | 1.42 | 354.6 | 702.1 | 0.000401 |
| 24 | 0.0201 | 0.51 | 0.639 | 1.187 | 1.12 | 572.6 | 896.6 | 0.000314 |
| 25 | 0.0179 | 0.455 | 0.805 | 0.838 | 0.902 | 892.5 | 1,108 | 0.000254 |
| 26 | 0.0159 | 0.405 | 1.021 | 0.587 | 0.707 | 1,444 | 1,415 | 0.000199 |
| 27 | 0.0142 | 0.361 | 1.280 | 0.418 | 0.561 | 2,280 | 1,782 | 0.000158 |
| 28 | 0.0126 | 0.321 | 1.625 | 0.292 | 0.444 | 3,660 | 2,252 | 0.000125 |
| 29 | 0.0113 | 0.286 | 2.021 | 0.211 | 0.355 | 5,688 | 2,815 | 0.000100 |
| 30 | 0.01 | 0.255 | 2.580 | 0.146 | 0.279 | 9,253 | 3,586 | 0.0000785 |
| 31 | 0.0089 | 0.227 | 3.257 | 0.103 | 0.222 | 14,648 | 4,497 | 0.0000626 |
| 32 | 0.008 | 0.202 | 4.031 | 0.075 | 0.176 | 22,882 | 5,676 | 0.0000496 |
| 33 | 0.0071 | 0.18 | 5.118 | 0.052 | 0.140 | 36,571 | 7,145 | 0.0000394 |
| 34 | 0.0063 | 0.16 | 6.500 | 0.037 | 0.111 | 58,656 | 9,023 | 0.0000312 |
| 35 | 0.0056 | 0.143 | 8.227 | 0.026 | 0.0877 | 93,772 | 11,398 | 0.0000247 |
| 36 | 0.005 | 0.127 | 10.32 | 0.0183 | 0.0696 | 148,235 | 14,364 | 0.0000196 |
| 37 | 0.0045 | 0.113 | 12.74 | 0.0133 | 0.0540 | 235,982 | 18,522 | 0.0000152 |
| 38 | 0.004 | 0.101 | 16.13 | 0.0094 | 0.0448 | 360,293 | 22,344 | 0.0000126 |
| 39 | 0.0035 | 0.09 | 21.06 | 0.0063 | 0.0348 | 605,659 | 28,757 | 0.00000979 |
| 40 | 0.0031 | 0.08 | 26.85 | 0.0044 | 0.0277 | 970,255 | 36,140 | 0.00000779 |
| 41 | 0.00275 | 0.07 | 34.12 | 0.0030 | 0.0219 | 1,559,196 | 45,703 | 0.00000616 |
| 42 | 0.0025 | 0.063 | 41.28 | 0.00228 | 0.0173 | 2,386,370 | 57,809 | 0.00000487 |
| 43 | 0.00225 | 0.057 | 50.96 | 0.00166 | 0.0135 | 3,775,706 | 74,087 | 0.00000380 |
| 44 | 0.0020 | 0.051 | 64.50 | 0.00117 | 0.0112 | 5,783,052 | 89,660 | 0.00000314 |
| 45 | 0.00175 | 0.044 | 84.24 | 0.00078 | 0.0086 | 9,760,327 | 115,857 | 0.00000243 |
| 46 | 0.0015 | 0.038 | 114.67 | 0.00049 | 0.0071 | 16,060,837 | 140,065 | 0.00000201 |
| 47 | 0.0014 | 0.036 | 131.63 | 0.00040 | 0.0055 | 24,064,118 | 182,813 | 0.00000154 |
| 48 | 0.0013 | 0.033 | 152.66 | 0.00032 | 0.0043 | 35,520,140 | 232,671 | 0.00000121 |