AWG to mm² Conversion Chart — Wire Sizes, Cross Sections and Current Ratings

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Conversion table from American Wire Gauge (AWG 24 to 4/0) and kcmil to metric mm² cross sections, with conductor diameters and indicative copper current ratings, plus the standard IEC cable sizes and how to substitute between the systems.

Conversion table

AWG | Ø (mm) | mm² (exact) | Nearest IEC size | Cu rating* (A) |
24 | 0.511 | 0.205 | 0.25 | 2 |
22 | 0.644 | 0.326 | 0.34 | 3 |
20 | 0.812 | 0.518 | 0.5 | 5 |
18 | 1.024 | 0.823 | 0.75 | 7 |
16 | 1.291 | 1.31 | 1.5 | 10 |
14 | 1.628 | 2.08 | 2.5 | 15 |
12 | 2.053 | 3.31 | 4 | 20 |
10 | 2.588 | 5.26 | 6 | 30 |
8 | 3.264 | 8.37 | 10 | 40 |
6 | 4.115 | 13.3 | 16 | 55 |
4 | 5.189 | 21.1 | 25 | 70 |
2 | 6.544 | 33.6 | 35 | 95 |
1 | 7.348 | 42.4 | 50 | 110 |
1/0 | 8.251 | 53.5 | 50 | 125 |
2/0 | 9.266 | 67.4 | 70 | 145 |
3/0 | 10.40 | 85.0 | 95 | 165 |
4/0 | 11.68 | 107 | 120 | 195 |
250 kcmil | 12.70 | 127 | 120 | 215 |
350 kcmil | 15.03 | 177 | 185 | 260 |
500 kcmil | 17.96 | 253 | 240 | 320 |

*Indicative 75 °C copper ratings for a single circuit in free air/conduit per NEC-style tables — the installation standard (NEC, IEC 60364-5-52) and derating factors govern any real circuit.

Substituting between systems

AWG steps are geometric: three gauge numbers double the cross section, six double the diameter. When replacing an AWG conductor with metric cable, round up to the next IEC size (10 AWG = 5.26 mm² ⁉ 6 mm²) so ampacity and voltage drop are never worse. Terminal and lug sizes follow the metric cross section — e.g. 35 mm² cable lugs crimp 2 AWG conductors. Fixed-installation cables by cross section are listed under Cables & Wiring, and box-terminal ranges for breakers state both systems, as on the Siemens 3VA box terminal (25–185 mm² / 4 AWG–350 kcmil).

Stranding note

An AWG number names the cross section regardless of stranding: 10 AWG solid and 10 AWG 19-strand have the same 5.26 mm². Class 5/6 flexible metric conductors need ferrules or the correct clamp-type terminals — solid-conductor torque values do not transfer to fine-strand wire.

Frequently asked questions
What is 10 AWG in mm²?10 AWG is 5.26 mm²; the standard metric substitute is 6 mm².What is 4/0 AWG in mm²?4/0 AWG (0000) is 107 mm²; the usual metric equivalent is 120 mm².Is 2.5 mm² the same as 14 AWG?Close: 14 AWG is 2.08 mm², so 2.5 mm² is the correct metric replacement (never substitute downwards to 1.5 mm²).How much current can 6 AWG carry? About 55 A at 75 °C in a typical single-circuit installation; the applicable installation code and derating factors decide the real limit.How do AWG sizes scale?Geometrically: minus three gauge numbers doubles the copper area, minus six doubles the diameter; sizes above 4/0 switch to kcmil (thousand circular mils).

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