

WGCC.tex

10 February 2026
13:42

Contents

| | | |
|----------|--|----------|
| 1 | Wire Gauge Comparison Chart <i>wgcc</i> | 2 |
| 1.1 | Wire Gauge Comparison Chart | 2 |

List of Tables

| | | |
|---|---|----|
| 1 | Comprehensive Wire Gauge Conversion Charts <i>wgctt</i> | 11 |
|---|---|----|

List of Figures

1 Wire Gauge Comparison Chart wgcc

Source: [Dave Cushman's Web Site for wire gauge data](#)

Comprehensive Wire Gauge Conversion Charts

A compilation of conversion charts to enable easy correlation of gauges quoted in different systems and countries.

Keywords SWG Standard Wire Gauge BWG birmingham wire Gauge W & M Washburn & Moen B & S Brown & Sharpe No. Drill Dumber Drill Letter Drill Fraction Drill Dire Gauge Conversion Drill Size Conversion Detric Wire gGuge Detric Drill Conversion Wire Cross Sectional Area CSA of Electrical wires Sheet Metal Thickness

1.1 Wire Gauge Comparison Chart

There have been many times in my life when I have been confused by references in literature to wire gauges that may be common in some places, but are not universal. Some of these occasions have been very significant and could have led to serious problems and consequences. I have spent much of my life designing unusual custom built electrical and electronic control gear and errors due to wrong wire gauge could have caused fire or failure.

As long ago as 1961 I decided to produce a chart to convert 'Birmingham' wire gauge (BWG) to 'Standard' wire gauge (SWG), but I never completed it. In the early 1960s I spent some time as a transformer designer and had a battery of 'ready reckoners' at my disposal. In the early 1970s I was designing electrical equipment and came across 'American' wire gauge (AWG) for which I had a 'crib sheet' to convert to the more normal (and more useful) cross sectional area figures.

I have finally got round to attempting a 'once and for all' version that is posted on the web for anybody to peruse. I have made use of many reference sources, but the major ones are listed at the page bottom. I have also had help from various surfers that have pointed out errors, for which I am eternally grateful... A project of this nature can be rather intense and it is difficult to see some errors when you are so close to the mechanics of producing the page. In the May 2006 revision I have introduced different background colours to alternate rows, which helps the eye to track across the page, in order to help keep track of columns, the November 2006 revision has coloured the Birmingham or Stubs column yellow.

The list is based on decreasing diameters and cross sectional areas. This approach leads to a number of gaps in places and a few extra rows in the table, but the decreasing size of the conductors gives a better visual indication of the relation between the systems involved and their related current carrying capacity.

I have included drill sizes in this chart for two reasons... Occasionally it is important to drill a hole that is a good fit on a wire for soldering purposes or for clearance purposes. Some drill blanks are used as rods in some mechanical engineering designs. Number and Letter drills are the post 1959 rationalised ones.

The diameters stated are for solid single bare wires... If you need to know the finished diameter of an insulated wire you must consult the manufacturer concerned as all manufacturers differ on this factor. If in doubt measure the actual material with a micrometer or use a gauge plate. Some ideas for using the gauge plate to measure or at least estimate insulation thickness as well as instructions for use are given at the page bottom.

Whilst every attempt has been made to ensure the accuracy of the figures tabulated, they may not be perfect, if anyone has any information that conflicts with the chart, even if this is merely a difference in

the last decimal place, please contact me by Email using the button at the page bottom, and I will try to rectify or rationalise the situation.

There are other existing gauges and, if accurate information exists, I would be prepared to add them to this chart.

Where there are large numbers of decimal places quoted this does not imply extreme precision. I have left such figures intact rather than truncating them, please use common sense in deciding the significance or precision that you wish to work to. In general four significant figures is adequate for most industrial and engineering purposes.

The gauge sizes of hypodermic syringe needles is the same as 'Birmingham or Stubs' Wire Gauge.

SWG = Standard Wire Gauge

W & M = Washburn & Moen

AWG = American Wire Gauge or Brown & Sharpe (B & S)

BWG = Birmingham Wire Gauge or Stubs' Wire Gauge

| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill |
|----------------|--------------------|---|---------|-----------------|-------|-----------------|---------------------------|--------------------------------|
| 14.732 | 0.5800 | 170.45625 | | | | 6/0 | | |
| 13.1191 | 0.5165 | 135.1754 | | | | 5/0 | | |
| 12.70 | 0.5000 | 126.6767 | 0000000 | 5/0 | | | | 1/2 |
| 12.446 | 0.4900 | 121.660 | | | 7/0 | | | |
| 12.303 | 0.4844 | 118.9 | | | | | | 31/64 |
| 11.90 | 0.4688 | 111.36 | | | | | | 15/32 |
| 11.7856 | 0.464 | 109.092 | 000000 | | | | | |
| 11.7221 | 0.4615 | 107.92 | | | 6/0 | | | |
| 11.684 | 0.4600 | 107.219 | | | | 4/0 | | |
| 11.5316 | 0.454 | 104.452 | | 4/0 | | | | |
| 11.508 | 0.4531 | 104.03 | | | | | | 29/64 |
| 11.11 | 0.4375 | 96.99 | | | | | | 7/16 |
| 10.9728 | 0.432 | 94.5637 | 00000 | | | | | |
| 10.9347 | 0.4305 | 93.908 | | | 5/0 | | | |
| 10.795 | 0.425 | 91.524 | | 3/0 | | | | |
| 10.72 | 0.4219 | 90.19 | | | | | | 27/64 |
| 10.50 | 0.4134 | 86.590 | | | | | Z | |
| 10.40384 | 0.4096 | 85.01 | | | | 3/0 | | |
| 10.3175 | 0.4062 | 83.60 | | | | | | 13/32 |
| 10.30 | 0.4055 | 83.32 | | | | | Y | |
| 10.160 | 0.400 | 81.073 | 0000 | | | | | |
| 10.10 | 0.3976 | 80.12 | | | | | X | |

Continued on the next page.

| <i>Continued from the previous page.</i> | | | | | | | | |
|--|--------------------|---|-----|-----------------|-------|-----------------|---------------------------|--------------------------------|
| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill |
| 10.00252 | 0.3938 | 78.54 | | | 4/0 | | | |
| 9.92 | 0.3906 | 77.30 | | | | | | 25/64 |
| 9.652 | 0.380 | 73.168 | | 2/0 | | | V | 3/8 |
| 9.525 | 0.3750 | 71.26 | | | | | | |
| 9.4488 | 0.372 | 70.12 | 000 | | | | | |
| 9.30 | 0.3661 | 67.93 | | | | 2/0 | U | |
| 9.26592 | 0.3648 | 67.432 | | | | | | |
| 9.2075 | 0.3625 | 66.58 | | | 3/0 | | | |
| 9.129 | 0.3594 | 65.45 | | | | | | 23/64 |
| 9.10 | 0.3583 | 65.04 | | | | | T | |
| 8.8392 | 0.348 | 61.36 | 00 | | | | | |
| 8.80 | 0.3465 | 60.82 | | | | | S | |
| 8.73 | 0.3438 | 59.89 | | | | | | 11/32 |
| 8.636 | 0.340 | 58.58 | | 1/0 | | | | |
| 8.60 | 0.3386 | 58.09 | | | | | R | |
| 8.4074 | 0.3310 | 55.52 | | | 2/0 | | Q | |
| 8.400 | 0.3307 | 55.42 | | | | | | |
| 8.25246 | 0.3249 | 53.49 | | | | 1/0 | | |
| 8.23 | 0.3240 | 53.19 | 0 | | | | | |
| 8.20 | 0.3228 | 52.81 | | | | | P | 21/64 |
| 8.00 | 0.315 | 50.27 | | | | | O | |
| 7.9375 | 0.3125 | 49.483 | | | | | | 5/16 |
| 7.7851 | 0.3065 | 47.60 | | | 1/0 | | | |
| 7.70 | 0.3031 | 46.57 | | | | | N | |
| 7.62 | 0.3000 | 45.60 | 1 | 1 | | | | |
| 7.541 | 0.2969 | 44.666 | | | | | | 19/64 |
| 7.50 | 0.2953 | 44.18 | | | | | M | |
| 7.40 | 0.2913 | 43.00 | | | | | L | |
| 7.348 | 0.2893 | 42.41 | | | | 1 | | |
| 7.2136 | 0.284 | 40.87 | | 2 | | | | |
| 7.188 | 0.2830 | 40.58 | | | 1 | | | |
| 7.142 | 0.2812 | 40.07 | | | | | K | 9/32 |
| 7.01 | 0.276 | 38.59 | 2 | | | | | |
| 7.00 | 0.2756 | 38.48 | | | | | J | |
| 6.90 | 0.2717 | 37.39 | | | | | I | |

Continued on the next page.

| <i>Continued from the previous page.</i> | | | | | | | | | |
|--|--------------------|---|-----|-----------------|-------|-----------------|---------------------------|--------------------------------|--|
| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill | |
| 6.746 | 0.2656 | 35.74 | | | | | H | 17/64 | |
| 6.667 | 0.2625 | 34.92 | | | 2 | | G | | |
| 6.60 | 0.2598 | 34.21 | | | | | | | |
| 6.579 | 0.259 | 33.99 | | 3 | | | | | |
| 6.543 | 0.2576 | 33.62 | | | | 2 | | | |
| 6.50 | 0.2559 | 33.18 | | | | | F | | |
| 6.40 | 0.252 | 32.17 | 3 | | | | | | |
| 6.350 | 0.250 | 31.67 | | | | | E | 1/4 | |
| 6.20 | 0.2441 | 30.19 | | | | | D | | |
| 6.19 | 0.2437 | 30.09 | | | 3 | | | | |
| 6.10 | 0.2402 | 29.22 | | | | | C | | |
| 6.045 | 0.238 | 28.70 | | 4 | | | | | |
| 6.00 | 0.2362 | 28.27 | | | | | B | | |
| 5.94 | 0.2344 | 27.84 | | | | | A | 15/64 | |
| 5.89 | 0.232 | 27.25 | 4 | | | | | | |
| 5.827 | 0.2294 | 26.66 | | | | 3 | | | |
| 5.8 | 0.2283 | 26.42 | | | | | 1 | | |
| 5.723 | 0.2253 | 25.72 | | | 4 | | | | |
| 5.588 | 0.220 | 24.52 | | 5 | | | 2 | | |
| 5.55625 | 0.21875 | 24.246 | | | | | | 7/32 | |
| 5.38 | 0.212 | 22.73 | 5 | | | | 3 | | |
| 5.30 | 0.2087 | 22.06 | | | | | 4 | | |
| 5.258 | 0.2070 | 21.71 | | | 5 | | | | |
| 5.20 | 0.2047 | 21.237 | | | | | 5 or 6* | | |
| 5.189 | 0.2043 | 21.15 | | | | 4 | | | |
| 5.156 | 0.203 | 20.88 | | 6 | | | | 13/64 | |
| 5.10 | 0.2008 | 20.428 | | | | | 7 or 8* | | |
| 5.00 | 0.1968 | 19.635 | | | | | 9 | | |
| 4.90 | 0.1929 | 18.857 | | | | | 10 or 11* | | |
| 4.88 | 0.192 | 18.70 | 6 | | 6 | | | | |
| 4.80 | 0.189 | 18.095 | | | | | 11 | | |
| 4.7625 | 0.1875 | 17.81 | | | | | | 3/16 | |
| 4.70 | 0.185 | 17.349 | | | | | 13 | | |
| 4.62 | 0.1819 | 16.76385 | | | | 5 | 14 | | |
| 4.572 | 0.180 | 16.42 | | 7 | | | 15 | | |

Continued on the next page.

Continued from the previous page.

| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill |
|----------------|--------------------|---|-----|-----------------|-------|-----------------|---------------------------|--------------------------------|
| 4.496 | 0.1770 | 15.875 | | | 7 | | 16 | |
| 4.47 | 0.176 | 15.69 | 7 | | | | 17 | |
| 4.40 | 0.1732 | 15.20 | | | | | | 11/64 |
| 4.366 | 0.1719 | 14.97 | | | | | | |
| 4.30 | 0.1693 | 14.52 | | | | | 18 | |
| 4.19 | 0.165 | 13.795 | | 8 | | | 19 | |
| 4.115 | 0.162 | 13.298 | | | 8 | 6 | | |
| 4.10 | 0.1614 | 13.20 | | | | | 20 | |
| 4.06 | 0.160 | 12.95 | 8 | | | | | |
| 4.00 | 0.1575 | 12.566 | | | | | 21 or 22* | |
| 3.969 | 0.15625 | 12.370 | | | | | | 5/32 |
| 3.90 | 0.1535 | 11.946 | | | | | 23 or 24* | |
| 3.80 | 0.1496 | 11.34 | | | | | 25 | |
| 3.76 | 0.148 | 11.099 | | 9 | 9 | | | |
| 3.7338 | 0.147 | 10.949 | | | | | 26 | |
| 3.66 | 0.144 | 10.52 | 9 | | | 7 | 27 | |
| 3.57 | 0.1406 | 10.02 | | | | | 28 | 9/64 |
| 3.50 | 0.1378 | 9.62 | | | | | 29 | |
| 3.429 | 0.1350 | 9.23 | | | 10 | | | |
| 3.40 | 0.134 | 9.098 | | 10 | | | | |
| 3.30 | 0.1299 | 8.553 | | | | | 30 | |
| 3.25 | 0.128 | 8.296 | 10 | | | 8 | | |
| 3.175 | 0.125 | 7.917 | | | | | | 1/8 |
| 3.048 | 0.120 | 7.2966 | | 11 | 11 | | | |
| 3.00 | 0.1181 | 7.068 | | | | | 31 | |
| 2.95 | 0.116 | 6.835 | 11 | | | | 32 | |
| 2.90 | 0.1144 | 6.63 | | | | 9 | | |
| 2.85 | 0.1122 | 6.379 | | | | | 33 | |
| 2.80 | 0.1102 | 6.153 | | | | | 34 or 35* | |
| 2.769 | 0.109 | 6.020 | | 12 | | | | 7/64 |
| 2.70 | 0.1063 | 5.725 | | | | | 36 | |
| 2.68 | 0.1055 | 5.64 | | | 12 | | | |
| 2.64 | 0.104 | 5.474 | 12 | | | | 37 | |
| 2.60 | 0.1024 | 5.31 | | | | | 38 | |
| 2.586 | 0.1018 | 5.25 | | | | 10 | | |

Continued on the next page.

| <i>Continued from the previous page.</i> | | | | | | | | | |
|--|--------------------|---|-----|-----------------|-------|-----------------|---------------------------|--------------------------------|--|
| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill | |
| 2.55 | 0.1004 | 5.10 | | | | | 39 | | |
| 2.50 | 0.0984 | 4.90 | | | | | 40 | | |
| 2.45 | 0.0965 | 4.71 | | | | | 41 | | |
| 2.413 | 0.095 | 4.573 | | 13 | | | | | |
| 2.38 | 0.0938 | 4.458 | | | | | 42 | 3/32 | |
| 2.34 | 0.092 | 4.300 | 13 | | | | | | |
| 2.324 | 0.0915 | 4.242 | | | 13 | | | | |
| 2.30 | 0.0907 | 4.168 | | | | 11 | | | |
| 2.257 | 0.08885 | 4.00 | | | | | 43 | | |
| 2.20 | 0.0866 | 3.80 | | | | | 44 | | |
| 2.108 | 0.083 | 3.490 | | 14 | | | | | |
| 2.10 | 0.0827 | 3.46 | | | | | 45 | | |
| 2.05 | 0.0807 | 3.300 | | | | | 46 | | |
| 2.03 | 0.080 | 3.237 | 14 | | 14 | 12 | | | |
| 2.00 | 0.0787 | 3.14159 | | | | | 47 | | |
| 1.98 | 0.0781 | 3.090 | | | | | | 5/64 | |
| 1.95 | 0.0768 | 2.986 | | | | | 48 | | |
| 1.85 | 0.0728 | 2.688 | | | | | 49 | | |
| 1.83 | 0.072 | 2.630 | 15 | 15 | 15 | 13 | | | |
| 1.784 | 0.0702 | 2.50 | | | | | 50 | | |
| 1.70 | 0.0669 | 2.269 | | | | | 51 | | |
| 1.651 | 0.065 | 2.14 | | 16 | | | | | |
| 1.63 | 0.064 | 2.086 | 16 | | | 14 | | | |
| 1.60 | 0.063 | 2.011 | | | | | 52 | | |
| 1.5875 | 0.0625 | 1.98 | | | 16 | | | 1/16 | |
| 1.50 | 0.059 | 1.767 | | | | | 53 | | |
| 1.473 | 0.058 | 1.70 | | 17 | | | | | |
| 1.448 | 0.0570 | 1.646 | | | | 15 | | | |
| 1.42 | 0.056 | 1.584 | 17 | | | | | | |
| 1.40 | 0.055 | 1.539 | | | | | 54 | | |
| 1.382 | 0.0544 | 1.50 | | | 17 | | | | |
| 1.30 | 0.0512 | 1.327 | | | | | 55 | | |
| 1.290 | 0.0508 | 1.30 | | | | 16 | | | |
| 1.2446 | 0.049 | 1.2166 | | 18 | | | | | |
| 1.22 | 0.048 | 1.169 | 18 | | | | | | |

Continued on the next page.

Continued from the previous page.

| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill |
|----------------------------|-----------------------------|---|----------|-----------------|----------|-----------------|---------------------------|--------------------------------|
| 1.2065 1.181 1.148 | 0.0475 0.0465 0.0452 | 1.143 1.0956 1.035 | | | 18 | | 56 | 3/64 |
| 1.128 1.10 1.067 | 0.0444 0.0433 0.042 | 1.00 0.950 0.8938 | | 19 | | 17 | 57 58 | |
| 1.041 1.02 1.000 | 0.041 0.040 0.0394 | 0.852 0.8171 0.787 | 19 | | 19 | 18 | 59 60 61 | |
| 0.98 0.95 0.9144 | 0.0386 0.0374 0.036 | 0.754 0.709 0.6567 | 20 | | | 19 | 62 63 64 | |
| 0.889 0.8839 0.850 | 0.035 0.0348 0.0335 | 0.6207 0.614 0.569 | | 20 | | 20 | 65 66 | |
| 0.813 0.810 0.79 | 0.032 0.0319 0.0312 | 0.519 0.5156 0.490 | 21 | 21 | | 21 20 | 67 68 | 1/32 |
| 0.75 0.71112 0.660 | 0.0295 0.028 0.026 | 0.442 0.3973 0.3425 | 22 | 22 | 22 23 | 21 | 69 70 71 | |
| 0.635 0.610 0.579 | 0.025 0.024 0.0228 | 0.3167 0.2922 0.2634 | 23 | 23 | | 22 24 | 72 73 74 | |
| 0.5715 0.5588 0.52 | 0.0225 0.022 0.0205 | 0.2565 0.2453 0.21237 | 24 | 24 | | 23 | 75 | |
| 0.508 0.4572 0.45466 | 0.020 0.018 0.0179 | 0.2027 0.16417 0.162354 | 25 26 | 25 26 | 25 26 | 24 25 | 76 | |
| 0.450 0.44168 0.439 | 0.0177 0.01739 0.0173 | 0.1590 0.1532 0.152 | | | | 25.25 27 | 77 | |
| 0.42906 0.417 | 0.01689 0.0164 | 0.14458 0.1366 | 27 | | 28 | 25.5 25.75 | | |

Continued on the next page.

| <i>Continued from the previous page.</i> | | | | | | | | |
|--|--------------------|---|-----|-----------------|-------|-----------------|---------------------------|--------------------------------|
| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill |
| 0.406 | 0.016 | 0.1297 | | 27 | | | | |
| 0.40386 | 0.0159 | 0.1281 | | | | 26 | 78 | 1/64 |
| 0.3988 | 0.0157 | 0.1249 | | | | | | |
| 0.396 | 0.0156 | 0.1232 | | | | | | |
| 0.39332 | 0.01549 | 0.12150 | | | | 26.25 | | |
| 0.38209 | 0.01504 | 0.11466 | | | | 26.5 | | |
| 0.378 | 0.0149 | 0.111 | | | 29 | | 79 | |
| 0.3759 | 0.0148 | 0.1109 | 28 | | | | | |
| 0.37117 | 0.01461 | 0.10820 | | | | 26.75 | | |
| 0.36068 | 0.0142 | 0.10215 | | | | 27 | | |
| 0.3569 | 0.01405 | 0.1000 | | 28 | 30 | | | |
| 0.35027 | 0.01379 | 0.09636 | | | | 27.25 | | |
| 0.345 | 0.0136 | 0.0935 | 29 | | | | 80 | |
| 0.34026 | 0.01340 | 0.09093 | | | | 27.5 | | |
| 0.330 | 0.013 | 0.0856 | | 29 | 31 | 27.75 | | |
| 0.325 | 0.0128 | 0.0830 | | | 32 | | | |
| 0.3200 | 0.0126 | 0.0805 | | | | 28 | | |
| 0.3150 | 0.0124 | 0.07791 | 30 | | | | | |
| 0.31192 | 0.01228 | 0.07641 | | | | 28.25 | | |
| 0.3048 | 0.0120 | 0.073 | | 30 | | | | |
| 0.30301 | 0.01193 | 0.07211 | | | | 28.5 | | |
| 0.2998 | 0.0118 | 0.07055 | | | 33 | | | |
| 0.295 | 0.0116 | 0.06835 | 31 | | | 28.75 | | |
| 0.2870 | 0.0113 | 0.064696 | | | | 29 | | |
| 0.27777 | 0.01094 | 0.060598 | | | | 29.25 | | |
| 0.2743 | 0.0108 | 0.05910 | 32 | | | | | |
| 0.26984 | 0.01062 | 0.05719 | | | | 29.5 | | |
| 0.2641 | 0.0104 | 0.05480 | | | 34 | | | |
| 0.26213 | 0.01032 | 0.053966 | | | | 29.75 | | |
| 0.254 | 0.0100 | 0.05067 | 33 | 31 | | 30 | | |
| 0.24736 | 0.00974 | 0.04805 | | | | 30.25 | | |
| 0.2413 | 0.0095 | 0.04573 | | | 35 | | | |
| 0.24030 | 0.00946 | 0.45352 | | | | 30.5 | | |
| 0.2337 | 0.0092 | 0.04289 | 34 | | | 30.75 | | |
| 0.2260 | 0.0089 | 0.0401 | | 32 | 36 | 31 | | |

Continued on the next page.

| <i>Continued from the previous page.</i> | | | | | | | | |
|--|------------------------------|---|-----|-----------------|----------|----------------------|---------------------------|--------------------------------|
| Diameter mm | Diameter Inches | Cross Sec- tional Area <i>mm</i> ² | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill |
| 0.22028 0.213 | 0.00867 0.0084 | 0.0381 0.03563 | 35 | | 37 | 31.25 31.5 | | |
| 0.20788 0.2032 0.200 | 0.00818 0.0080 0.0079 | 0.03394 0.03243 0.03162 | | 33 | 38 | 31.75 32 | | |
| 0.19617 0.1930 0.19056 | 0.00772 0.0076 0.00750 | 0.03022 0.02927 0.02852 | 36 | | 39 | 32.25 32.5 | | |
| 0.18512 0.1803 0.1778 | 0.00729 0.0071 0.0070 | 0.0269 0.02554 0.0248 | | 34 | 40 | 32.75 33 | | |
| 0.17469 0.173 0.16970 | 0.00688 0.0068 0.00668 | 0.02397 0.0235 0.0226 | 37 | | | 33.25 33.5 | | |
| 0.1676 0.16485 0.1600 | 0.0066 0.00649 0.0063 | 0.02207 0.02134 0.020 | | | 41 42 | 33.75 34 | | |
| 0.15557 0.1524 0.15112 | 0.00612 0.0060 0.00595 | 0.01900 0.018241 0.01794 | 38 | | 43 | 34.25 34.5 | | |
| 0.1473 0.142 0.13854 | 0.0058 0.0056 0.00545 | 0.0170 0.01589 0.01507 | | | 44 45 | 34.75 35 35.25 | | |
| 0.13458 0.132 0.13074 | 0.00530 0.0052 0.00515 | 0.01422 0.013685 0.013425 | 39 | | 46 | 35.5 35.75 | | |
| 0.127 0.1219 0.11985 | 0.0050 0.0048 0.00472 | 0.0127 0.011675 0.01128 | 40 | 35 | 47 48 | 36 36.5 | | |
| 0.1168 0.1143 0.112 | 0.0046 0.0045 0.0044 | 0.01072 0.01026 0.00985 | 41 | | 49 50 | 37 | | |
| 0.10673 0.102 0.09504 | 0.00420 0.0040 0.00374 | 0.00895 0.00817 0.00709 | 42 | 36 | | 37.5 38 38.5 | | |
| <i>Continued on the next page.</i> | | | | | | | | |

Continued from the previous page.

| Diameter mm | Diameter Inches | Cross Sec- tional Area mm^2 | SWG | BWG or Stubs | W & M | AWG or B & S | No. or Letter Drill | Inch Frac- tion Drill |
|----------------|--------------------|-------------------------------------|-----|-----------------|-------|-----------------|---------------------------|--------------------------------|
| 0.091 | 0.0036 | 0.00650 | 43 | | | | | |
| 0.0889 | 0.0035 | 0.006207 | | | | 39 | | |
| 0.08464 | 0.00333 | 0.005626 | | | | 39.5 | | |
| 0.081 | 0.0032 | 0.005153 | 44 | | | | | |
| 0.07874 | 0.0031 | 0.004869 | | | | 40 | | |
| 0.071 | 0.0028 | 0.003959 | 45 | | | 41 | | |
| 0.0636 | 0.0025 | 0.003167 | | | | 42 | | |
| 0.061 | 0.0024 | 0.002922 | 46 | | | | | |
| 0.0564 | 0.00222 | 0.0025 | | | | 43 | | |
| 0.051 | 0.0020 | 0.00204 | 47 | | | 44 | | |
| 0.0447 | 0.00176 | 0.00157 | | | | 45 | | |
| 0.041 | 0.0016 | 0.00132 | 48 | | | | | |
| 0.039878 | 0.00157 | 0.001249 | | | | 46 | | |
| 0.03556 | 0.00140 | 0.000993 | | | | 47 | | |
| 0.0315 | 0.00124 | 0.000779 | | | | 48 | | |
| 0.030 | 0.0012 | 0.000707 | 49 | | | | | |
| 0.282 | 0.00111 | 0.000624 | | | | 49 | | |
| 0.025 | 0.0010 | 0.000491 | 50 | | | 50 | | |
| 0.022 | 0.00088 | 0.000392 | | | | 51 | | |
| 0.0198 | 0.00078 | 0.000308 | | | | 52 | | |
| 0.0178 | 0.00070 | 0.000248 | | | | 53 | | |
| 0.0157 | 0.00062 | 0.000195 | | | | 54 | | |
| 0.014 | 0.00055 | 0.000153 | | | | 55 | | |
| 0.0125 | 0.00049 | 0.000122 | | | | 56 | | |

Table 1: Comprehensive Wire Gauge Conversion Charts wgcc

References

Number drills B.S. 328 part 1 (after 1959) from... Kemp's Engineering Year Book
 SWG figures from... English Weights and Measures
 AWG partly from... NEMA MW 1000: Dimensional Standards
 AWG partly from... Reade Advanced Materials
 Some drill information... Zeus Precision Charts Ltd.
 Minor contributions from... Newnes Radio Encyclopaedia, Kanthal Palm Coast (fractional
 AWGs)
 2006, AWG information from... <http://www.tfcbooks.com/referenc/wiresize.htm> tfcbooks.com

8 AWG is 0.0004" thicker than 10 SWG
 9 W& M is 0.0003" thicker than 9 BWG
 11 W& M is 0.0005" thicker than 11 BWG
 12 AWG is 0.0008" thicker than 14 SWG

18 AWG is 0.0003" thicker than 19 SWG
 19 AWG is 0.0002" thinner than 20 SWG

Differences of 0.0001" have generally been ignored as the discrepancy is likely to fall within normal manufacturing tolerances. Thanks to Loren Koehler for several useful corrections.

*... This is an anomaly caused by the 1959 Metrication revision. Circular mils... There was a system in use many years ago, that is still apparently used in USA, I have been asked to include it in the chart, but rather than clutter what is already there with a minority system, I will explain how the property is derived.

The circular mil is an old unit of cross sectional area that was used when denoting the cross-sectional size of an electrical conductor or cable. The 'mil' is an old slang term denoting one thousandth part of an inch (more commonly denoted as 'thou'). The circular mil is the equivalent area of a circle whose diameter is 0.001" (10^{-3} inch).

This can also be expressed as the diameter in thousandths of an inch raised to the power 2 and may or may not be rounded to the nearest ten.

It should be noted that the circular mil is 0.7854 of a square mil.

Using the gauge plate... It is the parallel sided slots that are used to make the measurement, whether you are measuring round wire or sheet metal. The enlarged hole at the bottom of the slot is there so that you can pass a wire through the gap into the enlarged space. The wire should exhibit a 'light dragging fit' in the slot itself (where I have indicated in red) and this drag should disappear as the wire enters the hole. This can sometimes be useful if you wish to find out the thickness of enamel on a wire of known bare diameter... Find the slot that the wire fits and then look up the difference in the tabulated chart.

Written... 19-26 April 2002

Completed... 26 May 2002

Correction (0.3569)... 01 October 2002

New Domain 12 April 2004

Upgraded With Revisions to AWG 5, 25, 27, 29, 32, 33, 37, 39, 40, 42, 46... 07 May 2006

Correction to 33 G W& M CSA... 27 October 2006

Several Corrections... 29 November 2006

Index

American, 2
American Wire Gauge, 3
AWG, 2–12

B & S, 2–11
B.S. 328 part 1, 11
Birmingham, 2, 3
Birmingham Wire Gauge, 3
birmingham wire Gauge, 2
Brown & Sharpe, 2, 3
BWG, 2, 3, 11
BWG or Stubs, 3–11

CSA of Electrical wires, 2

Detric Drill Conversion, 2
Detric Wire gGuge, 2
Dire Gauge Conversion, 2
Drill Size Conversion, 2
Dumber Drill, 2

English Weights and Measures, 11

Fraction Drill, 2

Kanthal Palm Coast, 11
Kemp's Engineering Year Book, 11

Letter Drill, 2

NEMA MW 1000: Dimensional Standards, 11
Newnes Radio Encyclopaedia, 11
No. Drill, 2

Reade Advanced Materials, 11

Sheet Metal Thickness, 2
Standard, 2
Standard Wire Gauge, 2, 3
Stubs, 2, 3
Stubs' Wire Gauge, 3
SWG, 2–12

W & M, 2–11
W& M, 11
Washburn & Moen, 2, 3
Wire Cross Sectional Area, 2

Zeus Precision Charts Ltd., 11