

### Conductor Resistances and Conductor Make-up (metric)

Conductor Resistances: for annealed- core cables  $\geq 0.5 \text{ mm}^2$  acc. to DIN EN  
copper-conductors in single- and multi- 60228 (VDE 0295).

Nominal cross-section in $\text{mm}^2$	Conductor resistance for 20 °C for 1 km in $\Omega$ (maximum value)			
	of metal coated copper wire		of bare copper wire	
	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
0.5	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	

## Examples of Conductor Make-up (metric)

Cross section in mm <sup>2</sup>	Multi-Wire Strands	Multi-Wire Strands	Fine-Wire Strands
0.14			
0.25			~ 14 x 0.15
0.34		7 x 0.25	~ 19 x 0.15
0.38		7 x 0.27	~ 12 x 0.20
0.5	7 x 0.30	7 x 0.30	~ 16 x 0.20
0.75	7 x 0.37	7 x 0.37	~ 24 x 0.20
1.0	7 x 0.43	7 x 0.43	~ 32 x 0.20
1.5	7 x 0.52	7 x 0.52	~ 30 x 0.25
2.5	7 x 0.67	~ 19 x 0.41	~ 50 x 0.25
4	7 x 0.85	~ 19 x 0.52	~ 56 x 0.30
6	7 x 1.05	~ 19 x 0.64	~ 84 x 0.30
10	7 x 1.35	~ 49 x 0.51	~ 80 x 0.40
16	7 x 1.70	~ 49 x 0.65	~ 128 x 0.40
25	7 x 2.13	~ 84 x 0.62	~ 200 x 0.40
35	7 x 2.52	~ 133 x 0.58	~ 280 x 0.40
50	~ 19 x 1.83	~ 133 x 0.69	~ 400 x 0.40
70	~ 19 x 2.17	~ 189 x 0.69	~ 356 x 0.50
95	~ 19 x 2.52	~ 259 x 0.69	~ 485 x 0.50
120	~ 37 x 2.03	~ 336 x 0.67	~ 614 x 0.50
150	~ 37 x 2.27	~ 392 x 0.69	~ 765 x 0.50
185	~ 37 x 2.52	~ 494 x 0.69	~ 944 x 0.50
240	~ 37 x 2.87	~ 627 x 0.70	~ 1225 x 0.50
300	~ 61 x 2.50	~ 790 x 0.70	~ 1530 x 0.50
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

Single-Wire Strand



Multi-Wire Strands



Fine-Wire Strands



## Normative references:

Single-Wire Conductor ... (Class 1), see DIN EN 60228 (VDE 0295), Table 1

Multi-Wire Conductor ... (Class 2), see DIN EN 60228 (VDE 0295), Table 2

Fine-Wire Conductor ... (Class 5), see DIN EN 60228 (VDE 0295), Table 3

## Examples of Conductor Make-up (metric)

Cross section in mm <sup>2</sup>	Super-Fine-Wire Strands			
0.14	~ 18 x 0.10	~ 18 x 0.1	~ 36 x 0.07	~ 72 x 0.05
0.25	~ 32 x 0.10	~ 32 x 0.1	~ 65 x 0.07	~ 128 x 0.05
0.34	~ 42 x 0.10	~ 42 x 0.1	~ 88 x 0.07	~ 174 x 0.05
0.38	~ 21 x 0.15	~ 48 x 0.1	~ 100 x 0.07	~ 194 x 0.05
0.5	~ 28 x 0.15	~ 64 x 0.1	~ 131 x 0.07	~ 256 x 0.05
0.75	~ 42 x 0.15	~ 96 x 0.1	~ 195 x 0.07	~ 384 x 0.05
1.0	~ 56 x 0.15	~ 128 x 0.1	~ 260 x 0.07	~ 512 x 0.05
1.5	~ 84 x 0.15	~ 192 x 0.1	~ 392 x 0.07	~ 768 x 0.05
2.5	~ 140 x 0.15	~ 320 x 0.1	~ 651 x 0.07	~ 1280 x 0.05
4	~ 224 x 0.15	~ 512 x 0.1	~ 1040 x 0.07	
6	~ 192 x 0.20	~ 768 x 0.1	~ 1560 x 0.07	
10	~ 320 x 0.20	~ 1280 x 0.1	~ 2600 x 0.07	
16	~ 512 x 0.20	~ 2048 x 0.1		
25	~ 800 x 0.20	~ 3200 x 0.1		
35	~ 1120 x 0.20			
50	~ 705 x 0.30			
70	~ 990 x 0.30			
95	~ 1340 x 0.30			
120	~ 1690 x 0.30			
150	~ 2123 x 0.30			
185	~ 1470 x 0.40			
240	~ 1905 x 0.40			
300	~ 2385 x 0.40			
400				
500				
630				

Single-Wire Strand



Super-Fine-Wire Strands



## Normative references:

Single-Wire Conductor ... (Class 1), see DIN EN 60228 (VDE 0295), Table 1

Super-Fine-Wire Conductor ... (Class 6), see DIN EN 60228 (VDE 0295), Table 4