

T11 Technical tables

T11: conductor resistances and strand structure (metric)



Conductor resistances and conductor stranding (metric)

Conductor resistances: from 0.5 mm² as per DIN EN 60228 (VDE 0295) for conductors made of soft-annealed copper and single and multi-core cables.

| Nominal cross-section in mm ² | Conductor resistances at 20 °C for 1 km in Ω (max. value) | | | |
|--|---|-------------|--------------------|-------------|
| | Made of wires with metal sheath | | Made of bare wires | |
| | Class 2 | Class 5 + 6 | Class 2 | Class 5 + 6 |
| 0.08 | | 250.0 | | 243.0 |
| 0.14 | | 142.0 | | 138.0 |
| 0.25 | | 82.0 | | 79.0 |
| 0.34 | | 59.0 | | 57.0 |
| 0.38 | | 52.8 | | 48.5 |
| 0.5 | 36.7 | 40.1 | 36.0 | 39.0 |
| 0.75 | 24.8 | 26.7 | 24.5 | 26.0 |
| 1 | 18.2 | 20.0 | 18.1 | 19.5 |
| 1.5 | 12.2 | 13.7 | 12.1 | 13.3 |
| 2.5 | 7.56 | 8.21 | 7.41 | 7.98 |
| 4 | 4.70 | 5.09 | 4.61 | 4.95 |
| 6 | 3.11 | 3.39 | 3.08 | 3.30 |
| 10 | 1.84 | 1.95 | 1.83 | 1.91 |
| 16 | 1.16 | 1.24 | 1.15 | 1.21 |
| 25 | 0.734 | 0.795 | 0.727 | 0.780 |
| 35 | 0.529 | 0.565 | 0.524 | 0.554 |
| 50 | 0.391 | 0.393 | 0.387 | 0.386 |
| 70 | 0.270 | 0.277 | 0.268 | 0.272 |
| 95 | 0.195 | 0.210 | 0.193 | 0.206 |
| 120 | 0.154 | 0.164 | 0.153 | 0.161 |
| 150 | 0.126 | 0.132 | 0.124 | 0.129 |
| 185 | 0.100 | 0.108 | 0.0991 | 0.106 |
| 240 | 0.0762 | 0.0817 | 0.0754 | 0.0801 |
| 300 | 0.0607 | 0.0654 | 0.0601 | 0.0641 |
| 400 | 0.0475 | | 0.0470 | |
| 500 | 0.0369 | | 0.0366 | |
| 630 | 0.0286 | | 0.0283 | |
| 800 | 0.0224 | | 0.0221 | |
| 1000 | 0.0177 | | 0.0176 | |

Example conductor stranding (metric)

| Cross-section in mm ² | Multi-wire conductor | Several-wire conductor | Fine-wire conductor | Extra-fine wire conductor | | | |
|----------------------------------|----------------------|------------------------|---------------------|---------------------------|--------------|---------------|---------------|
| 0.14 | | | | ~ 18 x 0.10 | ~ 18 x 0.1 | ~ 36 x 0.07 | ~ 72 x 0.05 |
| 0.25 | | | ~ 14 x 0.15 | ~ 32 x 0.10 | ~ 32 x 0.1 | ~ 65 x 0.07 | ~ 128 x 0.05 |
| 0.34 | | 7 x 0.25 | ~ 19 x 0.15 | ~ 42 x 0.10 | ~ 42 x 0.1 | ~ 88 x 0.07 | ~ 174 x 0.05 |
| 0.38 | | 7 x 0.27 | ~ 19 x 0.16 | ~ 19 x 0.16 | ~ 48 x 0.1 | ~ 100 x 0.07 | ~ 194 x 0.05 |
| 0.5 | 7 x 0.30 | 7 x 0.30 | ~ 16 x 0.20 | ~ 28 x 0.15 | ~ 64 x 0.1 | ~ 131 x 0.07 | ~ 256 x 0.05 |
| 0.75 | 7 x 0.37 | 7 x 0.37 | ~ 24 x 0.20 | ~ 42 x 0.15 | ~ 96 x 0.1 | ~ 195 x 0.07 | ~ 384 x 0.05 |
| 1.0 | 7 x 0.43 | 7 x 0.43 | ~ 32 x 0.20 | ~ 56 x 0.15 | ~ 128 x 0.1 | ~ 260 x 0.07 | ~ 512 x 0.05 |
| 1.5 | 7 x 0.52 | 7 x 0.52 | ~ 30 x 0.25 | ~ 84 x 0.15 | ~ 192 x 0.1 | ~ 392 x 0.07 | ~ 768 x 0.05 |
| 2.5 | 7 x 0.67 | ~ 19 x 0.41 | ~ 50 x 0.25 | ~ 140 x 0.15 | ~ 320 x 0.1 | ~ 651 x 0.07 | ~ 1280 x 0.05 |
| 4 | 7 x 0.85 | ~ 19 x 0.52 | ~ 56 x 0.30 | ~ 224 x 0.15 | ~ 512 x 0.1 | ~ 1040 x 0.07 | |
| 6 | 7 x 1.05 | ~ 19 x 0.64 | ~ 84 x 0.30 | ~ 192 x 0.20 | ~ 768 x 0.1 | ~ 1560 x 0.07 | |
| 10 | 7 x 1.35 | ~ 49 x 0.51 | ~ 80 x 0.40 | ~ 320 x 0.20 | ~ 1280 x 0.1 | ~ 2600 x 0.07 | |
| 16 | 7 x 1.70 | ~ 49 x 0.65 | ~ 128 x 0.40 | ~ 512 x 0.20 | ~ 2048 x 0.1 | | |
| 25 | 7 x 2.13 | ~ 84 x 0.62 | ~ 200 x 0.40 | ~ 800 x 0.20 | ~ 3200 x 0.1 | | |
| 35 | 7 x 2.52 | ~ 133 x 0.58 | ~ 280 x 0.40 | ~ 1120 x 0.20 | | | |
| 50 | ~ 19 x 1.83 | ~ 133 x 0.69 | ~ 400 x 0.40 | ~ 705 x 0.30 | | | |
| 70 | ~ 19 x 2.17 | ~ 189 x 0.69 | ~ 356 x 0.50 | ~ 990 x 0.30 | | | |
| 95 | ~ 19 x 2.52 | ~ 259 x 0.69 | ~ 485 x 0.50 | ~ 1340 x 0.30 | | | |
| 120 | ~ 37 x 2.03 | ~ 336 x 0.67 | ~ 614 x 0.50 | ~ 1690 x 0.30 | | | |
| 150 | ~ 37 x 2.27 | ~ 392 x 0.69 | ~ 765 x 0.50 | ~ 2123 x 0.30 | | | |
| 185 | ~ 37 x 2.52 | ~ 494 x 0.69 | ~ 944 x 0.50 | ~ 1470 x 0.40 | | | |
| 240 | ~ 37 x 2.87 | ~ 627 x 0.70 | ~ 1225 x 0.50 | ~ 1905 x 0.40 | | | |
| 300 | ~ 61 x 2.50 | ~ 790 x 0.70 | ~ 1530 x 0.50 | ~ 2385 x 0.40 | | | |
| 400 | ~ 61 x 2.89 | | ~ 2035 x 0.50 | | | | |
| 500 | ~ 61 x 3.23 | | ~ 1768 x 0.60 | | | | |
| 630 | ~ 91 x 2.97 | | ~ 2286 x 0.60 | | | | |

NOTE ON STANDARDS:

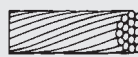
- For single-wire conductors... (class 1), please see DIN EN 60228 (VDE 0295), table 1
- For multi-wire conductors... (class 2), please see DIN EN 60228 (VDE 0295), table 2
- For fine-wire conductors... (class 5), please see DIN EN 60228 (VDE 0295), table 3
- For extra-fine wire conductors... (class 6), please see DIN EN 60228 (VDE 0295), table 4



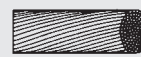
single-wire



multi-/several-wire



fine-wire



extra-fine wire