

DIAMETERS - TOLERANCES - AREA - WEIGHT & RESISTANCE OF ENAMELLED ROUND COPPER WINDING WIRES - SWG SIZES (BASIS : IS 13730-0-1)

| Nominal Conductor diameter | | Conductor tolerance (mm) | Conductor Diameters | | Nominal conductor area (mm ²) | Conductor weight for 1000 m length (KG) | Conductor Resistance at 20°C for 1 meter (ohms) | | |
|----------------------------|-----|--------------------------|---------------------|----------|---|---|---|---------|---------|
| (mm) | SWG | | Min. (mm) | Max (mm) | | | Nominal | Minimum | Maximum |
| 0.04 | | - | - | - | 0.00126 | 0.011 | 13.6 | 12.28 | 14.92 |
| 0.041 | 48 | - | - | - | 0.00132 | 0.012 | 2.95 | 14.2062 | 11.6939 |
| 0.045 | | - | - | - | 0.00159 | 0.014 | 10.75 | 9.705 | 11.79 |
| 0.05 | | - | - | - | 0.00196 | 0.019 | 8.706 | 7.922 | 9.489 |
| 0.051 | 47 | - | - | - | 0.00204 | 0.018 | 8.3794 | 9.1335 | 7.6253 |
| 0.056 | | - | - | - | 0.00246 | 0.022 | 6.94 | 6.316 | 7.565 |
| 0.061 | 46 | - | - | - | 0.00292 | 0.026 | 5.8541 | 6.3809 | 5.3272 |
| 0.063 | | - | - | - | 0.00312 | 0.028 | 5.484 | 5.045 | 5.922 |
| 0.071 | | 0.003 | 0.068 | 0.074 | 0.00396 | 0.035 | 4.318 | 3.941 | 4.747 |
| 0.071 | 45 | 0.003 | 0.068 | 0.074 | 0.00396 | 0.035 | 4.3167 | 4.7475 | 3.9408 |
| 0.08 | | 0.003 | 0.077 | 0.083 | 0.00503 | 0.044 | 3.401 | 3.133 | 3.703 |
| 0.081 | 44 | 0.003 | 0.078 | 0.084 | 0.00515 | 0.046 | 3.3192 | 3.6062 | 3.058 |
| 0.09 | | 0.003 | 0.087 | 0.093 | 0.00636 | 0.057 | 2.687 | 2.495 | 2.9 |
| 0.091 | 43 | 0.003 | 0.088 | 0.094 | 0.0065 | 0.058 | 2.6298 | 2.8348 | 2.4423 |
| 0.1 | | 0.003 | 0.097 | 0.103 | 0.00785 | 0.07 | 2.176 | 2.034 | 2.333 |
| 0.102 | 42 | 0.003 | 0.099 | 0.105 | 0.00817 | 0.073 | 2.0923 | 2.2398 | 1.9574 |
| 0.112 | | 0.003 | 0.109 | 0.115 | 0.00985 | 0.088 | 1.735 | 1.632 | 1.848 |
| 0.112 | 41 | 0.003 | 0.109 | 0.115 | 0.00985 | 0.088 | 1.7354 | 1.8477 | 1.6318 |
| 0.122 | 40 | 0.003 | 0.119 | 0.125 | 0.01169 | 0.104 | 1.4623 | 1.5502 | 1.3811 |
| 0.125 | | 0.003 | 0.122 | 0.128 | 0.01227 | 0.109 | 1.393 | 1.317 | 1.475 |
| 0.132 | 39 | 0.003 | 0.129 | 0.135 | 0.01368 | 0.122 | 1.2496 | 1.3192 | 1.1841 |
| 0.14 | | 0.003 | 0.137 | 0.143 | 0.01539 | 0.136 | 1.11 | 1.055 | 1.17 |
| 0.152 | 38 | 0.003 | 0.149 | 0.155 | 0.01815 | 0.161 | 0.9418 | 0.9888 | 0.8982 |
| 0.16 | | 0.003 | 0.157 | 0.163 | 0.02011 | 0.179 | 0.8502 | 0.8122 | 0.8906 |
| 0.173 | 37 | 0.003 | 0.17 | 0.176 | 0.02351 | 0.209 | 0.7271 | 0.7596 | 0.6967 |
| 0.18 | | 0.003 | 0.177 | 0.183 | 0.02544 | 0.226 | 0.6718 | 0.6444 | 0.7007 |
| 0.193 | 36 | 0.003 | 0.19 | 0.196 | 0.02926 | 0.26 | 0.5842 | 0.6081 | 0.5618 |
| 0.2 | | 0.003 | 0.197 | 0.203 | 0.03142 | 0.279 | 0.5441 | 0.5237 | 0.5657 |
| 0.213 | 35 | 0.003 | 0.21 | 0.216 | 0.03563 | 0.317 | 0.4798 | 0.4978 | 0.4625 |
| 0.224 | | 0.003 | 0.221 | 0.227 | 0.03941 | 0.35 | 0.4338 | 0.4188 | 0.4495 |
| 0.234 | 34 | 0.004 | 0.23 | 0.238 | 0.4301 | 0.382 | 0.3974 | 0.4149 | 0.3809 |
| 0.25 | | 0.004 | 0.246 | 0.254 | 0.04909 | 0.436 | 0.3482 | 0.3345 | 0.3628 |
| 0.254 | 33 | 0.004 | 0.25 | 0.258 | 0.05067 | 0.45 | 0.3374 | 0.3512 | 0.3242 |
| 0.274 | 32 | 0.004 | 0.27 | 0.278 | 0.05896 | 0.524 | 0.2899 | 0.3011 | 0.2792 |
| 0.28 | | 0.004 | 0.276 | 0.284 | 0.06158 | 0.547 | 0.2776 | 0.2676 | 0.2882 |
| 0.295 | 31 | 0.004 | 0.291 | 0.299 | 0.06835 | 0.608 | 0.2501 | 0.2592 | 0.2414 |
| 0.315 | | 0.004 | 0.311 | 0.319 | 0.07793 | 0.693 | 0.2193 | 0.2121 | 0.227 |
| 0.315 | 30 | 0.004 | 0.311 | 0.319 | 0.07793 | 0.693 | 0.2193 | 0.2269 | 0.2121 |
| 0.345 | 29 | 0.004 | 0.341 | 0.349 | 0.09348 | 0.831 | 0.1829 | 0.1888 | 0.1772 |
| 0.355 | | 0.004 | 0.351 | 0.359 | 0.09897 | 0.88 | 0.1727 | 0.1674 | 0.1782 |
| 0.376 | 28 | 0.005 | 0.371 | 0.381 | 0.111 | 0.987 | 0.1539 | 0.1595 | 0.1487 |
| 0.4 | | 0.005 | 0.395 | 0.405 | 0.12566 | 1.117 | 0.136 | 0.1316 | 0.1407 |

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|--|-----|---------------------|-----------|-------|------------------------|------------------------------------|---|---------|---------|
| Nominal Conductor diameter | | Conductor tolerance | Conductor | | Nominal conductor area | Conductor weight for 1000 m length | Conductor Resistance at 20°C for 1 meter (ohms) | | |
| | | | Min. Max. | Max | | | Nominal | Minimum | Maximum |
| (mm) | SWG | (mm) | (mm) | (mm) | (mm) | KG | | | |
| 0.417 | 27 | 0.005 | 0.412 | 0.422 | 0.1366 | 1.214 | 0.1252 | 0.1293 | 0.1212 |
| 0.45 | | 0.005 | 0.445 | 0.455 | 0.15904 | 1.414 | 0.1075 | 0.1042 | 0.11 |
| 0.457 | 26 | 0.005 | 0.452 | 0.462 | 0.164 | 1.458 | 0.1042 | 0.1075 | 0.1011 |
| 0.5 | | 0.005 | 0.495 | 0.505 | 0.19635 | 1.746 | 0.0871 | 0.0846 | 0.0896 |
| 0.508 | 25 | 0.006 | 0.502 | 0.514 | 0.2027 | 1.802 | 0.08434 | 0.08711 | 0.08168 |
| 0.559 | 24 | 0.006 | 0.553 | 0.565 | 0.2454 | 2.182 | 0.06965 | 0.07178 | 0.0676 |
| 0.56 | | 0.006 | 0.554 | 0.566 | 0.2463 | 2.19 | 0.0694 | 0.0674 | 0.0715 |
| 0.61 | 23 | 0.006 | 0.504 | 0.616 | 0.2923 | 2.598 | 0.05848 | 0.06017 | 0.05687 |
| 0.63 | | 0.006 | 0.624 | 0.636 | 0.31172 | 2.771 | 0.05484 | 0.0534 | 0.0564 |
| 0.71 | | 0.007 | 0.703 | 0.717 | 0.3959 | 3.52 | 0.04318 | 0.04198 | 0.0444 |
| 0.711 | 22 | 0.008 | 0.703 | 0.719 | 0.397 | 3.53 | 0.04305 | 0.04442 | 0.04175 |
| 0.8 | | 0.008 | 0.792 | 0.808 | 0.50265 | 4.469 | 0.03401 | 0.03305 | 0.035 |
| 0.813 | 21 | 0.009 | 0.804 | 0.822 | 0.5191 | 4.615 | 0.03293 | 0.03293 | 0.03194 |
| 0.9 | | 0.009 | 0.891 | 0.909 | 0.63617 | 5.656 | 0.02687 | 0.02612 | 0.02765 |
| 0.914 | 20 | 0.01 | 0.904 | 0.924 | 0.6561 | 5.833 | 0.02605 | 0.02688 | 0.02528 |
| 1 | | 0.01 | 0.99 | 1.01 | 0.78539 | 6.982 | 0.02176 | 0.02116 | 0.0224 |
| 1.016 | 19 | 0.011 | 1.005 | 1.027 | 0.8107 | 7.207 | 0.02108 | - | - |
| 1.12 | | 0.011 | 1.109 | 1.131 | 0.9852 | 8.759 | 0.01735 | - | - |
| 1.219 | 18 | 0.013 | 1.206 | 1.232 | 1.1671 | 10.375 | 0.01465 | - | - |
| 1.25 | | 0.013 | 1.237 | 1.263 | 1.22718 | 10.91 | 0.01393 | - | - |
| 1.4 | | 0.014 | 1.386 | 1.414 | 1.53938 | 13.685 | 0.0111 | - | - |
| 1.422 | 17 | 0.015 | 1.407 | 1.437 | 1.5881 | 14.119 | 0.01076 | - | - |
| 1.6 | | 0.016 | 1.584 | 1.616 | 2.01062 | 17.874 | 0.0085 | - | - |
| 1.626 | 16 | 0.017 | 1.607 | 1.643 | 2.0765 | 18.46 | 0.00823 | - | - |
| 1.8 | | 0.018 | 1.782 | 1.818 | 2.54469 | 22.622 | 0.00672 | - | - |
| 1.829 | 15 | 0.018 | 1.81 | 1.848 | 2.6274 | 23.357 | 0.00651 | - | - |
| 2 | | 0.02 | 1.98 | 2.02 | 3.14159 | 27.929 | 0.00544 | - | - |
| 2.032 | 14 | 0.021 | 2.011 | 2.053 | 3.2429 | 28.83 | 0.00527 | - | - |
| 2.24 | | 0.022 | 2.22 | 2.262 | 3.94081 | 35.034 | 0.00434 | - | - |
| 2.337 | 13 | 0.024 | 2.313 | 2.361 | 4.2895 | 38.134 | 0.00399 | - | - |
| 2.5 | | 0.025 | 2.475 | 2.525 | 4.90873 | 43.639 | 0.00348 | - | - |
| 2.642 | 12 | 0.027 | 2.615 | 2.669 | 5.4822 | 48.737 | 0.00312 | - | - |
| 2.8 | | 0.028 | 2.772 | 2.828 | 6.15752 | 54.74 | 0.00278 | - | - |
| 2.946 | 11 | 0.03 | 2.916 | 2.976 | 6.8164 | 60.598 | 0.00251 | - | - |
| 3.15 | | 0.032 | 3.118 | 3.182 | 7.79311 | 69.281 | 0.00219 | - | - |
| 3.55 | | 0.036 | 3.464 | 3.586 | 9.89798 | 87.993 | 0.00173 | - | - |
| 4 | | 0.04 | 3.96 | 4.04 | 12.5664 | 111.715 | 0.00136 | - | - |
| 4.5 | | 0.045 | 4.455 | 4.545 | 15.9043 | 141.389 | 0.00108 | - | - |
| 5 | | 0.05 | 4.95 | 5.05 | 19.6349 | 174.555 | 0.00087 | - | - |

Note : Nominal conductivity of copper = $1/58.5 \text{ ohm} \cdot \text{mm}^2 \cdot \text{m}^{-1}$