

## Major Alloy Resistance Data

| SIZE (AWG) | DIA. (INCHES) | NOMINAL OHMS PER LINEAR FOOT AT 20°C |         |          |         |         |         |          |         |           |         |          |          |          |
|------------|---------------|--------------------------------------|---------|----------|---------|---------|---------|----------|---------|-----------|---------|----------|----------|----------|
|            |               | NI 270*                              | NI 205  | MWS-875  | MWS-800 | MWS-675 | MWS-650 | MANGANIN | MWS-294 | ALLOY 180 | MWS-120 | ALLOY 90 | ALLOY 60 | ALLOY 30 |
| 4          | .204          | .001081                              | .001442 | .02103   | —       | .01622  | .01562  | .006968  | .0070   | —         | .002884 | —        | —        | —        |
| 5          | .182          | .001358                              | .001811 | .02642   | —       | .02038  | .01962  | .008755  | .0088   | —         | .003622 | —        | —        | —        |
| 6          | .162          | .001715                              | .002286 | .03334   | —       | .02572  | .02476  | .01105   | .0112   | —         | .004572 | —        | —        | —        |
| 7          | .144          | .002170                              | .002894 | .04220   | —       | .03255  | .03135  | .01399   | .0142   | —         | .005788 | —        | —        | —        |
| 8          | .128          | .002747                              | .003662 | .05341   | —       | .04120  | .03967  | .01770   | .0180   | .01099    | .007324 | .00549   | .003662  | .00183   |
| 9          | .114          | .003463                              | .004617 | .06733   | —       | .05194  | .05001  | .02231   | .0226   | .01385    | .009234 | .006925  | .004617  | .00230   |
| 10         | .102          | .004325                              | .005767 | .08410   | —       | .06488  | .06248  | .02787   | .0283   | .01730    | .01153  | .00865   | .005767  | .00288   |
| 11         | .091          | .005434                              | .007246 | .10566   | —       | .08151  | .07849  | .03502   | .0355   | .02174    | .01449  | .01082   | .007246  | .00362   |
| 12         | .081          | .006859                              | .009145 | .13336   | —       | .1029   | .09907  | .04420   | .0448   | .02744    | .01829  | .01372   | .009145  | .00457   |
| 13         | .072          | .008681                              | .01157  | .1688    | —       | .1302   | .1254   | .05594   | .0567   | .03471    | .02314  | .01735   | .01157   | .00578   |
| 14         | .064          | .010986                              | .01465  | .2136    | —       | .1684   | .1587   | .07080   | .0717   | .04395    | .02930  | .02194   | .01465   | .00732   |
| 15         | .057          | .013850                              | .01847  | .2693    | .2462   | .2078   | .2000   | .08926   | .0905   | .05541    | .03694  | .02770   | .01847   | .00923   |
| 16         | .051          | .017301                              | .02307  | .3364    | .3076   | .2595   | .2499   | .1115    | .1130   | .06921    | .04614  | .03460   | .02307   | .01153   |
| 17         | .045          | .022222                              | .02963  | .4321    | .3951   | .3333   | .3209   | .1432    | .1452   | .08889    | .05926  | .04444   | .02963   | .01482   |
| 18         | .040          | .028125                              | .03750  | .5469    | .5000   | .4219   | .4062   | .1813    | .1837   | .1125     | .0750   | .0562    | .03750   | .01825   |
| 19         | .036          | .034722                              | .04630  | .6752    | .6173   | .5208   | .5015   | .2238    | .2268   | .1389     | .0926   | .06945   | .04630   | .02315   |
| 20         | .032          | .043945                              | .05859  | .8545    | .7813   | .6592   | .6347   | .2832    | .2871   | .1758     | .1171   | .0879    | .05859   | .02924   |
| 21         | .0285         | .055400                              | .07387  | 1.077    | .9849   | .831    | .8002   | .3570    | .3619   | .2216     | .1477   | .1108    | .07387   | .03693   |
| 22         | .0253         | .07030                               | .09374  | 1.367    | 1.250   | 1.055   | 1.017   | .4531    | .4590   | .2812     | .1860   | .1406    | .09374   | .04687   |
| 23         | .0226         | .08810                               | .1175   | 1.713    | 1.566   | 1.322   | 1.272   | .5678    | .5756   | .3525     | .2350   | .1762    | .1175    | .05875   |
| 24         | .0201         | .11138                               | .1485   | 2.166    | 1.980   | 1.671   | 1.609   | .7178    | .7280   | .4455     | .2970   | .2227    | .1485    | .07425   |
| 25         | .0179         | .14044                               | .1873   | 2.731    | 2.497   | 2.107   | 2.029   | .9051    | .9176   | .5619     | .3746   | .2809    | .1873    | .09365   |
| 26         | .0159         | .1780                                | .2373   | 3.461    | 3.164   | 2.670   | 2.571   | 1.147    | 1.163   | .7119     | .4746   | .3554    | .2373    | .11865   |
| 27         | .0142         | .2232                                | .2976   | 4.339    | 3.967   | 3.348   | 3.228   | 1.438    | 1.458   | .8928     | .5952   | .4464    | .2976    | .14880   |
| 28         | .0126         | .2834                                | .3778   | 5.511    | 5.039   | 4.251   | 4.090   | 1.826    | 1.852   | 1.133     | .7556   | .5665    | .3778    | .18890   |
| 29         | .0113         | .3524                                | .4699   | 6.853    | 6.265   | 5.286   | 5.090   | 2.271    | 2.302   | 1.401     | .9398   | .7001    | .4669    | .23494   |
| 30         | .0100         | .4500                                | .6000   | 8.750    | 8.00    | 6.750   | 6.500   | 2.900    | 2.940   | 1.800     | 1.200   | .9000    | .6000    | .30000   |
| 31         | .0089         | .5681                                | .7576   | 11.047   | 10.10   | 8.523   | 8.206   | 3.662    | 3.710   | 2.273     | 1.515   | 1.1365   | .7576    | .37830   |
| 32         | .0080         | .7031                                | .9375   | 13.672   | 12.50   | 10.55   | 10.16   | 4.531    | 4.594   | 2.813     | 1.875   | 1.4065   | .9375    | .46875   |
| 33         | .0071         | .8927                                | 1.190   | 17.358   | 15.87   | 13.39   | 12.90   | 5.754    | 5.833   | 3.572     | 2.380   | 1.786    | 1.1905   | .59525   |
| 34         | .0063         | 1.1338                               | 1.511   | 22.046   | 20.16   | 17.00   | 16.37   | 7.305    | 7.408   | 4.534     | 3.022   | 2.267    | 1.5113   | .75565   |
| 35         | .0056         | 1.4349                               | 1.913   | 27.902   | 25.51   | 21.52   | 20.72   | 9.247    | 9.375   | 5.740     | 3.826   | 2.870    | 1.9132   | .9566    |
| 36         | .0050         | 1.8000                               | 2.400   | 35.000   | 32.00   | 27.00   | 26.00   | 11.60    | 11.76   | 7.200     | 4.800   | 3.600    | 2.400    | 1.2000   |
| 37         | .0045         | 2.2222                               | 2.963   | 43.210   | 39.51   | 33.33   | 32.09   | 14.32    | 14.52   | 8.889     | 5.926   | 4.444    | 2.963    | 1.4815   |
| 38         | .0040         | 2.8125                               | 3.750   | 54.688   | 50.00   | 42.19   | 40.62   | 18.13    | 18.37   | 11.25     | 7.500   | 5.625    | 3.750    | 1.8750   |
| 39         | .0035         | 3.6735                               | 4.898   | 71.429   | 65.31   | 55.10   | 53.06   | 23.67    | 24.00   | 14.69     | 9.796   | 7.345    | 4.898    | 2.4490   |
| 40         | .0031         | 4.6826                               | 6.243   | 91.051   | 83.25   | 70.24   | 67.63   | 30.18    | 30.59   | 18.72     | 12.49   | 9.360    | 6.240    | 3.1200   |
| —          | .00275        | 5.9504                               | 7.937   | 115.702  | 105.8   | 89.29   | 85.98   | 38.36    | 38.87   | 233.97    | 15.86   | 11.985   | 7.937    | 3.9635   |
| —          | .0025         | 7.2000                               | 9.600   | 140.000  | 128.0   | 108.0   | 104.00  | 46.40    | 47.04   | 28.80     | 19.20   | 14.400   | 9.60     | 4.800    |
| —          | .00225        | 8.8889                               | 11.85   | 172.840  | 158.0   | 133.4   | 128.5   | 57.31    | 58.07   | 35.58     | 23.70   | 17.790   | 11.86    | 5.930    |
| —          | .0020         | 11.2500                              | 15.00   | 218.750  | 200.0   | 168.8   | 162.5   | 72.50    | 73.50   | 45.00     | 30.00   | 22.500   | 15.00    | 7.500    |
| —          | .00175        | 14.6939                              | 19.59   | 285.714  | 261.3   | 220.6   | 212.4   | 94.69    | 96.00   | 58.83     | 39.18   | 29.915   | 19.61    | 9.805    |
| —          | .0015         | 20.0000                              | 26.66   | 388.889  | 355.6   | 300.0   | 288.9   | 128.9    | 130.66  | —         | 53.33   | —        | —        | —        |
| —          | .0014         | 22.9592                              | —       | 446.429  | 408.2   | 344.4   | 331.6   | 148.0    | 150.00  | —         | 61.22   | —        | —        | —        |
| —          | .0013         | 26.6272                              | —       | 517.752  | 473.4   | 399.6   | 384.6   | 171.6    | 174.00  | —         | 71.01   | —        | —        | —        |
| —          | .0012         | 31.2500                              | —       | 607.639  | 555.0   | 468.7   | 451.4   | 201.4    | 204.00  | —         | 83.33   | —        | —        | —        |
| —          | .0011         | 37.1901                              | —       | 723.140  | 661.2   | 557.8   | 537.2   | 239.7    | 243.00  | —         | 99.17   | —        | —        | —        |
| —          | .0010         | 45.0000                              | —       | 875.000  | 800.0   | 675.0   | 650.0   | 290.0    | 294.0   | —         | 120.0   | —        | —        | —        |
| —          | .0009         | 55.5556                              | —       | 1080.247 | 987.7   | 833.3   | 802.0   | —        | —       | —         | —       | —        | —        | —        |
| —          | .0008         | 70.3125                              | —       | 1367.188 | 1250.0  | 1054.6  | 1016.0  | —        | —       | —         | —       | —        | —        | —        |
| —          | .0007         | 91.8367                              | —       | 1785.714 | 1633.0  | 1377.5  | 1327.0  | —        | —       | —         | —       | —        | —        | —        |
| —          | .0006         | 125.0000                             | —       | 2430.556 | 2222.0  | 1875.0  | 1806.0  | —        | —       | —         | —       | —        | —        | —        |
| —          | .0005         | 180.0000                             | —       | 3500.000 | 3200.0  | 2700.0  | 2600.0  | —        | —       | —         | —       | —        | —        | —        |

\*Using 45 OHMS/CMF